Abstract Book

AIDS 2018

22ND INTERNATIONAL AIDS CONFERENCE
AMSTERDAM, NETHERLANDS
23-27 JULY 2018

BREAKING BARRIERS • BUILDING BRIDGES

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The Abstract Mentor Programme (AMP) was introduced at the 15th International AIDS Conference (AIDS 2004), with the objective to help young or less experienced researchers improve their abstracts before submitting them, in order to increase the chance of their work being presented at conferences. Over the years, the AMP has proven to increase the motivation of early career researchers, as well as the number of abstract submissions received from resource-limited countries.

This year, 202 mentors reviewed 309 draft abstracts submitted by 219 researchers.
195 of the reviewed abstracts were submitted to AIDS 2018 and the following were selected:

- 3 Oral Abstracts
- 1 Poster Discussion Session
- 63 Poster Exhibition

We would like to thank all volunteer abstract mentors, listed below, who supported early-career HIV researchers improve the quality of their abstracts.

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The The 22nd International AIDS Conference received more than 7,800 abstract submissions, which went through a blind, peer-reviewed process carried out by an international panel of reviewers who play a critical role in designing a strong scientific programme.

More than 950 specialists from around the world volunteered their time and expertise to serve as peer reviewers, helping to ensure that the abstracts presented were selected on the basis of rigorous review and were of the highest scientific quality.

We extend our special thanks to the large pool of abstract reviewers for the time they dedicated to the success of the conference:

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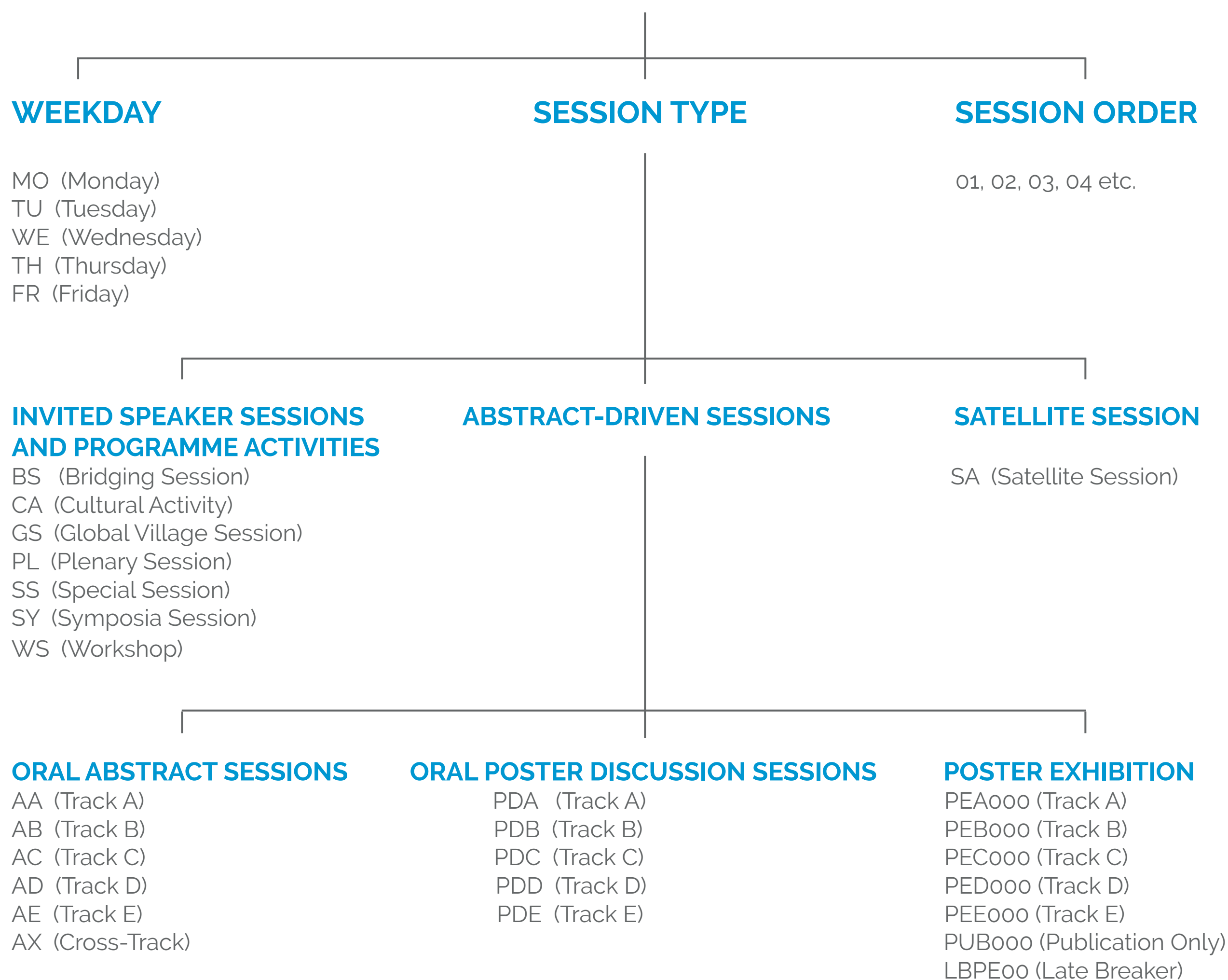
Example 3: **TUPEA001** = **TU** (poster presentation day) – **PE** (presentation type) – **A** (track) – **001** (abstract order)



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TUESDAY 24 JULY

Oral Abstract Sessions

TUAA01 From conception to delivery: The vaccine discovery pipeline

TUAA0101

Two-component self-assembling nanoparticle vaccines that present multiple HIV-1 envelope trimers

P. Brouwer[1], D. Ellis[2], A. Antanasijevic[3], A. Yasmeen[4], Z. Berndsen[3], T. Bijl[1], J. Burger[1], B. Nickerson[2], C. Cottrell[3], J. Allen[5], I. Bontjer[1], M. Crispin[5], D. Baker[2], A. Ward[3], J. Moore[4], P.-J. Klasse[4], N. King[2], R. Sanders[1]

[1]Academic Medical Center, Amsterdam, Netherlands, [2]University of Washington, Seattle, United States, [3]The Scripps Research Institute, San Diego, United States, [4]Weill Medical College of Cornell University, New York, United States, [5]University of Southampton, Biological Sciences, Southampton, United Kingdom

Background: The development of soluble native-like HIV-1 envelope trimers (SOSIP trimers) has enabled the induction of neutralizing antibodies against neutralization-resistant (Tier-2) primary HIV-1 strains in several animal models. However, these neutralizing antibody responses are relatively weak, short-lived, and narrow in specificity. Displaying antigens in a multivalent fashion on nanoparticles or virus-like particles is a well-established strategy to increase their immunogenicity. Here, we present the design and characterization of two-component protein nanoparticles displaying twenty SOSIP trimers.

Methods: Using computational protein structure prediction the trimeric component of a two-component self-assembling protein nanoparticle (I53-50NP) was redesigned to allow SOSIP trimer fusion. The resulting fusion proteins (SOSIP-I53-50A) were expressed in 293F cells and affinity purified with the trimer-specific antibody PGT145 to obtain native-like trimers. To obtain SOSIP-presenting I53-50NPs, fusion proteins where mixed in vitro with the other component of the two-component nanoparticle, I53-50B.

Results: The nanoparticles self-assemble with high efficiency into stable, monodisperse and well-ordered icosahedral particles as observed by, size-exclusion chromatography, negative-stain electron microscopy, cryo-EM and dynamic light scattering. The protruding SOSIP trimers maintain their antigenic integrity as observed by surface plasmon resonance and, in contrast to their soluble counterparts, induce strong activation of cognate B cells in vitro. Rabbits immunized with these nanoparticles induced significantly higher levels of neutralizing antibodies than the corresponding soluble SOSIP trimers (~50-fold higher median titer after one immunization) or SOSIP trimers presented on other nanoparticle platforms.

Conclusions: The design of the SOSIP-I53-50NP allows for selection of native-like trimers prior to nanoparticle assembly. This may provide a considerable advantage over particles that are assembled intracellularly (i.e. ferritin particles and VLPs) which may naturally present a significant population of non-native trimers. Two-component I53-50 self-assembling nanoparticles represent a versatile platform for vaccine strategies aimed at increasing and broadening neutralizing antibody responses against viral envelope proteins.

TUAA0102

A CD4-mimetic compound enhances vaccine efficacy against stringent immunodeficiency virus challenge

N. Madani[1], A. Princiotto[2], L. Mach[3], J. Richard[4], B. Hora[5], C. Zhao[6], T. Bradley[7], B. Melillo[8], A. Finzi[9], B. Haynes[10], A. Smith[8], S. Santra[11], J. Moss[12], M. Baum[12], J. Sodroski[2]

[1]Harvard Medical School/Dana-Farber Cancer Institut, Cancer Immunology and Virology, Newton, United States, [2]Dana-Farber Cancer Institute, Cancer Immunology and Virology, Boston, United States, [3]Beth Israel Deaconess Medical Center, Harvard Medical School, Center for Virology and Vaccine Research, Boston, United States, [4]Université de Montréal, Department of Microbiology, Infectiology and Immunology, Montreal, Canada, [5]Duke Human Vaccine Institute, Department of Medicine, Durham, United States, [6]Dana-Farber Cancer Institute, Cancer Immunology and VIrology, Boston, United States, [7]Duke University Medical Center, Dept of Medicine, Durham, United States, [8]University of Pensylvania, Chemistry, Philadelphia, United States, [9]Université de Montréal, 6Department of Microbiology, Infectiology and Immunology, Montreal, Canada, [10]Duke Human Vaccine Institute, Department of Immunology, Durham, United States, [11]Beth Israel Deaconess Medical Center, Boston, United States, [12]Oak Crest Institute of Science, Monrovia, United States

Background: Preventing sexual transmission of human immunodeficiency virus (HIV-1) is a global priority. HIV-1 envelope glycoproteins (Env) mediate virus entry through a series of conformational changes triggered by binding to the receptors, CD4 and CCR5/CXCR4. Broadly neutralizing antibodies that recognize conserved elements of the closed Env are potentially protective, but are elicited inefficiently during natural HIV-1 infection or by vaccination. Small-molecule CD4-mimetic compounds (CD4-mc) engage the CD4-binding pocket on the gp120 exterior Env, directly inactivate HIV-1, and induce Env epitopes that are highly sensitive to neutralization by vaccine-induced antibodies.

Methods: For cell culture studies, viruses containing primary HIV-1 Envs were incubated with the different concentrations of BNM-III-170, a CD4-mc. Virus neutralization by various antibodies or sera was tested in the presence or the absence of CD4-mc. Three groups of monkeys were used in the present study. The monkeys were boosted with human serum albumin (HSA) (Group 1) or HIV-1_{CH505} gp120 (Groups 2 and 3) either two weeks (Challenges 1 and 2) or four weeks (Challenge 3) before the SHIV-C5 challenge. Group 1 and 3 were also treated with 300 uM CD4-mc.

Results: Small-molecule CD4-mimetic compounds (CD4mc) bind the HIV-1 gp120 Env and promote conformational changes similar to those induced by CD4, exposing conserved Env elements to antibodies. Our results show that a CD4mc synergizes with antibodies elicited by monomeric HIV-1 gp120 to protect monkeys from multiple high-dose intrarectal challenges with a heterologous simian-human immunodeficiency virus (SHIV). The protective immune response persists for at least six months after vaccination.

Conclusions: CD4-mimetic compounds directly interrupt HIV-1 infection and dramatically enhance the neutralizing activity of antibodies that can be elicited in monkeys with currently available Env immunogens. CD4mc should increase the protective efficacy of any HIV-1 Env vaccine that elicits antibodies against CD4-induced conformations of Env. Based on these results, macaque-sized intravaginal rings for sustained-release topical delivery of CD4-mc are being developed and evaluated in vitro in preparation for pharmacokinetics and efficacy studies in a macaque model. Used as microbicides, CD4-mimetic compounds might increase the protective efficacy of HIV-1 vaccines. Our results set the stage for clinical studies in humans at risk of sexually acquired HIV-1 infection.

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TUAA0103

Oral MVA/protein HIV vaccination with a needle-free injector induces robust systemic and mucosal antibody responses in rhesus macaques

A. Jones[1], R. Das[2], L. Wyatt[3], C. LaBranche[4], X. Shen[5], G. Tomaras[5], D. Montefiori[5], B. Moss[3], J. Clements[6], D. Barouch[7], P. Kozlowski[8], R. Varadarajan[2], R.R. Amara[1]
[1]Emory University, Yerkes National Primate Research Center, Decatur, United States, [2]Indian Institue of Science, Bangalore, India, [3]Laboratory of Viral Diseases, NIAID, NIH, Bethesda, United States, [4]Duke University, Department of Surgery, Durham, United States, [5]Duke University, Durham, United States, [6]Tulane University School of Medicine, New Orleans, United States, [7]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, United States, [8]Louisiana State University Health Sciences, New Orleans, United States

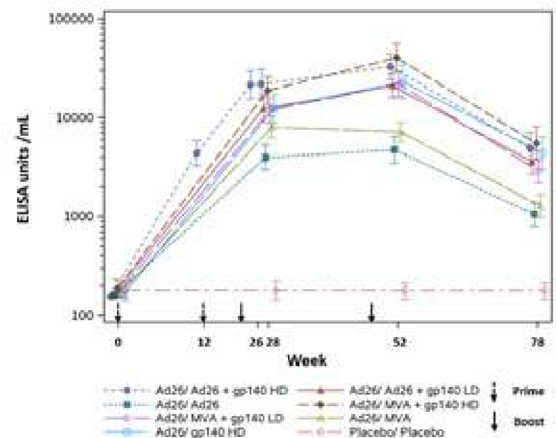
Background: In the immediate hours and days post mucosal transmission, HIV-1 is considered to be at a vulnerable state due to localized replication and low or unestablished viral reservoirs. Thus, HIV vaccines should induce a strong and long-lasting mucosal immune response and mucosal vaccination would be an ideal route to achieve this. Here we evaluate the immunogenicity and efficacy of oral vaccination and compare it with systemic vaccinations in rhesus macaques (RM).
Methods: For oral vaccination, we immunized a group of RM (n=5) via sublingual and buccal tissue (SL/B) routes using a modified needle-free injector. Animals were immunized twice with modified vaccinia Ankara (MVA) expressing HIV-1 Gag, Pol and envelope antigens, followed by two immunizations with a recombinant trimeric gp120 immunogen along with the mucosal adjuvant dmLT. A second group (n=6) received the immunizations via the conventional intradermal (MVA) and subcutaneous (protein) routes (ID/SC). All animals were challenged intrarectally at around 5 months after the final immunization with a pathogenic SHIV162P3 for a maximum of 6 challenges.
Results: Systemic immunization (ID/SC) induced strong IgG responses in serum and mucosal secretions (rectal, vaginal, and salivary secretions) but failed to induced IgA responses. Impressively, needle-free oral immunization generated a robust HIV Env-specific IgG and IgA antibody response both in blood and mucosal compartments that are at least 10-fold higher compared to responses in ID/SC immunized animals. The vaccine induced IgG responses showed a strong cross-reactivity to a global panel of gp70-V1V2 scaffolds. Following intrarectal challenge, all 5 controls became infected by 3 challenges and we observed a significant delay in acquisition of infection in both vaccinated groups (p= 0.02 for oral, p= 0.007 for ID/SC and p= 0.002 for combined) compared to unvaccinated controls. Two of the six ID/SC animals remained uninfected at the end of 6 challenges.
Conclusions: Our results show that needle-free injection of the sublingual and buccal tissues acts as an effective and practical route to generate both systemic and mucosal antibodies via vaccination. They also show that MVA prime followed by a gp120 trimer boost can provide a significant protection against intrarectal SHIV challenges.

TUAA0104

Long-term data from APPROACH: Phase 1/2a randomized, double-blind, placebo-controlled study evaluating safety/tolerability and immunogenicity of vaccine regimens using combinations of Ad26.Mos.HIV, MVA-mosaic and gp140 envelope protein

F. Tomaka[1], D. Stieh[2], D. Barouch[3], M. Robb[4,5], N. Michael[4], G. Tomaras[6], G. Alter[7], J. McElrath[8], L. Lavreys[9], S. Nijs[9], K. Callewaert[2], J. Hendriks[2], Z. Euler[2], M. Pau[2], H. Schuitemaker[2]
[1]Janssen Research & Development LLC, Titusville, United States, [2]Janssen Vaccines & Prevention B.V., Leiden, Netherlands, [3]Beth Israel Deaconess, Medical Center, Harvard Medical Center, Boston, United States, [4]Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [5]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [6]Duke Human Vaccine Institute, Duke University, Durham, United States, [7]Ragon Institute of MGH, MIT, and Harvard, Cambridge, United States, [8]Vaccine and Infectious Diseases Division, Fred Hutchinson Cancer Research Center, Seattle, United States, [9]Janssen Infectious Diseases B.V., Beerse, Belgium

Background: Globally, 1.8 million new HIV infections in 2016 demonstrate the need for a prophylactic HIV vaccine, but none currently exist. APPROACH (NCT02315703) investigates various vaccine regimens (comprising viral vectors with global mosaic HIV-1 Env, Gag and Pol transgenes and a soluble clade C gp140 trimeric envelope protein), that aim to elicit protective immunity against multiple clades of HIV-1. Week 28 and 52 data showed Ad26.Mos.HIV double prime, and Ad26.Mos.HIV or MVA-Mosaic boost regimens combined with gp140 Env protein were immunogenic and well tolerated. We here present data on durability of immune responses.
Methods: Healthy, uninfected participants were randomized into seven vaccine regimens, or a placebo and administered Ad26.Mos.HIV double prime (Weeks 0 and 12) and a double boost of either Ad26.Mos.HIV or MVA-Mosaic, with high- or low-dose aluminium-phosphate adjuvanted gp140 Env protein (Weeks 24 and 48). Vaccine responders were participants exhibiting an immunological response >LLOQ (if baseline is <LLOQ/missing) or 3-fold increase from baseline (if ≥LLOQ). Week 78 and 96 endpoints were immunogenicity and safety/tolerability.



[ELISA - Total IgG gp140 Env Clade C]

Results: 393 participants from the US, East-Africa, South Africa and Thailand were randomised and received ≥1 dose of study vaccine (n=48-50/group; see figure for regimens). Median age 29 years; 54% male; 54% Black, 27% White and 16% Asian.
Participants in all vaccine regimens showed humoral response rates >92% at Week 78 (30 weeks after fourth dose). Rates of antibody decay after the fourth vaccination exhibited regimen-independent decrease in magnitude. Groups boosted with Ad26.Mos.HIV+gp140 Env (high- or low-dose) maintained 100% response rate (high-dose [n=44]; 95% CI=91.96%-100%; low-dose [n=39]; 95% CI=90.97%-100%).
Bridging with a parallel non-human primate (NHP) challenge study showed for Ad26.Mos.HIV+gp140 Env high-dose boost group, autologous ELISA responses at Week 78 were 4.3-fold higher in humans than in partially protected NHPs at time of challenge.

During the post-fourth vaccination period, safety appeared to remain favorable for all groups.

Conclusions: All participants in Ad26.Mos.HIV prime with Ad26.Mos.HIV+gp140 Env (high- and low-dose protein) groups achieved high and persistent immune responses that were maintained until Week 78 (30 weeks after fourth dose). Follow-up of participants that received Ad26+gp140 Env boosted regimens will continue (5-year).

TUAA0105

HPX1002/IPCAVD010: A randomized controlled trial evaluating the safety and immunogenicity of shorter and simpler vaccine schedules using Ad26.Mos.HIV combined with gp140 Env protein

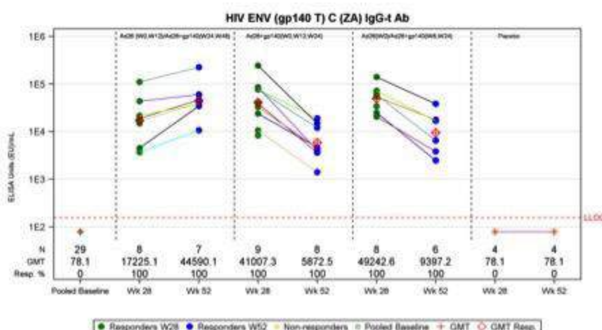
K. Stephenson[1,2], J. Ansel[1], S. Walsh[1], C.S. Tan[1], D. Ananos[1], A. Yanez[2], L. Peter[1], F. Tomaka[3], D. Stieh[3], J. Hendriks[3], S. Nijs[3], C. Truyers[3], M. Grazia Pau[3], M. Seaman[1], B. Walker[2], H. Schuitemaker[3], D. Barouch[1,2]
[1]BIDMC/Harvard, Center for Virology & Vaccine Research, Boston, United States, [2]Ragon Institute of MGH, MIT and Harvard, Cambridge, United States, [3]Janssen Vaccines AG, Bern, Switzerland

Background: A large Phase 2b proof-of-concept study called "Imbokodo" was initiated in 2017 to assess the preventive vaccine efficacy of a prime/boost regimen using mosaic antigens encoded by Ad26 and gp140 Env protein in HIV-uninfected women in sub-Saharan Africa. The vaccine schedule in Imbokodo involves 4 vaccination visits over 48 weeks, a long regimen that may be a factor in limiting adherence. We explored in HPX1002/IPCAVD010 whether shorter, simpler regimens might be equally immunogenic to an Imbokodo-like regimen.

Methods: HPX1002/IPCAVD010 was a randomized, placebo-controlled, double-blind Phase 1 study in 36 HIV-uninfected adults (12 per arm) to evaluate the safety and immunogenicity of 3 different vaccine regimens with Ad26 vectors expressing mosaic Env and Gag/Pol antigens (Ad26.Mos.HIV) and aluminium-phosphate adjuvanted Clade C gp140 trimeric envelope protein (gp140 Env). Group 1 received Ad26 double prime at Weeks 0 and 12 and a double boost with Ad26+gp140 at Weeks 24 and 48. Group 2 received Ad26+gp140 at weeks 0, 12 and 24. Group 3 received Ad26 at Wk 0, and Ad26+gp140 at weeks 8 and 24. The study was conducted at Beth Israel Deaconess Medical Center in Boston, MA, USA. Data from Baseline, 28 and 52 were analyzed.

Results: All vaccine regimens appeared to be well tolerated. Pain and fatigue were the most frequently reported solicited events. The shortened regimens (Groups 2 and 3) elicited equivalent antibody titers against autologous Clade C Env at peak immunity to the Imbokodo-like regimen (41,007 and 49,243 GMT vs. 44,590 GMT, respectively), with this peak occurring earlier in the shortened regimens. Antibody responses remained elevated (>5,000 GMT) in Groups 2 and 3 at week 52. ADCP, Env-specific IgG3, tier 1A neutralizing activity and broad cellular immune responses were detected in all groups.

Conclusions: In this Phase 1 study, we demonstrate that Ad26.Mos.HIV combined with gp140 Env protein can elicit HIV-specific immune responses in shortened, 24 week vaccine schedules that appeared to be similar to responses elicited in a longer, 48 week vaccine schedule that is currently being evaluated in a clinical efficacy study. Further studies are required to test the protective efficacy of these shortened vaccine regimens.



[Antibody Titers Against Autologous Clade C Env in IPCAVD010]

TUAA02 Strategies for cure: Pitfalls, possibilities and promise

TUAA0203

Dominant HIV DNA populations present in different T-cell subsets before stem cell transplantation persist in tissues early after transplantation with CCR5Δ32 stem cells

A. Wensing[1], K. Bosman[1], A. Bruns[2,3,4], P. Ellerbroek[2], T. de Jong[1], K. Tesselaar[4], A. Stam[1], M. Salgado[5], G. Hutter[6], L. Brosens[7], M. Kwon[8], J. Diez Martin[8], J. Boelens[4,9], J. Martinez-Picado[5,10], J. Kuball[3,4], M. Nijhuis[1], IciStem Consortium
[1]University Medical Center Utrecht, Translational Virology, Department of Medical Microbiology, Utrecht, Netherlands, [2]University Medical Center Utrecht, Department of Internal Medicine and Infectious Diseases, Utrecht, Netherlands, [3]University Medical Center Utrecht, Department of Hematology, Utrecht, Netherlands, [4]University Medical Center Utrecht, Laboratory of Translational Immunology, Utrecht, Netherlands, [5]AIDS Research Institute IrsiCaixa, Badalona, Spain, [6]Cellex, Dresden, Germany, [7]University Medical Center Utrecht, Department of Pathology, Utrecht, Netherlands, [8]Hospital General Universitario Gregorio Maranon, Madrid, Spain, [9]University Medical Center Utrecht, Blood and Marrow Transplantation Program, Department of Pediatrics, Utrecht, Netherlands, [10]ICREA, Badalona, Spain

Background: Cure of HIV infection was observed in the Berlin patient following stem cell transplantation (SCT) with homozygous CCR5Δ32 donor cells. In contrast, in the Boston patients, transplanted with cells from regular CCR5WT donors, HIV rebound occurred after treatment interruption despite loss of detectable HIV-DNA in PBMCs. It is unknown which reservoir fueled HIV rebound.

Methods: IciStem is an International collaboration to guide and investigate the potential for HIV cure in stem cell transplantation. In IciStem patient #5 SCT was performed using homozygous CCR5Δ32 cord blood combined with a third party donor. Before SCT we performed: 1) Phenotypic and genotypic coreceptor tropism analysis, 2) HIV reservoir quantification using ddPCR and viral characterization using deep-sequencing of PBMCs, $CD4^+$-T-cell subsets (Tn, Tcm, Ttm, Teff) and bonemarrow, 3) Single copy assay (SCA) on plasma. Post-SCT viral dynamics were analyzed using ddPCR and SCA. The post-mortem viral reservoir was quantified using ddPCR and characterized using deep-sequencing.

Results: Patient #5 was on effective cART for 5 years harboring subtype B CCR5-tropic HIV-1 (FPR: 68.8-96.2%). Before SCT, HIV-RNA could be detected in plasma (15 c/mL). HIV-DNA LTR copies were detected in PBMCs (1967 c/10^6), Tn cells (1270 c/10^6), all memory T-cells (Tcm, Ttm and Teff, 3074, 5564 and 6924 c/10^6) and bonemarrow (1130 c/10^6). Deep-sequencing revealed that two viral variants dominate all T-cell populations and bonemarrow (variant 1: FPR 87.2%; variant 2: 89.7%). Four weeks post-SCT, complete donor chimerism was observed in PBMC, HIV-DNA diminished to undetectable levels (< 1 c/10^6) and no HIV-RNA could be detected in plasma. Ten weeks post-SCT patient #5 deceased. Post-mortem analysis revealed presence of HIV-DNA LTR copies in ileum (549 c/10^6), liver (54 c/10^6), spleen (44 c/10^6) and lung (62 c/10^6), whereas no HIV-DNA LTR copies could be detected in PBMCs (< 7 c/10^6). HIV-sequences obtained from ileum and lung revealed the dominance of sequence variant 2 in both tissues.

Conclusions: In the neutropenic phase early post-SCT, HIV-DNA could no longer be detected in PBMCs. In contrast, dominant HIV-DNA populations as present in different T-cell subsets before SCT persisted in tissues indicating that tissue reservoirs may play an important role as long-standing viral reservoirs.

TUAA0204

Rapid rebound of a highly replication competent preexisting CXCR4-tropic HIV variant after allogeneic stem cell transplantation with CCR5Δ32 stem cells

J. Verheyen[1,2], A. Thielen[2], N. Lübke[3], M. Dirks[1], M. Widera[1], U. Dittmer[1], L. Kordales[4], M. Däumer[2], D. de Jong[5], A. Wensing[5], R. Kaiser[6], M. Nijhuis[5], S. Esser[7]
[1]*University of Duisburg-Essen, University Hospital, Institute of Virology, Essen, Germany,* [2]*Institute of Immunology and Genetics, Kaiserslautern, Germany,* [3]*Heinrich-Heine-University, University Hospital, Institute of Virology, Düsseldorf, Germany,* [4]*University Hospital, University of Duisburg-Essen, Department of Bone Marrow Transplantation, Essen, Germany,* [5]*University Medical Center Utrecht, Medical Microbiology, Utrecht, Netherlands,* [6]*University of Cologne, Institute of Virology, Cologne, Germany,* [7]*University Hospital, University of Duisburg-Essen, Clinic for Dermatology, Essen, Germany*

Background: To date, the case of the Berlin patient provides the only evidence of an intervention that has been able to cure HIV infection. The procedure involved an allogeneic stem cell transplantation (SCT) with donor cells lacking the CCR5 coreceptor (CCR5Δ32). Interestingly, in the Berlin patient no viral rebound was observed despite the fact that cART was stopped at the day of transplantation. In a similar setting in the Essen patient, cART was stopped before initiation of myeloablative therapy and a rapid viral rebound was observed after SCT. To fully understand the underlying mechanism of viral breakthrough in the Essen patient we retrospectively analyzed the genotypic and phenotypic characteristics of the viral population.
Methods: RNA was isolated from plasma and total DNA was isolated from PBMCs at different time points before (-287d: RNA, -103d: RNA/DNA, -18d: DNA) and after (+20d: RNA, +373d: RNA/DNA) SCT. HIV coreceptor tropism was genotypically assessed (geno2pheno) after deep-sequence analysis of the viral envelope (gp120-V3). The observed gp120-V3 sequences were cloned in our shuttle vector pHXB2-Δgp120-V3 and chimeric viruses were tested for replication capacity and coreceptor usage in primary cells (PBMCs).
Results: Viral breakthrough was observed three weeks after SCT. Every single viral RNA sequence detected with deep-sequence analysis at time of breakthrough was predicted to be CXCR4-tropic (FPR: 0.2%-0.7%). These sequences are genetically distinct from the pre-SCT viral variants predicted to be CCR5-tropic (FRP: 8.5%-10.5%). Interestingly, the most dominant viral variant rebounding after SCT (FPR 0.4%) could already be detected as a minority variant in the proviral DNA 103 days before transplantation. This dominant variant, once cloned in our HIV shuttle vector, demonstrated a high replication capacity in primary cells and is completely dependent on the alternative CXCR4 coreceptor for replication.
Conclusions: In this study we demonstrate that the rapid rebound after SCT was related to a highly replicative CXCR4-tropic HIV variant, which was already present prior to SCT. These data indicate that in-depth HIV coreceptor analysis is essential for future CCR5-based stem cell transplantation and gene therapy studies.

TUAA0205

Modular gene therapy vectors for gene therapy cure in resting immune cells

A. Wong[1], A. Aggarwal[1], O. Atthi[1], B. Hao[1], H. Macrae[1], M. Churchill[2], A. Kelleher[1], S. Turville[1]
[1]*University of New South Wales, Kirby Institute, Sydney, Australia,* [2]*RMIT University, School of Health and Biomedical Sciences, Melbourne, Australia*

Background: Conventional gene therapy vectors warrant extensive cellular activation of the target population (defined as resting CD4 T cells, and macrophages) to increase gene delivery outcomes. However, cellular departure from the resting state lowers stemness and therefore long-term therapeutic potential. There are two barriers to the genetic modification of target cells: particle delivery/fusogenicity, and ability to perform reverse transcription/integration. We designed a platform where vectors are customised to overcome these limitations.
Methods: To increase lentiviral vector fusion into CD4 T cells, over 1000 envelopes were surveyed, yielding a shortlist of one dozen candidate pseudotypes. These pseudotypes were previously characterised by the HIV Affinofile assay and distinguished by an ability to attain cellular entry despite low CD4 levels. For the enhancement of gene delivery, over 200 Vpx variants were surveyed, creating a shortlist of 37 candidate variants. These variants were validated by firstly determining their capacity to enhance HIV NL43 infection, before further measurement of gene delivery enhancement using lentiviral vectors.
Results: From the many prospective pseudotypes, one lead candidate was identified. This pseudotype consistently enabled cellular entry in greater than 95% of untouched resting CD4 T cells. Six lead Vpx variants were identified that enhanced gene transfer up to 20-fold and 10-fold in macrophages and T cells, respectively. Combining both approaches resulted in an excess of 95% and 45% gene delivery in macrophages and T cells, respectively, accomplished using low MOIs (0.04). Whilst a majority of Vpx variants still enhanced gene delivery for greater than two weeks, we identified variants that possessed contracted enhancement durations in T cells (< 2 weeks). This would alleviate cellular vulnerabilities to HIV upon reinfusion into hosts.
Conclusions: We have designed a lentiviral vector platform that targets resting cell types by leveraging the fusogenic potential of the lead pseudotype and enhancing potential of Vpx. We achieved gene delivery into a challenging cell type using limited inocula, and benchmarked at levels conducive to clinical applications.

TUAB01 Antiretroviral strategies

TUAB0101

Comparative effectiveness of first-line antiretroviral therapy regimens: Results from a large real-world cohort in Brazil after the implementation of Dolutegravir

M.V. Meireles[1,2], A.R. Pascom[1], F. Perini[1], F. Rick[1], A. Benzaken[1]
[1]*Ministry of Health of Brazil, Department of STI, AIDS and Viral Hepatitis, Brasilia, Brazil,* [2]*University of Brasilia, Faculty of Medicine, Brasilia, Brazil*

Background: In early 2017, the Ministry of Health of Brazil (MoH) released new antiretroviral treatment (ART) guidelines, which set Lamivudine+Tenofovir+Dolutegravir as the preferred first-line regimen for HIV treatment. In this study, we used real-world programmatic data from Brazil aiming to describe the observed effectiveness of different regimens in the initial response to ART, using the six-month viral load (VL) count.
Methods: Programmatic data from two information systems from the MoH were used; they gather data on every VL and CD4 counts performed within the country's public health system, and on every ART dispensation. Patients aged 15 and over, who started ART from January 2014 to June 2017 and had a 6-month VL (180±90 days after treatment initiation) were included. The outcome was failure to achieve initial virologic suppression (VS), defined as presenting the 6-month VL above 50 copies/mL. Univariable and multivariable analyses were performed, with unconditional logistic regression models assessing the likelihood of the outcome according to the initial ART regimen, controlling for adherence level, sex, age and CD4 and VL at treatment initiation. Adherence level was calculated using pharmacy refill data.
Results: Of the 103,240 patients included in the analysis, 67.6% were male; median values of age, baseline CD4, baseline VL and adherence were 34 years old, 394 cells/mm^3, 38,057 copies/mL and 96.2%, respectively. Overall, 76.9% achieved a VL< 50 copies/mL. The most common regimens were 3TC+TDF+EFZ (74.0%), 3TC+TDF+DTG (7.2%), 3TC+AZT+LPV/r (4.9%), 3TC+TDF+ATV/r (4.6%), 3TC+AZT+EFZ (3.5%) and 3TC+TDF+LPV/r (2.0%). VS ranged from 63.7% with 3TC+TDF+LPV/r to 85.2% with 3TC+TDF+DTG. In the multivariable analysis, with 3TC+TDF+DTG as the reference, aOR (95%CI) of failing to achieve VS were 1.42 (1.32-1.52) for 3TC+TDF+EFZ, 1.51 (1.35-1.68) for 3TC+AZT+EFZ, 2.11 (1.91-2.32) for 3TC+TDF+ATV/r, 2.41 (2.18-2.66) for 3TC+AZT+LPV/r and 2.62 (2.32-2.95) for 3TC+TDF+LPV/r.

Conclusions: The observed effectiveness of 3TC+TDF+DTG was markedly superior after controlling for possible confounders, with all other regimens showing 42%-162% higher odds of not achieving initial virologic suppression. Our results support the decision made by the MoH to switch its recommendations for preferred first-line ART from Efavirenz to Dolutegravir-containing regimens.

Baseline characteristics			Multivariable analysis	
		%	aOR	95% CI
Regimen	3TC+TDF+DTG	7.2	1	
	3TC+TDF+EFZ	74.0	1.42	(1.32-1.52)
	3TC+AZT+LPV/r	4.9	2.41	(2.18-2.66)
	3TC+TDF+ATV/r	4.6	2.11	(1.91-2.32)
	3TC+AZT+EFV	3.5	1.51	(1.35-1.68)
	3TC+TDF+LPV/r	2.0	2.62	(2.32-2.95)
	Others	3.7	2.11	(1.91-2.34)
Sex	Male	67.6	1.18	(1.13-1.22)
	Female	32.4	1	
Age	50+	13.5	1	
	40-49	19.2	1.08	(1.02-1.15)
	25-39	48.7	1.10	(1.05-1.16)
	20-24	14.7	1.06	(1.00-1.13)
	15-19	3.9	1.22	(1.11-1.34)
CD4 (cells/mm3)	500+	29.1	1	
	350-499	19.0	1.24	(1.17-1.30)
	200-349	16.5	1.52	(1.44-1.61)
	100-199	9.0	2.13	(2.00-2.26)
	<100	11.2	2.50	(2.36-2.65)
	Unknown	15.2	1.64	(1.54-1.74)
VL (copies/mL)	50-9,999	18.3	1	
	10,000-49,999	19.5	1.42	(1.34-1.52)
	50,000-99,999	8.8	2.16	(2.01-2.33)
	100,000+	21.7	4.48	(4.21-4.76)
	Unknown	31.7	2.27	(2.13-2.41)
Adherence (by 1% increase)	-	-	.96	(0.96-0.96)

[Table 1: Baseline characteristics and results of the multivariable logistic regression model for VL>50 copies/mL (n=103,240)]

TUAB0102

Simplification to dolutegravir monotherapy is non-inferior compared to continuation of combination antiretroviral therapy in patients who initiated combination antiretroviral therapy during primary HIV infection: A randomized, controlled, non-inferiority trial

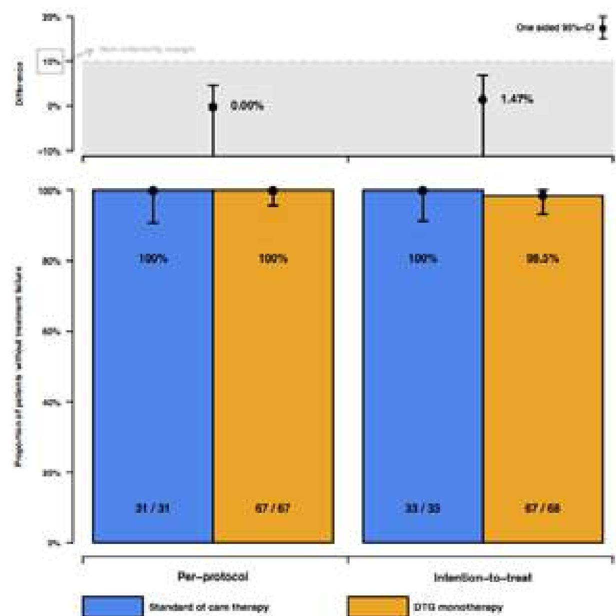
D.L. Braun[1,2], T. Turk[1], B. Hampel[1,2], C. Grube[1], P. Schreiber[1], M. Greiner[1], D. Steffens[1], F. Tschumi[1], C. Bayard de-Torronté[1], C. Depmeier[1], K. Metzner[1,2], B. Bertisch[3], J. Böni[2], R. Kouyos[1,2], H. Günthard[1,2], for the Zurich Primary HIV Infection Study
[1]University Hospital Zurich, Division of Infectious Diseases and Hospital Epidemiology, Zurich, Switzerland, [2]Institute of Medical Virology, University of Zurich, Zurich, Switzerland, [3]Checkpoint Zurich, Zurich, Switzerland

Background: Patients who started combination antiretroviral therapy (cART) during primary HIV-1 infection (PHI) show a smaller HIV-1 reservoir size compared to patients who started cART during chronic infection. Thus, we hypothesized that a smaller HIV-1 reservoir size translates in sustained virological suppression after simplification of cART to dolutegravir monotherapy.

Methods: In this randomized, open-label, non-inferiority trial, we recruited patients >18 years with documented PHI who started cART < 180 days after estimated date of infection (EDI) and were fully suppressed for > 48 weeks. Exclusion criteria were previous virological failure or treatment interruption and major resistance associated mutations (RAM) to integrase inhibitors. We randomly assigned patients 2:1 to monotherapy with dolutegravir 50 mg once daily or to continuation of cART. Primary endpoint was virological response, defined as HIV-1 RNA < 50 cp/mL plasma at week 48, in the per-protocol-population, with a non-inferiority margin of 10% (NCT02551523).

Results: Between 11/2015-3/2017, we randomly assigned 101 patients (68 to dolutegravir monotherapy, 33 to continuation of cART). At week 48 in the per-protocol-population, 67/67 (100%) had virological response in the dolutegravir monotherapy group versus 31/31 (100%) in the cART group (difference 0%, 95%-CI [-1, 0.047]), showing non-inferiority at the prespecified level (Figure1). In the intention-to-treat population, 1 patient in the dolutegravir monotherapy group experienced viral failure at week 36 (viral load 382 cp/mL) and 2 patients in the cART group left the study before week 48 because they moved abroad. The patient who experienced viral failure was found to be chronically infected at the start of first cART and therefore violated entry criteria. Resistance test at time of viral failure revealed no RAMs and he was re-suppressed on cART. Overall, 14 severe adverse events occurred (dolutegravir monotherapy 10 [15%]; cART 4 [12%]), none related to study-drugs.

Conclusions: In our randomized simplification trial, monotherapy with once daily dolutegravir was effective, safe, and non-inferior to cART in patients with a documented PHI who initiated cART < 180 days after EDI and were virologically suppressed for at least 48 weeks. Our results suggest that future simplification studies should use a stratification according to time of infection at start of first cART.



[Figure 1: HIV-1 RNA <50 copies per mL plasma at week 48 for the per-protocol and intention-to-treat populations. Error bars are 95% CI.]

TUAB0103

Dolutegravir monotherapy versus dolutegravir/abacavir/lamivudine for HIV-1-infected virologically suppressed patients: Results from the randomized non-inferiority MONCAY trial

L. Hocqueloux[1], C. Allavena[2], T. Prazuck[1], L. Bernard[3], S. Sunder[4], J.-L. Esnault[5], D. Rey[6], G. Le Moal[7], M. Roncato-Saberan[8], M. André[9], E. Billaud[2], V. Avettand-Fènoël[10], A. Valéry[11], F. Raffi[2], J.-J. Parienti[12], MONCAY Study Group
[1]CHR d'Orléans - La Source, Infectious and Tropical Diseases, Orléans, France, [2]CHU de Nantes, Infectious Diseases, Nantes, France, [3]CHU de Tours, Infectious Diseases, Tours, France, [4]CHG, Infectious Diseases, Niort, France, [5]CHD, Infectious Diseases, La Roche sur Yon, France, [6]CHU de Strasbourg, Infectious Diseases, Strasbourg, France, [7]CHU de Poitiers, Infectious Diseases, Poitiers, France, [8]CHG, Infectious Diseases, La Rochelle, France, [9]CHU de Nancy, Infectious Diseases, Nancy, France, [10]CHU Necker - Enfants Malades, APHP, Virology, Paris, France, [11]CHR d'Orléans - La Source, Biostatistics, Orléans, France, [12]CHU de Caen, Clinical Research and Biostatistics, Caen, France

Background: We investigated whether dolutegravir alone was able to maintain virological suppression in HIV-1-infected patients on a successful dolutegravir-based standardized triple-therapy.

Methods: MONCAY was a 48-week multicentric, randomized, open-label, 12% non-inferiority margin study. Inclusion criteria were: age ≥18 years, CD4 nadir >100/µl, no previous AIDS event, plasma HIV-RNA (pVL) <50 copies/ml for ≥12 months, stable regimen with once daily dolutegravir/abacavir/lamivudine (DTG/ABC/3TC) and no failure or resistance to any integrase inhibitor (INI). Patients were 1:1 randomized to continue DTG/ABC/3TC or to simplify to DTG monotherapy. The primary endpoint was the proportion of patients with pVL <50 copies/ml at week (W) 24 in intention-to-treat (ITT), missing or switch equals failure (M=F); modified ITT (mITT) excluding patients who had non-inclusion criteria; Per-protocol (PP) excluding from mITT patients with major protocol deviation. Virologic failure (VF) was defined as two consecutive pVL >50 copies/ml within 2 weeks apart.
Results: Seventy-eight patients were assigned to DTG and 80 to continue DTG/ABC/3TC. Of these 158 patients, 3 had non-inclusion criteria and 6 had major protocol deviation in the DTG arm; 2 had non-inclusion criteria and 1 had major protocol deviation in the DTG/ABC/3TC arm. By W24, 2 patients in DTG group experienced VF (both at W24) without resistance to the INI class; 1 patient stopped DTG/ABC/3TC due to adverse event (at W4). In ITT (n=158), the success rate was 73/78 (93.6%) in the DTG arm and 77/80 (96.3%) in the DTG/ABC/3TC arm; difference 3.9%, 95%CI: -5.0 to 10.8. This figure was 1.4%; 95%CI: -4.5 to 8.1 in mITT (n=153) and 1.6%; 95%CI: -4.5 to 8.8 in PP (n=146). During subsequent follow-up, 3 additional patients in the DTG arm experienced VF (2 at W36 and 1 at W48) with emerging resistance mutations to INI in 2 cases, whereas none occurred in the DTG/ABC/3TC group (difference 6.5%, 95%CI: -1.8 to 15.6). The DSMB recommended to re-intensify the DTG arm with standardized triple-therapy.
Conclusions: Although non-inferior to DTG/ABC/3TC at W24, DTG monotherapy was not a valid option to maintain virological suppression overtime in HIV-1-infected patients on a successful DTG/ABC/3TC triple-therapy and favoured emergence of INI resistance.

TUAB0104

A phase 3b, open-label, pilot study to evaluate switching to elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide (E/C/F/TAF) in virologically-suppressed HIV-1 infected adult subjects harboring the NRTI resistance mutation M184V and/or M184I (GS-US-292-1824)

I. Perez Valero[1], J.M. Llibre[2], A. Lazzarin[3], G. Di Perri[4], F. Pulido[5], J.-M. Molina[6], S. Esser[7], I. McNicholl[8], R.-P. Lorgeoux[9], N. Margot[8], Y. Shao[8], D. Piontkowsky[8], M. Das[8], R. Haubrich[8]
[1]*Unidad VIH - Hospital Universitario La Paz, Madrid, Spain,* [2]*Fundación Lucha contra el SIDA, Barcelona, Spain,* [3]*Fondazione IRCCS San Raffaele del Monte Tabor, Milan, Italy,* [4]*Dipartimento di Malattie Infettive e Tropicali, Turin, Italy,* [5]*Unidad VIH, Hospital Universitario 12 de Octubre, imas12, UCM, Madrid, Spain,* [6]*Department of Infectious Diseases, Saint-Louis Hospital and University of Paris, Paris, France,* [7]*Universitätsklinikum Essen, Essen, Germany,* [8]*Gilead Sciences, Inc, Foster City, United States,* [9]*Gilead Sciences, Inc, Montreal, Canada*

Background: Treatment with once-daily E/C/F/TAF in HIV-1-infected therapy-naïve patients was shown to be effective and safe through 144 weeks in two randomized, double-blinded trials, which excluded participants whose HIV-1 harbored the M184V and/or M184I mutation.
Methods: This ongoing, prospective open-label, single arm, multicenter, 48-week trial is evaluating the efficacy and safety of switching suppressed participants to E/C/F/TAF from a stable regimen (≥6 months) of a third agent plus either F/tenofovir disoproxil fumarate or abacavir/lamivudine. Participants had a historical genotype report showing M184V and/or M184I and no evidence of previous virologic failure (VF) or resistance to boosted PIs or INSTIs.
At screening, HIV-1 RNA < 50 c/mL was required as well as absence of additional NRTI or PI resistance mutations based on sequencing of integrated HIV DNA (GenoSure Archive, Monogram Biosciences).
The primary objective is to evaluate the efficacy of switching to E/C/F/TAF in maintaining HIV-1 RNA < 50 c/mL at Week 12 using pure virologic response (PVR). Participants with discontinuation or missing values were considered responders if they never had HIV-1 RNA ≥50 c/mL at 2 consecutive visits and the last HIV-1 RNA was < 50 c/mL. This report presents the Week 24 data.
Results: Thirty-seven participants were enrolled and switched to E/C/F/TAF. Mean age was 50 years(range 22-76), 73% White, 19% Black, 22% women, median CD4 count 724 cells/µL and 100% HIV RNA < 50 c/mL at baseline. Through Week 24, all 37 participants(100%) had HIV-1 RNA < 50 c/mL based on PVR(Table). Three participants who discontinued prior to Week 24 with last recorded HIV-1 RNA < 50 c/mL were not considered VF.
Four serious adverse events occurred (none were study drug-related): 1 each of squamous cell carcinoma, acute kidney injury (with poorly controlled hypertension and diabetes), transient proteinuria (resolved on study drug) and pulmonary embolism.
Twenty-two percent (8/37) of participants experienced a study drug-related AE (grade 1 or 2); one participant discontinued due to grade 2 muscle spasms.
Conclusions: E/C/F/TAF offers an effective, well tolerated switch option for patients with pre-existing M184V and/or M184I mutations. These data on continued virologic suppression despite resistance are encouraging though longer term data are needed.

Baseline Characteristics	
Presence of M184V, M184I or both mutations, screening historic genotype	100% (37/37)
Baseline Archive DNA Mutations: M184V/I, M184V/I + NNRTI, NNRTI only, none	22%, 22%, 5%, 51%
Regimen prior to switching:	
2 NRTI + PI + ritonavir or cobicistat	54%
2 NRTI + INSTI, 2 NRTI + INSTI + NNRTI	32%, 3%
2 NRTI + NNRTI	11%
Results	
Week 24 HIV-1 RNA <50 c/mL (PVR)	100% (37/37)
Week 24 HIV-1 RNA <50 c/mL (missing=failure)	92% (34/37)
Week 24 HIV-1 RNA <50 c/mL (missing=excluded)	100% (34/34)
Virological failures or emergent resistance	0

[Table]

TUAB02 HIV and TB: Double challenge

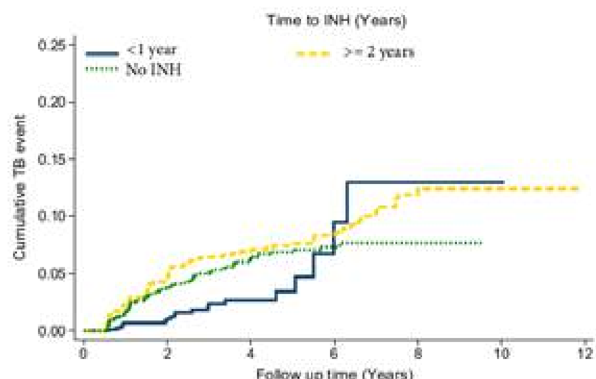
TUAB0201

Durability and effectiveness of isoniazid preventive therapy in Lesotho, southern Africa

E. Mugomeri[1], D. Olivier[2], W.M.J. van den Heever[2]
[1]*National University of Lesotho, Department of Pharmacy, Maseru, Lesotho,* [2]*Central University of Technology, Department of Health Sciences, Bloemfontein, South Africa*

Background: The southern African country of Lesotho, which has the highest tuberculosis (TB) incidences in the world, is facing a catastrophic syndemic of HIV and tuberculosis. In 2011, the government of Lesotho launched isoniazid preventive therapy (IPT) as a once-off intervention with no follow-up booster doses, to reduce the occurrence of TB in people living with HIV (PLHIV). However, the effectiveness and durability of this intervention remains obscure in this setting. This study evaluated the effectiveness of IPT and the durability of its protection in Lesotho.
Methods: The study was based on 2 955 records which met the inclusion criteria out of 4 122 HIV-positive medical records randomly sampled from eight health institutions in six districts of Lesotho. Univariate Kaplan-Meier function, Wilcoxon's log-rank test and Cox regression analyses were used to select factors into the model. Cox's proportional hazards regression analysis was performed, with data formatted as discrete-time survival data with interval date as the time variable and the occurrence of TB as the 'failure' outcome.
Results: The overall TB incidence rate was 2.0 per 100 person-years in 12 208 person-years. Thirty-nine (15.9%, *n* = 246) patients developed TB after IPT. TB incidences per 100 person-years by timing of IPT were as follows: (a) IPT before ART (1.7); (b) IPT after ART (1.8); (c) no IPT (2.6); (d) IPT within one year of ART commencement (1.3) and (e) IPT 3-5 years after ART initiation (2.3). IPT effectiveness rapidly deteriorated after four years

in patients given IPT within one year of ART commencement (Figure 1). Gender, baseline WHO clinical stage, district category and time to IPT relative to ART commencement emerged as significant predictors of TB occurrence. Increasing time to IPT by one six-month interval increased the risk of contracting TB by between 6% and 59%, depending on the cohort.



[Figure 1]

Conclusions: While IPT significantly reduces the risk of TB, delayed IPT after ART commencement significantly affects the effectiveness of this intervention. The apparent loss of protection four years after IPT indicates the need for booster doses of IPT in this population. Patient characteristics significantly associated with higher risk of TB are important for policy making.

TUAB0202

Drug susceptibility testing, HIV-coinfection and outcomes in patients treated for tuberculosis in low- and middle-income settings

K. Zürcher[1], M. Ballif[1], L. Fenner[1], S. Borrell[2,3], P.M. Keller[4,5], J. Gnokoro[6], M. Yotebieng[7], L. Diero[8,9], E.J. Carter[8,9], N. Rockwood[10,11], R.J. Wilkinson[10,11,12], H. Cox[13], N. Ezati[14,15], A.G. Abimiku[14,15], J.L. Collantes[16], A. Avihingsanon[17,18], K. Kawkitinarong[18], M. Reinhard[2,3], R. Hömke[4,5], R. Huebner[19], E.C. Böttger[4,5], S. Gagneux[2,3], M. Egger[1,20], on behalf of the International Epidemiology Databases to Evaluate AIDS (IeDEA)
[1]Universty of Bern, Institute of Social and Preventive Medicine (ISPM), Bern, Switzerland, [2]Swiss Tropical and Public Health Institute, Basel, Switzerland, [3]University of Basel, Basel, Switzerland, [4]University of Zurich, Institute of Medical Microbiology, Zurich, Switzerland, [5]Swiss National Center for Mycobacteria, Zurich, Switzerland, [6]Centre de Prise en Charge de Recherche et de Formation, Yopougon, Cote D'Ivoire, [7]Ohio State University, College of Public Health, Columbus, United States, [8]Moi University School of Medicine, Department of Medicine, Eldoret, Kenya, [9]Moi Teaching and Referral Hospital, Department of Medicine, Eldoret, Kenya, [10]University of Cape Town, Welcome Centre for Infectious Diseases Research in Africa, Cape Town, South Africa, [11]Imperial College, London, United Kingdom, [12]Francis Crick Institute, London, United Kingdom, [13]University of Cape Town, Division of Medical Microbiology and the Institute for Infectious Disease and Molecular Medicine, Cape Town, South Africa, [14]Institute of Human Virology, Abuja, Nigeria, [15]National Tuberculosis and Leprosy Training Center, Saye, Zaria, Nigeria, [16]Universidad Peruana Cayetano Heredia, Instituto de Medicina Tropical Alexander von Humboldt, Lima, Peru, [17]HIV-NAT/Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [18]Chulalongkorn University, Department of Medicine, Bangkok, Thailand, [19]National Institutes of Health, National Institutes of Allergy and Infectious Diseases, Bethesda, United States, [20]University of Cape Town, Centre for Infectious Disease Epidemiology & Research, School of Public Health & Family Medicine, Cape Town, South Africa

Background: Drug resistance and HIV-coinfection are major challenges for the global control of tuberculosis (TB).

Methods: We collected *Mycobacterium tuberculosis (Mtb)* isolates from adult TB patients in Côte d'Ivoire, Democratic Republic of the Congo, Kenya, Nigeria, South Africa, Peru, and Thailand, stratified by HIV status and TB drug resistance. Drug susceptibility testing (DST) was performed locally (Xpert MTB/RIF, line probe assay or culture) and at the Swiss National Center for Mycobacteria (MGIT liquid culture). We categorized drug regimens into adequate treatment, under-treatment and over-treatment, based on WHO and local guidelines. We used multivariate logistic regression adjusted for age, sex, sputum microscopy, HIV status, and treatment adequacy, accounting for clustering at site-level, to examine mortality during treatment according to DST results and treatment adequacy.

Results: 634 TB patients were included; 272 (42.9%) were HIV-positive, with a median CD4 cell count at TB treatment start of 192 cells/µl (IQR 78-369 cells/µl). 175 (64.3%) of HIV-positive patients were on ART at the start of TB treatment or initiated ART within 3 months. Based on reference MGIT DST, 394 (62.2%) isolates were pan-susceptible, 45 (7.1%) mono-resistant, 163 (25.7%) multidrug-resistant (MDR-TB), and 30 (4.7%) pre-extensively or extensively drug-resistant (pre-XDR/XDR-TB). In 126 (19.9%) patients, local and reference DST results were discordant. For any drug resistance, the sensitivity of local DST was 84% (95% CI 80%-88%); specificity was 89% (95% CI 84%-92%).Treatment was inadequate (under-/over-treatment) in 25/126 (19.8%) patients with discordant DST results, and 16/508 (3.1%) with concordant DST (P< 0.001). Mortality was 13.6% (24/176) if DST results were concordant, but 26.6% (17/64) if DST results were discordant (P=0.019). The corresponding risk ratio was 1.95 (95% CI 1.12-3.38), and the population attributable fraction 20.2%. In multivariate logistic regression, mortality was determined by TB drug resistance and adequacy of treatment, but not by HIV status, gender or sputum positivity.

	No. of patients (n=542)	No. of deaths (%)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Sex female	206	19 (9.2)	1	1
male	336	45 (13.4)	1.52 (0.86-2.68)	1.40 (0.75-2.59)
Age (per 1 year increase)	542	64 (11.8)	1.03 (1.01-1.05)	1.04 (1.02-1.06)
HIV status negative	326	41 (12.6)	1	1
positive	216	23 (10.7)	0.82 (0.48-1.42)	1.15 (0.50-2.67)
Treatment adequacy Pan-susceptible adequate	319	19 (6.0)	1	1
Pan-susceptible inadequate	24	4 (16.7)	2.36 (0.64-8.65)	2.75 (0.46-16.47)
Any resistance adequate	180	36 (20.0)	3.93 (2.18-7.10)	4.82 (2.40-9.64)
Any resistance inadequate	19	5 (26.3)	7.26 (2.28-21.23)	7.40 (2.57-21.33)

[Factors associated with mortality during treatment in patients diagnosed with tuberculosis complete case analysis.]

Conclusions: Inaccurate DST testing leading to inappropriate treatment, but not HIV infection, contributed to mortality during treatment of drug-resistant TB. Increasing capacity for DST and adequate drug-resistant TB treatment is a priority in low- and middle-income countries with high TB burden.

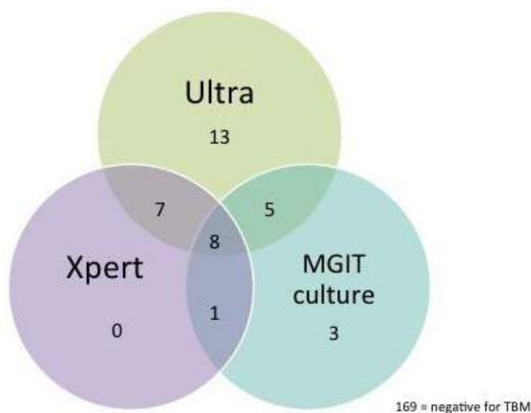
TUAB0203

Xpert MTB/Rif Ultra for earlier diagnosis of TB meningitis in HIV-positive adults

F. Cresswell[1,2], N. Bahr[3], A. Bangdiwala[4], A. Akampuria[5], K. Ssemambulidde[5], J. Rhein[4,5], D. Williams[4,5], R. Kwizera[6], E. Nuwagira[7], P. Orikiriza[7], C. Muzoora[7], D. Meya[1,6], D. Boulware[4], A. Elliott[8]
[1]Infectious Diseases Institute, Clinical Research, Kampala, Uganda, [2]London School of Hygiene and Tropical Medicine, Infectious and Tropical Diseases, London, United Kingdom, [3]University of Kansas, Kansas City, United States, [4]University of Minnesota, Minneapolis, United States, [5]Infectious Diseases Institute, Kampala, Uganda, [6]Makerere University, Kampala, Uganda, [7]Mbarara University of Science and Techology, Mbarara, Uganda, [8]London School of Hygeine and Tropical Medicine, London, United Kingdom

Background: TB meningitis (TBM) mortality is 40-60% in HIV-positive individuals, in part due to diagnostic delay. Earlier diagnosis and initiation of treatment are needed to improve outcomes. The re-engineered Xpert Ultra (Ultra) has an eight-fold lower limit of detection than Xpert (Xpert) and requires evaluation in clinical settings.

Methods: We obtained samples of cerebrospinal fluid (CSF) from HIV-positive adults presenting with suspected meningitis to Mbarara (since Feb 2015) and Mulago Hospitals (since Dec 2016), in Uganda. CSF was tested for cryptococcal antigen, then if negative, centrifuged and tested with Xpert, Ultra and culture. The performance of Ultra was measured against:
1) Composite reference standard of any positive CSF test
2) Uniform case definition of 'probable' or 'definite' TBM.
Results: CSF was collected from 406 patients. After exclusion of cryptococcal meningitis (57%, 231/406), CSF from 206 patients was tested for TBM, of which 37 (18.0%) patients had microbiologically confirmed TBM (33 Ultra, 16 Xpert and 17 culture positive, **Fig 1**). 47 met the criteria for 'probable' or 'definite' TBM by the uniform case definition.
Against composite reference standard the sensitivity of Ultra was 89% (33/37), versus 43% (16/37) for Xpert and 46% (17/37) for culture. Against uniform case definition sensitivity of Ultra was 70% (33/47), versus 34% (16/47) for Xpert and 36% (17/47) for culture.
Specificity of Ultra was 100% and negative predictive value was 98% [95%CI 94-99%] against the composite reference standard and was 91% against then uniform case definition.
13 were positive only by Ultra, of which we tested 10/13 samples with a multiplex meningoencephalitis PCR assay and did not identify other potential aetiology. In these HIV-positive adults with meningitis we believe these are true positive results. 4 patients were negative by Ultra but positive on culture.
Conclusions: Ultra detected significantly more cases than either Xpert or culture in this HIV-positive population. A diagnostic test with ~90% sensitivity and a 90 minute turnaround time holds the potential to improve early diagnosis. Whilst 98% NPV in microbiologically proven TBM is an vast improvement, the NPV of 91% against uniform case definition means that Ultra cannot be used as a stand-alone rule-out test for TBM.



[Venn diagram illustrating the method of diagnosis of the 36 microbiologically confirmed cases of TBM in HIV-positive Ugandan adults]

TUAB0204

Risk factors of recurrent TB disease in a setting of high HIV prevalence

S. Hermans[1,2], N. Zinyakatira[3,4], J. Caldwell[5], F. Cobelens[1,6], A. Boulle[3,4], R. Wood[2,7]
[1]Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, [2]Desmond Tutu HIV Centre, Institute of Infectious Disease and Molecular Medicine, University of Cape Town, Cape Town, South Africa, [3]School of Public Health and Family Medicine, University of Cape Town, Cape Town, South Africa, [4]Western Cape Government Health, Cape Town, South Africa, [5]City Health, Department of Health, Cape Town, South Africa, [6]KNCV Tuberculosis Foundation, The Hague, Netherlands, [7]Department of Medicine, University of Cape Town, Cape Town, South Africa

Background: The incidence of retreatment tuberculosis (TB) disease in high-prevalence settings such as Cape Town is very high. We previously showed that risk of recurrence increases with every subsequent episode. It is unclear what mechanisms underlie this increasing risk over time. We evaluated the risk factors of recurrent TB disease after previous TB treatment completion by subsequent episode.
Methods: All recorded TB episodes from January 2003 to April 2016 in the City of Cape Town were included, and linked to individuals by deterministic linkage of personal identifiers. Among a cohort of individuals whose first episode was notified in Cape Town we calculated recurrence rates after previous treatment completion which were adjusted to population HIV- and non-HIV associated mortality rates sourced from the THEMBISA HIV model of the Western Cape. We used multivariable Cox proportional hazards regression to estimate risk factors of recurrent TB disease per subsequent episode.
Results: A total of 245,533 individuals experienced 21,297 episodes of recurrent disease. The rate of recurrent TB after previous treatment completion was 14.5 (95% CI 14.2-14.7) per 1000 person-years of follow-up and increased per subsequent episode: the HIV-negative rate increased 7-fold from episode 2 to episode 5 (from 11.3 (95% CI 11.0-11.7)/1000 to 84.1 (95% CI 62.4-113.5)/1000 respectively), and the HIV-positive rate increased 6-fold (from 22.1 (95% CI 21.6-22.6)/1000 to 123.7 (95% CI 99.5-153.8)/1000). HIV infection was the strongest risk factor for recurrence, reducing per subsequent episode (Table 1). Other factors identified were male gender and older age. Antiretroviral treatment (ART) use was associated with a reduced rate of recurrence for a second episode but not for subsequent episodes. CD4 count was not associated with recurrence.
Conclusions: We identified very high TB recurrence rates after successful previous treatment in Cape Town, especially after multiple episodes. As expected, HIV was the strongest risk factor and ART had a protective effect. However, the importance of HIV as a risk factor declined over subsequent episodes, suggesting additional mechanisms underlying the escalating rate of TB recurrence. Further investigation into increased risks of reinfection or progression to disease through clinical, microbiological, immunological and socio-economic factors is warranted.

Episode		2	3	4	5
Gender	Female	1	1	1	1
	Male	1.35 (1.30-1.40)	1.15 (1.06-1.26)	0.99 (0.83-1.20)	0.66 (0.45-0.98)
Age	Per 10 years´ increase	1.02 (1.01-1.04)	1.04 (1.00-1.07)	0.97 (0.89-1.05)	1.15 (0.95-1.39)
HIV status	Negative	1	1	1	1
	Positive	1.89 (1.82-1.96)	1.44 (1.31-1.57)	1.26 (1.04-1.52)	1.37 (0.92-2.04)
CD4 count	<200/ul	1	1	1	1
	>=200/ul	1.03 (0.95-1.12)	1.00 (0.85-1.18)	0.90 (0.65-1.25)	1.18 (0.60-2.31)
ART use at previous episode	No	1	1	1	1
	Yes	0.84 (0.74-0.95)	1.10 (0.85-1.18)	1.46 (1.04-2.04)	1.47 (0.74-2.90)

*[Adjusted hazard ratios (95% confidence intervals) per subsequent episode of TB recurrence. *Among HIV-positives only (adjusted for age and gender)]*

TUAB0205

Clinical outcomes with bedaquiline use when substituted for second-line injectable agents in multidrug resistant tuberculosis: A retrospective cohort study

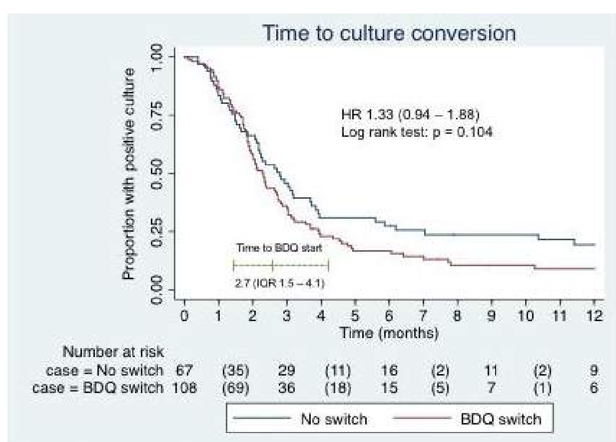
Y. Zhao[1], K. Manning[1], A. Stewart[2], T. Fox[1], N. Tiffin[3], A. Boulle[3], V. Mudaly[4], Y. Kock[4], G. Meintjes[5], S. Wasserman[5]
[1]University of Cape Town, Department of Medicine, Cape Town, South Africa, [2]University of Cape Town, Clinical Research Centre, Cape Town, South Africa, [3]University of Cape Town, School of Public Health and Family Medicine, Cape Town, South Africa, [4]Provincial Government of the Western Cape, Department of Health, Cape Town, South Africa, [5]University of Cape Town, Wellcome Centre for Infectious Diseases Research in Africa, Department of Medicine, Cape Town, South Africa

Background: Second-line injectable drugs (SLIs), core agents in the treatment of multidrug resistant tuberculosis (MDR-TB), are associated with substantial toxicity and treatment discontinuations. Bedaquiline is being widely used as a substitute in MDR-TB regimens for patients unable to tolerate SLIs, but the efficacy and safety of this strategy is unknown.

Methods: We conducted a retrospective cohort study to evaluate outcomes at 12-months for MDR-TB patients who substituted bedaquiline for SLIs. We included consecutive adult MDR-TB patients who had bedaquiline substitutions in the Western Cape Province of South Africa between May 2015 and May 2016, as well as MDR-TB controls who did not receive bedaquiline, matched for location and time of treatment initiation. Data were extracted from the electronic TB register. The composite primary outcome measure was the proportion of patients with death, loss to follow up, or failure to achieve sustained culture conversion at 12 months of treatment.

	Bedaquiline (n = 162)	Control (n = 168)
Age, years	42 (35-49)	35 (28-42)
Male sex	93 (57.4)	97 (58.1)
Weight, kg	54 (45.3-61.6)	No data
HIV positive	110 (67.9)	94 (74.0)
CD4 count, cells/mm3	92.5 (46-185)	222.5 (54-375)
HIV viral load lower than detectable limit	46 (63.0)	50 (72.5)
Previous TB (any)	88 (63.3)	95 (56.6)
Extra-pulmonary TB	18 (11.4)	13 (7.8)
Sputum smear positivity	98 (60.5)	112 (66.7)

[Table 1. Baseline Demographic and Clinical Characteristics]



[Figure 1. Time to sputum culture conversion]

Results: Data from 330 patients with laboratory-confirmed pulmonary MDR-TB were analyzed; 162 with bedaquiline substitution and 168 controls. Baseline characteristics were similar between the groups, except for CD4 cell count which was lower in the bedaquiline group (Table 1). SLIs were stopped at a median of 54 days (interquartile range, IQR 25 - 82), with a 44 day (IQR 29 - 71) delay to starting bedaquiline. The primary outcome, ascertained in 200 individuals, occurred in 63 (55.3%) patients in the bedaquiline group versus 54 (62.8%) patients in the control group (odds ratio, 0.73; 95% confidence interval [CI], 0.41 to 1.23; P = 0.285). Rates of sustained culture conversion (48.6% vs. 47.8%), loss to follow up (10.5% vs. 12.5%), and death (6.8% vs. 6.6%) at 12 months were similar between the groups. There was a trend towards earlier sputum culture conversion in the bedaquiline group (hazard ratio, 1.33; 95% CI, 0.94 to 1.88; P = 0.104; Figure 1).

Conclusions: Substituting bedaquiline for SLIs in the treatment of MDR-TB does not result in inferior outcomes at 12 months compared with patients who remain on SLIs, supporting the use of this strategy in MDR-TB therapy. The substantial delay between interrupting SLIs and initiating bedaquiline needs to be addressed.

TUAB0206

Safety and efficacy of dolutegravir-based ART in TB/HIV co-infected adults at week 48

K. Dooley[1], R. Kaplan[2], T. Mwelase[3], B. Grinsztejn[4], E. Ticona[5], M. Lacerda[6], O. Sued[7], E. Belonosova[8], M. Ait-Khaled[9], K. Angelis[10], D. Brown[11], R. Singh[12], C. Talarico[13], A. Tenorio[13], M. Keegan[9], M. Aboud[9]
[1]Johns Hopkins University School of Medicine, Baltimore, United States, [2]Desmond Tutu HIV Foundation, Cape Town, South Africa, [3]Clinical HIV Research Unit, Johannesburg, South Africa, [4]4Instituto de Pesquisa Clinica Evandro Chagas FIOCRUZ, Rio de Janeiro, Brazil, [5]Hospital Dos de Mayo, Lima, Peru, [6]Fiocruz/Tropical Medicine Foundation Dr Heitor, Manaus, Brazil, [7]Fundación Huésped, Buenos Aires, Argentina, [8]Regional Center For Prevention and Treatment of AIDS and Infectious Diseases, Moscow, Russian Federation, [9]ViiV Healthcare, Brentford, United Kingdom, [10]GlaxoSmithKline, Stockley Park, United Kingdom, [11]ViiV Healthcare, Melbourne, Australia, [12]GlaxoSmithKline, Upper Merion, United States, [13]ViiV Healthcare, Research Triangle Park, United States

Background: Concurrent treatment of tuberculosis (TB) and HIV is challenging owing to drug interactions, overlapping toxicities, and immune reconstitution inflammatory syndrome (IRIS). The efficacy and safety of dolutegravir (DTG) in adults with HIV/TB co-infection was assessed.

Methods: INSPIRING (NCT02178592) is a Phase 3b, non-comparative, active control, randomised, open-label study in HIV-1-infected ART-naïve adults (CD4+ ³50 cells/µL) with drug-sensitive TB. Subjects on rifampicin-based TB treatment ≤8 weeks were randomised (3:2) to receive DTG (50mg twice daily during and 2 weeks post-TB therapy, followed by 50mg once daily) or EFV (600mg once daily), with two NRTIs for 52 weeks. The Week 48 primary endpoint was the proportion of DTG subjects with plasma HIV-1-RNA < 50c/mL (responders) using the FDA Snapshot algorithm (intent-to-treat exposed [ITT-E] population). An independent committee adjudicated IRIS episodes. The study was not powered to show a difference between arms; no formal statistical hypothesis was tested.

Results: Subjects were randomised to DTG (n=69) or EFV (n=44). Median baseline HIV-1-RNA and CD4+ counts were 5.10 $\log_{10}$c/mL and 208 cells/µL for DTG and 5.24 $\log_{10}$c/mL and 202 cells/µL for EFV. The proportions of Week 48 responders (ITT-E) were 52/69 (75%) (95%CI: 65%, 86%) for DTG and 36/44 (82%) (95%CI: 70%, 93%) for EFV. The DTG non-response rate was primarily driven by non-treatment-related discontinuations: eleven subjects (16%) for DTG and three (7%) for EFV discontinued due to non-treatment-related reasons whilst suppressed (mainly loss to follow-up). There were two protocol-defined virological failures (PDVF) and no treatment-emergent resistance-associated mutations (RAMs) for DTG and one PDVF in EFV with NRTI and NNRTI RAMs. Week 48 median CD4+ increases were 220 cells/µL (IQR: 111, 271) for DTG and 190 cells/µL (IQR: 104, 252) for EFV. Two EFV subjects discontinued due to AEs. TB-associated IRIS rates were low (DTG, n=4[6%]; EFV, n=4[9%]). No subjects discontinued due to IRIS or liver events. TB treatment success was 61/69 (88%) and 39/44 (89%) in DTG and EFV, respectively. Median DTG trough concentrations during twice daily dosing with rifampicin was like that with DTG once daily without rifampicin.

Conclusions: These results show that DTG is effective and well-tolerated in HIV/TB co-infected adults receiving rifampicin-based TB treatment.

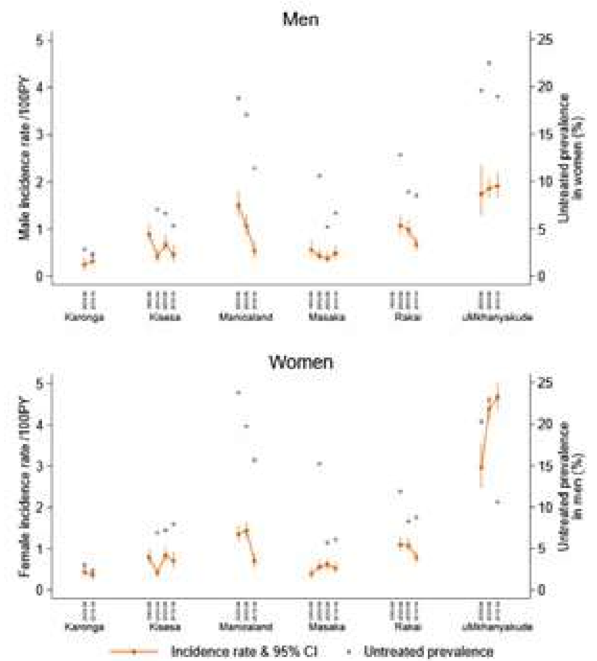
TUAC01 Forging new pathways towards HIV elimination

TUAC0101

HIV incidence trends among the general population in Eastern and Southern Africa 2000-2014

E. Slaymaker[1], J. Todd[1], M. Urassa[2], A.J. Herbst[3], N. McGrath[3,4], R. Newton[5,6], D. Nabukalu[7], A. Crampin[8,9], C. Nyamukapa[10,11], K. Tomlin[1], K. Risher[1], G. Reniers[1], M. Marston[1], B. Zaba[1]
[1]London School of Hygiene & Tropical Medicine, Population Health, London, United Kingdom, [2]National Institute for Medical Research, Mwanza, Tanzania, United Republic of, [3]Africa Health Research Institute, Durban, South Africa, [4]University of Southampton, Southampton, United Kingdom, [5]MRC/UVRI and LSHTM Uganda Research Unit, Entebbe, Uganda, [6]University of York, York, Uganda, [7]Rakai Health Sciences Project, Entebbe, Uganda, [8]Malawi Epidemiology and Intervention Research Unit, Lilongwe, Malawi, [9]London School of Hygiene & Tropical Medicine, Infectious Disease Epidemiology, London, United Kingdom, [10]Imperial College, London, United Kingdom, [11]Biomedical Research and Training Institute, Harare, Zimbabwe

Background: Studies from Kenya, Malawi, Tanzania, South Africa, Uganda and Zimbabwe comprise the Network for Analysing Longitudinal, Population-based HIV/AIDS data on Africa (ALPHA). We used data from 6 studies to assess whether HIV incidence has changed over time.
Methods: Individual participants consented to research HIV tests at regular intervals, typically around 2 years apart. Person-time under observation started at the first HIV negative test recorded while resident in the study area. Participants were followed until study exit or seroconversion. Seroconversion dates were estimated using multiple imputation assuming a uniform distribution of seroconversion dates between the last negative and first positive study test result.
We estimated incidence rates and Poisson confidence intervals, by study, sex and age (15-19,20-24, 25-29,30-34,35-39 and 40-49) and calendar year between 1995 to 2014. We fitted piecewise exponential models for 2000 to 2014 to estimate age-adjusted hazard ratios for non-linear change in HIV incidence over time with random intercepts for study and individual and a random slope for change over time by study.
To acount for exposure to infection we estimated age, sex and period-specific untreated HIV prevalence among potential heterosexual partners using observed data on age-mixing between sexual partners and HIV status and treatment status among the opposite sex. We included this in the regression model as an explanatory variable.
Results: There were 1475 seroconversions among 163,613 male person-years of observation and 3302 among 218,233 female person-years. Men and women aged 15-49 experienced clear incidence rate declines in Rakai and Manicaland; elsewhere women's incidence appeared stable or rising whilst men's was stable or declining (Figure 1).
Adjusted for age, men's incidence declined between 2000-04 and 2010-14 (HR 0.78,Table 1). Adjusting for untreated opposite sex prevalence decreased the effect of calendar year.
Female incidence trends diverged so three models were fitted showing: decline in Manicaland and Rakai, increase in uMkhanyakude and stable elsewhere (Table 1). Trends over time were greater after adjusting for untreated prevalence.
Conclusions: Incidence has declined among men, but not among women in all studies, most probably due to higher treatment coverage among women reducing their infectivity to men but not vice versa.



[Crude incidence rates by site, sex and calendar year period and the estimated mean untreated prevalence among sexual partners of the opposite sex.]

	MEN	MEN	WOMEN	WOMEN	WOMEN
	All studies	All studies, with untreated prevalence	Manicaland and Rakai	uMkhanyakude	Karonga, Kisesa, Masaka
	Adjusted HR (95% CI)	Adjusted HR (95% CI)	Adjusted HR (95% CI)	Adjusted HR (95% CI)	Adjusted HR (95% CI)
Calendar year					
1995-1999	1.01 (0.78-1.31)	0.94 (0.73-1.19)	0.23 (0.11-0.46)	-	0.78 (0.59-1.03)
2000-2004	1	1	1	1	0.65 (0.50-0.85)
2005-2009	0.93 (0.80-1.09)	0.96 (0.81-1.13)	1.18 (1.00-1.41)	1.40 (1.15-1.69)	1
2010-2014	0.78 (0.62-0.98)	0.87 (0.68-1.12)	0.78 (0.62-0.97)	1.90 (1.51-2.38)	0.85 (0.69-1.06)
Prevalence of untreated HIV in opposite sex partners	-	1.02 (1.01-1.03)	1.03 (1.01-1.05)	1.02 (1.01-1.03	1.01 (0.98-1.03)

[Table 1: Adjusted hazard ratios, 95% confidence intervals and p-values from poisson regression models for men and women adjusted for age and study.]

TUAC0102

Population viral load and recent HIV-1 infections: Findings from population-based HIV impact assessments (PHIAs) in Zimbabwe, Malawi, and Zambia

M. Farahani[1], E. Radin[1], S. Saito[1], K. Sachathep[1], J. Manjengwa[1], S. Balachandra[2], A. Low[1], Y. Duong[1], S. Jonnalagadda[2], H. Patel[2], D. Voetsch[2], W. Hladik[2], A. Hakim[2], N. Ahmed[1], G.N. Musuka[1], B.A. Tippett Barr[2], N. Wadonda-Kabondo[2], A.F. Auld[2], A. Jahn[2], D.B. Williams[2], D. Barradas[2], D. Payne[2], G. Bello[3], O. Mugurungi[4], B. Parekh[2], D. Hoos[1], J. Justman[1]
[1]Columbia University, ICAP, New York, United States, [2]U.S. Centers for Disease Control and Prevention (CDC), Atlanta, United States, [3]International Training and Education Center for Health (I-TECH), Lilongwe, Malawi, [4]Zimbabwe Ministry of Health and Child Care, Harare, Zimbabwe

Background: Population viral load (PVL) reflects antiretroviral therapy (ART) program effectiveness and transmission risk in a population. Using nationally representative data from household surveys conducted in

Zimbabwe, Malawi and Zambia in 2015-16, we examined the association between PVL and viral load suppression (VLS) and the probability of at least one recent HIV-1 infection in the surveys' smallest geographic sampling unit, an enumeration area (EA).

Methods: Viral load (VL) and limiting-antigen avidity enzyme immunoassay (LAg-Avidity EIA) testing were performed on all HIV-1 positive (+) samples. Recent HIV cases were defined by World Health Organization criteria (LAg-Avidity EIA < 1.5 ODn and HIV RNA > 1000 c/mL), and VLS as HIV RNA < 1000 c/mL. PVL was defined as the arithmetic mean of $\log_{10}$ HIV RNA of HIV+ individuals in the EA, and ART coverage as prevalence of self-reported current ART use. We used logistic regression adjusted for EA-level variables, e.g., HIV prevalence, population size and mean age of the female population, to estimate the probability of one recent HIV-1 infection.

Results: Among 1,510 EAs across the three surveys, a total of 58,366 adults aged 15-59 years resided in 1,374 (91%) EAs that had at least one HIV+ adult consenting to an interview and blood draw. Among the 1,374 EAs, 92.65%, 6.99% and 0.04% had 0, 1 and 2 recent HIV-1 cases, respectively. Mean VLS prevalence across these EAs was 63.5% (95% confidence intervals (CI) 62-65%).

In multivariable analysis, PVL, particularly among those unaware of their HIV+ status, was associated with a recent HIV-1 case in that EA (adjusted odds ratio [AOR]: 1.44, 95% CI 1.22-1.70, p < 0.001). VLS prevalence was inversely correlated with recent infections (AOR: 0.17, 95% CI 0.08-0.37, p < 0.001). On average, every 1% increase in VLS in an EA decreased the predicted probability of one recent infection by 8%.

Conclusions: We found a strong association between PVL and VLS prevalence with recent HIV-1 infection at the EA level in three southern African countries with generalized HIV epidemics. These results suggest expanding and maintaining high levels of VLS may be key to HIV epidemic control in these three countries.

TUAC0103

Temporal trends of population viral suppression in the context of Universal Test and Treat: Results from the ANRS 12249 TasP trial in rural South Africa

J. Larmarange[1,2], M.H. Diallo[1], N. McGrath[3,4,5], C. Iwuji[2,5,6], M. Plazy[7], R. Thiébaut[7], F. Tanser[3], T. Bärnighausen[2,8,9], J. Orne-Gliemann[7], D. Pillay[2,10], F. Dabis[7], TasP ANRS 12249 Study Group

[1]Ceped, Institut de Recherche pour le Développement (IRD), Université Paris Descartes, Inserm, Paris, France, [2]Africa Health Research Institute, Mtubatuba, South Africa, [3]Africa Health Research Institute, University of KwaZulu-Natal, School of Nursing and Public Health, Durban, South Africa, [4]Faculty of Medicine and Faculty of Social, Human and Mathematical Sciences, University of Southampton, Southampton, United Kingdom, [5]Research Department of Infection and Population Health, University College London, London, United Kingdom, [6]Department of Global Health & Infection, Brighton and Sussex Medical School, Brighton, United Kingdom, [7]Bordeaux University, School of Public Health (ISPED), Inserm, Bordeaux Population Health Research Center, UMR 1219, Bordeaux, France, [8]Department of Global Health & Population, Harvard School of Public Health, Harvard University, Boston, United States, [9]Heidelberg University, Institute of Public Health, Faculty of Medicine, Heidelberg, Germany, [10]University College London, Division of Infection and Immunity, London, United Kingdom

Background: The universal test-and-treat strategy (UTT) aims to maximize the proportion of all people living with HIV (PLWHIV) on antiretroviral treatment (ART) and virally suppressed in a community, i.e. to reach population viral suppression (PVS). The ANRS 12249 TasP trial did not demonstrate an impact of universal ART on HIV incidence at population level (Lancet HIV 2017). Here, we investigated whether PVS improved during the course of the trial: differentially by arm, according to trial interventions or contextual changes.

Methods: The TasP cluster-randomized trial (2012-2016) implemented six-monthly repeated home-based HIV counselling and testing (RHBCT) and referral of PLWHIV to local HIV clinics in 2×11 clusters opened sequentially. ART was initiated according to national guidelines in control clusters vs. regardless of CD4 count in intervention clusters.

Test results, clinic visits, ART prescriptions, viral loads, CD4 counts, migrations and deaths were used to produce information on residency status, HIV status and HIV care status for each participant. PVS was computed daily and per cluster among all resident PLWHIV (≥16, including those not in care). We used a mixed linear model to explore the relation between PVS with calendar time, time since cluster opening, trial arm and interaction between arm and time since cluster opening, adjusting on sociodemographic changes at cluster level.

Results: 8,646 PLWHIV were observed. Between January 1st, 2013 and January 1st, 2016, PVS increased significantly in both arms (intervention: 29.0% to 46.2%, +17.2, p< 0.001; control: 32.4% to 44.6%, +12.2, p < 0.001), but difference in temporal variation (+5.0%) was not significant (p=0.175).

According to adjusted model (figure) this increase was mainly attributable to RHBCT (measured by time since cluster opening). They were also some effect due to contextual changes (measured by calendar time). The effect attributable to universal ART (interaction term) was limited.

Conclusions: Although suboptimal, the UTT strategy implemented in TasP trial improved PVS over time. As it was mainly due to RHBCT rather than universal ART, it did not induce differences between arms, explaining the null effect observed on cumulative incidence, the main trial finding. Changes in ART initiation guidelines alone are not enough to significantly increase PVS.

TUAC0104

Trends in percent time spent viremic among persons newly diagnosed with HIV, San Francisco, CA, USA, 2008 - 2016

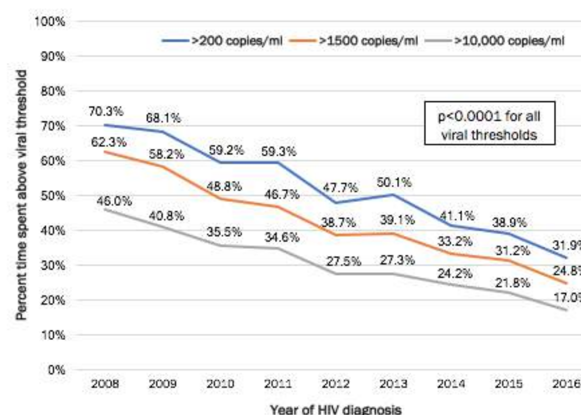
A. Hughes, L. Hsu, S. Scheer

San Francisco Department of Public Health, San Francisco, United States

Background: The risk of sexual HIV transmission increases when HIV viral load (VL) is above 1500 copies/mL. As such, persons newly diagnosed with HIV are at greater risk of transmission until they initiate ART and achieve sustained viral suppression. We sought to examine trends in time spent above three viral thresholds among persons newly diagnosed with HIV in San Francisco (SF).

Methods: We analyzed data from the HIV surveillance registry. Persons were included if they were diagnosed with HIV during 2008-2016, were SF resident at time of diagnosis, alive 12 months after HIV diagnosis and had ≥2 VL tests within 12 months after diagnosis. Consecutive VL pairs were used to calculate percent of person-time (pPT) spent above 200 copies/mL (pPT>200), 1500 copies/mL (pPT>1500) and 10000 copies/mL (pPT>10000) for the 12 months after HIV diagnosis. Multivariate zero-inflated negative binomial regression was used to assess trends in year of diagnosis and time spent above each viral threshold, while controlling for covariates (gender, transmission category, race/ethnicity, age, housing status, CD4+ lymphocyte count, health insurance type, and time from HIV diagnosis to ART initiation).

Results: Of the 3336 new HIV diagnoses from 2008-2016, 2556 (77%) met inclusion criteria for analysis. Overall, persons newly HIV diagnosed spent 53.6% of pPT>200, 44.1% pPT>1500, and 31.7% pPT>10000. By year, pPT>200 decreased from 70.3% in 2008 to 31.9% in 2016, pPT>1500 decreased from 62.3% in 2008 to 24.8% in 2016 and pPT>10000 decreased from 46.0% in 2008 to 17.0% in 2016 (p< 0.0001 for each threshold; see Figure).



[Percent time spent above each viral threshold during 12 months after HIV diagnosis by year of HIV diagnosis, San Francisco, CA, 2008-2016.]

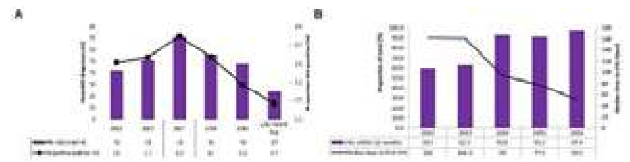
In adjusted regression, significant differences for all three pPT thresholds were found by transmission category, age, CD4 count, and time from HIV diagnosis to ART initiation. PWID (including MSM-PWID) and younger age were associated with increased pPT viremic. Persons with lower CD4 count and shorter time to ART initiation had decreased pPT viremic.
Conclusions: The percent time spent above each viremic level decreased significantly among newly diagnosed persons from 2008 to 2016. Thus, the possibility that persons with a recent HIV diagnosis could transmit HIV in more recent years decreased and likely contributed to the decreased HIV incidence observed in SF.

TUAC0105

HIV prevention in a Fast Track City: Trends in time-dependent HIV cascade indicators among gay and bisexual men attending high HIV caseload testing services in Melbourne, Australia

M. Stoove[1,2], J. Asselin[1], C. El-Hayek[1], S. Lewin[3,4], B. Allan[5], J. Hoy[6], E. Wright[1,6], S. Ruth[7], J. Mills[6,8], C. Carter[9], M. West[10], J. Manwaring[10], A. Fischer[4], A. Wilkinson[1,11], R. Guy[12], B. Donovan[12], D. Calendar[12], N. Higgins[10], P. Locke[7], N. Roth[13], B. Tee[14], J. Wilcox[15], L. Nguyen[1], K. Ryan[1,2], M. Hellard[1,2,6]
[1]Burnet Institute, Disease Elimination Program, Public Health Discipline, Melbourne, Australia, [2]Monash University, School of Population health & Preventive Medicine, Melbourne, Australia, [3]Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [4]The Peter Doherty Institute for Infection and Immunity, University of Melbourne, Melbourne, Australia, [5]International Council Of AIDS Service Organizations, Toronto, Canada, [6]The Alfred Hospital and Monash University, Department of Infectious Diseases, Melbourne, Australia, [7]Victorian AIDS Council, Melbourne, Australia, [8]Burnet Institute, Melbourne, Australia, [9]North-West Melbourne Public Health Network, Melbourne, Australia, [10]Victoria Department of Health and Human Services, Melbourne, Australia, [11]Cancer Council Victoria, Melbourne, Australia, [12]Kirby Institute, University of New South Wales, Sydney, Australia, [13]Prahran Market Clinic, Melbourne, Australia, [14]Centre Clinic, Victorian AIDS Council, Melbourne, Australia, [15]Northside Clinic, Melbourne, Australia

Background: The Fast-Track Cities partnership focuses on translating global HIV goals into local strategies, with progress towards 90-90-90 targets used as key indicators. Melbourne is Australia's only Fast Track City and, alongside Amsterdam, has reported achieving 90-90-90 targets. Sentinel surveillance in Melbourne also enables monitoring of individuals' progress through the HIV cascade, producing indicators highly sensitive to change. With 78% of HIV diagnoses in Melbourne occurring among gay and bisexual men (GBM), we present trends in HIV testing, diagnosis rates, and time to viral suppression among GBM attending three general practices specialising in GBM health and one GBM peer-led testing service in Melbourne.
Methods: HIV testing data was extracted from patient management systems through the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance (ACCESS) between Jan 2012-Sep 2017. Using anonymised unique identifiers, ACCESS prospectively links data on individuals' clinic attendances and laboratory test results. We calculated annualised trends in repeat testing (follow-up tests within three, six and 12-months), HIV positivity, the proportion of GBM with undetectable viral loads (<200 copies/ml) within 12 months of diagnosis and median time between diagnosis and undetectable viral load.
Results: 11,607 GBM received 47,722 HIV diagnostic tests between 2012 and 2017. There were significant increases in 12-month (56% to 63%; p<.01), six-month (28% to 44%; p<.001) and three-month (10% to 22%; p<.001) repeat testing. Between 2012 and 2017, 292 GBM were newly diagnosed with HIV; HIV positivity was 1.5% in 2012, peaked at 2.2% in 2014 then declined significantly to 0.4% in 2017 (p<.001). Among GBM newly diagnosed between 2012 and 2016, the percentage with undetectable viral loads (<200 copies/ml) within 12 months of diagnosis increased from 59% to 97% (p<.001) and the median time between diagnosis and undetectable viral load declined from 162 days to 50 days (p<.001).
Conclusions: Considerable declines in time between HIV diagnosis and viral suppression among GBM attending specialist HIV testing services in Melbourne have coincided with substantial declines in HIV diagnosis rates at these services. The most recent declines in diagnoses also coincided with a substantial scale up of PrEP among GBM in 2016-17 as part of a multi-site implementation project.



[Figure 1. HIV diagnoses and proportion of positive tests (A) and undetectable viral load (UVL) within 12 months of HIV diagnosis and median days to viral suppression (B) among GBM attending specialist services in Melbourne, 2012-17]

TUAC02 It's raining men: Key statistics for engagement

TUAC0201

Impact of HIV combination prevention in men who have sex with men, Bangkok, Thailand

S. Pattanasin[1], B. Cadwell[2], D.K. Smith[2], W. Sukwicha[1], P.A. Mock[1], W. Wimonsate[1], C. Ungsedhapand[1], P. Sirivongrangson[3], M.C. Thigpen[1,2], E.F. Dunne[1,2]
[1]Thailand MOPH-U.S. CDC Collaboration, Nonthaburi, Thailand, [2]Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, United States, [3]Ministry of Public Health, Department of Disease Control, Nonthaburi, Thailand

Background: PrEP is recommended for HIV prevention among at risk men who have sex with men (MSM) in Thailand. Anticipated PrEP impact on reduction of HIV infections would support the expansion of programs implementing PrEP in combination with consistent condom use. We used a deterministic model to assess PrEP and condom use and estimated HIV infections among MSM in Bangkok, Thailand using different adherence attributes.
Methods: For this deterministic model previously developed by Smith et al, we used three parameters from published data: 1) PrEP effectiveness from the iPrEx international clinical trial among MSM having < 50% adherence and ≥90% adherence based on self-reported medication adherence and pill counts 2) condom effectiveness from self-reported condom use during anal sex among MSM reporting at least one HIV-positive partner in two prospective HIV prevention trials and 3) annual HIV incidence in the absence of PrEP from the Bangkok MSM Cohort study, overall and stratified by characteristics. Among different age groups and risk behaviors, and adherence categories, the number of HIV infections per 10,000 MSM each year was calculated. The estimates assumed that PrEP and condom use efficacy were independent.
Results: Among MSM who had ≥90% PrEP adherence, an estimated 46 (19-110) HIV infections would occur among those who used condoms consistently; and an estimated 590 (520-680) HIV infections would occur among those not taking PrEP and not using condoms (a reduction of 544 HIV infections). Among MSM who had < 50% PrEP adherence, an estimated 116 (52-260) HIV infections would occur if condoms were used consistently. Combination HIV prevention used in MSM who were ages 18-21 years, or who engaged in sex parties, or who used club drugs with sex resulted in the greatest reduction of HIV infections (a reduction of 811, 922, and 1493 HIV infections) compared to those not using PrEP and condoms.
Conclusions: Models predict an estimated >10 fold reduction of HIV infections each year for MSM using PrEP and condoms in Bangkok, Thailand. Adherent combination prevention strategies in the highest risk MSM could result in the most substantial reductions in HIV infection.

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TUAC0202

Changes in rectal STI incidence and behavioral HIV risk before, during, and after PrEP in a national sample of gay and bisexual men in the United States

J. Parsons[1], H.J. Rendina[1], T. Whitfield[2], C. Grov[3]
[1]Hunter College-CUNY, Psychology, New York, United States, [2]Center for HIV Educational Studies and Training, New York, United States, [3]CUNY School of Public Health, New York, United States

Background: There has been mixed evidence about the extent to which gay and bisexual men (GBM) who use PrEP engage in greater condomless anal sex (CAS) and acquire STIs more frequently. Many studies rely on between-group comparisons of PrEP users and non-users or lack longitudinal data before and after PrEP initiation. The current study sought to examine within-person changes among men who electively initiated—and in some cases, discontinued—PrEP while enrolled in an observational study.

Methods: Data were taken from a longitudinal study of 1,071 HIV-negative GBM from across the U.S. Participants were tested annually for rectal gonorrhea and chlamydia and reported on PrEP use and CAS. We examined the odds of diagnosis with a rectal STI, number of CAS acts with casual male partners, and receptive CAS acts with serodiscordant casual male partners by PrEP status using general estimating equations; models were adjusted for visit year, relationship status, and race.

Results: We analyzed all data from the 281 (26.2%) GBM reporting PrEP use at one or more visits—1012 person-visits of data were examined, of which 517 (51.1%) were prior to initiation, 406 (40.1%) were while on PrEP, and 89 (8.8%) were after discontinuation. Overall prevalence of rectal STIs was 8.6%, with no significant changes in the odds while on PrEP (AOR = 1.28, $p = 0.36$) or after discontinuing (AOR = 0.28, $p = 0.08$) compared to pre-uptake. There were significant increases in CAS with casual male partners (AOR = 2.49, $p < 0.001$) and receptive CAS with serodiscordant male partners (AOR = 8.02, $p < 0.001$) while on PrEP compared to before uptake; no significant differences were observed in CAS comparing pre-PrEP and post-PrEP assessments.

Conclusions: Despite substantial within-person increases in CAS, including receptive CAS with serodiscordant partners, we failed to observe statistically significant increases in rectal STI incidence. It is likely that the desire for CAS was a motivator for initiating PrEP and GBM feel more comfortable having CAS while on PrEP. At discontinuation, however, CAS returned to pre-PrEP use levels, suggesting GBM are quite capable of other HIV prevention strategies when no longer on PrEP.

TUAC0203

Reducing risk of male sex partners: HIV testing, treatment, and VMMC of men in PEPFAR-supported DREAMS districts

C. Cooney[1], K. Sato[2], S. Allen[1], N. Toiv[1], D.H. Watts[1], J. Saul[1]
[1]U.S Department of State, Office of the U.S. Global AIDS Coordinator and Health Diplomacy, Washington, D.C., United States, [2]U.S. Peace Corps, Washington, D.C., United States

Background: The U.S. President's Emergency Plan for AIDS Relief's (PEPFAR) launched the Determined, Resilient, Empowered, AIDS-Free, Mentored and Safe (DREAMS) Public-Private Partnership in 2014 with the goal of preventing HIV in adolescent girls and young women (AGYW) in ten high HIV burdened African countries. PEPFAR complemented DREAMS activities for AGYW with increased funding to ensure saturation of HIV services for young adult men in DREAMS districts, including HIV testing (HTS), treatment, and voluntary medical male circumcision (VMMC).

Here we compare DREAMS and similar non-DREAMS districts in five countries to examine changes in HTS, VMMC, and treatment results after two years of DREAMS implementation (2015-2017).

Methods: Countries were selected for inclusion if they met the following criteria: there were comparable non-DREAMS districts that were originally considered for DREAMS or will begin DREAMS implementation in 2018; and districting remained consistent from 2015-2017.

PEPFAR indicators were used to analyze total number of VMMCs completed, clients tested, and new clients on treatment for males 15-49 years in DREAMS and non-DREAMS districts. Annual results from 2015 and 2017 were compared and a percent change was calculated. A series of generalized linear mixed models, based on a Poisson distribution, were used to assess the difference between DREAMS vs. non-DREAMS districts. We controlled for false discovery rate for multiple hypothesis testing.

Results: The generalized linear mixed models showed significant positive differences (p-value < 0.001) between DREAMS vs. non-DREAMS districts in three countries for an increase in new on treatment, three countries for increase in total number tested, and two countries for an increase in VMMCs supported. Results are shown in the table.

Conclusions: Change in VMMC, HTS, and treatment results for men ages 15-49 in DREAMS vs. non-DREAMS districts varied. In DREAMS districts that showed a greater percent increase vs. non-DREAMS districts in testing and treatment indicators, data suggest that focusing on treatment as prevention for male partners during DREAMS implementation may be associated with an increase in these services. Variation in results emphasizes the need for continued efforts in reaching young adult men and in reaching AGYW with structural and combination prevention to interrupt the cycle of heterosexual HIV transmission.

	VMMC			HIV Testing			New on Treatment		
Country	DREAMS	Non-DREAMS	Coefficient (Standard Error)	DREAMS	Non-DREAMS	Coefficient (Standard Error)	DREAMS	Non-DREAMS	Coefficient (Standard Error)
Kenya	-11%	-41%	0.449 (0.016) ***	123%	50%	0.396 (0.003) ***	1%	5%	-0.042 (0.022)
Malawi	23%	-55%	0.967 (0.025) ***	99%	-17%	0.874 (0.007) ***	21%	-24%	0.462 (0.031) ***
Mozambique	2%	77%	-0.554 (0.019) ***	N.D.	N.D.	N.D.	1739%	1608%	0.455 (0.080) ***
Zambia	112%	16%	0.605 (0.012) ***	74%	86%	-0.064 (0.005) ***	55%	50%	0.028 (0.021)
Zimbabwe	-4%	-11%	0.068 (0.016) ***	93%	78%	0.083 (0.006) ***	606%	302%	0.644 (0.042) ***

N.D. = Not Determined; Mozambique did not report age/sex disaggregated data for HIV testing in 2015. *** p-value <0.001; ** p-value <0.01; * p-value <0.05

[Percent Change in DREAMS vs. Non-DREAMS PEPFAR Districts in VMMC, HTS, and Treatment Results for Males Ages 15-49 (2015-2017)]

TUAC0204

Profile of adverse events in a national VMMC program in Mozambique (2009-2017): Reduction in AE with a national scale-up, but three events require further attention

H. Muquingue[1], S. Ndimande[2], E. Necochea[2], S. Wei[3], R. Frescas[2], I. Malimane[3], A. Jaramillo[2], M. Mahomed[4], C. Lee[5], M. Canda[3]
[1]Jhpiego Mozambique, MER, Maputo, Mozambique, [2]Jhpiego Mozambique, Maputo, Mozambique, [3]CDC Mozambique, Maputo, Mozambique, [4]Jhpiego South Africa, Durban, South Africa, [5]Jhpiego, Baltimore, United States

Background: Adverse events (AE) in male circumcision are "any injuries, harm, or undesired outcomes occurring during or following male circumcision (MC) that would not have occurred if the client had not undergone the procedure" (USAID). AEs are categorized by severity (mild, moderate and severe), timing (intra or post-operative), nature (bleeding, etc), and surveillance (passive or active). AE occurrence is a proxy for quality management and provision, and influences MC acceptability. Thus, efforts try to both understand the program- and beneficiary-related etiologies of AE and monitor AE, particularly in large scale MC programs, given the potential risks involved.

Methods: We report on AE identified within males circumcised in Mozambique by Jhpiego, from 2009-2017 with more than 700,000 VMMC procedures provided through a national program. Data on AE events in Mozambique VMMC program were analyzed, using descriptive statistics and trends. AEs were calculated per age group and severity (moderate or severe).

Results: Out of 718,090 procedures, there were 1,826 moderate and severe AEs (0.25% rate, peaking at 2.3%, in the first month), with 1,650 moderate (90.4%) and 176 severe (9.6%). The three most common AEs (80% of AE) were infection (41%), hematoma (23%) and excessive bleeding (16%). Damage to the penis and pain accounted for 6% each. Most moderate AEs were infections (44.2%), and most severe AE were hematomas (59.1%). The most affected age was 10 to 14 years, with 40% of the AEs, followed by 15 to 19, and 20 to 24 years, with 24% each. By age strata, AE were 0.2% (10-14), 0.22%(15-19; 35-49), 0.8% (50+); 0.29%(30-34); 0.37%(25-29); 0.57%(20-24).

Conclusions: A high volume VMMC program has the potential to dramatically reduce AE occurrence, overtime. The high prevalence of infection as an AE may be related to both client and provider factors, which require further consideration; parents and caregivers need to understand proper wound care; providers need to assure proper technique during MC procedures. A challenging limitation is that AE reporting depends on providers recognizing, documenting and addressing adverse events, therefore results should be carefully backed by an active surveillance system to improve the reliability of data and seek those opportunities for quality improvement.

TUAC0205

Results from a cluster-randomized trial to evaluate a microfinance and peer health leadership intervention for HIV and intimate partner violence prevention among social networks of young Tanzanian men

S. Maman[1], M. Mulawa[2], P. Balvanz[1], H.L. McNaughton-Reyes[1], M. Kilonzo[3], T. Yamanis[4], B. Singh[5], L. Kajula[3]
[1]University of North Carolina at Chapel Hill Gillings School of Global Public Health, Health Behavior, Chapel Hill, United States, [2]Duke University, Global Health Institute, Durham, United States, [3]Muhimbili University of Health and Allied Sciences, Department of Psychiatry and Mental Health, Dar es Salaam, Tanzania, United Republic of, [4]American University, School of International Service, Washington, United States, [5]Medical University of South Carolina, Department of Psychiatry and Behavioral Sciences, Charleston, United States

Background: Despite calls to engage men in HIV and intimate partner violence (IPV) prevention efforts, effective approaches to reach and engage men in low-resource, high-HIV prevalence settings are limited. We identified and engaged social networks of mostly young men, locally referred to as "camps," in Vijana Vijiweni II, a cluster-randomized trial to evaluate the efficacy of a combined microfinance and peer health leadership intervention for HIV and IPV prevention among 59 camps in Dar es Salaam, Tanzania.

Methods: Thirty camps (n=621 men) were randomly assigned to the two-year intervention condition and 29 camps (n=628 men) were randomized to the control. Behavioral assessments were conducted at baseline and 30-months post-intervention launch, with biological samples drawn at 30-months to test for sexually-transmitted infections (STIs). Primary outcomes included prevalence of STIs and past-year IPV perpetration. Secondary outcomes included STI sexual risk behaviors and past-year HIV testing. Proximal intervention targets included inequitable gender norm attitudes and hope. We compared outcomes among intervention vs. control participants by computing covariate-adjusted risk ratios (aRR) with robust confidence intervals (CI) using an intention-to-treat approach.

Results: Of 1,249 men enrolled in the trial, 1,029 (82.4%) completed the 30-month follow-up. There was no evidence that the intervention reduced STI prevalence (aRR 1.05, 95% CI 0.86-1.29), IPV perpetration (aRR 1.15, 95% CI 0.91-1.44), or STI risk behaviors. Men in the intervention condition reported greater levels of past-year HIV testing, controlling for HIV testing status at baseline, (aRR 1.13, 95% CI 1.00-1.28, p=.04) as well as significantly lower levels of inequitable gender norm attitudes at the 30-month follow-up (adjusted effect -0.11, 95% CI -0.21-0.00, p=.04), while there was no significant difference in hope across condition.

Conclusions: We successfully engaged and retained social networks of men in this multilevel HIV and IPV prevention study. The combined microfinance and peer health leadership intervention successfully improved HIV testing and reduced inequitable gender norm attitudes. We did not see an effect on the primary outcomes or STI sexual risk behaviors. Additional analyses will examine whether there were effects for particular subgroups and whether there were differential effects as a function of intervention exposure.

TUAC03 Diversities in delivery: PrEP from home to clinic

TUAC0301

Retention in care for HIV pre-exposure prophylaxis (PrEP) among sex workers of four public health centers in Senegal

O. Diouf[1], M. Sarr[2], D. Gueye[1], M. Mane[1], A. Mboup[1], C. Toure Kane[1], S.E. Hawes[3], C. Suarez[2], M.D. Bousso Bao[1], F. Jones[2], J. Presley[4], G. Gottlieb[3], S. Mboup[1]
[1]IRESSEF : Institut de Recherche en Santé, de Surveillance Epidemiologique et de Formations, Dakar, Senegal, [2]Westat, Rockville, United States, [3]University of Washington, Seattle, United States, [4]Bill and Melinda Gates Foundation, Seattle, United States

Background: Recent breakthroughs in antiretroviral (ARV)-based prevention provide new opportunities to rethink HIV prevention strategies, especially for key populations such as female sex workers (FSWs). As pre-exposure prophylaxis (PrEP) demonstration projects are increasingly initiated, more information is needed about the correlates of PrEP retention when implemented in Ministry of Health (MoH)-run clinics such as in Senegal.

Methods: The Senegal PrEP Demonstration Project is a prospective, open-label cohort study assessing the delivery of oral Truvada (emtricitabine/tenofovir DF) PrEP to FSWs in 4 Ministry of Health (MoH)-run clinics in Dakar, Senegal. We assessed retention in PrEP care at 6 and 12-months follow-up. Repeated measures analysis using Generalized Estimating Equation (GEE) models were used to identify the predictors of PrEP retention.

Results: Overall, out of 325 eligible FSWs, 271 (83.4%) were initially enrolled at baseline. The average age of those enrolled was 38 years (STD=8.7). Most FSWs were Senegalese (96.7%), and approximately half of them never attended school (44.8%). Among the 267 participants who were prescribed PrEP, 70.4% were retained in care at six months (Pikine: 68.5%, Mbao: 78.8%, Rufisque: 71.2%, Diamniadio: 65.8%; p=0.439) and 67% were retained in PrEP care at twelve months (Pikine: 69.9%, Mbao: 61.5%, Rufisque: 72.7%, Diamniadio: 63.2%; p=0.483). Older age among FSW was found to be a significant predictor of higher PrEP retention (P = 0.0012). Compared to the 18-24 year age group, the 25-34 (OR= 2.53, 95%CI=1.22-4.99), 35-44 (OR= 3.24, 95%CI=1.57-6.23), and 45+ year age groups (OR= 3.85, 95%CI=2.13-10.27) were significantly more likely to be retained in PrEP. We did not find significant differences in retention by site, education, registration as sex worker status, condom use or HIV risk perception.

Conclusions: Our results showed evidence of good PrEP retention rates among FSWs at 12-months follow-up when offered in Ministry of Health (MoH)-run clinics in Dakar, Senegal, with older age as the only significant predictor of higher PrEP retention. Further research is needed to identify the factors that may optimize retention in PrEP care in public health settings.

TUAC0302

Key population-led health services (KP-LHS) critical to PrEP introduction among MSM and TG in Thailand

R. Vannakit[1], M. Kim[1], S. Charoenying[2], S. Mills[2], M. Avery[2], N. Phanuphak Pungpapong[3], P. Phanuphak[3], D. Rinjongrat[4], S. Janyam[5], P. Chanlearn[6], S. Sittikarn[7], T. Nakpor[8]
[1]Office of Public Health, U.S. Agency for International Development, Regional Development Mission Asia, Bangkok, Thailand, [2]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [3]Thai Red Cross Aids Research Center, Bangkok, Thailand, [4]Rainbow Sky Association of Thailand, Bangkok, Thailand, [5]Service Workers in Group, Bangkok, Thailand, [6]Mplus Foundation, Chiang Mai, Thailand, [7]Caremat, Chiang Mai, Thailand, [8]Sisters Foundation, Pattaya, Thailand

Background: PrEP is a necessary component of a national AIDS program in many settings, but particularly in countries with concentrated epidemics among key populations (KPs). There are to date only a few countries who have approved PrEP and even fewer who have attempted rapid scale-up for epidemic control.

Methods: PrEP is available through multiple providers in Thailand, including 13 government hospitals, 5 public- and private-sector clinics, and 7 community-based organizations working under a key population-led health services (KP-LHS) model. We examined data from sites to assess the contribution of KP-LHS as part of a national strategy to increase PrEP uptake.

Results: Between October 2016 and January 2018, the cumulative number of reported PrEP users in Thailand from all sources increased by more than 200%. PrEP uptake as a percentage of all clients tested HIV-negative was slightly higher at government facilities than through community-based providers (7% versus 5%) but the total number of KP clients receiving PrEP under the KPLHS model was six times higher (1,299 versus 183). PrEP uptake at a private-sector clinic targeting men who have sex with men was significantly higher (1,205 PrEP clients, 16%) but PrEP clients at that clinic were significantly more likely to be non-Thai clients compared with clients at community-based services (88% versus 8%). Over the 15-month period, none of the clients who accessed PrEP through hospital services seroconverted; four clients who accessed community-based PrEP later tested HIV-positive (0.2%), though it is impossible to ascertain whether these clients were actively using PrEP at the time of infection.

Conclusions: Our study on the scale-up of PrEP showed that the most significant increase of clients requesting PrEP were at KP-LHS sites as well as private clinics whose services are provided by KPs. These organizations appear to be the most critical for rapid scale-up, particularly where epidemic growth is concentrated among KPs. Government health facilities are still needed for sustainability and coverage. However, our data suggest that in the early stages of introduction, KP-LHS can quickly add new products such as PrEP and obtain high uptake through their trusted relationships with KPs.

TUAC0303

Comparison of measures of adherence to HIV pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM) and transgender women (TGW): Results from the PrEP Brasil study

L.M.S. Marins[1], T.S. Torres[1], I. Costa Leite[2], R.I. Moreira[1], B. Hoagland[1], E.G. Kallas[3], J.V. Madruga[4], P.L. Anderson[5], A.Y. Liu[6], B. Grinsztejn[1], V. Veloso[1], PrEP Brasil Study Team
[1]Fundação Oswaldo Cruz, Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro, Brazil, [2]Fundação Oswaldo Cruz, Escola Nacional de Saúde Pública, Rio de Janeiro, Brazil, [3]Universidade de São Paulo, School of Medicine, São Paulo, Brazil, [4]Centro de Referência e Treinamento em DST/AIDS, São Paulo, Brazil, [5]University of Colorado, Skaggs School of Pharmacy and Pharmaceutical Sciences, Denver, United States, [6]San Francisco Department of Public Health, Bridge HIV, San Francisco, United States

Background: Adherence is a critical factor for efficacy of daily emtricitabine/tenofovir (FTC/TDF) for PrEP. We examined the concordance between three adherence measures contrasted to protective drug levels among participants retained through 48 weeks in the PrEP Brasil Study.

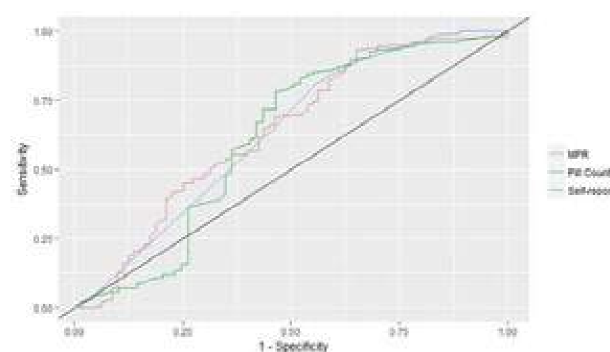
Methods: PrEP Brasil was a prospective, multicentre, open-label demonstration project assessing PrEP delivery for MSM and TGW at higher risk for HIV infection in the context of the Brazilian Public Health System. Three adherence measures were obtained at week 48: Self-report (in-person interview; 30-days recall), Pill count (tablets dispensed in prior visit minus tablets returned at week 48, divided by the days between the two visits) and Medication possession ratio (MPR) (ratio between tablets dispensed in prior visit and days between the two visits). TFV-DP was measured using LC-MS/MS at week 48. Areas under the ROC curve (AUC) were used to evaluate the concordance between achieving protective drug levels (TFV-DP≥700fmol/punch) and the adherence measures. The optimal cut-off points for discriminating between those with/without protective drug levels were found based on Youden index and distance to corner. Sensitivity, specificity, negative (NPV) and positive (PPV) predictive values for the cut-off points were calculated. Finally, we carried out the DeLong test to verify whether the curves are different from each other.

Results: From April/2014 to July/2016, 450 participants initiated PrEP, 375(83.3%) were retained through 48 weeks. Of these, FTC/TDF was provided to 354(94.4%) in the previous 3 months and those participants were included in this analysis. Median age was 30 years (IQR: 25-35); 84(23.7%) were aged 18-24 years, 19(5.4%) TGW, 41(11.8%) black and 83(24.5%) had < 12 years of education. At week-48, 77.4%(274/375) had TFV-DP ≥700fmol/punch. All adherence measures were able to discriminate between participants with and without protective drug levels (AUC>0.5) (Table 1).

Adherence measures	Median adherence (IQR)	AUC (95%CI)	P-value	Cut-off point	Sensitivity	Specificity	PPV	NPV
MPR	1.16 (1.00-1.31)	0.64 (0.56-0.71)	<0.001	1.07	0.69	0.54	0.84	0.34
Pill count	96.82 (88.15-100.00)	0.62 (0.53-0.70)	0.01	90.24	0.77	0.54	0.86	0.38
Self-report	100.00 (96.67-100.00)	0.64 (0.56-0.71)	<0.001	100.00	0.65	0.54	0.84	0.29

[Table 1. Association between adherence measures and protective drug levels]

High recorded adherence was predictive of protective drug levels (PPV>0.8) while low recorded adherence was fairly predictive of lack of protective drug levels (NPV< 0.4). No statistical differences were found between the adherence methods curves (p=0.38) (Figure 1).



[Figure 1. ROC Curves for protective drug level vs adherence measures.]

Conclusions: Low-burden measurements such as MPR and self-report can be used to predict PrEP adherence in a public health context in Brazil.

TUAC0304

Uptake of PrEP within clinics providing integrated family planning and PrEP services: Results from a large implementation program in Kenya

K. Mugwanya[1], J. Pintye[1], J. Kinuthia[1,2], F. Abuna[3], H. Lagat[3], M. Serede[3], J. Sila[3], G. John-Stewart[4], J.M. Baeten[4], PrEP Implementation for Young Women and Adolescents (PrIYA) Program
[1]University of Washington, Department of Global Health, Seattle, United States, [2]Kenyatta National Hospital, Nairobi, Kenya, [3]University of Washington-Kenya, Nairobi, Kenya, [4]University of Washington, Departments of Global Health, Epidemiology and Medicine, Seattle, United States

Background: Integrating PrEP within family planning (FP) clinics could serve as a platform for reaching young women at-risk for HIV in high burden settings. The PrEP Implementation for Young Women and Adolescents (PrIYA) Program is conducting real-world delivery of PrEP to at-risk women seeking routine FP services in Western Kenya.
Methods: PrIYA is part of the DREAMS Innovation Challenge funded by PEPFAR managed by JSI Research & Training Institute, Inc. We approached HIV-uninfected women seeking routine FP services at 16 clinics in Kisumu County, Kenya from June to December 2017. At each encounter, women were screened for behavioral risk factors and willingness to consider PrEP following the national PrEP guidelines. Eligible women who were interested in PrEP were offered PrEP at the same visit.
Results: Overall, we conducted 493 assessments among FP clients for behavioral risk factors and willingness to consider PrEP. Among all women, median age was 25 years (IQR 21-29); 78% were married and 39% did not know their male partner's HIV status. The most frequently used FP methods were injectables (53%), implants (32%) and oral contraception (7%); 4% used intrauterine devices (IUDs), 4% used condoms alone and 3% used other methods.
Overall, 110 (22%) of encounters led to PrEP initiation. Frequency of PrEP initiation differed by male partner HIV status (HIV-negative 11%, unknown 30%, HIV-positive 82%, p< 0.001). Younger women were as likely to initiate PrEP as older women (< 24 vs ≥24 years, OR=1.53, 95% CI 0.93-2.51, p=0.09). Initiating PrEP was associated with having an STI (OR=5.33, 95% CI 1.28-22.09, p=0.021) and experiencing intimate partner violence in the last 6 months (OR=3.17, 95% CI 1.27-7.88, p=0.01).
Likelihood of PrEP initiation did not differ between women using a non-barrier FP method (hormonal contraception or IUDs) and women using condoms alone (OR=2.02, 95% CI 0.43-9.48, p=0.37). Frequently reported reasons for declining PrEP included the perception that HIV risk was low (30%) and the partner was HIV-negative (30%).
Conclusions: Among FP clinic attendees in Kenya, PrEP initiators were more likely to have HIV risk factors and just as likely to use FP methods other than condoms as those who declined PrEP.

TUAC0305

Adolescent use of Truvada (FTC/TDF) for HIV pre-exposure prophylaxis (PrEP) in the United States (2012-2017)

D. Magnuson[1], T. Hawkins[2], R. Mera[1]
[1]Gilead Sciences, Epidemiology, Foster City, United States, [2]Gilead Sciences, Medical Affairs, Foster City, United States

Background: Truvada (FTC/TDF) for PrEP has been approved for use in adults (≥18 years of age) at high risk of sexually acquired HIV infection in the US, EU, and other countries. Regulatory reviews are ongoing to expand the indication to include adolescents.
There are limited data on the efficacy of FTC/TDF for PrEP in adolescents and there are no data on drug utilization in US or EU.
This study describes FTC/TDF for PrEP use in adolescents in US from January 2012 through September 2017.
Methods: We used a nationally representative sample of de-identified data from a US prescription claims database to quantify the number of unique individuals who received a FTC/TDF for PrEP prescription, representing >80% of retail pharmacies in the US. Data included medical claims, diagnosis, diagnostic procedures and both patient and provider demographics. A validated algorithm was used to exclude FTC/TDF for non-PrEP use (e.g. chronic HIV treatment, post-exposure prophylaxis and chronic Hepatitis B treatment).
Results: From January 2012 to September 2017, 148,147 unique individuals began FTC/TDF for PrEP: 2,388 (1.6%) were 12-17 yrs; 20,409 (13.8%) were 18-24 yrs; 114,279 (77.1%) were 25-54, and 11,071 (7.5%) were ≥ 55 yrs. The total number of adolescents increased annually from 266 in 2012 to 805 in 2015, but decreased to 216 in 2016. Females given FTC/TDF for PrEP accounted for 86.0% of adolescents while comprising only 18.4% of adults given prescriptions (p < 0.0001). Medicaid provided coverage for FTC/TDF in 59.1% of adolescents as compared to 13.5% of adults. Adolescents received FTC/TDF for PrEP prescriptions most commonly from pediatricians (31.6%), emergency medicine (22.6%), and family medicine physicians (12.3%).
Conclusions: While adolescent use of FTC/TDF for PrEP is not approved in the US, 1.6% of FTC/TDF PrEP users were < 18 years of age. In contrast to adults on FTC/TDF for PrEP, adolescents on FTC/TDF for PrEP were predominantly female and commonly used Medicaid coverage. Pediatricians and emergency medicine doctors were most common prescribers in adolescents. Adolescents and young adults are disproportionately affected by HIV and efforts to increase access to PrEP for adolescents at high risk are important, including expanding the indication.

TUAD01 Harm reduction: I can't get no satisfaction

TUAD0101

Study on drug consumption rooms on current practice and future capacity to address communicable diseases like HCV

E. Schatz[1], V. Belackova[2]
[1]De Regenboog Groep, Correlation Network, Amsterdam, Netherlands, [2]Uniting MSCI, Sydney, Australia

Background: Drug consumption rooms (DCRs) target the most vulnerable people who inject drugs (PWID). While decreases in risky injecting behaviours are an outcome of DCR use, specific HCV prevention & treatment in these settings haven't been described. There are no international DCR standards for HCV practice and research is yet to address sero-prevalence status of DCR clients and their access to HCV prevention, treatment or supportive services.
Methods: An online survey providing a 'snapshot' of DCR clients' HCV status, their access to HCV services and the needs in expanding these was conducted in 2016. 49 of the 91 DCRs from Australia, Canada, Denmark, France, Germany, Luxembourg, Netherlands, Norway, Spain and Switzerland participated in the survey (54%). Each country where a DCR operates was represented.
Results: An estimate of clients ration that were tested for HCV (mean=72%) and that were HCV positive (mean=60%) was provided by 39 DCRs. Most DCRs provided HCV testing onsite (n=30) via blood samples (n=19) or finger prick/saliva (n=10). Also, several DCRs referred clients offsite for testing (n=23).
Only three European DRCs provided HCV treatment onsite; one providing DAAs. Several offered disease self-management support (n=21) or monitoring of liver health (n=10). Overall, HCV support (n=41) as well as new treatment (n=42) or interferon (n=24) were available to DCR clients offsite, and the majority of DCRs referred their clients into that treatment (n=35).
To provide further HCV-related services, DCRs would need more staff time (n=23) and training (n=21), expanded staff qualifications (n=13) and funding for equipment and services (n=18). A change in national HCV treatment guidelines for active drug users was also identified as a need (n=11).
Conclusions: DCR involvement in HCV prevention and treatment is crucial. With access to most marginalised populations, DCRs staff need to be supported to provide an entry point to HCV treatment.

TUAD0102

You don´t feel freedom inside: Causes and factors influencing the adherence to the substitution therapy program in Khujand, Tajikistan

N. Ilhomjon[1], A. Sarang[2]
[1]NGO Khujand, Khujand, Tajikistan, [2]SKOSH, Amsterdam, Netherlands

Background: The substitution therapy program in Khujand (Tajikistan) started in 2011 with the support of UNDP/GFATM. 345 PWID passed through the program, however, during six years 283 patients (82%) have fallen out. Currently, 62 clients are enrolled, or 6% or PWID registered in the region - coverage far below the targets recommended by WHO for universal access to HIV prevention, treatment and care for PWID. Low coverage and high drop out rate undermine the program effectiveness in preventing HIV. Our qualitative study aimed to identify the factors that influence adherence.
Methods: In 2017 we carried out in-depth interviews with twelve men and six women aged between 34 and 46 who used to participate in the program (15) or are current clients (3). We also interviewed two doctors.
Results: Analysis revealed the factors that affect low retention:
1) The discrepancy between expectations and reality: many participants said they expected the program to be a short-term intervention that would fully rid them of dependency.
2) Neglect: respondents felt the program failed to consider their needs and fully excluded them from decision making regarding own treatment, in particular concerning the dosage, their psychological needs were not addressed.
3) Stringent rules and insufficient information. Often patients signed their contract without understanding the terms and regulations.
4) Loss of control. The patients are required to visit OST daily which impedes resocialization and employment. Many withdrew from the program as they felt lack of personal freedom and control. In general, people felt disempowered by the program even more than by their previous drug addiction and wanted the exit to regain control over their lives.
Conclusions: To make the program an empowering environment for people to regain control over their lives, not visa versa we need to:
- Ensure more patient involvement in decision making regarding the overall program design and individual treatment plans;
- Allow take-home methadone, subject to individual conditions;
- Make methadone available at pharmacies, hospitals and penal institutions;
- Include patient representatives in the program governance and staff;
- Give more attention to patient expectations before admission and ensure more psychosocial support in achieving their goals.

TUAD0103

Increased methadone dose reduces illicit drug injection among HIV negative methadone clients in Myanmar

S. Tun[1,2], V. Balasingam Kasinather[2], D. Singh Mahinder Singh[2]
[1]Myanmar Medical Association, Yangon, Myanmar, [2]University Sains Malaysia, University of Science, Centre for Drug Research, Penang, Malaysia

Background: HIV prevalence rate among People who inject drugs (PWID) in Myanmar is high at 28.5%. The transmission of HIV can be reduced by reducing unsafe needle sharing among injecting drug uses and Opioid substitution. National Drug Abuse Prevention and Control Programme in Myanmar has increased financial and programmatic support for Methadone Maintenance Therapy as an Opioid Substitution Therapy (OST), paralleling with Needle Syringes Exchange Programme (NSEP). Out of 83,000 estimated people who inject drugs, more than 12,550(15%) had taken methadone for Opioid substitution in 2017. Evaluation of methadone programme is vital for the efficient service delivery.
Methods: A cross-sectional study was conducted in five cities with stratified random sampling from all State/ Regions of Myanmar, where methadone services delivered. A sample of 42 persons from each site with minimum 6-month duration on methadone, total 210 respondents were recruited to answer survey questionnaires relating to methadone profile, drug use history for 30 days and urine sample collection for methadone and illicit drug use detection (Morphine, Cannabis, Methamphetamine, Amphetamine, Benzodiazepam).
Results: Findings showed that 93 (44.5%) didn't inject within 30 days and 116 (55.5%) admitted that they injected heroin. Those respondents had average methadone dose of 83 mg ranging from 20 to 300mg and reported HIV is 74 out of 200, 37% of who answered. An increase in methadone dose proved that reduced in the reported drug injection within 30 days especially among HIV negative respondents (P= 0.00) in Cox regress analysis. This finding is also consistent with less use of Morphine in the urine samples (P=0.034) and less use of Cannabis in the urine findings (P=0.032). However, there is association of methadone dose and Benzodiazepam in the urine (P=0.014).
Conclusions: High dose of methadone maintenance therapy more than 80mg is crucial in reducing of illicit drug injection among HIV negative individuals which can subsequently reduce the unsafe practice of sharing needle among injecting drug uses. The increased methadone dose can further prevent HIV transmission among people who inject drugs. This methadone evaluation finding from Myanmar will be useful for other similar settings where methadone is used for Opioid substitution worldwide.

TUAD0104

Reducing harm caused by drugs: HIV prevention among people who inject drugs in South Africa

E.M. Sibanda
Right to Care, Global Fund, Pretoria, South Africa

Background: The overall aim of the Global Fund (GF) prevention programme is to reduce the number of new HIV infections and further spread of HIV among people who inject drugs (PWID). This was necessitated by rapid escalation of injection drug use which coincided with synergistic rise in HIV prevalence. A 2013, UNODC study in major metropolitan cities to assess HIV prevalence and risk practices among PWID found that 1 in 6 (14%) PWID where HIV infected. National prevalence rate is estimated at 19%. When comparing PWID to people in the general population from similar socio-economic contexts (using race as a proxy), the HIV burden among PWID is between two and ten times higher, (Scheibe et al 2014).
Description: The programme is guided by WHO comprehensive package of services for PWID and utilises combination prevention methods that include behavioural, biomedical and structural interventions. Peer outreach workers act as a link to biomedical services and conduct community awareness around drug use. Key interventions include HIV Testing Services (HTS), Antiretroviral therapy (ART), Opioid Substitution Therapy (OST), and Needle and syringe programme (NSP). Of the WHO comprehensive package the GF programme doesn't support diagnosis and treatment of Hepatitis C virus (HCV), a common occurrence among PWID due sharing of drug paraphernalia. A study by Semugona et al 2017 showed a 27% HCV positivity rate among men who have sex with men and injecting drugs in Cape Town. The programme is implemented in 4 cities, namely, Durban, Cape Town, Port Elizabeth and Johannesburg by Right to Care partners, Anova and TB HIV Care Association under Global Fund.
Lessons learned: Attainment of results was necessitated by stakeholder engagement in planning, community mapping, and implementation. From April 2016 to date the programme achieved the following;
Programme Results

Intervention	Output	Comment
PWID reached with comprehensive prevention package	2,349	Harm reduction messaging, information, education and communication
PWID tested for HIV and know their status	2,410	Positives referred for onward management
PWID HIV+	449	Denotes 19% positivity rate
Needles and syringes distributed	542,634	To minimise sharing and re-use of needles
PWID initiated on Opioid Substitution Therapy (OST)	63	17 lost to follow up denoting about 30% - in line with global trends

[Programme results]

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· HIV Positivity rate is in line with previous studies results.
· Use of peer outreach workers from target population helps in mapping areas and roll-out of interventions.
· Need to include Hepatitis C in programmes for PWID as co-infection is common

Conclusions/Next steps: Results show increased access to HIV prevention services and early enrolment in HIV care and treatment including medically assisted therapy (OST).

TUAD0105

Combatting the HIV epidemic among people who inject drugs in ground zero of the war on drugs - the Afghan experience

A.R. Rejaey
Bridge Hope and Health Organisation, Programme Director, Kabul, Afghanistan

Background: Afghanistan is at a cross-roads; the country is emerging from more than twenty years of political and social unrest as the leading global producer of opium in a geographic region widely affected by drugs and HIV. The number of drug users in Afghanistan is growing and currently is estimated at between 1.3 and 1.6 million. Drug treatment capacity in Afghanistan still covers only 7.8 per cent of opium and heroin users. The community consultation identified the rapid increase in the use of methamphetamine and overall drug-related risks being compounded by low knowledge levels.

Description: Bridge was formed by people who use drugs in 2014, and over time PLHIV and other key populations have mobilised together under the Bridge banner.

Bridge's team of peer advocates and peer educators have skilled up to undertake a number of different activities including:

Peer research
Peer education
Wound care management
Outreach
Multi and social media advocacy
High level advocacy

All this has been set against working in a very high risk context where people who use drugs face daily beatings, extortion, heavy criminalisation and the threat of being rounded up and forced in to a compulsory detox centre. The drug scene is also extremely volatile and only Bridge is prepared to undertake outreach in the midst of the open drug scenes.

Lessons learned: Peer workers can take harm reduction commodities and life saving settings where traditional harm reduction and HIV NGOs fear to tread.

Bridge has the ability to identify and respond to changing drug trends with creativity and applying international best practice

Bridge is able to identify failings in service provision from traditional providers including highlighting corruption, poor quality services and human rights abuses.

Bridge has been unable to secure sustainable funding as an HIV representative organisation or as a harm reduction provider despite repeatedly demonstrating its unique ability and capacity.

Conclusions/Next steps: There is an urgent need for international donors to step up and support Bridge so it can realise its potential and support the urgent scale up in the quality and coverage of the HIV response with PWID.

TUAD02 The defence does not rest: Resisting the criminalization of HIV

TUAD0201

The new AIDS denialism: How criminal courts' dismissal of modern science perpetuates HIV stigma, discrimination and criminalisation

E.J. Bernard, S. Cameron
HIV Justice Network, Brighton, United Kingdom

Background: People living with HIV continue to be charged with HIV-related offences, often in cases where the likelihood of transmission is remote or transmission is not possible.

Methods: The HIV Justice Network undertook a global audit of HIV-related arrests, investigations, prosecutions and convictions on behalf of HIV Justice Worldwide (October 2015 to September 2017: with final data to April 2018 to be presented).

Results: More than 200 prosecutions were identified. The vast majority related to a perceived risk of HIV acquisition associated with sexual activity, with a minority relating to biting, spitting and breastfeeding. Convictions were common, usually resulting in incarceration, including in cases where no harm was intended, where HIV transmission did not occur, and/or where HIV transmission was extremely unlikely or not possible. Often courts doubted or ignored contemporary scientific evidence of the preventative effectiveness of condoms, antiretroviral treatment and low viral load. (Non-transmission) cases include: incarceration for a single instance of breastfeeding; incarceration and sex offender registration for consensual sex with a low viral load; and denial of an appeal against a 30-year sentence for consensual sex, using a condom while having a low viral load. Disaggregated data showed gendered and heteronormative values strongly influence prosecutions, as do issues of race and social marginalisation.

Conclusions: Courts' dismissal of scientific evidence and corruption of legal principles has resulted in overt miscarriages of justice and the perpetuation of HIV-related stigma. Not only have individuals received long jail terms where HIV exposure was not possible, the ongoing application of HIV exceptionalism in courts of law undermines the human rights of all people living with HIV. Despite remarkable scientific advancements, many people living with HIV remain vulnerable to the risk of unjust prosecutions because up-to-date science on HIV-related risks and harm has not been effectively and/or consistently recognised in criminal law and associated policy. This issue requires the development of new strategies including greater involvement of HIV-expert scientists in structural interventions, and training and support of expert witnesses, defence lawyers and judges in their analysis of modern HIV science.

TUAD0202

Decriminalizing HIV: How people living with HIV translated quantitative research into community action and legislative transformation

H. Turk[1,2], A. Ochoa[3], A. Hasenbush[4]
[1]*L.A. HIV Law & Policy Project, Los Angeles, United States,* [2]*UCLA School of Law, Los Angeles, United States,* [3]*UCLA, Luskin School of Public Affairs, Los Angeles, United States,* [4]*UCLA School of Law, Williams Institute, Los Angeles, United States*

Background: On January 1, 2018, four HIV-specific criminal statutes were repealed or modified, making California the third state in the U.S. to transform and reduce the harsh impact of criminal laws targeting people living with HIV. This victory hinged on the strategic dissemination by PLWH of quantitative research and their role in effectively communicating the disparate impact of HIV criminalization on sex workers, women, and people of color.

Description: Beginning in 2015, The Williams Institute and the California HIV/AIDS Policy Research Center issued findings from California statewide data on the use of criminal laws targeting PLWH. The Los Angeles HIV Law and Policy Project and their collaborative partners trained and

engaged PLWH to present these data. Working in partnership with academic researchers, HIV-positive activists translated quantitative figures into compelling evidence demonstrating that HIV-specific laws were disparately enforced against HIV-positive women and people of color, especially those engaged in commercial sex work. At every step throughout the movement, the experiences of PLWH were centered not just in the data but also, and most importantly, in the voices of the HIV-positive leaders who shaped the movement.

Lessons learned: An important best practice underscored by this successful decriminalization is the meaningful involvement of and engagement with PLWH. Throughout the multi-year campaign, HIV-positive people of color, women, and current and former sex workers were authentically engaged in the work, thereby providing a uniquely qualitative aspect to an otherwise quantitative presentation of facts and figures. And as a direct result of their engagement throughout this movement, and scaffolding provided to ensure their success, PLWH engaged in this work were able to further develop their individual and collective capacities to shape and direct the future of HIV-specific policies.

Conclusions/Next steps: HIV criminalization remains the norm across the United States and in many parts of the world. Where it is safe to do so, PLWH are uniquely positioned to lead and facilitate transformative conversations with community members as well as lawmakers. Beyond the decriminalization movement, the California example shows that people living with HIV are best positioned to reform policies and laws that impact them most.

TUAD0203

Step by step: Ending unjust HIV criminalization in Canada through community advocacy based on science and rights

R. Elliott[1,2], N. Caivano[1,2], C. Kazatchkine[1,2], A. McClelland[2,3], C. Clarke[4], L. Pelletier-Marcotte[5,6], N. Self[7,8], V. Nicholson[7,8]
[1]*Canadian HIV/AIDS Legal Network, Toronto, Canada,* [2]*Canadian Coalition to Reform HIV Criminalization, Toronto, Canada,* [3]*Concordia University, Montreal, Canada,* [4]*Canadian Coalition to Reform HIV Criminalization, London, Canada,* [5]*Coalition des Organismes Communautaires Québécois de lutte contre le Sida, Montreal, Canada,* [6]*Canadian Coalition to Reform HIV Criminalization, Montreal, Canada,* [7]*Positive Living Society of British Columbia, Vancouver, Canada,* [8]*Canadian Coalition to Reform HIV Criminalization, Vancouver, Canada*

Background: Canada has the third-largest number of recorded criminal prosecutions for alleged HIV non-disclosure in the world. There is no HIV-specific criminal law. *Aggravated sexual assault* is the charge most commonly laid; conviction carries a maximum penalty of life imprisonment and mandatory registration as a sex offender. In cases where no transmission has occurred, people have been convicted even when they used a condom or had an undetectable viral load, or solely on the basis of oral sex.

Description: Canadian advocates have long pursued multiple strategies to combat unjust prosecutions, including court interventions, lobbying for prosecutorial guidelines, mobilizing scientific experts, and building feminist critiques of HIV criminalization. In 2015, the country-wide Canadian Coalition to Reform HIV Criminalization (CCRHC, www.HIVcriminalization.ca) was created, including advocates with lived experience of HIV criminalization. In May 2017, CCRHC organized a think tank to discuss pros and cons of *Criminal Code* amendments as a strategy in a legal context of no HIV-specific law and the wide interpretation of sexual assault law. CCRHC developed a Community Consensus Statement on HIV criminalization through a countrywide consultation process. Endorsed by over 150 organizations, the statement was released shortly before World AIDS Day 2017.

Lessons learned: Engaging in multiple strategies, adapting advocacy to the changing political landscape and involving people with lived experience are essential. On December 1, 2017, the Ontario Attorney General issued a directive to prevent prosecutions in that province in cases where a person accused of non-disclosure had a "suppressed viral load" (< 200 copies/ml) for six months. The federal Justice Minister issued a report going further, recommending the criminal law should also not apply when people are on ARV treatment, use condoms, or engage only in oral sex (unless aware of other risk factors present).

Conclusions/Next steps: Although significant, these steps are insufficient to end unjust criminalization in Canada. Advocates must continue to seek concrete actions from both levels of government to implement the Community Consensus Statement recommendations. These include: amending the *Criminal Code* to remove or limit the use of sexual assault charges; better prosecutorial guidelines; and training for judges and other actors in the criminal justice system.

TUAD0204

Marginalized women living with HIV at increased risk of viral load suppression failure: Implications for prosecutorial guidelines regarding criminalization of HIV non-disclosure in Canada and globally

A. Krüsi[1,2], K. Deering[1,2], F. Ranville[1], L. Gurney[1], M. Braschel[1], B. Simpson[1], M. Kestler[3], K. Shannon[1,2], SHAWNA Project Team
[1]*Gender and Sexual Health Initiative, Vancouver, Canada,* [2]*University of British Columbia, Faculty of Medicine, Vancouver, Canada,* [3]*Oak Tree Clinic, BC Women's Hospital, Vancouver, Canada*

Background: The criminalization of HIV non-disclosure continues to supersede human rights and public health imperatives in many settings globally. Canada stands out in its assertive approach to criminalizing HIV non-disclosure, despite recent recommendation by the Federal Government to limit prosecution of HIV non-disclosure cases. In some jurisdictions, such as Ontario, Canada, prosecutorial guidelines limiting prosecution to people living with HIV who do not have a sustained suppressed viral load for six months have been implemented.

We examined factors correlated with not meeting this legal test of achieving sustained viral suppression for 6 months among women living with HIV (WLWH) in Vancouver, Canada.

Methods: Prospective data (2010-2016) were drawn from SHAWNA (**S**exual health and **H**IV/**A**IDS: **W**omen´s Longitudinal **N**eeds **A**ssessment). SHAWNA is a community-based participatory open cohort study with WLWH (cis and trans women) who access HIV services in Metro Vancouver; the cohort includes data linkages to comprehensive HIV clinical monitoring. Participants completed semi-annual interviewer administered questionnaires and visits with a study nurse. Multivariable logistic regression using generalized estimating equations (GEE) was used to prospectively model correlates of viral load suppression failure over a seven-year period.

Results: Of 277 WLWH (Median age 43) 61% would not meet the legal test of achieving sustained viral suppression for at least one six-month period over the seven year follow up. Over half of participants (58%) identified as Indigenous, 33% identified as White and 9% identified as African/Caribbean/Black. In multivariable GEE analyses, younger age (AOR:0.97 per year older, 95%CI:0.95-0.99), recent homelessness (AOR:1.89,95%CI:1.30-2.75), recent sex work (AOR:1.88,95% CI:1.38-2.55) and recent incarceration (AOR:2.17,95%CI:1.15-4.10) were correlated with increased odds of viral load suppression failure.

Conclusions: These findings highlight that approaches exempting people from criminal liability for HIV non-disclosure, conditional on maintaining an undetectable viral load for 6 months, continue to put a large proportion of WLWH in Canada at risk for criminal prosecution. Those at highest risk of prosecution are the most marginalized WLWH, including those who are younger, unstably housed, sex workers and those who have been recently incarcerated. Further action to limit the criminalization of HIV non-disclosure is urgently needed.

TUAD0205

How punitive laws have encouraged human rights violations and increased HIV/AIDS transmission among gays and other men who have sex with men in Nigeria

C. Chiaha
International Centre for Advocacy on Right to Health, Human Rights Unit, Abuja, Nigeria

Background: HIV infection has been on the increase among gays and other men who have sex with men (MSM) in Nigeria where same sex relationships are criminalised. Gays and MSM encounter legal barriers to access healthcare due to discrimination in healthcare facilities forcing many of them to go underground to save their faces, resulting in the spread of HIV/AIDS and STIs.
Again, organisations rendering services to this vulnerable groups reduced there publicity and stopped having group meetings but instead engaged in interpersonal one-on-one meetings with the target group for fear of being prosecuted under the Same Sex Marriage Prohibition Act (SSMPA) 2013, which prohibits same sex relationships including civil union/partnerships and even criminalises activities of organisations rendering any form of services to same sex persons in Nigeria, as provided in sections 4 and 5 of the Act.
Methods: The international Centre for Advocacy on Right to Health (ICARH) carried out documentation of cases of Human rights violations of LGBTI persons in ABUJA Nigeria from March 2011 till December 2017. ICARH also recorded data of Gays and MSM clients' inflow in its clinic within the same period. A total of 160 of these clients were interviewed at the entry phase using a structured questionnaire. These data were analysed using both descriptive and inferential methods to arrive at the results shown below.
Results: : ICARH recorded 160 cases of human rights violation from 2011 till date. These are: denial of medical services, forced HIV test, disclosure of HIV status, wrongful termination of employment arbitrary arrest. Of the 160 cases, 18 occurred between 2011 and 2012 while the most occurred between 2013 to 2017 when SSMPA was passed and signed into law. Analysis shows that 90% of the clients experienced denial of medical services in public healthcare facilities. New HIV infections among gays and MSM increased after the passage of the law. Clinical data from 2011 to 2012 shows only 30% of the clients tested positive while from 2013 to 2017 80% tested positive.
Conclusions: Need for high level stakeholders advocacy on the effect of discriminatory laws against sexual minorities in the fight against HIV/AIDS.

TUAD03 Lost in transition: Challenges in domestic financing for HIV and human rights

TUAD0301

How loss of PEPFAR support for outreach puts the 90-90-90 targets at risk: Results from a mixed methods evaluation in Kenya and Uganda

M. Qiu[1], L. Paina[2], D. Rodriguez[2], J. Wilhelm[2], H. Zakumumpa[3], C. Mackenzie[4], F. Ssengooba[3], E. Eze-Ajoku[2], S. Bennett[2]
[1]Johns Hopkins Bloomberg School of Public Health, International Health, Washington, United States, [2]Johns Hopkins Bloomberg School of Public Health, International Health, Baltimore, United States, [3]Makerere University, School of Public Health, Kampala, Uganda, [4]Ipsos Kenya, Nairobi, Kenya

Background: PEPFAR recently implemented Geographic Prioritization (GP), where support for HIV services was prioritized according to disease burden at sub-national level. Central support (CS) units, due to lowest burden and prevalence, were intended to transition to government support. We share findings from a mixed methods evaluation of the GP in CS facilities in Kenya and Uganda, focusing on the implications for outreach and the 90-90-90 targets.
Methods: Our study draws from national level stakeholder interviews, longitudinal, in-depth case studies, and a cross-sectional facility survey. Qualitative respondents included government officials, facility staff, district/county health staff, implementing partners, and patients. Qualitative data were analyzed in Atlas.ti. Facility surveys were conducted in 230 facilities in Kenya and 262 facilities in Uganda. Each country's survey data were analyzed in Stata to compare facilities that report transition from PEPFAR support to those maintained.
Results: Findings indicate that outreach-related services in CS facilities in both Kenya and Uganda largely ceased due to loss of PEPFAR support at a high proportion of affected facilities. In Uganda, survey results found that the odds of discontinuing outreach was 26.3 times higher in CS facilities than in Maintenance. In Kenya, 39% of CS facilities and 36% of Maintenance reported discontinuing outreach services. Case study respondents in both countries frequently discussed loss of support for conducting community-based HIV testing (1st 90), loss of support for informal health workers to link new patients into care (2nd 90), and support for tracing defaulters (3rd 90). Respondents described various avenues of adapting, including piggybacking HIV-related outreach onto other funded outreach activities such as immunization, while noting that government support has not been forthcoming.
Conclusions: Early results indicate that loss of PEPFAR support for outreach-related services may be hindering efforts across the treatment cascade in CS regions in both Kenya and Uganda. Despite low prevalence and burden of HIV, decreased outreach may compound local contextual factors such as poor infrastructure and high stigma that limit access to care. Decreasing outreach across facilities raises concern for countries' ability to reach their 90-90-90 goals as health facilities' links into communities are lost.

TUAD0302

What shall be done if donor funding to fight HIV drastically decreases. Transition to sustainable funding of social care services for PLHIV through regional budgets in Ukraine

I. Kovalchuk
All-Ukrainian Network of PLWH, Advocacy, Kyiv, Ukraine

Background: From 2004 to 2015, social care services for over 60,000 people living with HIV (PLHIV) in Ukraine have been funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria (GF) and other donors. State and regional budgets did not provide funding for social care services for PLHIV. As donor funding is projected to decrease drastically in 2020 according to the agreement between the GF and Ukrainian government, ways and mechanisms of funding of essential social services had to be developed and implemented to allow for domestic funds from state and regional budgets to substitute donor funds.
Description: In 2017 All-Ukrainian Network of PLHIV has designed a portfolio of interventions aimed at creating environment for regional budgets funding of social care services for PLHIV.
Those interventions included development of regional policies to include funding for social services for PLHIV in regional targeted and integrated programs covered by regional budgets. This allowed development of mechanisms for direct purchases of social care services from regional NGOs through the system of electronic public procurement. The first group of services to benefit from this mechanism is social support for PLHIV.
Lessons learned: Proactive role of NGOs can ensure sustainability of vital social care services for PLHIV and implement the plan for the transition from donor funding to domestic regional funding. Direct purchasing is the optimal mechanism to be used by the government sector to procure social care services as it allows engaging NGOs.
In 2017, after new regional policies introduction, 10 regions allocated funding in amount of $60.251 in total from regional budgets for purchases of social care services for PLHIV delivered by regional NGOs.
Funding in amount of $126,423 for procurement of social care services for PLHIV in 7 regions is already allocated in 2018.
Furthermore, approx. $143,857 in 8 regions are planned in 2018 as well.

Conclusions/Next steps: Interventions made by All-Ukrainian Network of PLHIV allowed creating environment for transition to sustainable funding of social care services for PLHIV through regional budgets.
Final target is to cover 100% of regions of Ukraine and provide funds needed for social care services for PLHIV from state and regional budgets.

TUAD0303

Development of impactful advocacy arguments for domestic investments in HIV response among key population: Experience from EECA region

I. Varentsov[1], G. Dovbakh[1], L. Serebryakova[2]
[1]Eurasian Harm Reduction Association, Vilnius, Lithuania, [2]Caucasus University, Tbilisi, Georgia

Background: Donors funding for HIV in low and middle-income countries is decreasing, especially in EECA region. Governments are more likely to invest in HIV drugs procurement, than in prevention services. The following trends have been observed: funding for HIV programs was reduced, share of NGO-based services for key populations was decreased and overall, meaningful involvement of the communities was diminished. Disruptions in services became common. Role of communities to advocate for domestic funding is vast and information about arguments that work or fail in this process is important to multiply the effect.
Description: Based on the systematic analysis of case studies, experiences and data accumulated as a result of regional advocacy programs Eurasian Harm Reduction Association has developed a systematic approach to arguments used for national and sub-national advocacy. Each sub-group of arguments has different research data requirements and can be used to plan effective advocacy campaigns for domestic investment in HIV.
Lessons learned: Advocacy arguments and their impact for HIV investments can be grouped as following:
- Services for key populations as basic human rights: this argument in EECA does not work because of low political support to human rights values.
- Service funding gap and other cost estimation exercises: is often requested, but rarely used for public budgeting proposes, which are constructed using historical costing models. However, availability of arguments strengthened by budget/cost figures positively impacts the image of the community and gives them access to policy discussions of HIV program budgeting.
- International or donor requested commitments/conditionality for domestic funding: those prove to be effective only in case of strong watchdoging from local communities.
- Potential cost saving impact of prevention versus treatment: there is a limited local data to strengthen arguments, and health authorities are more favourable and trustful towards funding services in healthcare facilities (often publicly owned), rather then hard-to-measure prevention activities.
Conclusions/Next steps: Regional and national advocacy for sustainable HIV funding from domestic sources lacks not only capable and trained advocates, but also a systematic approach to advocacy argument and targeted evidence-collection.

TUAD0304

Challenges in implementing domestic funding policies for HIV prevention for key populations

S. Talawat[1], R. Rahman[2], P. Panitchpakdi[2]
[1]Raks Thai Foundation, Program, Phayathai, Thailand, [2]Raks Thai Foundation, Bangkok, Thailand

Background: The policy of domestic funding for HIV prevention for key populations in Thailand aims to strengthen the national AIDS strategies for ending AIDS by 2030 by using RRTTR approaches. It began in the fiscal year of 2016. The funding allocates 200 million baht per year.
Description: In 2016, the domestic fund was mainly allocated to health care services nationwide though it intended to engage CSOs & NGOs in the response. The fund could not be given to CSO due to the limitations of the National Health Security Act. However, with the Article 44 of the National Council for Peace and Order (NCPO), CSOs were made eligible to access this fund to implement HIV prevention services in 2017. As it is the first year that the NHSO can directly signed contact with CSOs, there were many challenges and lessons learned in establishing a well-functioning system for the country. Through this process, all gaps and barriers were reflected to the policy makers as well as the recommendations for further improvement.
Lessons learned: Clear guidelines of fund management, financial regulation, and the sharing of information is very important in bridging policy to practice. Close monitoring networks with tangible collaboration of key stakeholders can shape meaningful policy.
Conclusions/Next steps: The challenges of 2017 serve as good guidance for establishing a mechanism for domestic funding of HIV prevention initiatives. NHSO has developed a manual for implementing and managing the HIV Prevention Fund.

TUAD0305

Assessing and overcoming human rights-related barriers to HIV in 20 countries

R. Jürgens[1], H. Lim[1], A. Iovita[1], D. Burrows[2], R. Armstrong[3], A. Stangl[4], S. Gruskin[5], L. Ferguson[5], S. Baral[6], C. Lyons[6], N. Poku[3], C. Schutte[3]
[1]The Global Fund to Fight AIDS, TB and Malaria, Community, Rights and Gender Department, Geneva, Switzerland, [2]APMG Health, Sydney, Australia, [3]HEARD, Johannesburg, South Africa, [4]ICRW, Washington DC, United States, [5]University of Southern California, Institute for Global Health, Los Angeles, United States, [6]Johns Hopkins University, Bloomberg School of Public Health, Baltimore, United States

Background: Stigma and discrimination, gender inequality and other human rights-related barriers continue to impede access to HIV services and attainment of global HIV goals. Despite UN member states´ commitments to support programs known to reduce these barriers, the programs have nowhere been sufficiently scaled up. A five-year initiative of the Global Fund to Fight AIDS, TB and Malaria aims to change this, first by assessing human rights-related barriers to HIV services and then supporting and evaluating the scale-up of evidence-based programs to reduce those barriers.
Description: An extensive consultation identified 20 countries for this effort - Benin, Botswana, Cameroon, Côte d'Ivoire, DR Congo, Ghana, Honduras, Indonesia, Jamaica, Kenya, Kyrgyzstan, Mozambique, Nepal, Philippines, Senegal, Sierra Leone, South Africa, Tunisia, Uganda and Ukraine. In each country, research teams assessed existing barriers to HIV services and effectiveness of programs to address them, but also what programs and interventions will be required over a five-year period to comprehensively address barriers. Retrospective costs of existing services were estimated, as were prospective costs of the proposed comprehensive response.
Lessons learned: Results of the assessments confirmed that human rights-related barriers continue to impede access to services for many. Few effective programs are being funded to address these barriers, undermining access to services and representing a serious gap in the HIV response. Even where laws and policies on the books seemingly protect key and vulnerable populations, practices by law enforcement agents and health care providers continue to subject people to discrimination and violence. There is an urgent need to significantly scale up UNAIDS' seven key interventions to reduce stigma and discrimination and increase access to justice, which, when implemented strategically, will increase uptake of and retention in services. Substantially larger investment in these programs will be needed, but the expected benefits are great.
Conclusions/Next steps: Multi-stakeholder consultations in the 20 countries are finalizing five-year plans to scale up programs to reduce rights-related barriers to HIV services, with intensive evaluation and costing of programs over that period. The programmatic experience of this initiative will provide unprecedented, well-evaluated and soundly costed models for rights-based approaches to HIV services for years to come.

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TUAD04 Time for transformation: Listening to trans voices

TUAD0401

Data, stories, advocacy, leadership: The positively trans approach

B. McBride, C. Chung
Transgender Law Center, Positively Trans, Oakland, United States

Background: In 2014, Transgender Law Center launched Positively Trans, the first program to focus specifically on increasing advocacy and empowerment by and for transgender people living with HIV, especially transgender women of color living with HIV. Through a series of dynamic and innovative approaches, Positively Trans works to increase the capacity of transgender people living with HIV to advocate for their care, their lives, and the livelihoods of their communities.

Description: Positively Trans works with four key points in mind: data, stories, advocacy, and leadership. For data, Positively Trans completed a national needs assessment of transgender people living with HIV in 2015, which resulted in three reports, focusing primarily on social determinants of health. Positively Trans has facilitated a series of Digital Storytelling Workshops, in which transgender people living with HIV learn the story-telling and technical skills to create their own digital story. Data and stories are brought together in innovative ways to create new strategies by transgender people living with HIV to fight for self-determination in health care and in policy. Positively Trans also works with a National Advisory Board of transgender people living with HIV, mostly transgender women of color living with HIV, who are each leaders in advocacy in their local communities, to build their leadership skills and capacities and provide technical assistance.

Lessons learned: An intersectional approach that focuses on building leaders from within specific communities, combined with evidence- and story-based advocacy, is effective in organizing transgender people living with HIV organizing for their own health, well-being, and self-determination. Members of the National Advisory Board have started their own organizations for transgender people living with HIV and have been able to connect transgender people to the services they need and fight for better policies on a local, state, and national level.

Conclusions/Next steps: The conversation in the United States on HIV has been shifted by Positively Trans to include transgender people at a national level, including Positively Trans's collaboration on federal skill building projects. Next steps include exploring if Positively Trans's approaches can be replicated in other countries and regions internationally and how they would need to change based on local needs.

TUAD0402

Addressing the needs of people with situational gender and ´sexual orientation´ in Tajikistan by HIV services

A. Sarang
SKOSH, Almere, Netherlands

Background: The Western European/North American (WE/NA) understanding of gender and sexuality reflected in the relevant LGBTQ/MSM vocabulary has become a dominant model shaping the global response to HIV. We often neglect other understandings of gender and sexuality that differ from this dominant model. Consequently, HIV programs do not adequately address the needs of individuals outside of the LGBTQ/MSM paradigm. Anthropological research explores the understanding of gender and sexuality in Tajikistan among people with situational gender and ´sexual orientation´.

Methods: The study employed ethnography and historical analysis. The later was done through literature review of concepts of gender and sexuality in the Persian/Tajik tradition affected by the Russian colonization and Sovietization. The ethnographic fieldwork (2016) employed participant observations, 17 interviews and a focus group. The transcripts were coded in MaxQDA11 and analyzed thematically. The decolonial optics were applied as the theoretical framework.

Results: Literature reveals rich homo-erotic tradition in the Persian/Tajik culture and understanding of gender and sexuality based on a "gender/sexuality conflation model" (when gender is defined by the position in sex, rather than the biological sex). Unlike in the WE/NA "gay model", an individual is not required to adhere to a solid inflexible gender and "sexual orientation" identity. People with variable gender find it difficult to decide which identity slot offered by the western vocabulary they should fit in. They are not "MSM" or „gay" as they often identify as women while having sex. They also don´t identify as "transgender women," and in the conservative Tajik society, they prefer to stick to male social roles without manifesting their female selves. The identity problem messes up with sentinel surveillance/indicators, also based on the WE/NA vocabulary that people don't understand.

Conclusions: The results problematize usage of 'universal identity language' in designing the HIV interventions. Eg., in some contexts, the WHO recommendation to separate services for trans* people from MSM is problematic as there is no clear divide. The new requirements/indicators may lead to aggravation of stigma and homo/transphobia. These problems should be given a better thought and be better reflected in international guidelines stressing the importance of local concepts and identity language.

TUAD0403

Breaking the wall: Transgender people and Islamic religious leaders

E. Kor
Public Health and Welfare Organization, EXCO, Kuala Lumpur, Malaysia

Background: Malaysia is a predominantly Muslim majority country, where Islam has an influential role in society, policies and law. Transgender people in Malaysia are often stigmatised and discriminated against; in the past this has been exacerbated by words and actions of some Islamic religious leaders. This creates distrust and tension between the transgender community and religious leaders, both of which are stakeholders in HIV prevention. For many transgender people in Malaysia, faith acts as an important coping mechanism and being excluded from their religion adds a further layer of isolation, which need not be the case.

The purpose of this project is to minimise the schism between Islamic religious leaders and Muslim transgender people in Kuala Lumpur, engage in dialogue to rehumanise transgender people.

Description: This was a grassroots unfunded project undertaken by PKKUM, a local NGO based in Kuala Lumpur, Malaysia. The initial engagement was with top level Islamic religious leaders via a written petition submitted to the Mufti, consisting of over 100 signatories from the transgender community. A pilot set of workshops were undertaken with these religious leaders and members of the transgender community, female sex workers, PLHIV and MSM comprising of more than 100 participants. This provided a safe space where all parties could share experiences, discuss areas of concern and engage in meaningful dialogue.

Lessons learned: There was a genuine willingness of all groups to engage with one another. A pivotal moment was when the Mufti personally apologised for the manner in which transgender people were treated in the past, a key step in bridge-building. There was an identification of the disparity in language terminology used and assurance that transgender people would be welcomed n the mosque.

One outcome of the project was that the Mufti subsequently gave a Friday sermon (khutbahs) to congregants, urging worshipers not to judge or stigmatise the transgender community.

Conclusions/Next steps: The role of Islamic religious leaders towards the transgender community has been seen as unhelpful, however this can be transformed to a positive influence, as advocates to counteract stigma and discrimination.

TUAD0404

Progressive Botswana court affirms that legal recognition of gender identity is at core of human dignity - transgender persons are fully entitled to constitutional protection

T.K. Esterhuizen
Southern Africa Litigation Centre (SALC), LGBTI and Sex Workers Rights Programme, Johannesburg, South Africa

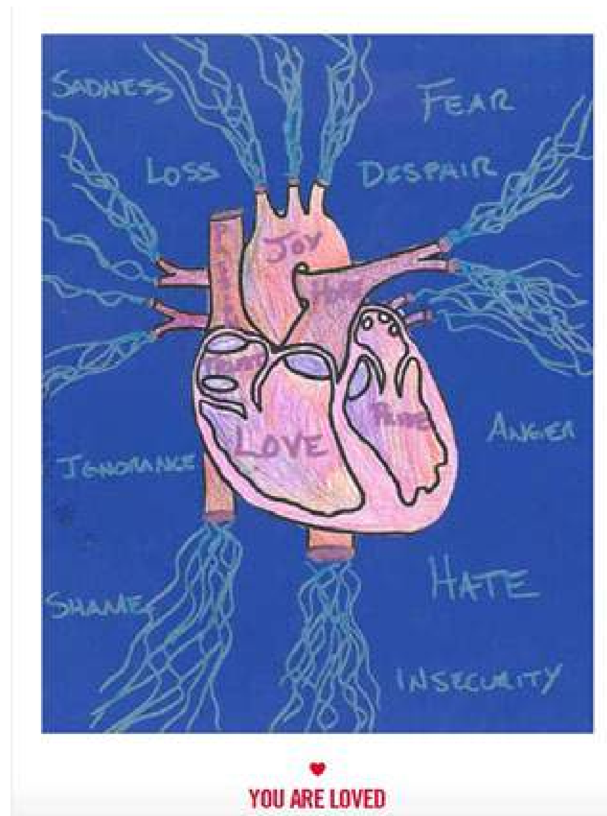
Background: For many transgender persons throughout Africa, obtaining an identity document that matches their expressed gender is virtually impossible. Without an identity document that reflects their gender, they are exposed to not only stigma and discrimination but ongoing distress when they are required to explain intimate details of their life to strangers to merely access routine services such as health care and treatment. However, the Botswana High Court recently took a significant step towards protecting the dignity of transgender people when it ordered the Registrar to change the gender marker on the identity document of a transgender man from female to male. The case also highlights advocacy and litigation strategies that LGBT activists and their lawyers can use to assert their basic rights, even within the most criminalised environments.
Description: The case was brought before the courts after sustained advocacy and legal strategy by brave LGBT activists, who publically sought the recognition of their constitutional and human rights. When meaningful engagement with the government of Botswana failed, a transgender man took his plight to the judiciary and has successfully sought to uphold the fundamental rights of LGBT persons throughout the country.
Lessons learned: The Court acknowledged that recognition of a person's gender identity constitutes the core of one's sense of being and is an integral (part) of a person's identity. Legal recognition of the gender identity is therefore part of the fundamental right to dignity and freedom to express oneself in a manner he or she feels comfortable with. The High Court emphasised that the State (and society) has a duty to respect and uphold the individual right to human dignity despite opposing and different views it might hold with regards to the applicant's gender identity.
Conclusions/Next steps: This legal recognition is an important step towards the realisation of the fundamental rights of transgender persons. However, much more work needs to be done to ensure the respect and recognition of the fundamental rights of transgender people in Botswana, including providing access to adequate gender-affirming treatment and care and the implementation of non-discriminatory healthcare, HIV policies, and employment and education policies.

TUAD0405

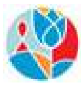
Developing and pilot testing TRANScending love, a multi-methods arts based workshop with African, Caribbean and Black transgender women

C.H. Logie[1], Y. Persad[2], T.B. Ferguson[3], S. Ryan[3], D.M. Yehdego[3], A. Guta[4]
[1]*University of Toronto, Toronto, Canada,* [2]*519 Community Centre, Toronto, Canada,* [3]*Black Coalition for AIDS Prevention, Toronto, Canada,* [4]*University of Windsor, Windsor, Canada*

Background: Transgender women's HIV vulnerabilities are shaped by contexts of social, economic and healthcare exclusion. In Canada, African, Caribbean and Black (ACB) women are also overrepresented in HIV infections; vulnerabilities are similarly shaped by social and structural inequities. There are a scarcity of HIV interventions developed by and for ACB transgender women in Canada who are at the nexus of ACB and transgender women's HIV disparities. We aimed to develop HIV intervention strategies with ACB transgender women in Toronto, Canada.
Description: This community-based study with an ACB AIDS service organization and ACB transgender women community leaders involved a focus group with ACB transgender women (n=8) to explore HIV prevention/care priorities. Findings were presented to a second focus group with ACB transgender community leaders (n=4) to brainstorm next steps. Focus group findings informed the development of the TRANScending Love (T-Love) arts-based workshop that included: 1) hand-held mirrors with glass markers to write messages of self-love, 2) anatomical drawings of hearts to write/draw emotional blocks and coping strategies, and 3) blank 'you are loved' affirmation cards to write messages to other ACB transgender women. We conducted 3 T-Love workshops with 18 ACB transgender women, workshops were followed by a focus group to examine art products and processes. Focus groups were digitally recorded and transcribed verbatim, and analyzed using thematic analyses.
Lessons learned: The first focus group highlighted ACB transgender women´s priorities were not HIV: participants called for researchers to address transgender women´s lack of self-love produced by social and structural exclusion, and to move away from the focus on transgender women´s sexual practices and bodies. The 2nd focus group articulated the need for strengths and arts-based approaches to build self-love and acceptance. Workshop participants described T-Love as empowering in documenting journeys to self-acceptance, and also in building connections and solidarity with other ACB transgender women.
Conclusions/Next steps: Findings highlight the potential for arts-based approaches to foster dialogue and reflection on individual and collective strengths among transgender women. We produced a 'deck' of T-Love cards and disseminated these online and in community forums. Findings can inform in-depth, sustained arts-based engagement to build self-love and community with ACB transgender women.



[Figure 1. TRANScending Love Arts-Based Research with African, Caribbean and Black Trans Women]



TUAE01 Taking testing to the next level

TUAE0101

The impact of performance-based financing on the delivery of HIV testing, prevention of mother to child transmission and antiretroviral delivery in the Cameroon health system

D. de Walque[1], P.J. Robyn[2], H. Saidou[2,3], G. Sorgho[2], M. Steenland[4]
[1]*The World Bank, Development Research Group, Washington, United States,* [2]*The World Bank, Health Nutrition and Population, Washington, United States,* [3]*University of Paris Dauphine, Economics, Paris, France,* [4]*Harvard University, Department of Global Health and Population, School of Public Health, Cambridge, United States*

Background: At scale provision of key services to persons living with HIV is challenging in low resources settings. Performance-based financing (PBF) is a complex health systems intervention aimed at improving coverage and quality of care. An impact evaluation was conducted in Cameroon seeking to isolate the role of specific components of the PBF approach on the delivery of three services at facility-level: HIV testing, prevention of mother to child transmission and antiretroviral delivery.
Methods: The evaluation used a cluster random design at the health facility level to separate the different components of the PBF approach. Facilities were randomly allocated in four evaluation groups to measure the effects of each component. Facilities in group T1 implemented the full PBF package: payments linked to results (quantity and quality of services) including bonus for health workers, management autonomy, enhanced supervision and monitoring. Facilities assigned to group C1 received a fixed per capita budgetary supplement that matches the per capita budgetary allocation for T1 facilities, but was not linked to performance. C2 facilities received no additional resources but the same supervision and monitoring as T1 and C1 facilities. C3 facilities were the 'business as usual' facilities and did not receive any additional resources or inputs. Facility register data documenting facility provision of HIV-related services was collected during a baseline and endline surveys and analyzed.
Results: We found large and statistically significant effects of both PBF and additional financing on HIV testing. An average of 61 more patients ($p< 0.01$) were tested for HIV in PBF facilities than control facilities, and 51 more patients (($p< 0.01$)) were tested monthly in the additional financing arm compared to the control. There was very little change in HIV testing in the additional supervision group, and the effect of PBF was greater than the effect of additional supervision ($p< 0.01$). However, we found no impacts on PMTCT and ART provision.
Conclusions: PBF increased the delivery of HIV testing. A similar improvement was however measured in the additional financing group, suggesting that the complex PBF mechanism might not necessarily add value, even though the comparison between both interventions is delicate.

TUAE0102

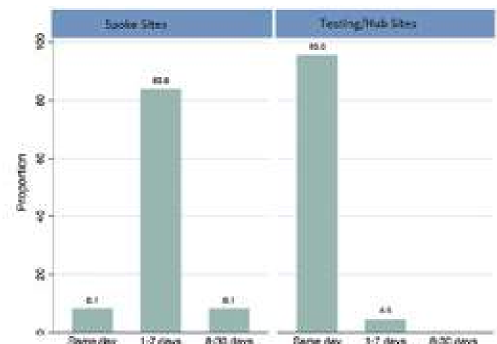
Diagnosing and treating more infants, faster: Findings from the first multi-country evaluation of routine point-of-care early infant diagnosis in eight sub-Saharan countries

F. Bianchi[1], R. Machekano[2], J.-F. Lemaire[3], E. Sacks[2], R. Bailey[3], V. Nzima[4], P. Fassinou[5], A. Mataka[6], C. Odhiambo[7], A. Chadambuka[8], G. Nyoni[9], M.C. Sabonete[10], G.F. Ndayisaba[11], J. Cohn[3]
[1]*Elizabeth Glaser Pediatric AIDS Foundation, Strategic Information and Evaluation, Washington, United States,* [2]*Elizabeth Glaser Pediatric AIDS Foundation, Research, Washington, United States,* [3]*Elizabeth Glaser Pediatric AIDS Foundation, Geneva, Switzerland,* [4]*Elizabeth Glaser Pediatric AIDS Foundation, Yaounde, Cameroon,* [5]*Elizabeth Glaser Pediatric AIDS Foundation, Abidjan, Cote D'Ivoire,* [6]*Elizabeth Glaser Pediatric AIDS Foundation, Maseru, Lesotho,* [7]*Elizabeth Glaser Pediatric AIDS Foundation, Nairobi, Kenya,* [8]*Elizabeth Glaser Pediatric AIDS Foundation, Harare, Zimbabwe,* [9]*Elizabeth Glaser Pediatric AIDS Foundation, Mbabane, Swaziland,* [10]*Elizabeth Glaser Pediatric AIDS Foundation, Maputo, Mozambique,* [11]*Elizabeth Glaser Pediatric AIDS Foundation, Kigali, Rwanda*

Background: Point-of-care early infant diagnosis (POC-EID) may improve the care of HIV-exposed infants compared to conventional testing. POC-EID is being implemented in eight sub-Saharan African countries at POC ("testing") and near-POC ("spoke") sites. A program evaluation was undertaken to assess the impact of POC- or near POC-EID implemented as part of routine care, compared with conventional testing.
Methods: Using a pre-post intervention design, key EID outcomes were compared in each country. Pre-intervention conventional EID data were collected retrospectively from registers across a purposively sampled sub-set of sites. Post-intervention data for specimens processed between December 2016 and December 2017 were collected prospectively using a POC-EID testing form. Median turnaround times (TATs) were compared using Wilcoxon rank-sum test, and proportions with Pearson chi-square test. Kaplan-Meier Estimator was used for the proportion of caregivers who received results within 30 days of sample collection. Prospective data were analyzed by entry point and compared between testing/hub and spoke sites. The cost per test result returned was calculated using Global Fund's total cost of ownership estimates for POC and conventional EID.
Results: POC-EID resulted in a significantly higher percentage of results returned to caregiver and percentage of infants started on treatment sooner, as compared to conventional EID (Table 1). There were no significant differences in percent results returned between testing and spoke sites (Figure 1).

	Conventional EID	POC-EID	p-value
% Results received by caregiver within 30 days	21.18%	99.13%	p<0.001
Median TAT from blood sample collection to result returned to caregiver	55 days (IQR: 31-76)	0 days (IQR: 0-1)	p<0.001
% HIV-infected infants started on treatment	67.33%	90.6%	p<0.001
Median TAT from result returned to caregiver to ART initiation for HIV-infected infants	0 days (IQR: 0-4.5)	0 days (IQR: 0-1)	NS
Median TAT from blood sample collection to ART initiation for HIV-infected infants	49.5 days (IQR: 32-68)	0 days (IQR: 0-2)	p<0.001

[Table 1: Comparing conventional and POC EID on primary service delivery outcomes]



[Figure 1: Distribution of POC in testing/hub and spoke sites by median turnaround time from sample collection to results received by caregivers]

Valid, non-confirmatory tests from different entry points revealed 3.2%, 19.6%, 15.5%, and 2.5% HIV-positivity rates from prevention of mother-to-child transmission entry points, pediatric inpatient, outpatient, and vaccination clinics, respectively. The cost per test result returned (regardless of TAT) was $20-38 for POC and $21-33 for conventional.

Conclusions: Routine use of POC-EID in sub-Saharan Africa is feasible and significantly improves key patient outcomes. Spoke sites can expand access to POC-EID, with minimal differences in patient-level outcomes. POC-EID is particularly important for high-yield entry points such as pediatric wards, where patients may be less likely to receive results from conventional testing with long TATs. Given similar costs per test result returned to caregiver for conventional testing, POC-EID represents an efficient and effective way to identify HIV-infected infants and initiate antiretroviral treatment.

TUAE0103

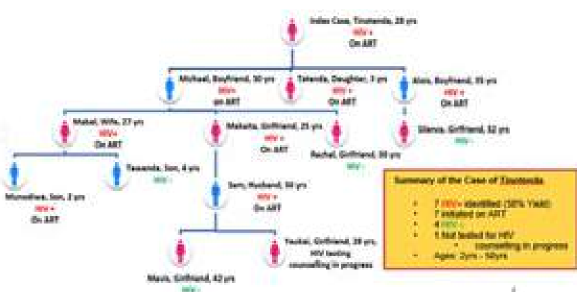
Improving technical efficiency: Reaching first 90 through community index HIV sexual network testing in Zimbabwe. The case of FHI 360 Zimbabwe

A. Muchedzi[1], N. Mahachi[1], T. Moga[1], T. Tafuma[1], P. Mawora[1], D. Harbick[2], T. Nyagura[3], K. Reichert[3]
[1]FHI 360, Technical, Harare, Zimbabwe, [2]FHI 360, Harare, Zimbabwe, [3]USAID, Harare, Zimbabwe

Background: Zimbabwe has made huge progress towards the UNAIDS first 90 target; 74.2% of people living with HIV know their status: with less men-69.7% compared to women-77.1% knowing their status. Reaching the remaining 16% and men is challenging and requires innovative approaches with technical efficiencies. FHI360 is responding with community HIV-index-testing; an approach which involves tracking down sexual contacts of HIV+ index-cases identified at health facilities.

Description: Since October 2016, FHI360 through a strengthened community health system comprising: a team of trained nurses and community cadres working in collaboration with health facilities identifies HIV+ index-cases. The community cadre obtains consent from the index-cases, makes appointments and prepares the household for a visit by the nurse. The nurse provides HIV-testing and other health services to children and primary sexual contacts of the index-case at the household. With consent from the index-case the nurse tracks and tests other sexual partners and the sexual network as illustrated in Figure 1.

Lessons learned: Between October 2016 and September 2017, 14,818 HIV+ index-cases were identified from 330 health facilities and followed to 12,865 households for community index-testing. In the community, 22,147 people were HIV tested, 8,367 (38%) were HIV+, and 5,771 (69%) were linked to care and treatment. FHI360's community index-testing has an average HIV yield rate 10 times more than the health facility yield rate (4%). The case in Figure 1 is one of the many sexual network testing conducted where several PLHIV are identified. In this case 7 PLHIV were identified from one index-case. FHI360 has reached 11,754 men with HIV testing services of which 6,127 (72%) were between 25-49 years



[Figure 1. FHI360 Sexual Network Testing as a part of Community Index Testing in Zimbabwe: The case of Tinotenda]

Conclusions/Next steps: FHI360 achieves and sustains a high yield among individuals tested for HIV using the community HIV index-testing model. This model is reaching people living with HIV who would not ordinarily access HIV testing services (HTS) from the conventional health facility HTS modalities. By going into the community, FHI360 is identifying a critical group of people who are living with HIV and facilitating their treatment initiation. FHI360 is leveraging its community platform to reach a high proportion of men of reproductive age with HIV services.

TUAE0104

Cost-of-testing-per-new-HIV-diagnosis as a metric for monitoring cost-effectiveness of testing programmes in low income settings in Southern Africa: Health economic modelling analysis

A. Phillips[1], V. Cambiano[1], L. Bansi-Matharu[1], F. Nakagawa[1], D. Wilson[2], I. Jani[3], T. Apollo[4], M. Sculpher[5], T. Hallett[6], C. Kerr[7], J. van Oosterhout[8,9], J. Eaton[6], J. Estill[10], B. Williams[11], N. Doi[12], F. Cowan[13,14], O. Keiser[10], D. Ford[1], K. Hatzold[15], R. Barnabas[16], H. Ayles[17,18], G. Meyer-Rath[19,20], L. Nelson[21], C. Johnson[22], R. Baggaley[22], A. Fakoya[23], A. Jahn[24], P. Revill[5]
[1]UCL, London, United Kingdom, [2]Burnet Institute, Melbourne, Australia, [3]National Institute of Health, Maputo, Portugal, [4]Ministry of Health and Child Care, Harare, Zimbabwe, [5]University of York, York, United Kingdom, [6]Imperial College London, London, United Kingdom, [7]University of Sydney, Sydney, Australia, [8]Dignitas International, Zomba, Malawi, [9]College of Medicine, University of Malawi, Department of Medicine, Zomba, Malawi, [10]University of Geneva, Geneva, Switzerland, [11]Stellenbosch University, Stellenbosch, South Africa, [12]CHAI, New York, United States, [13]CeSHHAR Zimbabwe, Harare, Zimbabwe, [14]Liverpool School of Tropical Medicine, Liverpool, United Kingdom, [15]PSI Zimbabwe, Harare, Zimbabwe, [16]University of Washington, Seattle, United States, [17]London School of Hygiene & Tropical Medicine, London, United Kingdom, [18]Zambart, Lusaka, Zambia, [19]Boston University, Boston, United States, [20]University of the Witwatersrand, Johannesburg, South Africa, [21]CDC, Kampala, Uganda, [22]WHO, Geneva, Switzerland, [23]The Global Fund, Geneva, Switzerland, [24]Ministry of Health, Lilongwe, Malawi

Background: As prevalence of undiagnosed HIV declines, it is unclear whether testing programmes will continue be cost-effective. The cost-of-testing-per-new-HIV-diagnosis is a potentially useful metric for monitoring country programmes.

Methods: We simulated 1000 setting-scenarios for adult HIV epidemics and ART programmes typical of southern Africa using an individual-based model, and projected 50 years from 2018, during which a minimum package of "core" testing in pregnant women, for diagnosis of symptoms, in sex workers, and in men coming forward for circumcision was assumed to be conducted. For each setting scenario we compared this policy of core testing only with a policy of also having an additional programme of testing (in men only, women only, or both genders). For each setting scenario we randomly selected from various possible rates of testing and degrees to which those with HIV are more likely to test than those without, and considered a range of a unit costs.

Our aim was to asses the relationship between the cost-of-testing-per-new-HIV-diagnosis and the cost-per-DALY averted (the incremental cost-effectiveness ratio; ICER) of the additional testing programme. Cost-effectiveness of the programme was defined by an ICER below US$500. Discount rate 3%/annum.

Cost-of-testing-per-new-HIV-diagnosis (2018-2023)*	Percent of setting-scenarios in which testing programme is cost effective	Median ICER over setting-scenarios
< $50	94%	$189
$50 - $100	95%	$215
$100 - $200	91%	$243
$200 - $300	89%	$288
$300 - $400	78%	$372
$400 - $500	58%	$463
$500 - $600	44%	$542
$600 - $700	29%	$623
$700 - $1000	21$	$704
> $1000 - $1500	2$	$1914
*not discounted; using $500 / DALY cost effectiveness threshold / results for other thresholds will be presented. 1000 setting scenarios.		

[Relationship between cost-per-new-HIV-diagnosis and incremental cost effectiveness ratio for testing programmes in men in low income settings in southern Africa]

Results: There was a strong relationship between the cost-of-testing-per-new-HIV-diagnosis and the ICER (illustrated for testing programmes in men in Table). In general, the ICER was below US$500 per DALY averted so long as the cost-of-testing-per-new-HIV-diagnosis was below US$315. Results were similar when we restricted to setting-scenarios with specific epidemic and programmatic features, such as prevalence of undiagnosed HIV, HIV incidence and the proportion of HIV diagnosed people with viral suppression. When the testing programme was restricted to testing in women beyond the core testing this was not cost effective. However, for over 50% of setting scenarios testing programmes in men were cost- effective when the cost-of-testing-per-new-HIV-diagnosis was < US$585 (and 80% when the cost-of-testing-per-new-HIV-diagnosis was < US$312), regardless of unit cost of testing.

Conclusions: The cost-of-testing-per-new-HIV-diagnosis can be used to monitor the cost-effectiveness of testing programmes. Programmes aimed at men in low income settings in southern Africa are likely to be cost-effective if they cost below US$585 per new diagnosis.

TUAE0105

Facility-based HIV self-testing for outpatients dramatically increases HIV testing in Malawi: A cluster randomized trial

K. Dovel[1,2], M. Nyirenda[2], F. Shaba[2], O.A. Offorjebe[3,4], K. Balakaksi[2], B.E. Nichols[5,6], K. Phiri[2], A. Schooley[1,2], R.M. Hoffman[1], EQUIP Innovations for Health

[1]University of California, Division of Infectious Diseases, Los Angeles, United States, [2]Partners in Hope, Lilongwe, Malawi, [3]David Geffen School of Medicine at UCLA, Los Angeles, United States, [4]Charles R. Drew University of Medicine and Science, Los Angeles, United States, [5]Boston University School of Public Health, Department of Global Health, Boston, United States, [6]University of Witwatersrand, Health Economics and Epidemiology Research Office, Department of Internal Medicine, Johannesburg, South Africa

Background: HIV self-testing (HIVST) increases testing coverage in community settings in sub-Saharan Africa, but scalability is a challenge due to resource constraints. Outpatient departments provide an ideal space to integrate HIVST into low-resource health systems due to high client volume and long wait-times. We evaluated an HIVST intervention in outpatient waiting-spaces of hospitals and health centres in Malawi.

Methods: A cluster randomized trial was conducted at 15 health facilities in Central/Southern Malawi between September2017-January2018. Facilities were randomized 1:1:1:

(1) routine provider initiated testing and counseling (PITC);
(2) Optimized PITC (additional provider trainings and job-aids); and
(3) HIVST (including Oraquick HIV self-test® demonstration, distribution, and kit use in outpatient waiting-spaces, private spaces for interpretation, and optional post-test counseling).

The primary outcome was HIV-testing among outpatients. Exit surveys were conducted with a random sample of outpatients.

Results: 5,675 outpatients completed an exit survey. There were no differences by arm (Table). 52% of outpatients in the HIVST arm tested for HIV compared to 14% in Optimized PITC (AOR:6.6 p< 0.001) and 12% in PITC (AOR:7.6 p< 0.001). For HIVST, 60% of outpatients in need of testing (defined as tested> 12months ago and never tested HIV-positive) were tested compared to 18% in Optimized PITC and 16% in PITC. There was no significant difference in the proportion of clients tested who reported previously testing HIV-positive (≤ 1% for all arms). Positivity rates did not differ by arm, however, HIVST was associated with a higher absolute number of new positives identified compared to Optimized PITC (AOR:2.9, p=0.01) and PITC (AOR:4.1, p=0.002). Participants who were tested by HIVST were more likely to want to test again using the same method and more likely to recommend testing to others compared to those tested by Optimized PITC or PITC. No adverse events were reported in the HIVST arm.

	Arm 1: PITC	Arm 2: Optimized PITC	Arm 3: HIVST	Adjusted Odds Ratio* (95% CI)	
	n(%)	n(%)	n(%)	HIWST vs PITC	HIVST vs Optimized PITC
Demographic variables					
Male	636 (32)	360 (46)	718 (37)	-	-
Mean age, years (IQR)	32 (21-40)	35 (22-43)	32 (21-40)	-	-
Mean years of school completed (IQR)	6 (2-9)	6 (3-10)	6 (2-9)	-	-
Study outcomes					
Tested at OPD	248 (12)	261 (14)	995 (52)	7.64 (6.49-8.99) p=<0.001	6.57 (5.59-7.71) p=<0.001
Among those tested (n=1504)					
Previously known HIV+	0	2 (0.8)	11 (1.1)	-	1.71 (0.37-7.96) p=0.50
New HIV+	6 (2.4)	8 (3.1)	26 (2.6)	1.14 (0.46-2.82) p=0.78	0.84 (0.37-1.93) p=0.69
Not tested for HIV in the past 12 months	124 (50)	134 (51)	524 (53)	1.07 (0.80-1.41) p=0.65	1.10 (0.83-1.46) p=0.49
>2 partners in the past year	52 (21)	59 (23)	209 (20)	0.92 (0.63-1.34) p=0.67	0.69 (0.36-1.33) p=0.27
Would test again using the same method	204 (82)	222 (85)	976 (98)	11.27 (6.40-19.84) p<0.001	9.09 (5.08-16.27) p<0.001
Would recommend the method to a friend	219 (88)	224 (86)	987 (99)	16.81 (7.52-37.59) p<0.001	20.86 (9.46-45.96) p<0.001
Coerced to test	10 (4)	10 (4)	0	-	-
Coerced to disclose test results	1 (0.4)	3 (1.2)	0	-	-
Total	1,988	1,890	1,930	-	-
*models adjust for: sex, age, age-squared, currently married, and number of years of school completed					

[Table. Participant characteristics and outcomes across three arms of a HIVST study targeting outpatient clients (n=5,675)]

Conclusions: Facility-based HIVST in outpatient waiting-spaces dramatically increased HIV testing and identification of HIV-infected persons among outpatients in Malawi, with minimal risk for loss of confidentiality or adverse events. Analyses for linkage to care are underway. Evaluations of routine program implementation are needed to determine best strategies to take facility-based HIVST to scale.

TUESDAY 24 JULY

Poster Discussions

TUPDA01 Besieging the reservoir and kicking it where it hurts

TUPDA0101

Association between immunogenetic factors and post-treatment control of HIV-1 infection. ANRS VISCONTI and PRIMO studies

A. Essat[1], D. Scott-Algara[2], V. Monceaux[3], V. Avettand-Fenoel[4,5], C. Didier[2], S. Caillat-Zucman[6], S. Orr[1], I. Theodorou[6,7], C. Goujard[1,8], F. Boufassa[1], O. Lambotte[8,9], C. Rouzioux[4,5], L. Hocqueloux[10], L. Meyer[1,8], A. Sáez-Cirión[3], ANRS PRIMO and VISCONTI studies
[1]INSERM CESP U1018, University Paris Sud, Le Kremlin Bicêtre, France, [2]Institut Pasteur, Unité régulation des infections rétrovirales, Paris, France, [3]Institut Pasteur, Unité HIV inflammation et persistance, Paris, France, [4]Université Paris Descartes, Sorbonne Paris Cité, EA7327, Paris, France, [5]AP-HP, Laboratoire de Virologie, CHU Necker-Enfants Malades, Paris, France, [6]Laboratoire d'Immunologie et Histocompatibilité Hôpital St. Louis, Paris, France, [7]UPMC UMRS CR7 - Inserm U1135 - CNRS ERL 8255, Paris, France, [8]APHP, Bicêtre Hospital, Univ Paris-Sud, Le Kremlin Bicêtre, France, [9]ImVA UMR 1184, Le Kremlin Bicêtre, France, [10]CHR d'Orléans - La Source, Service des Maladies Infectieuses, Orléans, France

Background: Some HIV-1 infected individuals durably control viremia after interruption of early ART (post-treatment controllers, PTC). The mechanisms associated with this phenomenon are unclear. Prevalence of HLA-B*35, associated with rapid progression without therapy, is high among PTC in the VISCONTI study. In contrast, HLA-B*27/57 alleles, associated with HIV-control, are not overrepresented in PTC. We investigated the association between HLA-B*35 and HIV remission.
Methods: CD4+ T-cell counts, plasma viral loads, PBMC-associated HIV-DNA levels were analysed in 245 HLA-typed HIV-infected individuals from the ANRS PRIMO cohort, on ART for at least 12 months since primary infection. HLA and KIR genotyping and NK cell analyses were done in PTC (n=10) from the ANRS VISCONTI study. Results were compared to HIV-infected (viremic, on cART, HIV-controllers) and non-infected individuals.
Results: In the PRIMO cohort, despite similar time since infection, HLA-B*35 individuals (B35, n=64) had lower CD4+ T-cell counts (median 398 cells/mm3, p=0.04) and higher HIV-DNA level (median 3.53 $\log_{10}$ HIV-DNA copies/million PBMC, p=0.046) than HLA-B*27/57 (B27/57, n=21, 543 cells/mm3 and 2.88 $\log_{10}$ HIV-DNA copies) individuals or those carrying other HLAs (others, n=160, 481 cells/mm3 and 3.44 $\log_{10}$ HIV-DNA copies) at the time of treatment initiation. After a similar period on ART (~5 years) the only difference was B27/57 having lower HIV-DNA levels (median < 1.7 $\log_{10}$ vs 2.5 and 2.3 for B35 and others, p=0.01). Among those interrupting the treatment, B35 were more likely to maintain viral control than B27/57 or others (p=0.01). B35 who controlled HIV carried more frequently KIR ligands Bw4 or C2/C2 (f=0.8, p=0.04) than B35 not controllers (f=0.39). In the VISCONTI study, PTC also carried often the Bw4 epitope (f=0.85 vs 0.44 in non-infected controls, p=0.02) and had high prevalence of the KIR B haplotype (f=0.86 vs 0.4). Phenotypical differences and increased anti-HIV activity of NK cells were observed in PTC compared to other HIV-infected individuals (p=0.01).
Conclusions: Our results suggest that HLA-B*35 might favour post-treatment control, despite unfavourable primary HIV-infection, in some early treated individuals. This might be associated with the presence of KIR Bw4 and C2 ligands in the MHC of PTC, enrichment of KIR B genotype and optimal licensing of NK cells.

TUPDA0102

HCV treatment with direct-acting antivirals (DAAs) in HIV/HCV coinfected subjects affects the dynamics of the HIV-1 reservoir

Y. Ghiglione[1], M.L. Polo[1], A. Solomon[2], G. Poblete[3], M.J. Rolón[3], P. Patterson[4], H. Pérez[3], H. Salomón[1], F. Quiroga[1], G. Turk[1], S.R. Lewin[2,5], N. Laufer[1]
[1]INBIRS Institute (UBA-CONICET), Buenos Aires, Argentina, [2]The University of Melbourne, Peter Doherty Institute, Melbourne, Australia, [3]Hospital Fernández, Infectious Diseases Unit, Buenos Aires, Argentina, [4]Huésped Foundation, Buenos Aires, Argentina, [5]Alfred Health and Monash University, Department of Infectious Diseases, Melbourne, Australia

Background: The effect of direct acting antiviral (DAA) agents for hepatitis C virus (HCV) on the HIV reservoir in co-infected individuals is not completely understood. We hypothesized that cure of HCV would reduce persistent interferon (IFN) signaling and would have downstream effects on the frequency of infected cells and their basal transcriptional activity.
Methods: Nineteen HIV/HCV coinfected individuals on suppressive ART were treated for HCV with sofosbuvir/daclatasvir±ribavirine (12-24 weeks). Blood samples were obtained at enrollment, immediately before HCV treatment (baseline sample, BSL) and at end-of-treatment (EOT) for HCV. HIV-monoinfected individuals on at least one year of ART were included as controls. Cell-associated HIV DNA (total, integrated, 2LTR) and unspliced (US) and multiply spliced (MS) RNA were quantified by real-time PCR. Data was analyzed using non-parametric statistics. CD4 and CD8 cell frequency was determined by flow cytometry.
Results: In the HIV/HCV coinfected group, 79% were male (mean age=49±5.9 years old). The mean times of HIV and HCV diagnosis were 16.2±4.8 years and 13.5±7.3years, respectively. Median CD4+ T-cell count at enrollment was 291 cells/µL (IQR 231-776). All were under cART with undetectable HIV VL. Among the control group, 82% were male, with median CD4+ T-cell count=612 cells/µL (IQR476-863). US HIV RNA was significantly higher in CD4+ T-cells collected at EOT compared to BSL (p=0.01). HIV/HCV individuals had higher US HIV RNA at BSL (p=0.09) and EOT samples (p=0.005), compared to HIV-only individuals, There were no statistically significant differences in HIV MS RNA, 2LTRs or total and integrated HIV DNA between EOT and BL or between HIV/HCV and HIV-only individuals. At EOT compared to BSL, HIV/HCV subjects had significantly higher CD4/CD8 ratios (0.42 (IQR 0.29-0.71) versus 0.50 (IQR 0.31-0.76), p=0.02). This was a result of an increase in $CD4^+$ T-cells but minimal change in $CD8^+$ T-cell counts.
Conclusions: HCV/HIV individuals showed higher levels of HIV unspliced-RNA than HIV monoinfected individuals and this difference was even greater after HCV clearance with DAAs. Thus, HCV clearance, or related downstream effects impact HIV persistence on ART. These changes are consistent with reduced basal transcription in latently infected cells post-HCV clearance which could be secondary to reduction in chronic IFN signaling.

TUPDA0103

IL-10 contributes to, and is a biomarker for, viral persistence in ART-treated, SIV-infected rhesus macaques

J. Harper[1], S. Ribeiro[2], M. Pino[1], L. Micci[1], M. Aid[2], C. Deleage[3], E. Rimmer[4], G. Ayanoglu[4], D. Gorman[4], J. Estes[5], R. Sekaly[2], M. Paiardini[1,6]
[1]Emory University, Atlanta, United States, [2]CASE Western Reserve University, Cleveland, United States, [3]Frederick National Laboratory for Cancer Research, Frederick, United States, [4]Merck Biologics Discovery, San Francisco, United States, [5]Vaccine and Gene Therapy Institute, OHSU, Portland, United States, [6]Yerkes Nationale Primate Research Center, Atlanta, United States

Background: One of the main barrier to designing therapeutic strategies aimed at targeting HIV persistence is our incomplete knowledge of the mechanisms regulating the establishment and maintenance of the HIV reservoir, as well as the lack of biomarkers able to predict its size. Interleukin (IL)-10 is a critical component of the anti-inflammatory responses required to dampen the pro-inflammatory responses acti-

vated by the immune system after an encounter with a pathogen. IL-10 signaling reduces antigen presentation and increases T cell anergy, and IL-10 deficiency in mice prevented the persistence of pathogens normally inducing chronic infections. We hypothesized that IL-10 can lead to a status of immunosenescence and favor HIV persistence.
Methods: Fifteen RMs were infected with SIVmac$_{239}$ and started on cART at day 58 post-infection. cART was maintained for 7 months. Blood, lymph node (LN), and rectal biopsy (RB) were collected longitudinally for flow cytometric and DNAscope analyses. SIV-DNA content was quantified in CD4 T cell subsets, including Tfh. RNAseq analyses were performed on PBMCs.
Results: IL-10 *in vitro* stimulation significantly upregulated pathways involved in HIV persistence, including the expression of pSTAT3, PD-1 and CTLA-4, and histone deacetylases. In vivo, (i) IL-10 levels (plasma and LN) and IL-10 stimulated genes increase upon SIV infection and do not fully normalize with ART (p< 0.01); (ii) before ART, IL-10 and IL-10 stimulated genes levels significantly correlated with multiple markers of disease progression as well as the frequency of CD4$^+$ T-cells harboring SIV-DNA in blood, LN (including Tfh cells), and gut (p< 0.01); (iii) IL-10 levels and IL-10 stimulated genes at pre-ART predict the frequency of LN CD4$^+$ Tfh cells (p=0.0002) and SIV-DNA content in blood CD4 T cells (p=0.0218) and in RB (p=0.0383) after seven months of ART. Finally, among LN follicular SIV-DNA$^+$ cells, those IL-10$^+$ were more stable between the pre- and on-ART time points than their IL-10 negative counterpart, resulting in 85% of SIV-DNA$^+$ cells being IL-10$^+$ on-ART (p=0.0095).
Conclusions: Altogether, our data highlight IL-10 signaling as a mechanism of and a biomarker for viral persistence in ART-treated, SIV-infected rhesus macaques. Modulation of IL-10 represents a novel therapeutic avenue towards an HIV cure.

TUPDA0104

Follicular CD8+ T-cells in gut-associated lymphoid tissue are associated with lower HIV-1 reservoir in the terminal ileum after ART initiated during primary HIV infection

J.P. Thornhill[1], G.E. Martin[2], J. Hoare[1], S. Peake[1], M. Pace[2], J. Meyerowitz[2], J. Lwanga[3], H. Lewis[1], T. Solano[3], C. Herrera[1], J. Fox[3], S. Fidler[1], J. Frater[2], & the CHERUB Investigators
[1]Imperial College London, London, United Kingdom, [2]University of Oxford, Oxford, United Kingdom, [3]Guys and St Thomas' NHS Trust, London, United Kingdom

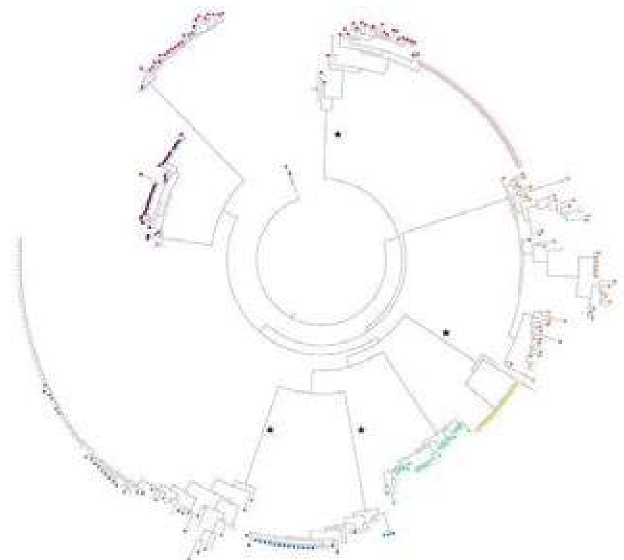
Background: B cells follicles are considered a site of ongoing viral replication during treated HIV infection due to the exclusion of cytotoxic CD8 T-cells. Recent work has demonstrated that follicular cytotoxic (CXCR5+CD8+) T-cells have the ability to migrate to B cell follicles and are important for HIV control. We investigate the frequency and phenotype of CXCR5+CD8 T-cells in gut-associated lymphoid tissue (GALT) during treated primary HIV infection (PHI) and examine the association with HIV reservoir.
Methods: Gut biopsy samples from terminal ileum (TI) and rectum were collected from HIV+ virally suppressed individuals enrolled in HEATHER, an observational study of treated PHI. Comparisons were made with biopsies from healthy controls (HC). Expression of CD3, CD4, CD8, CXCR5, PD-1, HLA-DR, CD38, Perforin, Granzyme B and Bcl-6 were assessed on gut and peripheral blood mononuclear cells (PBMC) cells by flow cytometry. Total HIV DNA was quantified by qPCR.
Results: GALT samples were analyzed from 21 HIV+ and 8 HC individuals. Longitudinal (baseline & 1-year) biopsies on ART were available for 10 individuals. CXCR5+CD8+ T-cells are found at significantly higher frequency in GALT compared to peripheral blood (mean 9.5% [95%CI 7.5-11.4%] vs. 2.1% [1.2-2.9%] respectively, p< 0.001. The frequency of CD8+CXCR5+ T-cells was similar in HIV+ and HC GALT tissue (TI p=0.76; rectum p=0.06). In the HIV+ group, no change in CXCR5+CD8+ T-cells in GALT was noted between baseline and & 1-year; higher frequency of CXCR5+CD8+ T-cells was observed in rectal tissue compared to TI (p=0.006). An inverse correlation between the frequency of CXCR5+CD8 T-cells and HIV-1 DNA was observed in TI (r=-0.6, p=0.01) but not in the rectum (r=-0.03, p=0.9). CXCR5+CD8+ T-cell percentage correlated with CD4/CD8 ratio (TI r=0.8, p< 0.0001; Rectum r=0.5, p=0.03) & T-follicular helper cell frequency (TI: r=0.5, p=0.03; rectum: r=0.5, p=0.02). Higher expression of Bcl-6, Perforin (p< 0.001), Granzyme B (p< 0.0001), HLA-DR (p=0.0003) and PD-1 (p=0.001) was observed on CXCR5+CD8+ compared to CXCR5-CD8 T-cells in HIV+ GALT.
Conclusions: Follicular CD8+ T-cells in HIV+ GALT persist on ART, exhibit greater cytotoxic potential than CXCR5-CD8 T-cells and may have a role in limiting HIV reservoir in terminal ileum during treated PHI.

TUPDA0105

HIV-1 reservoir diversity and genetic compartmentalization in blood and testis

R. Ponte[1,2], R.L. Miller[3], N.N. Kinloch[3], F.H. Omondi[3], F.P. Dupuy[1,2], R. Fromentin[4], P. Brassard[5], V. Mehraj[1,2], N. Chomont[4], A. Poon[6], Z.L. Brumme[3,7], J.-P. Routy[1,2], The ORCHID study group
[1]The Research Institute of the McGill University Health Centre, Montreal, Canada, [2]Chronic Viral Illness Service, Montreal, Canada, [3]Faculty of Health Sciences, Simon Fraser University, Burnaby, Canada, [4]CR-CHUM and Université de Montréal, Montréal, Canada, [5]The Metropolitan Centre for Plastic Surgery, Montreal, Canada, [6]Western University, Department of Pathology and Laboratory Medicine, London, Canada, [7]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada

Background: HIV latency is the main barrier to cure, but our knowledge of the genetic landscape of latent HIV genomes, particularly in immune-privileged sites, remains incomplete. Knowing that the testes constitute such a site, we characterize latent HIV diversity in testes and blood in HIV-infected individuals with suppressed viremia on cART.
Methods: PBMC and right/left testicular tissue samples were collected from 8 adults undergoing sex reassignment surgery who had maintained viremia suppression on cART for >6 months. HIV proviral Nef sequences were obtained via single-genome amplification. Phylogenies were reconstructed by maximum-likelihood (RAxML; GTR substitution model). PBMC HIV DNA levels were measured by qPCR; HIV adaptation to host HLA (determined via sequence-based typing) was inferred bioinformatically. Genetic compartmentalization was assessed using Wright's measure of population subdivision (F_{ST}) and Slatkin-Maddison (SM) tests.



[Figure 1. Maximum likelihood phylogeny of all intact PBMC and testis sequences collected, coloured by participant. Filled circles indicate PBMC sequences, open diamonds indicate sequences from the left testis and open squares indicate sequences from the right. Black triangles represent HXB2 and NL4-3 reference sequences. Participant HIV datasets that displayed significant genetic compartmentalization by both FST and SM tests are denoted with asterisks.]

Results: 377 Nef sequences were isolated from PBMC (n=235) and testes (n=142); of these 212/235 (90.2%) and 133/142 (93.7%) were intact/non-hypermutated (median 24 [IQR 21-33] PBMC and 8 [IQR 4-37] testis sequences/participant). Within-host proviral diversity varied markedly (median within-host patristic distance 2.06e^{-2} [IQR 8.30e^{-3}-5.43e^{-2}] substitutions/site), and total HIV DNA correlated with proviral diversity in

PBMC (Spearman rho=0.77, p=0.1). In some participants a single HIV variant dominated, while others harbored predominantly unique sequences. Proviral diversity in PBMC generally exceeded that in testis, but not significantly so (median within-host patristic distance $1.56e^{-2}$ vs. $1.26e^{-2}$ respectively, p=0.4); inferred HIV immune escape burden was also consistent between sites. Both F_{ST} and SM tests identified 4 of 8 participants as having significant HIV genetic compartmentalization between blood and testis (F_{ST} scores=0.89, 0.67, 0.29 and 0.22; all p< 0.05; SM all p< 0.05).
Conclusions: Latent HIV diversity varies widely between individuals; larger reservoirs tend to be more diverse. Detection of identical HIV sequences in blood and testis is consistent with migration of clonally-expanded descendants of latently HIV-infected cells throughout the body, including into immune-privileged sites. Detection of significant genetic compartmentalization between blood and testis in 50% of participants underscores the complexity of the proviral HIV landscape on cART, yet suggests that, at least in some individuals, blood proviral diversity may not be unrepresentative of overall reservoir diversity.

TUPDB01 Neuro HIV: Cognition, complications and ART toxicity

TUPDB0101

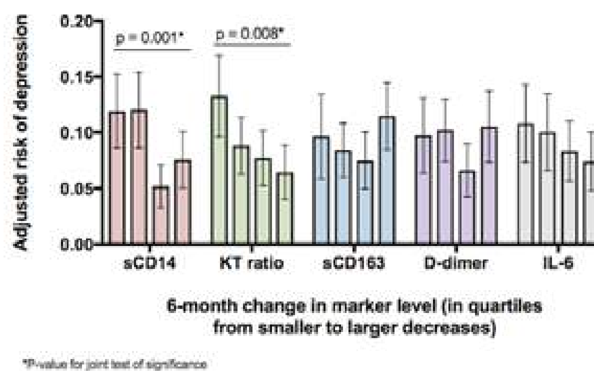
Persistent immune activation and depression in rural Ugandans initiating antiretroviral therapy

J. Chang[1,2,3], N. Musinguzi[4], A. Tsai[1,5,6], C. Muzoora[4], M. Bwana[4], Y. Boum[7], R. Tracy[8], J. Martin[9], J. Haberer[1,6,10], D. Bangsberg[11], P. Hunt[12], M. Siedner[1,6,13]
[1]Massachusetts General Hospital, Center for Global Health, Boston, United States, [2]Duke University School of Medicine, Durham, United States, [3]University of North Carolina, Chapel Hill, United States, [4]Mbarara University of Science and Technology, Mbarara, Uganda, [5]Massachusetts General Hospital, Chester M. Pierce, MD Division of Global Psychiatry, Boston, United States, [6]Harvard Medical School, Boston, United States, [7]Epicentre, Mbarara, Uganda, [8]University of Vermont, Department of Pathology & Laboratory Medicine, Burlington, United States, [9]University of Scan Francisco, Department of Epidemiology and Biostatistics, San Francisco, United States, [10]Massachusetts General Hospital, Department of Medicine, Boston, United States, [11]Oregon Health & Science University, Portland, United States, [12]University of California, Department of Medicine, San Francisco, United States, [13]Massachusetts General Hospital, Division of Infectious Diseases, Boston, United States

Background: Decreases in kynurenine/tryptophan (KT) ratio have been associated with decreases in depressive symptoms after initiation of antiretroviral therapy (ART); however, the relationship between depression and other markers of immune activation in persons with HIV (PWH) is less clear.
Methods: We analyzed data from 393 adult PWH in rural Uganda who were enrolled at ART initiation and observed every 3-4 months from 2005-2015. Our exposures of interest were change in levels of soluble CD14 (sCD14), KT ratio, soluble CD163 (sCD163), D-dimer, and interleukin-6 (IL-6) from before to six months after ART initiation. Our outcome of interest was probable depression, defined by a mean score >1.75 on the Hopkins Symptom Checklist depression subscale. We fit modified Poisson regression models and generalized estimating equations (GEE) Poisson regression models with cluster-correlated robust standard errors to respectively examine the relationship between: 1) pre-ART inflammatory marker levels and depression, and 2) 6-month change in marker levels and depression at follow-up visits within two years of ART initiation. Models were adjusted for pre-ART depression, year of ART initiation, and tuberculosis co-infection; and time-varying demographic characteristics, body mass index, smoking, alcohol use, CD4+ count, ART duration, viral suppression (≤400 copies/mL) and self-reported physical health.
Results: There were no statistically significant associations between levels of inflammatory markers and depression in the pre-ART period. However, in multivariable-adjusted GEE regression models, larger decreases in sCD14 and KT ratio from pre-ART to 6-months post-ART were associated with decreased risk of depression (Table, Figure). These associations remained qualitatively similar when additionally adjusted for 6-month change in the level of the other marker and when restricted to follow-up visits where the participant was virally suppressed. We estimated no statistically significant associations between sCD163, D-dimer, or IL-6 and risk of depression.
Conclusions: Greater decreases in sCD14 and KT ratio after ART initiation were independently associated with decreased risk of depression. This may suggest independent sCD14 and KT-mediated pathways leading to depression in PWH and may be targets of future intervention.

Marker	Quartile	Unadjusted IRR (95% CI)	P-value for joint test	Adjusted IRR (95% CI)	P-value for joint test
sCD14	1st (smallest decrease)	REF	0.005	REF	0.001
	2nd	1.10 (0.68, 1.78)		1.01 (0.68, 1.50)	
	3rd	0.44 (0.25, 0.76)		0.44 (0.27, 0.69)	
	4th (largest decrease)	0.75 (0.45, 1.24)		0.63 (0.42, 0.97)	
KT ratio	1st (smallest decrease)	REF	< 0.001	REF	0.008
	2nd	0.62 (0.39, 0.99)		0.67 (0.45, 0.98)	
	3rd	0.41 (0.25, 0.66)		0.58 (0.38, 0.89)	
	4th (largest decrease)	0.39 (0.24, 0.66)		0.48 (0.30, 0.77)	

[Table. Association of quartile of log10 inflammatory marker level change from pre-ART to 6-months post-ART and probable depression in first two years]



[Figure. Adjusted risk of depression by 6-month change in marker]

TUPDB0102

Variables associated with neuropsychiatric symptoms in PLWH receiving dolutegravir based therapy in phase III clinical trials

J. van Wyk[1], J. Oyee[2], S. Barthel[2], J. Koteff[3], B. Wynne[3], L. Curtis[2], V. Vannappagari[3], N. Payvandi[1], V. Carr[1], T. Vincent[1], M. Aboud[1]
[1]ViiV Healthcare, Brentford, United Kingdom, [2]GlaxoSmithKline, Stockley Park, United Kingdom, [3]ViiV Healthcare, Research Triangle Park, United States

Background: Analysis of phIII clinical trials for DTG concluded that selected neuropsychiatric symptoms (NPs) occurred at similar frequencies compared with controls. Some observational cohort data suggest that NPs result in higher rates of discontinuation among DTG users. Potential factors associated with discontinuations due to NPs reported in some cohorts include ABC co-administration, older age and female gender. We performed a meta-analysis to assess variables associated with NPs, and explored whether insomnia was associated with subsequent NPs.
Methods: Studies included: SPRING-2, SINGLE, FLAMINGO, ARIA, SAILING. NPs included: Insomnia, anxiety, depression, suicidality, nightmares/abnormal dreams, headache. Exposure adjusted incidence of NPs was calculated from frequencies of reported adverse events (AEs); 95%CIs are based on exact binomial 2-sided CIs. Poisson mixed effects meta-regression models were used to conduct two analyses of prespecified variables in a backward selection on the incidence rate of AEs in patients treated with A) DTG (N=1,672) versus nonDTG (n =1,681) and

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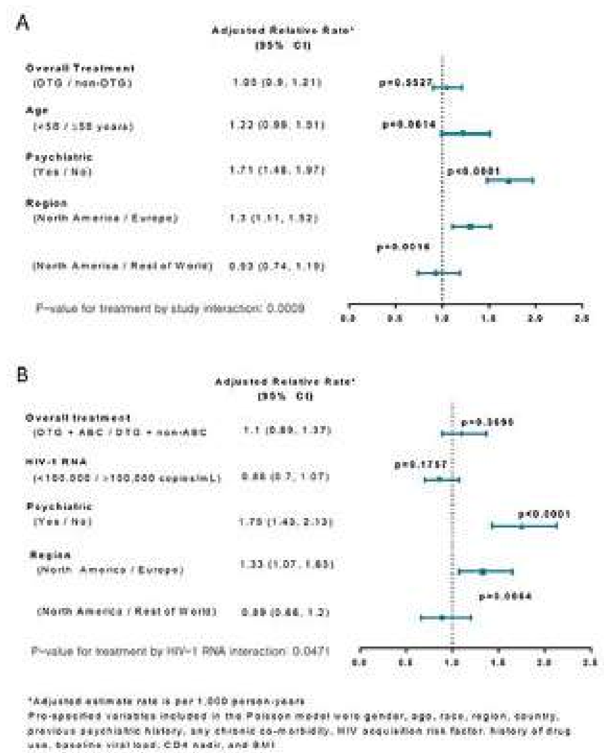
B) DTG+ABC (n=943) vs DTG+nonABC (n=729). Significance level was 10%. Insomnia as a precursor to other NPs was analyzed descriptively.

Results: Identified variables associated with NPs are shown in the figure. Overall, adjusted estimates [SE] for NPs rates per 1,000 person years were 5.26 [0.068] with DTG versus 5.21 [0.07] with nonDTG (aRR 1.05 [95%CI 0.9, 1.21], p=0.55]), and 5.4 [0.079] with DTG+ABC versus 5.3 [0.085] with DTG+nonABC (aRR 1.1 [95%CI 0.89, 1.37, p=0.37]). Descriptive analyses of first insomnia events and subsequent non-insomnia events are in the table. First insomnia events with subsequent non-insomnia NPs occurred infrequently (2.2%), with higher rates of first occurrence of non-insomnia NPs (23%).

Conclusions: In this meta-analysis including 3,353 participants, the rate of NPs was similar between DTG and non-DTG treated patients. Variables associated with increased NPs in the DTG vs nonDTG analysis were past psychiatric history, non-EU residence and, in contrast with previous findings, younger age. Within the DTG vs DTG+ABC analysis, past psychiatric history and country of residence showed significant association. Concomitant ABC use was not a variable associated with NPs. There was no indication that insomnia was associated with subsequent CNS



[Figure. Results from analysis of predictors of NPs using Poisson regression for (A) exposure to DTG vs non-DTG and (B) exposure to DTG + ABC vs DTG + non-ABC]

	DTG (N=1,672) n (%)	nonDTG (N=1,681) n (%)	Difference, % (95%CI)
Patients without NPs	1,242 (74.3%)	1,273 (75.7%)	-1.45 (-4.4, 1.5)
First insomnia event with subsequent non-insomnia NPs	37 (2.2%)	25 (1.5%)	0.73 (-0.2, 1.6)
Non-insomnia NPs without prior insomnia event	384 (23.0%)	378 (22.5%)	0.48 (-2.4, 3.3)
Only one NPs event	310 (18.5%)	278 (16.5%)	2.00 (-0.6, 4.6)

[Table]

TUPDB0103

Antiretroviral therapy (ART) interruption is associated with reduced cortical structures compared to uninterrupted ART at age 5 years in HIV-infected children on early ART

E.C. Nwosu[1], M.J. Holmes[1], M.F. Cotton[2], E. Dobbels[2], F. Little[3], B. Laughton[2], A. van der Kouwe[4,5], E.M. Meintjes[1], F.C. Robertson[1]
[1]University of Cape Town, MRC/UCT Medical Imaging Research Unit, Division of Biomedical Engineering, Department of Human Biology, Faculty of Health Sciences, Cape Town, South Africa, [2]Stellenbosch University, Family Clinical Research Unit, Department of Paediatrics & Child Health, Tygerberg Children's Hospital and Faculty of Health Sciences, Cape Town, South Africa, [3]University of Cape Town, Department of Statistical Sciences, Faculty of Sciences, Cape Town, South Africa, [4]Massachusett General Hospital, A.A. Martinos Centre for Biomedical Imaging, Department of Radiology, Charlestown, United States, [5]Harvard Medical School, Department of Radiology, Boston, United States

Background: ART interruption (ATI) has been studied in HIV-infected (HIV+) children and adolescents and may occur due to poor adherence, stock-outs and ART intolerance. Although ATI in early treated children may not affect immune health, neurocognition and quality of health in the short term, its effect on brain development is not clear. Here, we investigated effect of ATI on brain morphometry - cortical thickness (CT) and local gyrification indices (LGIs) - in healthy 5 year-old children who initiated ART before 18 months of age.

Methods: MRI scans were acquired from participants in the Children with HIV early antiretroviral therapy (CHER) trial follow-on study according to protocols approved by the ethics committees of the Universities of Cape Town and Stellenbosch. FreeSurfer software v6.0 (http://freesurfer.net/) was used for automated reconstruction and segmentation. Whole-brain CT and LGIs - a measure of cortical folding - were compared between HIV+ children and uninfected controls (HIV-), and between children with ATI who restarted when CD4% < 25% or CDC severe Stage B and children on continuous ART using a linear regression model controlling for sex, age at scan and age at ART initiation.

Results: Forty-six HIV+ children (24 ART-interrupted - interruption age (median ± IQR = 49.14 ± 36.18 weeks), ART initiation - median ± IQR = 9.14 ± 2.93 weeks, 22 ART-uninterrupted, ART initiation - median ± IQR = 11.86 ± 22.14 weeks) and 18 age-matched uninfected controls (9 boys) (age: mean ± std. = 5.58 ± 0.31 years) were included. HIV+ children showed thicker cortex than controls in bilateral frontal and post central regions and lower gyrification in bilateral anterior cingulate, superior parietal and left superior frontal regions. ATI had thinner cortex than continuous therapy in a left lateral occipital (cluster size: 812.30 mm^2) region. ATI showed lower gyrification than continuous therapy in bilateral superior parietal (cluster size: left - 2970.70 mm^2, right - 865.97 mm^2) regions (figure 1).

Conclusions: ART interruption at a young age may affect the development of cortical structures, leading to parietal gyrification decrease and occipital cortical thinning at age 5 years. The neuropsychological implications of these effects in HIV+ children requires further investigation.

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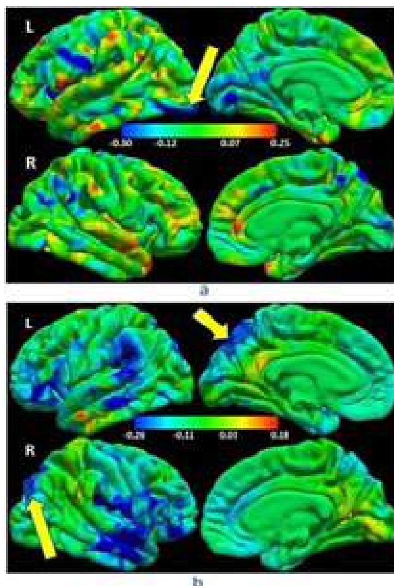


Figure 1: Colour map of regression coefficients for a) cortical thickness (mm) and b) local gyrification indices (LGIs) against group (ATI/continuous) controlling for sex, age at scan and ART initiation. Positive regression coefficients (red/yellow) indicate ATI > continuous, and negative coefficients (cyan/blue) indicate ATI < continuous. The colour bar scale applies to both left (top) and right (bottom) hemisphere.

a) The left lateral occipital region outlined in black shows where ATI children have thinner cortex compared to continuous children at a threshold of $p<0.05$, with a cluster size corrected threshold of $p<0.05$.

b) The bilateral superior parietal regions outlined in black shows where ATI children have lower gyrification compared to continuous children at a threshold of $p<0.05$, with a cluster size corrected threshold of $p<0.05$.

Female ATI -16, Male ATI – 6, Female continuous – 11, Male continuous - 11

[Figure 1]

TUPDB0104

Ongoing white matter alterations in HIV infected and HIV exposed children: A DTI study at 9 years

F. Mberi[1], M. Jankiewicz[1,2], F. Little[3], M. Cotton[4], A. van der Kouwe[1,5,6], B. Laughton[4], E. Meintjes[1,2], M. Holmes[1]
[1]*University of Cape Town, Department of Human Biology, Faculty of Health Sciences, Cape Town, South Africa,* [2]*University of Cape Town, Cape Universities Body Imaging Centre at UCT, Faculty of Health Sciences, Cape Town, South Africa,* [3]*University of Cape Town, Department of Statistical Sciences, Cape Town, South Africa,* [4]*University of Stellenbosch, Family Clinical Research Unit, Department of Paediatrics & Child Health, Tygerberg Children's Hospital and Faculty of Health Sciences, Cape Town, South Africa,* [5]*Massachusetts General Hospital, A.A. Martinos Centre for Biomedical Imaging, Department of Radiology, Charlestown, United States,* [6]*Harvard University, Department of Radiology, Boston, United States*

Background: An increasing number of perinatally HIV-infected (HIV+) infants are growing up on ART. Examination of diffusion tensor imaging (DTI) measures over time can identify the impact of HIV exposure, infection and/or treatment on white matter (WM) maturation. DTI studies report WM regions with reduced fractional anisotropy (FA) and increased mean diffusivity (MD) in HIV+ children on ART, which point to demyelination and/or axonal damage.

In the Children with HIV Early Antiretroviral therapy (CHER) substudy, we reported persistent WM abnormalities in the *inferior/superior longitudinal fasciculus* (ILF/SLF), *inferior fronto-occipital fasciculus* (IFOF), *forceps minor* and *corticospinal tract (CST)* at ages 5 and 7, despite early ART. Here, we further investigate voxelwise group differences of MD and FA in this cohort at age 9.

Methods: Participants are 51 HIV+ and 36 HIV- children (42 Females; mean age±sd: 9.4±0.4; 11 Cape Coloured/76 Xhosa) scanned in Cape Town, South Africa on a 3T Siemens Skyra MRI scanner (Erlangen, Germany).

Structural T1-weighted images and two DWI sets with opposite phase encodings were acquired. Data were processed using TORTOISE (version 3.1.0) and AFNI. Voxelwise group comparison of FA and MD were performed in FSL using a general linear model (GLM) with gender, age and ethnicity as confounders. Axial diffusivity (AD), and radial diffusivity (RD) were extracted for each subject in surviving clusters (threshold p_{th}=0.005 and =0.05) and compared between groups using a student's t-test.

Results: HIV+ children demonstrated lower FA in bilateral CST, right IFOF and *corpus callosum* (CC) (Fig 1 and Table 1), and higher MD bilaterally in CST and ILF, left IFOF and right *anterior thalamic radiation* (ATR). Differences were largely attributable to higher RD.

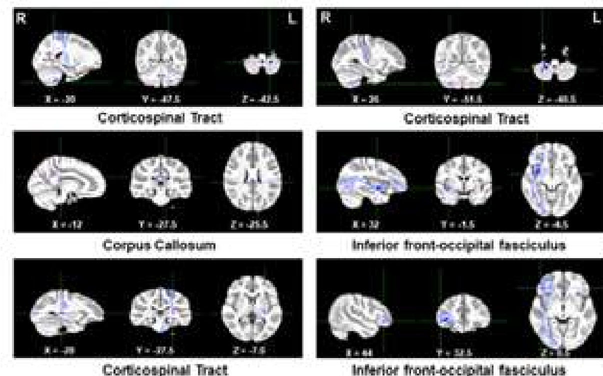


Figure 1: **Clusters showing regions where FA is lower in HIV+ children compared to controls. Corresponding cluster sizes can be found in Table 1. Clusters are shown overlaid on masks of the corresponding WM tracts (JHU White-Matter Tractography Atlas). Peak cluster MNI coordinates are at the base of each image.**

[Clusters showing structural abnormalities between HIV- and HIV+ children]

Cluster location	Size	FA		AD			RD		
	(mm3)	HIV-	HIV+	HIV-	HIV+	p	HIV-	HIV+	p
Corticospinal Tract (L)	528	0,490 (0.095)	0.405 (0.100)	1.023 (0.088)	1.001 (0.106)	0.315	0.448 (0.067)	0.527 (0.116)	<0.001
Corticospinal Tract (R)	424	0.409 (0.080)	0.340 (0.068)	0.984 (0.071)	0.982 (0.081)	0.862	0.517 (0.066)	0.594 (0.086)	<0.001
Corpus Callosum	384	0.613 (0.130)	0.487 (0.156)	1.345 (0.114)	1.258 (0.119)	0.001	0.423 (0.113)	0.536 (0.140)	<0.001
Inferior fronto-occipital fasciculus (R)	336	0.289 (0.093)	0.224 (0.061)	1.023 (0.094)	0.975 (0.065)	0.005	0.651 (0.058)	0.694 (0.047)	<0.001
Corticospinal Tract (L)	320	0.552 (0.059)	0.486 (0.075)	1.211 (0.065)	1.171 (0.079)	0.013	0.457 (0.043)	0.508 (0.046)	<0.001
Inferior fronto-occipital fasciculus (R)	248	0.356 (0.115)	0.269 (0.110)	1.003 (0.104)	0.970 (0.086)	0.109	0.579 (0.091)	0.648 (0.100)	0.001
Units of AD, and RD are 10−3 mm2 s−1.									

[Clusters showing significant differences in FA between HIV- and HIV+ children]

Conclusions: Our results indicate that despite early ART, persistent WM alterations in the IFOF, ILF and CST are present from age 5 to 9. Furthermore, although we did not observe CC abnormalities at 5 or 7 years, microstructural abnormalities in CC at 9 years suggest early ART may not prevent ongoing damage.

TUPDB0105

Incidence of stroke in HIV-positive patients: A population-based study in Taiwan

H.-L. Lin[1,2], P.-C. Chen[3]
[1]*China Medical University, PHD Program for Aging Program, Taichung, Taiwan, Province of China,* [2]*Linshin Hospital, Rehabilitation, Taichung, Taiwan, Province of China,* [3]*China Medical University, Public Health, Taichung, Taiwan, Province of China*

Background: Few studies evaluated whether people infected with human immunodeficiencyvirus (HIV) are at an increased risk of stroke in Asian population. This study investigated incidence of stroke in people with HIV infection in comparison with general population in Taiwan.

Methods: Using the claims data of a universal health insurance program, we identified5,961 HIV/AIDS patients without previous stroke from 1998 to 2005 and followed them up until 2011. Standardized incidence ratios (SIRs) were calculated to compare the incidence of overall, ischemic and hemorrhage stroke in HIV/AIDS patients with that in the general population by age, sex and duration of follow-up.
Results: HIV/AIDS patients had higher risk of developing stroke overall (SIR 1.94, 95% confidence interval (CI) 1.58-2.35), ischemic stroke (SIR 2.28, 95% CI 1.74-2.95) and hemorrhage stroke (SIR 2.09, 95% CI 1.40-3.00). The risk remained consistently and significantly higher among all age and sex groups. In all patients and each of age and sex stratifications, the SIR was the highest within one year after diagnosis of HIV/AIDS (SIR [95% CI] for all patients, all stroke, 46.62 [7.63-73.68]; ischemic stroke, 34.47 [13.86-71.02]; hemorrhage stroke, 81.92 [30.06-178.30]).The risk diminished over time, and no increased risk was observed after 8 years of follow-up.
Conclusions: HIV is associated with the highest risk of developing overall, ischemic and hemorrhagic stroke within 1 year after diagnosis among any age groups. This finding may highlight the importance of screening and correcting risk factors for stroke immediately and aggressively after patients diagnosed with HIV and AIDS.

TUPDB0106

Longitudinal neurocognitive performance in HIV infected individuals in rural Uganda

K. Robertson[1], A. Vecchio[2], D. Saylor[3], G. Nakigozi[4], N. Nakasujja[5], R. Gray[6], M. J. Wawer[6], N. Sacktor[7], Rakai Health Sciences Program
[1]*University of North Carolina, Neurology, Durham, NC, United States,* [2]*Viata-Salute San Raffaele University, Infectious Diseases, Milan, Italy,* [3]*Johns Hopkins, Neurology, Baltimore, United States,* [4]*Rakai Health Sciences Program, Kalisizo, Uganda,* [5]*Makerere University, Kampala, Uganda,* [6]*Johns Hopkins School of Public Health, Baltimore, United States,* [7]*Johns Hopkins University, Neurology, Baltimore, United States*

Background: Neurocognitive impairment in HIV+ individuals remains prevalent despite effective antiretroviral therapy (ART). There is limited data on longitudinal neurocognitive performance in HIV+ individuals in rural Sub-Saharan Africa. By implementing neurocognitive exams for both HIV+ and HIV - individuals, we can establish normative data and monitor neurocognitive function in HIV + persons in an ongoing study in rural Rakai District, Uganda.
Methods: Participants were enrolled in the Rakai Community Cohort Study (400 HIV-, 400 HIV + ART naïve). Personnel were trained to administer standardized neurological and neuropsychological assessments, and participants were stratified by demographic features (age, education, and gender). The HIV+ participants initiated on ART had a follow-up exam to assess neurological function over time.
Results: At baseline there was a significant difference in neurocognitive performance between HIV - (total z score M -.01, SD .50) and HIV + (M -0.26, SD .72, p< .0001). The 333 HIV + participants who returned for a follow-up exam after two years had a mean age of 37.4 years (SD 8.6), education of 5.5 years (SD 3.3), and 49% were women. There was a significant improvement in the total neurocognitive performance of the HIV + participants initiated on ART within the two year follow-up period (F (1,332) = 9.88, p < 0.005; mean time1 = -.26; time 2 = - .16). There was Improved performance in the neurocognitive domains of Fine motor Learning, and Memory (p< 0.0001), while there was no change in Executive functioning, Gross motor, or Speed of processing. The performance in the domains of Fluency and Attention decreased (p< . 008). Overall neurocognitive test deficits (< 1 SD) improved over time (F (1, 332) = 26.86, p < .0001); time1 = 3. 03, time2= 2.39).
Conclusions: Over the course of 2 years on ART, HIV+ participants in this rural, resource limited cohort showed an overall improvement in neurological performance. While there were substantial improvements in learning, memory, and fine motor abilities, there was not the expected improvement in executive functioning, gross motor, speed, fluency, and attention. Overall, neurocognitive test deficits significantly improved over time and warrant further follow-up.

TUPDB0107

Integrase inhibitors and neuropsychiatric adverse events in a large prospective cohort

L. Cuzin[1,2], P. Pugliese[3], C. Katlama[4], I. Ravaux[5], F. Bani-Sadr[6], T. Ferry[7], D. Rey[8], J. Lourenco[9], S. Bregigeon[5], C. Allavena[10], J. Reynes[11], Dat'AIDS Study Group
[1]*CHU de Martinique, Infectious Diseases, Schoelcher, Martinique,* [2]*INSERM UMR 1027, Toulouse, France,* [3]*Nice University Hospital, Nice, France,* [4]*Pitié Salpetrière University Hospital, Paris, France,* [5]*Marseille University Hospitals, Marseille, France,* [6]*Reims Universtiy Hospital, Reims, France,* [7]*Lyon University Hospital, Lyon, France,* [8]*Strasbourg University Hospital, Strasbourg, France,* [9]*Cochin University Hospital, Paris, France,* [10]*Nantes University Hospital, Nantes, France,* [11]*Montpellier University Hospital, Montpellier, France*

Background: In 2016 an unexpectedly high frequency of dolutegravir (DTG) discontinuation for neuropsychiatric reasons was reported, these effects might be more frequent when DTG was used with abacavir (ABC), in women, or in ageing people. Our objective was to search in our large prospectively collected cohort the patients who were treated with an integrase inhibitor (INSTI) and to analyze the frequency and causes of discontinuation.
Methods: The Dat'AIDS cohort is prospectively collected in 18 HIV reference centers in France. Data for all patients starting an INSTI containing regimen between 01/01/2006 and 31/12/2016 were extracted. All causes - chosen by the physician in a limited list of items - of an INSTI containing regimen discontinuation were analyzed, and patients' characteristics related with discontinuation due to neuropsychiatric side effects were searched for.
Results: INSTI were prescribed to 21 315 patients: 6 274 treated with DLT, 3 421 with elvitegravir boosted by cobicistat (EVG/c), and 11 620 with raltegravir (RAL), see Table 1. Discontinuation was observed in 12.5%, 20.2% and 50.9% of the DTG, EVG/c, and RAL treated patients, respectively (p< 0.001). The main reason for DTG and EVG/c discontinuation was intolerance (respectively 7.1% and 9.4% of the patients, p< 0.001). For RAL, treatment simplification (18.7%) was the leading reason. Discontinuation for neuropsychiatric reasons was described in respectively 2.7%, 1.3% and 1.7% of the DTG, EVG/c and RAL treated patients (p< 0.001). In multivariate analysis, discontinuation for a neuropsychiatric reason was related to DTG - versus EVG/C (HR=2.27; 95%CI 1.63-3.17; p< 0.0001) and versus RAL (HR=2.46; 95%CI 2.00-3.40; p< 0.0001), while neither gender (HR for women=1.19; 95%CI 0.97-1.46; p=0.09) nor age (p=0.12) were related. The association with abacavir was not retained in the final model, due to a confusion factor, most of the patients treated by DTG receiving ABC whereas none of the patients treated by EVG/c and few of those treated by RAL did.
Conclusions: Although discontinuation for side effects was less frequent with DTG than with EVG/c, neuropsychiatric side effects were more frequent with DTG, but still remained rare (2.7%). No patient's characteristic could be related with these side effects in this very large population.

		DLT N = 6 274	EVG/c N = 3 421	RAL N = 11 620
Gender (% women)		28.5	26.7	29.7
Age (years)	<40	25.6	40.8	23.1
	40-50	30.9	34.0	38.8
	50-60	28.3	18.8	25.6
	>60	15.3	6.4	12.5
Associated NRTI	ABC	66.4	0	17.6
	TDF	19.5	100	43.2
	Other/none	14.1	0	39.2
Lenght of known infection	median (25-75IQ)	12 (4-20)	7 (1-16)	14 (7-20)

[Patients characteristics at the time of INSTI initiation]

TUPDC01 Mortality trends in the ART era

TUPDC0101

Mortality differences after ART initiation in HIV-positive women from Europe, the Americas and sub-Saharan Africa 2000-2014

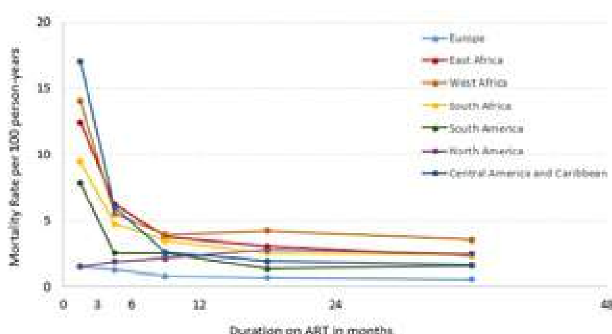
I. Jarrin, Global Mortality Disparities in Women Working Group for IeDEA, EuroSIDA, CASCADE and COHERE in EuroCoord
Instituto de Salud Carlos III, Centro Nacional Epidemiologia, Madrid, Spain

Background: Women account for nearly half of all persons living with HIV/AIDS globally. We aimed to describe geographic disparities in overall mortality after antiretroviral therapy (ART) initiation among HIV-positive women worldwide.

Methods: We pooled data from HIV-positive women over 18 years of age enrolled from 2000 through 2014 and initiating ART within the following cohort collaborations: CASCADE, COHERE, EuroSIDA and 6 regions of IeDEA. Data-contributing regions were categorized as Europe (Eur), East Africa (EAf), West Africa (WAf), South Africa (SAf), South America (SAm), North America (NAm) and Central America and the Caribbean (CAmCRB). Only in NAm were patients required to have a second visit within 12 months of enrollment. Linkages with mortality registries were reported in SAf, NAm and some sites in Eur, and sample tracing of losses to follow-up was conducted in EAf. Inflation factors using mortality ascertainment data from EAf were used to correct mortality under-reporting in WAf. Mortality rates were calculated by region at intervals 0-3, 3-6, 6-12, 12-24 and 24-48 months on ART, and mortality rate ratios estimated at each interval compared to Eur using a piecewise exponential parametric survival model fit through Poisson regression adjusted for age, CD4 T-cell count and period of ART initiation.

	Duration on ART (months)				
	0 - 3	3 - 6	6 - 12	12 - 24	24 - 48
East Africa	7.25 (5.87 - 8.97)	4.24 (3.30 - 5.46)	4.24 (3.35 - 5.37)	3.89 (3.21 - 4.72)	3.63 (3.04 - 4.33)
West Africa	8.95 (7.34 - 10.91)	4.05 (3.21 - 5.11)	4.38 (3.54 - 5.43)	5.37 (4.54 - 6.35)	5.61 (4.84 - 6.51)
South Africa	5.42 (4.43 - 6.64)	3.15 (2.50 - 3.97)	3.77 (3.05 - 4.67)	3.05 (2.56 - 3.63)	3.47 (2.97 - 4.06)
South America	4.47 (2.97 - 6.72)	1.67 (0.84 - 3.32)	2.70 (1.62 - 4.52)	1.69 (1.02 - 2.78)	2.42 (1.65 - 3.55)
North America	0.88 (0.53 - 1.44)	1.25 (0.78 - 2.02)	2.30 (1.61 - 3.27)	3.40 (2.64 - 4.37)	3.72 (2.97 - 4.65)
Central America and Caribbean	9.92 (7.79 - 12.63)	4.12 (2.95 - 5.74)	2.93 (2.07 - 4.15)	2.43 (1.82 - 3.26)	2.50 (1.92 - 3.26)

[Adjusted mortality rate ratios (95% CI) compared to Europe by duration on ART]



[Mortality rates per 100 person-years by time since ART initiation]

Results: A total of 190,175 women (16% Eur, 47% EAf, 13% WAf, 19% SAf, 1% SAm, 3% NAm and 2% CAmCRB) were included. Median age at ART initiation ranged from 33 years in SAf to 40 years in NAm. The proportion of injecting drug users was highest in NAm (18%) and Eur (7%). Only 16% of the women in NAm were of white ethnicity, while 63% and 17% were Black and Hispanic, respectively. Ethnicity data were available for 45% of European women, 26% of whom were Black, largely migrants. Median CD4 count at ART initiation was close to 250 cells/mm³ in Eur and NAm, 141 cells/mm³ in SAf and 170-190 cells/mm³ in other regions. Crude mortality rates and adjusted mortality rate ratios are presented in the figure and table, respectively.

Conclusions: Global variations in mortality in HIV-positive women starting ART show distinct geographical patterns for one-year and four-year mortality that may inform context-specific interventions.

TUPDC0102

High mortality among women living with HIV enrolled in Canada's largest community-based cohort study

A. Kaida[1], R. Gormley[1,2], K. Webster[1], A. Carter[1,2], V. Nicholson[1,3], L. Wang[2], P. Sereda[2], R. Hogg[1,2], A. de Pokomandy[4,5], M. Loutfy[6,7], on behalf of the CHIWOS Research Team
[1]Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada, [2]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada, [3]Canadian Aboriginal AIDS Network (CAAN), Vancouver, Canada, [4]Chronic Viral Illness Service, McGill University Health Centre, Montreal, Canada, [5]McGill University, Department of Family Medicine, Montreal, Canada, [6]Women's College Research Institute, Women's College Hospital, Toronto, Canada, [7]University of Toronto, Department of Medicine, Toronto, Canada

Background: Despite HIV treatment advances, there remains considerable inequity in mortality risk among women with HIV in Canada. We measured all-cause and predictors of mortality among women enrolled in the Canadian HIV Women's Sexual and Reproductive Health Cohort study (CHIWOS).

Methods: CHIWOS is Canada's largest community-based study enrolling women with HIV (trans inclusive; ≥16y) across British Columbia, Ontario, and Quebec. Participants complete a peer-administered baseline survey (2013-2015), with 18-month (Wave-2: 2015-2017), and 36-month (Wave-3: 2017-ongoing) follow-up. Among 1,422 women enrolled and followed until December 1st, 2017, we determined incidence and cause of death via comprehensive study notification and follow-up procedures (in British Columbia death was also confirmed via linkage to Vital Statistics). We calculated age-standardized mortality ratios using 2011 Canadian reference populations. Multivariable proportional sub-distribution hazards model (with loss-to-follow-up as a competing risk) identified predictors of mortality.

Results: Median age was 42.5 (IQR:35-50); 4.4% identified as trans, and 22.4% Indigenous, 29.4% African/Caribbean/Black, and 41.1% white. Most women were engaged in HIV medical care (97.4%) and on ART (82.6%). 54 women died (crude mortality rate=11.8 per 1,000 woman-years; 95% CI:9.0-15.3). The age-standardized mortality rate was 4.54 times higher (95%CI: 3.33-5.76) than the general female Canadian population. Primary cause of death was unknown for most women (67%), followed by co-morbidities including cancer and cardiovascular disease (15%), drug/alcohol use (11%), and HIV-related opportunistic infections (6%). Baseline factors significantly ($p< 0.05$) associated with mortality included older age, personal annual income< $20,000, illicit drug use, hazardous alcohol use, tobacco use, sex work, incarceration, depression, violence, and poorer physical health-related-quality-of-life. Independent predictors of age-adjusted mortality included hazardous alcohol use (aHR 4.62, 95% CI=1.66-12.8), current tobacco use (aHR 3.93, 95% CI=1.45-10.7), and depression (aHR 1.95, 95% CI=0.97-3.92). HIV treatment factors (i.e., ART use, VL, CD4) were not predictive of mortality.

Conclusions: We found an alarmingly high mortality rate among a community-based cohort of women with HIV in Canada, a majority of whom were engaged in HIV care. Preventing premature mortality among women with HIV urgently requires women-centred HIV community outreach services that address social disparities and mental health needs, and integrate harm reduction services inclusive of tobacco and hazardous alcohol use.

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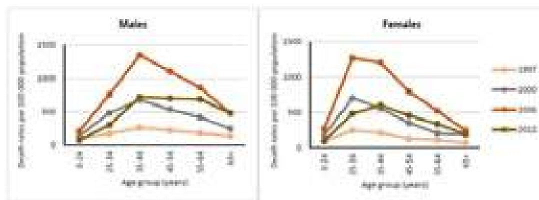
TUPDC0103

Tracking trends in HIV/AIDS mortality pre-and-post ART: South Africa 1997-2012

V. Pillay-van Wyk[1], D. Bradshaw[1], W. Msemburi[1], R. Dorrington[2], R. Laubscher[3], P. Groenewald[1]
[1]South African Medical Research Council, Burden of Disease Research Unit, Cape Town, South Africa, [2]University of Cape Town, Centre for Actuarial Research, Cape Town, South Africa, [3]South African Medical Research Council, Biostatistics Unit, Cape Town, South Africa

Background: South Africa is one of the many countries most affected by the HIV/AIDS epidemic in the world and has one of the most extensive anti-retroviral (ART) rollouts in sub Saharan Africa. This programme was rolled out in 2005. This paper reports the trends in HIV/AIDS mortality pre-and-post ART rollout in South Africa.
Methods: Vital registration cause of death data from Statistics South Africa were adjusted for under-reporting of deaths using demographic methods. Miss-attributed HIV/AIDS deaths were identified by regressing excess mortality on a lagged indicator HIV antenatal clinic prevalence. Background trends in the source-cause (causes to which HIV/AIDS deaths were misclassified) mortality rates were estimated from the trend in cause-specific mortality experienced among 75-84 year olds. Death rates were calculated using mid-year population estimates and the WHO world standard age-weights.
Results: In 1997, 60 336 (14.5%) of deaths were attributed to HIV/AIDS; this number peaked in 2006 at 283 564 (68.1%) and decreased to 153 661 (29.1%) by 2012. Between the ages of 25-34 years females had higher death rates compare to males. This pattern was reversed in those 45 years and older. The male rates for 65+ years continued to increase until 2010 with little age difference in mortality levels over the age of 45 years by 2012 (Fig).



[Fig 1. HIV/AIDS death rates by sex and age group for 1997, 2000, 2006 & 2012]

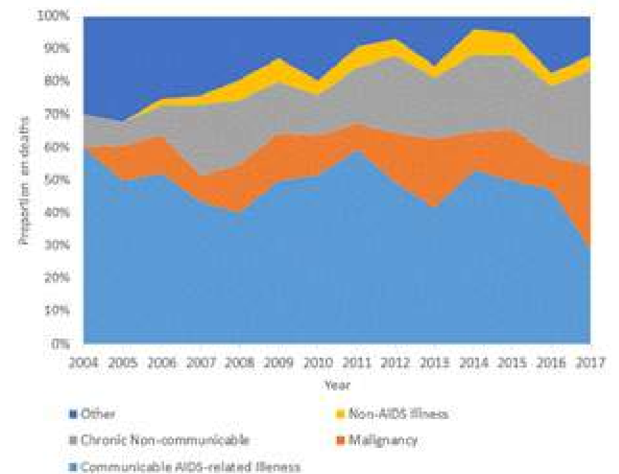
Female death rates peaked in 2005 while males in 2006. Females and males had similar death rates in the earlier period, however males had higher rates than females. While death rates for Black Africans were similar to the national profile, coloureds, whites and Indians had higher rates among males for the entire study period.
Conclusions: HIV/AIDS is the leading cause of death in South Africa even though the number of HIV/AIDS deaths have almost halved since the ART roll out. Our study highlights high male HIV/AIDS mortality rates in the 45+ year olds by 2012. Treatment and prevention programmes should strategize how to target this risk group.

TUPDC0104

Mortality trends among HIV infected patients at Newlands Clinic in Harare, Zimbabwe

T. Shamu[1], C. Chimbetete[1], S. Bote[1], T. Mudzviti[2], R. Luethy[2]
[1]Newlands Clinic, Research, Harare, Zimbabwe, [2]Newlands Clinic, Harare, Zimbabwe

Background: With increasing access to antiretroviral therapy (ART), there is a likely shift in mortality causes among people living with HIV (PLHIV). There are sparse data on mortality patterns among PLHIV in Zimbabwe.
Methods: A retrospective cohort study was conducted at Newlands Clinic in which routinely collected data for patients enrolled and followed up between February 2004 and December 2017 were abstracted from the clinic's database. Patient follow up was commenced from the day of the first clinic visit until exit by death, transfer out, loss to follow up or voluntary cessation of ART. A team of doctors grouped causes of death as communicable AIDS related illness (ARI), malignancies, chronic non-communicable diseases (NCD), non-AIDS related illness or other. Multinomial logistic regression was used to compare change in mortality cause with year of death as the independent variable.
Results: A cohort of 7,845 (62.7% female, n=4,918) patients was followed up for 40,996 person-years (PY). Median enrolment age was 33 years (IQR 19 - 42). Among 896 patients who died, cause of death was unknown for 130 (14.5%). Male patients had a 28% higher risk of dying than female patients (HR 1.28, CI 1.12 - 1.46, p< 0.01). Overall, the most common cause of death was tuberculosis (n = 113, 12.6%), followed by Cryptococcal meningitis (n = 73, 8.1%). The majority of patients died within the first year of enrolment (n = 531, 59.3%), 239 (52.1 %) of these of ARI and 82 (17.9%) of NCDs. While ARI remained the most common cause of death throughout the period, NCDs and malignancies increased in relative proportion (Figure1) (p< 0.01, p=0.04 respectively). There was a significant decline in crude mortality rate from 361/100 PY in 2004 to 35/100 PY in 2017 (IRR 0.10, CI 0.05 - 0.20, p< 0.01).



[Distribution of cause of death over time]

Conclusions: There was a significant decline in mortality rates and change in mortality causes in this cohort. Deaths due to NCDs and malignancies increased over time. ART facilities need to incorporate management of NCDs including cancer in the comprehensive care of PLHIV to reduce mortality.

TUPDC0105

Trends in mortality among HIV-infected subjects: Differences by HCV coinfection status

B. Alejos, Collaboration of Observational HIV Epidemiological Research in Europe (COHERE) in EuroCoord
Instituto de Salud Carlos III, Centro Nacional de Epidemiología, Madrid, Spain

Background: Coinfection by HCV is one of the most common comorbidities in HIV-infected patients. There are currently limited data on trends in cause-specific mortality in subjects co-infected by HCV and HIV compared to subjects only infected by HIV.
Methods: We studied trends from 2000-14 in overall and cause-specific mortality, stratified by HCV status, among HIV-positive adults within the Collaboration of Observational HIV Epidemiological Research Europe (COHERE). Eligible participants were treatment naïve at start of ART and had at least one anti-HCV antibody test result at baseline, defined as the date of cohort recruitment for patients with known HCV status at recruitment, or if unknown, the date of first HCV test after recruitment. Follow-up was divided into calendar periods 2000-2007 and 2008-2014. Cause-specific mortality, based on a simplified algorithm adapted from the CoDe coding system, was categorized as: AIDS-related (AR), Liver-related (LR), Non-AIDS malignancies (NADM), Non-AIDS infections (NADI), cardiovascular, and psychiatric). Adjusted Mortality Rate Ratios (aRR) with 2000-2007 as reference were stratified by HCV status using

multivariable Poisson regression. We used chained equations multiple imputation of missing data including Cause of Death.

Results: 64,209 patients of whom 2,774 died (mortality rate (MR) 8.2/1,000py) were included: 72% males, 48% MSM, 13% HCV-positive, median age 36 years (IQR 29-44), median baseline CD4 383 cells/μL (IQR 207-570). The table shows cause-specific MR per period and the aRR comparing 2008-14 with 2000-07 by HCV status. MR were substantially higher in HCV-coinfected patients for all causes of death and in both periods. All-cause, AR and NADI mortality declined from 2000-07 to 2008-14 for both mono and co-infected individuals. Cardiovascular mortality increased almost two-fold among HCV-positives whereas it remained practically constant among HCV-negatives (interaction p=0.022); LR decreased in both populations although the relative decrease was larger among HCV-negatives (interaction p=0.108).

Conclusions: HCV-coinfection is associated with increased all-cause and cause-specific mortality among HIV-positive patients. Significant relative reductions in all-cause mortality -as well as AR, LR and NADI- over time were observed for both mono and coinfected patients. We anticipate that the introduction of new anti-HCV regimens will significantly impact mortality patterns among co-infected subjects.

	HCV NEGATIVE				HCV POSITIVE			
	deaths	2000-07 MR	2008-14 MR	aRR (95% CI)	deaths	2000-07 MR	2008-14 MR	aRR (95% CI)
Overall	1,862	7.91	5.67	0.77 (0.70; 0.84)	912	27.89	20.23	0.73 (0.63; 0.83)
AIDS-related	759	3.93	2.06	0.57 (0.49; 0.66)	265	8.39	5.71	0.71 (0.55; 0.92)
Liver-related	45	0.25	0.11	0.47 (0.24; 0.90)	159	4.57	3.67	0.86 (0.61; 1.22)
NADM	359	1.12	1.24	1.15 (0.90; 1.47)	80	1.90	2.07	1.07 (0.64; 1.77)
NADI	123	0.62	0.34	0.60 (0.40; 0.89)	76	2.77	1.46	0.55 (0.32; 0.93)
Cardiovascular	155	0.50	0.53	1.12 (0.77; 1.64)	48	0.75	1.45	1.99 (0.97; 4.06)
Psychiatric	128	0.31	0.47	1.41 (0.90; 2.21)	101	3.23	2.15	0.71 (0.46; 1.09)
* adjusted for age, baseline CD4 count, sex, risk group and cART as time-updated								

[Mortality Rates (MR) per 1000py and adjusted effect of calendar period (2008-2014 vs 2000-2007) on overall and cause-specific mortality]

TUPDC0106

Mortality and cause of death among HIV patients in London in 2016

S. Croxford[1], R. Miller[2], F. Post[3], J. Figueroa[4], I. Harrison[4], R. Harding[3], V. Delpech[1], S. Lucas[5], S. Dhoot[6], A. Sullivan[6], London Mortality Study Group

[1]Public Health England, London, United Kingdom, [2]University College London, London, United Kingdom, [3]King's College Hospital NHS Foundation Trust, London, United Kingdom, [4]NHS England, London, United Kingdom, [5]Guys & St. Thomas NHS Foundation Trust, London, United Kingdom, [6]Chelsea and Westminster Hospital NHS Foundation Trust, London, United Kingdom

Background: Since 2013, the London Mortality Study Group has conducted annual reviews of deaths among people with HIV to reduce avoidable mortality and improve the quality of patient care.

Methods: All London trusts commissioned by NHS England to provide HIV care reported 2016 data on patients who died. Data were submitted using a modified Causes of Death in HIV (CoDe) reporting form. Cause of death was categorised by a pathologist and two clinicians.

Results: There were 206 deaths reported across 20 trusts; 77% of these were among men and the median age at death was 56 years. At the time of death, 81% (134/165) of people were on ART, 61% (113/185) had a CD4< 350 cells/mm³ and 24% (47/192) a VL ≥200 copies/ml. Cause was established for 80% (164) of deaths. Non-AIDS malignancies were the most common cause of death followed by AIDS-defining illnesses. Where reported (n=181), risk factors in the year before death included: smoking (37%), excessive alcohol consumption (19%), non-injecting drug use (IDU) (20%), IDU (7%) and opioid substitution therapy (6%). Co-morbidities were common (n=200): 39% had a history of depression, 33% chronic hypertension, 27% dyslipidemia, 18% HBV/HCV co-infection and 14% diabetes. Almost half of deaths were reported as sudden (44%; 79/177) and 36% (64/178) as unexpected; 60% (63/104) of expected deaths were in hospital. Two thirds of expected deaths (48/72) had a prior end-of-life care discussion, though this information was only available for 57%.

Conclusions: In 2016, 77% of deaths were due to non-AIDS conditions and the majority of patients were on ART and virally suppressed. However, a number of preventable deaths were identified. Underlying risk factors, such as smoking and substance misuse were common. Findings also show improvements are necessary in end-of-life care planning and in collaborative decision making with patients and other specialties, such as oncology and cardiology.

TUPDD01 #UsToo: Violence against key populations

TUPDD0101

Self-reported violence, perpetrators, and post-violence care received by key populations in the Integrated MARPs HIV Prevention Program in Cross River State, Nigeria 2016-2017

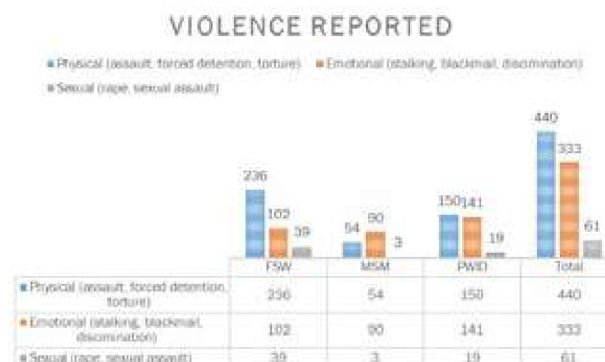
T. Jaiyebo[1], R. Abang[2], A. Yusuf[1], G. Emmanuel[1], A. Osilade[2], O. Olabosinde[1], C. Trout[3], B. Ochonye[1], P. Umoh[1], A. Kalaiwo[4]

[1]Heartland Alliance International, Programs, Abuja, Nigeria, [2]Heartland Alliance International, Programs, Calabar, Nigeria, [3]Heartland Alliance International, Programs, Los Angeles, United States, [4]United States Agency for International Development, Abuja, Nigeria

Background: Men who have sex with men (MSM), female sex workers (FSW) and people who inject drugs (PWID), referred to as key populations (KPs), are highly affected by HIV with Cross Rivers state having one of the highest prevalence rates in Nigeria. Violence against KPs can contribute to poor uptake of HIV services. This research explored the occurrence and types of violence experienced, the perpetrators and post-violence care received.

Methods: Between October 2016 and October 2017, the Integrated MARPs HIV Prevention Program (IMHIPP) in Cross Rivers provided comprehensive HIV services including violence services to 20,687 KPs. This was provided in one-stop-shops, where KPs report violence and receive post-violence care from trained counsellors and clinicians. Qualitative methods were used to collate program data, through interviews, questionnaires and focus group discussions to determine the types of violence, perpetrators and post-violence care required.

Violence was defined as use of force/power that resulted in actual/threatened sexual, physical or emotional harm. Perpetrators were categorized into state actors e.g. police and healthcare workers and non-state actors e.g. family and sexual partners. Post-violence care was classified into: mental health, legal services and medical care which included PEP, STI and HIV testing and treatment.



[Graph 1: types of violence reported]

Perpetrators	Total #	Total %	FSW #	FSW %	MSM #	MSM %	PWID #	PWID %
Perpetrators Non state actors	395	62.7%	269	78.2%	64	54.2%	62	37.1%
State actors	232	37.8%	75	21.8%	53	44.9%	104	62.2%
Both	2	0.3%	0	0%	1	0.8%	1	0.6%
Total #	629		344		118		167	

[Table 1: Table showing the types of perpetrators]

Results: In total, 629 KPs reported violence (FSW: 344, MSM: 118, PWID: 167) with higher numbers of physical (440-FSW: 236; MSM: 54; PWID: 150) and emotional (333- FSW: 102; MSM: 90; PWID: 141) than sexual violence (61-FSW: 39; MSM: 3; PWID: 19). More non-state actors than state actors perpetrated violence (395/62.7 : 232/37.8%). This trend was consistent for FSWs (269/78.2% : 75/21.8%) and MSM (64/54.2% : 53/44.9%), but differed for PWIDs (62/37.1 : 104/ 62.2%).
Most KPs reporting violence received a combination of post-violence care services: medical-(223 - FSW: 52, MSM: 9, PWID: 162), Legal- (316- FSW: 113, MSM: 69, PWID: 134) and mental health - (546 - FSW-336, MSM-43, PWID-167).
Conclusions: Physical, emotional and sexual violence against KPs are common in Cross Rivers state, Nigeria. Screening, documentation and care for victims of violence, such as legal education/safety and security counselling and security stakeholders' engagement are essential to promote an enabling environment for KPs to access HIV services.

TUPDD0102
Partner violence: A significant part of a syndemic among Black men who have sex with men

E. Wu, N. El-Bassel, L. Gilbert
Columbia University School of Social Work, Social Intervention Group, New York, United States

Background: HIV, substance misuse, and partner violence (PV) have long been characterized as a syndemic—interacting and reinforcing epidemics—among key populations such as drug-involved women and female sex workers. There is a nascent recognition of PV as part of the syndemic among MSM, but there is very limited research specifically focused on the key population of Black men who have sex with men (MSM).
Methods: A sample of adult Black MSM (*N*=1,043) completed a screening assessment for a randomized clinical trial of couple-based HIV intervention for Black MSM in New York City. Respondents provided self-reported data on experiencing and perpetrating PV (CTS2 supplemented with gay- and HIV-specific forms of PV), and the following outcome variables: self-reported HIV status, number of male sexual partners, condomless anal intercourse (CAI), and substance misuse. We tested hypotheses that PV would be significantly associated with more adverse levels of each outcome variable.
Results: Table 1 presents prevalence for PV among the sample by type, experiencing vs perpetration, and lifetime vs. past 30 days ("current"); 38.3% and 23.2% experienced lifetime and current PV respectively, and 39.2% and 23.5% reported lifetime and currently perpetrating PV respectively. Hypotheses were validated for currently experiencing PV and perpetrating PV as follows: not knowing one's HIV status (*AOR*=5.1, *95%CI*=2.1-11.7 and *AOR*=3.2, *95%CI*=1.4-7.3 respectively); greater number of male sexual partners (*b*=3.6, *95%CI*=2.6-4.6 and *b*=3.1, *95%CI*=2.1-4.1 respectively); greater number of CAI (*b*=6.4, *95%CI*=2.9-9.8 and *b*=3.7, *95%CI*=0.3-7.2 respectively); binge drinking (*AOR*=2.1, *95%CI*=1.6-2.9 and *AOR*=2.1, *95%CI*=1.5-2.8 respectively); and illicit substance use (*AOR*=2.5, *95%CI*=1.6-4.1 and *AOR*=3.4, *95%CI*=2.1-5.6 respectively). While physical and sexual PV associations were stronger for HIV status, gay-related PV associations were larger for sexual risk behaviors.
Conclusions: The high rates of PV and its multiple associations with HIV risks and substance misuse found in this study underscore the urgent need to address PV as a central factor in the syndemic that underlies Black MSM being and remaining a key, HIV-affected population. Behavioral aspects of combination prevention need to address PV—paying particular attention to gay-specific forms of PV—in order to reduce the HIV and health disparities experienced by Black MSM.

	Experienced PV		Perpetrated PV	
Form of PV	Lifetime n (%)	Current n (%)	Lifetime n (%)	Current n (%)
Psychological (severe)	278 (26.7%)	191 (16.4%)	297 (28.5%)	187 (17.9%)
Physical	229 (22.0%)	106 (10.2%)	229 (22.0%)	104 (10.0%)
Sexual	102 (9.8%)	62 (5.9%)	84 (8.1%)	55 (5.3%)
Injurious	140 (13.4%)	50 (4.8%)	134 (12.8%)	52 (5.0%)
Gay-related	93 (8.9%)	53 (5.1%)	82 (7.9%)	14 (4.5%)
HIV-related	53 (5.1%)	19 (1.8%)	40 (3.8%)	17 (1.6%)

[Table1: Prevalence of partner violence (PV) among a sample of 1,043 black MSM in New York City]

TUPDD0103
Prevalence and predictors of violence against female sex workers in Zambia

K. Malama[1], B. Spire[1], A. Gosset[1], M. Nishimwe[1], P.-J. Coulaud[1], L. Sagaon-Teyssler[1], R. Parker[2], A. Tichacek[2], M. Inambao[3], W. Kilembe[4], S. Allen[2]
[1]Aix-Marseille University, Marseille, France, [2]Rwanda Zambia HIV Research Group, Atlanta, United States, [3]Zambia-Emory HIV Research Project, Ndola, Zambia, [4]Zambia-Emory HIV Research Project, Lusaka, Zambia

Background: Violence is a known risk factor for HIV. In Zambia, where the prevalence of HIV is high (13%) and that of gender-based violence (GBV) even higher (43%), female sex workers (FSW) are particularly susceptible to both outcomes due to their contact with multiple male clients. However, limited data is available on the precise risk factors for violence against Zambian FSW, which would support the implementation of interventions to mitigate against them. We investigated the prevalence and correlates of violence against FSW from their male clients.
Methods: The Zambia-Emory HIV Research Project (ZEHRP) recruited 555 HIV-negative FSW aged 18-45 into a cohort study. FSW were recruited from known hotspots in Ndola and Lusaka between September 2012 and March 2015. At baseline, FSW were asked to provide information on demographics, lifetime sexual history and any previous exposure to violence from their male clients. Forward stepwise logistic regression was used to model the relationship between the outcome (violence from clients, y/n) and potential predictors. The final multivariate model controlled for age, education, age at first sexual encounter, number of years as a sex worker and lifetime number of sexual partners.
Results: From a total of 498 responses, the prevalence of violence against FSW by their male clients was 37% (n=185). In the fitted model, the highest likelihood of FSW facing violence is noted when sex takes place at the client's home (AOR: 2.47, 95%CI: 1.62-3.77, $p<0.001$). The odds of encountering violence are doubled for FSW whose first ever sexual encounter was physically forced in relation to those who engaged willingly (AOR: 2.09, 95%CI: 1.18-3.60, $p<0.05$). FSW who consume alcohol have an almost two-fold increase in odds of experiencing violence from clients compared to their counterparts (AOR: 1.94, 95%CI: 1.13-3.32, $p<0.05$).
Conclusions: HIV prevention interventions for FSW should broaden their scope to address risk factors such as alcohol consumption, location of sex and history of sexual abuse. This would better inform healthcare workers on how to meet FSW needs. Risk reduction education for both FSW and their clients is required to redress gender norms that heighten the risk of violence and HIV.

TUPDD0104

"We´re going to leave you for last because of how you are": Transgender women's experiences of gender-based violence in healthcare, education, and legal settings in Latin America and the Caribbean

M. Lanham[1], K. Ridgeway[1], R. Dayton[1], B.M. Castillo[2], C. Brennan[1], D.A. Davis[1], D. Emmanuel[3], B. Rodriguez[4], G.J. Morales[1], C. Parker[1], J. Cooke[5], K. Santi[5], E. Evens[1]
[1]FHI 360, Durham, United States, [2]ASPIDH Arcoiris, San Salvador, El Salvador, [3]Community Education Empowerment & Development, Bridgetown, Barbados, [4]Family Planning Association of Trinidad and Tobago, Port of Spain, Trinidad and Tobago, [5]United Nations Development Programme, Panama City, Panama

Background: Transgender women experience gender-based violence (GBV) from an early age and face barriers to accessing services, resulting in poor health outcomes including the highest HIV prevalence of any key population. To inform HIV policies and services, trans women worked with LINKAGES (led by FHI 360, supported by USAID and PEPFAR), UNDP, and University of the West Indies to document GBV and transphobia in healthcare, education, and legal settings.
Methods: Trans women, trained as data collectors, conducted 74 structured interviews in El Salvador, Trinidad and Tobago, Barbados, and Haiti in 2016. We conducted qualitative applied thematic analysis to understand the nature and consequences of GBV and transphobia and descriptive quantitative analysis to identify the proportion who experienced GBV in each setting.
Results: A high proportion experienced GBV in education (85.1%), healthcare (82.9%), police/judicial system (80.0%), and other state institutions (66.1%). Emotional abuse was the most common in all settings; participants also experienced economic, physical, and sexual violence, and other human rights violations. Emotional abuse included gossiping, insults, and refusal to use their chosen name. At school, participants were physically threatened and assaulted, harassed in bathrooms, and denied education. In healthcare, participants were given lower priority and received substandard care. Healthcare workers and police blamed participants' health and legal problems on them "because of the way I am" and denied them services. From police, participants also experienced physical and sexual assault, theft, extortion for sex or money, and arbitrary arrest and detention. Participants had difficulty obtaining and using identification cards and passports, sometimes being forced to alter their appearance or being denied an identification card. All violence was clearly linked to gender identity and expression.
Conclusions: These findings demonstrate a need for policies protecting trans women's rights and interventions addressing GBV against trans women. Given that GBV increases HIV risk, decreases HIV treatment adherence, and prevents trans women from accessing health services, HIV service providers need training to provide nondiscriminatory services and screen for and address GBV among trans clients. Integrated interventions addressing both HIV and GBV could help reduce KPs' burden of HIV, increase service utilization, and respect, promote and fulfill their human rights.

TUPDD0105

Women who use drugs in Estonia: Human rights violations as deterrents from HIV treatment

M. Plotko[1], A. Kontautaite[1], D. Matyushina[1], M. Golichenko[2], M. Kalvet[3], E. Antonova[3]
[1]Eurasian Harm Reduction Association, Vilnius, Lithuania, [2]Canadian HIV/AIDS Legal Network, Toronto, Canada, [3]Estonian Association of People who Use Psychotropic Substances 'LUNEST', Johvi, Estonia

Background: HIV prevalence in Estonia is one of the highest in Europe (41.9 cases per million), it is primarily spread among people who inject drugs (PWID), and women represent 40% of new HIV cases as of 2013. Despite the WHO treatment guidelines, HIV treatment, especially among PWID, starts on late stages. In August 2017 a qualitative study was organized in Estonia, in order to explore the social factors that impact lives and health of women with HIV and women who use drugs.
Methods: Research methodology, developed by EHRA and CHALN, was based on in-depth interviews carried out by international and local experts. During the field trip to Estonia in August of 2017 38 interviews were conducted, 20 of them were then transcribed and 37 analyzed through thematic content analysis. To ensure personal data protection and participants safety, their names were coded and there is no reference to their real names in the report. All of the respondents were female, aged 26 - 46 years old, mean age 35 years.
Results: The women interviewed reported that they did not want to get tested or start ART because of the stigma associated with HIV and cases of people's HIV status being disclosed at their workplace or at the workplaces of relatives and partners The disclosure of drug dependence and/or HIV status was the main reason for women's unemployment. In 25 cases drug use alone became grounds for the limitation/deprivation of child custody. Low level of protection from violence and the exclusion of drug user women from shelter programs has been discovered. Women also reported regular police abuse, street drug testing and arbitrary arrest. These systematic human rights violations deter women from health services, including HIV and drug treatment, and create mistrust to social protection services and the police.
Conclusions: Drug laws and drug enforcement practices, combined with stigma related to drugs and HIV, are the main drivers of systematic and serious violations of the human rights of women who use drugs which undermine Estonia's efforts in HIV prevention, care and treatment.

TUPDD0106

Causes and predictors of mortality among people who inject drugs in Tijuana: 2011-2017

B.S. West[1], D. Abramovitz[1], P. Gonzalez-Zuniga[1], G. Rangel[2], D. Werb[1], J. Cepeda[1], L. Beletsky[1], S.A. Strathdee[1]
[1]University of California San Diego, Division of Infectious Diseases and Global Public Health, La Jolla, United States, [2]Mexico/US Border Health Commission, Tijuana, Mexico

Background: People who inject drugs (PWID) experience multiple risk factors for mortality; yet, we know little about causes and predictors of death among PWID in Tijuana, Mexico, an area with high levels of drug injecting and dynamic changes in policy/law enforcement responses to substance use. This study examines rates, causes, and predictors of mortality among PWID.
Methods: Data come from a community-based cohort of PWID aged ≥18 who injected drugs in the past month. Mortality was confirmed by death certificate over 78 months during 2011-2017. Predictors of mortality were identified using Poisson regression with empirical variance estimation, controlling for sex.
Results: Among 863 participants, there were 133 deaths (57 confirmed, 76 unconfirmed), with an incidence rate (IR) of 1.82 deaths per 100 person-years (95% Confidence Interval (CI)=1.35, 2.29) for confirmed deaths and 3.94 for unconfirmed deaths (CI=3.27, 4.60). Confirmed deaths resulted from homicide/trauma (26%), overdose (26%), septic shock (18%), HIV-related causes (9%), organ failure from chronic substance use (9%), and Hepatitis C (7%). In multivariate analysis of confirmed deaths, being stopped/arrested by police for drug selling/trafficking was a highly significant predictor of mortality (Rate Ratio (RR)=6.05, CI=2.22, 16.45); 5.3% of deceased PWID were stopped vs. 0.5% of survivors. Baseline HIV seropositivity (7% among deceased vs. 2.7% among survivors) was associated with 4X higher risk of mortality (RR=4.09, CI=1.36, 12.29); mortality IR was 2.7X higher among HIV+ PWID. PWID living in Tijuana for longer durations were at increased risk for mortality (RR=1.03 per year, CI=1.01, 1.05), while stopping injection for a period of ≥6 months was protective (RR=0.38, CI=0.17, 0.85); 14% of PWID who died stopped injecting vs. 19.6% among survivors.
Conclusions: In addition to overdose and HIV prevention efforts, attention needs to be paid to structural conditions that potentiate mortality risk. Cessation of injection, even for short periods, was associated with lower risk of mortality, indicating a need for improved access to medication-assisted treatment to reduce injecting. Our results also highlight the potential role for police in reducing PWID mortality and the need to transform police encounters from a source of harm to a source of harm reduction.

TUPDD02 Active engagement or missing in action: Community voices in HIV research

TUPDD0201

Process as product: Implementing participatory, rights-based research with female sex workers, men who have sex with men, and transgender women

E. Evens[1], L. Sinette[2], K. Santi[3], J. Cooke[3], M. Lanham[4], G. Morales[4], C. Parker[5], S. Inniss-Grant[6], S. Hunte[7], M. Mendizabal[8], R. Dayton[4]
[1]FHI 360, Health Service Reseearch, Chapel Hill, United States, [2]Friends for Life, Port of Spain, Trinidad and Tobago, [3]UNDP, HIV, Health and Development, Panama City, Panama, [4]FHI 360, Research Utilization, Durham, United States, [5]FHI 360, Behavioral, Epidemiological and Clincal Research, Durham, United States, [6]Independent Consultant, Bridgetown, Barbados, [7]University of the West Indies, Institute for Gender and Development Studies, St. Augustine, Trinidad and Tobago, [8]Asociación Diké de Personas Transgénero y LGBTI+, San Salvador, El Salvador

Background: Addressing the HIV-related needs of key populations (KPs) — men who have sex with men (MSM), female sex workers (FSW), and transgender women — requires new approaches to research. Traditional approaches triggered concerns about human rights violations, data ownership, and unacceptable study questions and methodologies. Meaningful engagement of KPs in research design and implementation addresses these issues and produces high-quality, applicable findings, but what does meaningful engagement look like and how is it fostered?
Methods: The USAID and PEPFAR-supported LINKAGES project, together with UNDP and The University of the West Indies, collaborated with global, national, and local KP-led organizations to conduct participatory, rights-based research on KPs' experiences of violence and its connections with HIV risk in four Latin American and Caribbean countries. KP organizations provided input on study populations, interview topics, recruitment, participant safety, study instruments, analysis, and use of results. All data collectors were KP members.
The study used principles of rights-based research to promote the human rights of stigmatized communities, including respect, gender equity, strengthening alliances between organizations and government, and ensuring the well-being of participants.
Results: We identified strategies to design research that meets the needs of study communities and yields results likely to be used in policies and programs:
1. Collaboration with KPs to define and reach study populations, with MSM providing input on sample sizes to ensure they reflected MSM's educational and occupational diversity and all peers having access to populations difficult to recruit in stigmatized environments;
2. Supporting capacity-building, including training in research ethics and interviewing to ensure a strong voice in the process and allow KP organizations to advocate using the findings, and;
3. Inclusive decision-making through advisory groups to provide feedback on study design/implementation, with each KP group determining the types of violence most important to their community — FSWs focused on workplace violence — resulting in more appropriate results being used to advocate for each groups' priorities.
Conclusions: Meaningful engagement of KPs is an essential requirement of ethical and participatory research and produces better study outcomes more likely to inform policy and practice. Our experiences highlight specific effective methods of meaningful engagement.

TUPDD0202

Adolescent and young people's participation and representation in clinical trials: Lessons from a community-wide HIV testing and treatment study, the HPTN 071 (PopART) study

M. Simwinga[1], J. Mwate[1], T. Ng'ombe[1], S. Belemu[1], N. Makola[2], C. Mubekapi-Musadaidzwa[2], G. Hoddinott[2], R. White[3], K. Shanaube[1], V. Bond[1,4], B. Virginia[1]
[1]Zambart, Lusaka, Zambia, [2]Desmond Tutu TB Centre, Cape Town, South Africa, [3]FHI 360, North Carolina, United States, [4]LSHTM, London, United Kingdom

Background: Community Engagement (CE) is imperative to research for both instrumental and ethical reasons. However, adolescents' and young people's (AYP) participation in research conducted in Africa is infrequent. It is poorly understood how to meaningfully involve AYP in research, promoting critical dialogue between researchers and AYP. HPTN 071 (PopART) is a community based trial in 21 study communities in Zambia and South Africa. The trial includes a nested ancillary study (2016-2017) to evaluate AYP's (15-24 years) uptake of HIV-related services.
Description: Formative research was conducted to identify AYP-specific community stakeholders and AYP possible interventions in consultation with AYP representatives and the existing adult Community Advisory Boards (CABs). Consultations resulted in the creation of 12 AYP-only CABs (aCABs) in Zambia and one AYP-only CAB in South Africa. These CABs met monthly. We report on data collected through group discussions (n=8) and in-depth interviews (n=63) conducted among aCAB members in Zambia in 2017 exploring their perceptions of the aCAB's role in the study. We also reflect on our experiences of establishing and maintaining AYP participation and representation processes from the onset to preliminary results dissemination.
Lessons learned: AYPs were enthusiastic to serve as representatives. However, their participation was constrained by high mobility and the requirement for parental/guardian permission to attend meetings. They requested for formation of AYP-only CABs and not just the inclusion of AYP representatives in adult CABs. Some AYP intervention strategies were both suggested and implemented by them. AYP CABs sought to protect the privacy and confidentiality of AYP research participants and respect their autonomy. For example, they recommended waiver of parental consent for 15-17-year-olds in a survey and rejected the offer of incentives to research participants. AYP leadership, involvement in decision making and determination of specific study activities represented a significant achievement especially in the context of research in Africa where AYP voices are rarely considered.
Conclusions/Next steps: AYP in Africa are capable of participating meaningfully in research that directly impacts their lives. While challenges to participation in research exist, researchers should be encouraged to invest in meaningful partnerships with AYPs. CABs with only AYP representatives are one such strategy.

TUPDD0203

Diverging perspectives on the role of a community advisory board at a biomedical HIV prevention research centre in South Africa

A.M. Lesch, A. De Wet, L. Swartz, A. Kagee, Z. Kafaar, N. Hassan
Stellenbosch University, Psychology, Stellenbosch, South Africa

Background: Community engagement is prescribed as crucial to the successful conduct of biomedical HIV prevention trials. The inclusion of a community advisory board (CAB) in research is one of the most common ways of engaging communities in clinical research. CABs constitute a formal stakeholder advisory mechanism: advising researchers, representing the local community and ensuring that the research is sensitive to the local community context.
While researchers and CABs have a common goal, power imbalances and a range of other challenges may hamper the relationship between these stakeholder groups. In our research to evaluate the community engagement programme at a biomedical HIV prevention research centre in the Western Cape, South Africa, we documented the perspectives

and experiences of multiple stakeholders on the role of the CAB and the relationship between the CAB and research centre staff in the study setting.

Methods: We used purposive sampling to generate a sample of 20 participants from multiple stakeholder groups involved in the research in the study setting. We collected our data using semi-structured interviews. Interviews were audio recorded with the permission of participants and transcribed. We analysed our data using the thematic analysis approach outlined by Braun and Clarke (2006).

Results: The relationship between the CAB and research centre staff was reportedly characterized by feelings of frustration, mistrust and tensions due to the power imbalance between the CAB and the researchers. Research centre staff and CAB members held diverging perspectives on the role of the CAB in the research. While research centre staff viewed the role of the CAB as representing the local community and advising the research team on the operational and ethical aspects of the research, CAB members saw themselves as intermediaries, linking the community to the research centre and facilitating dialogue and engagement between these two entities.

Conclusions: The diverging perspectives held by research centre staff and the CAB hampers the development of trust, mutually beneficial partnerships and ongoing dialogue between the researchers, the CAB and the local community. Building mutually beneficial partnerships and establishing mechanisms for transparent, ongoing dialogue between researchers and the local community is crucial to meaningful community engagement.

TUPDD0204

Stakeholder engagement for HIV clinical trials: A systematic review of the evidence

S. Day[1], M. Blumberg[1], T. Vu[1], Y. Zhao[2], S. Rennie[3], J. Tucker[2,4]
[1]*University of North Carolina, Institute for Global Health and Infectious Diseases, Chapel Hill, United States,* [2]*SESH Global, UNC Project-China, Guangzhou, China,* [3]*University of North Carolina, Social Medicine, Chapel Hill, United States,* [4]*University of North Carolina, School of Medicine, Chapel Hill, United States*

Background: Stakeholder engagement is an essential component of HIV clinical trials. We define stakeholder engagement as input on the design or conduct of HIV clinical trials by individuals or groups with an interest in these trials. Despite its value, stakeholder engagement is often poorly defined and not rigorously evaluated. The objective of our systematic review is to examine the characteristics of stakeholder engagement for HIV clinical trials.

Methods: Four databases (PubMed, Ovid, CINAHL, Web of Science) were searched for English language studies describing stakeholder engagement for HIV clinical trials, with additional studies identified using other methods (e.g. handsearching). Two reviewers independently assessed studies for inclusion, resolving discrepancies via third reviewer. Data were extracted on the location of engagement, engagement methods, stakeholder types, and purpose of stakeholder engagement. Based on UNAIDS Good Participatory Practice (GPP) guidelines, we examined how frequently stakeholder engagement was conducted to inform the following stages: research question development, protocol development, recruitment, enrolment, follow-up, trial results, and dissemination.

Results: Of 452 citations identified, 108 studies were included in the analysis (93 via database search, 15 via other methods). Forty-eight studies (44.4%) described stakeholder engagement in high-income countries, 30 (27.8%) in middle-income countries, and 9 (8.3%) in low-income countries (mixed location/indiscernible: 21 studies; 19.4%). Fifteen distinct methods for stakeholder engagement were identified, including individual (e.g. interviews) and group (e.g. community advisory boards) strategies. Thirty-five types of stakeholders were engaged, with approximately half of studies (59; 54.6%) engaging HIV-affected community stakeholders (e.g. people living with HIV, at-risk for HIV, or related populations of interest). We observed greater frequency of stakeholder engagement to inform recruitment (48 studies; 44.4%) and protocol development (46 studies; 42.6%) (Figure 1). Fewer studies described stakeholder engagement to inform post-trial processes related to trial results (3; 2.8%) and dissemination (11; 10.2%).

Conclusions: We found that stakeholder engagement was more robust in the early stages of clinical trials, with less engagement to inform the later stages. This suggests the current level of stakeholder engagement in later stage HIV clinical trials may be insufficient according to UNAIDS GPP guidelines. Further stakeholder engagement across all clinical trial stages is needed.

[Figure 1. Number of studies conducting stakeholder engagement to inform each of the 7 stages of HIV clinical trial research.]

TUPDD0205

Toward standardized metrics for the conduct of community engagement in HIV biomedical prevention research studies

G. Broder[1], S. Wallace[1], N. Luthuli[2], K. Baepanye[2]
[1]*Fred Hutchinson Cancer Research Center, HIV Vaccine Trials Network, Seattle, United States,* [2]*Fred Hutchinson Cancer Research Center, HIV Vaccine Trials Network, Johannesburg, South Africa*

Background: While Good Participatory Practice standards are in place and there is support for community engagement in clinical HIV prevention research, to date there are no standardized metrics that define its practice and evaluation. The Community Engagement Unit (CEU) of the HIV Vaccine Trials Network sought to create a baseline by which recruitment practices for the two monoclonal antibody AMP Studies could be described, monitored, and assessed.

Description: CEU staff developed recruitment strategy descriptors for each study. These were vetted with the studies' Community Working Groups and edited. Common definitions and time points were established to allow comparisons across sites. Potential participants presenting at the sites were asked, "How did you hear about the AMP Study?" Sites submit their data to the CEU quarterly. CEU staff tabulate it, monitor trends, determine areas where sites need support, and where there are successes to be shared and replicated. Data are presented for January 1 - November 30, 2017.

Lessons learned: All 29 global sites utilize multiple recruitment strategies successfully, but the strategies used vary by region. The most effective recruitment strategy across global sites was referrals (2.4:1 screening to enrollment ratio). The least effective was Print Materials/Ads in Peru/Switzerland/US (5.8:1, 17 sites) and the internet in Africa (6:1, 12 sites). While sites generated a similar number of screening appointments using face to face outreach (719 in Peru/Switzerland/US, 717 in Africa), they represent strikingly different percentages of the total number of persons screened during this period (26% in Peru/Switzerland/US, 50% in Africa), and strikingly different percentages of total enrollment (29% in Peru/Switzerland/US, 56% in Africa). The internet represents the greatest difference between regions, 43% of total enrollments in Peru/Switzerland/US and 0.8% in Africa.

HVTN 704/HPTN 085 TOTALS for 17 HVTN Sites (4 Peru, 1 Switzerland, 12 USA): January 1 - November 30, 2017			
Recruitment Strategy	Initiated the Consent Process (n, percent)	Enrolled	Screening to Enrollment Ratio
Run/Street/Pride Festival/Other face to face outreach conducted by recruiters	719	248	2.9:1
Internet (Craigslist, Social Media, Hook-up websites, www.ampstudy.org, etc.)	[illegible]	[illegible]	[illegible]
Print advertising and materials (flyers, posters, palm cards, newspaper ad, etc.)	[illegible]	[illegible]	5.8:1
Transit advertising	[illegible]	[illegible]	[illegible]
Referrals (from another participant, from health care provider, from CBO, from HIV testing center, etc.)	[illegible]	[illegible]	[illegible]
Other (rollover from another trial, Radio/TV ads, unknown, etc.)	[illegible]	[illegible]	[illegible]
Total	2747	[illegible]	[illegible]

HVTN 703/HPTN 081 TOTALS for 12 HVTN Sites (Malawi, Mozambique, South Africa, Tanzania, Zimbabwe): January 1 - November 30, 2017			
Recruitment Strategy	Initiated the Consent Process (n, percent)	Enrolled	Screening to Enrollment Ratio
Face-to-face outreach conducted by recruiters (includes sports events, health fairs, liquor stores, community presentations, working in "hot spots", etc.)	717	311	2.3:1
Referral from HIV counseling and testing program or center	[illegible]	[illegible]	[illegible]
Print materials or advertising (posters, post cards, newspaper ad, etc.)	[illegible]	[illegible]	[illegible]
Referrals (from a health care provider, from a CBO/NGO, from the CAB, from peer educators, from a friend or family member, etc.)	[illegible]	[illegible]	[illegible]
Referral by another participant (someone enrolled in AMP or another study)	[illegible]	[illegible]	[illegible]
Referral by someone who participated in a male involvement program	[illegible]	[illegible]	[illegible]
Internet: saw the website www.ampstudy.org.za, or through social media	[illegible]	[illegible]	[illegible]
Radio program or advertising	[illegible]	[illegible]	[illegible]
Other	[illegible]	[illegible]	[illegible]
Total	1430	[illegible]	[illegible]

[Summary of HVTN Screening to Enrollment Recruitment Data for the AMP Studies]

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Conclusions/Next steps: Standardized metrics enable meaningful comparisons, and support development of evaluation metrics. It is imperative that all global trial sites are supported with resources enabling use of a range of recruitment strategies, and each site must target the strategies to their local environment. Outreach staff must maximize the use of all available resources and outreach strategies for successful research recruitment, and utilize data to target their efforts to improve their screening to enrollment ratio.

TUPDD0206

GIPA in action: PLHIV leadership and guidance in the development of a new PLHIV quality of life scale for the community and policy sector

G. Brown[1], A. Cogle[2], C. Cooper[3], S. O'Connor[4], B. Allan[5,6], S. Malhotra[7], G. Mikolajczak[8], J. Power[8], A. Lyons[8], F. Drummond[9]
[1]La Trobe University, Australian Research Centre in Sex, Health and Society, Melbourne, Australia, [2]National Association of People Living with HIV, Sydney, Australia, [3]Positive Life, Sydney, Australia, [4]Queensland Positive People, Brisbane, Australia, [5]Australian Society for HIV, Viral Hepatitis and Sexual Health Medicine, Sydney, Australia, [6]International Council of AIDS Service Organizations, Toronto, Canada, [7]Living Positive Victoria, Melbourne, Australia, [8]Australian Research Centre in Sex, Health and Society; La Trobe University, Melbourne, Australia, [9]ViiV Healthcare Australia, Melbourne, Australia

Background: The greater involvement of people with HIV/AIDS (GIPA) has been a foundation of effective responses to HIV. However, in research application of GIPA principles is often limited to consultation rather than full collaboration. The development of the PozQoL quality of life (QoL) scale demonstrates the benefits of full collaboration to achieve high quality research outcomes.

HIV organisations in Australia have prioritised improving the QoL of people living with HIV (PLHIV) in their programs as a strategy to reduce the negative personal impact of HIV and improve treatment uptake and maintenance goals. In order to measure the impact of these efforts, a partnership of PLHIV peer organisations, researchers, and industry was established to pool resources and develop a QoL scale for PLHIV. The scale needed to be short, empirically validated and easy to incorporate into the day-to-day practice of health and community services. This partnership was committed to GIPA being at the centre of the process.

Description: The PozQoL partnership involved active direction from PLHIV peer leadership in the:

· conceptualisation of the research approach,
· prioritisation of the QoL domains to be included in the scale,
· development and review of scale items,
· engagement and mobilisation of the PLHIV community to support the validation survey, and
· analysis and decisions concerning the refinement of the final scale.

Lessons learned: Benefits of the high involvement of PLHIV peer leadership includes:

· a deeper understanding of the complex experiences of PLHIV related to QoL,
· ensuring a balance of statistical rigour, conceptual accuracy, and practical use of the PozQoL scale,
· strengthened relationship across research, community and industry,
· opportunity to demonstrate credibility and authenticity within PLHIV community.

Conclusions/Next steps: Taking participation with PLHIV peer-led organisations beyond consultation to active partnership enabled the study to ensure the research rigour was complemented by practical and conceptual considerations, and high community engagement. This contributed to achieving not only statistical validity but also high ecological validity for the real-world experience of PLHIV. This process has also built scale's credibility across the sector: PozQoL scale is currently being field-tested by 15 community, support and healthcare programs for PLHIV in Australia

TUPDE01 Geomapping to enhance equitable access

TUPDE0101

Where are the HIV positives in Kenya? Unmasking testing yield in a spatial context

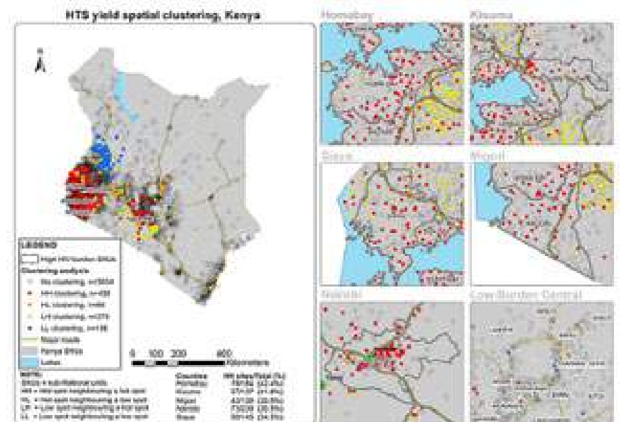
A. Waruru[1,2], J. Wamicwe[3], J. Mwangi[2], L. Ng'ang'a[2], F. Miruka[2], T. N. O. Achia[2], P. Yegon[2], D. Kimanga[2], J. L. Tobias[4], K. M. De Cock[2], T. Tylleskär[1]
[1]University of Bergen, Centre for International Health, Bergen, Norway, [2]Centers for Disease Control and Prevention, Division of Global HIV/AIDS and TB (DGHT), Nairobi, Kenya, [3]National AIDS and STI Control Program (NASCOP), Ministry of Health, Nairobi, Kenya, [4]U.S Centers for Disease Control and Prevention (CDC), Division of Global HIV &TB, Atlanta, United States

Background: The UNAIDS 90-90-90 targets provide a framework for assessing coverage of HIV testing services (HTS), linkage to care, and viral load suppression. In Kenya, the bulk of HTS targeting is in 5 high HIV-burden counties: Nairobi, Homabay, Kisumu, Siaya, and Migori, accounting for 45.1% of the estimated people living with HIV PLHIV. Geographic analysis, can help to focus and prioritize to increase diagnosis of PLHIV to reach the "first 90".

Methods: We analyzed routine site-level HTS data in Kenya to assess spatial distribution of HIV-positives (yield) within counties [sub-national units (SNUs)]. We used the global Moran´s Index (Moran's I) in ArcGIS™ ver. 10.51 to assess spatial autocorrelation of yield by site. Inverse Euclidean distances were used to conceptualize spatial relationships; the further the sites were from each other, the lesser the impact of spatial relationship(s). We classified sites as having no-clustering (random distribution), or auto-correlated neighbors as hotspots with hotspots (HH), hotspots with low-spots (HL), low-spots with hotspots (LH), and low-spots with low-spots (LL).

Results: In 2016, out of 4,021 HTS sites, 3,969 (98.7%) had geo-coded data. Global Moran's I was 0.023, expected I was -0.00025, Z-score 33.9 and p< 0.001. Most sites showed no-clustering (3034, 76.4%); others were grouped as: HH (438, 11.0%), HL (66, 1.7%), LH (275, 6.9%), and LL (156, 3.9%). Of the HH sites, 301 (68.7%) were in high HIV-burden SNUs distributed as follows: Homabay with 78/184 (42.4%), Kisumu 57/137 (41.6%), Siaya 50/145 (34.5%), Migori 43/139 (30.9%), and Nairobi 73/239 (30.5%). HH sites in high burden counties were near water bodies (Homabay, Kisumu, Siaya and Migori) or a large city (Nairobi) and in low HIV-burden areas near major roads (Figure).

Conclusions: We identified wide-ranging spatial variation of yield clusters. High HIV-burden SNUs contain most high yielding sites but some are also in low-burden SNUs. Access to HTS is needed everywhere in Kenya, yet, targeting is difficult in low prevalence areas. Geospatial analyses help to define hotspots and priority areas for enhanced HTS to spatially refine targeting and achieve the "first 90".



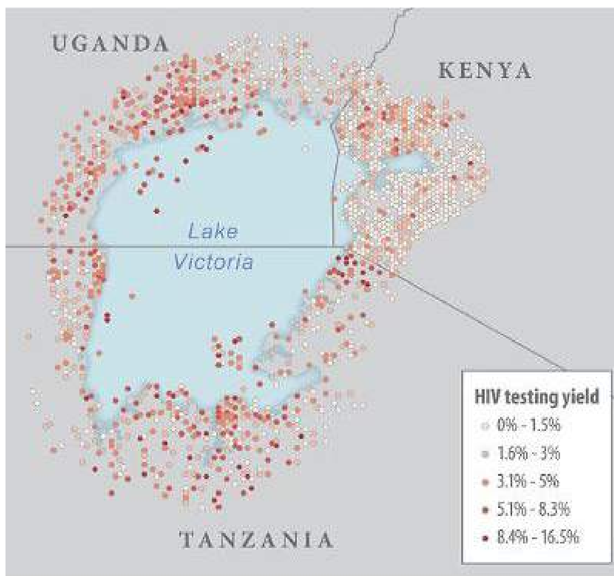
[Spatial distribution of HTS yield in Kenya and in 5 high HIV-burden counties and 1 low burden region, 2016]

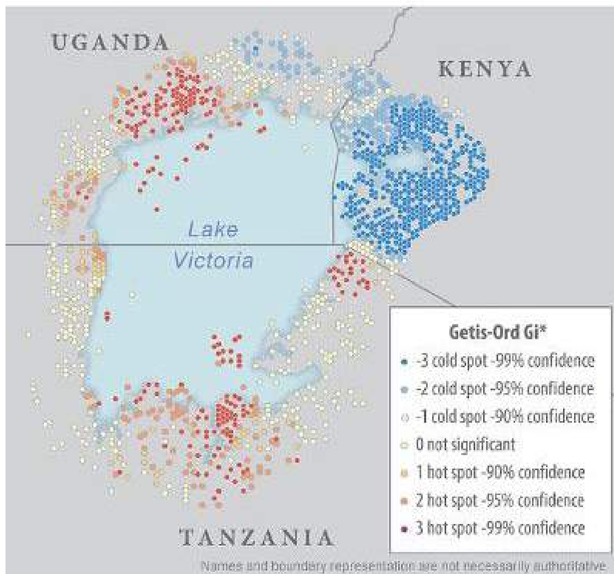
TUPDE0102

Patterns of HIV in the Lake Victoria region, a spatiotemporal analysis

N. Heard[1,2], G. Sarfaty[3], I. Zaidi[4], C. Fellenz[5]
[1]*U.S. Department of State, Office of the U.S. Global AIDS Coordinator and Health Diplomacy, Washington, DC, United States,* [2]*U.S. Department of State, Humanitarian Information Unit, Washington, DC, United States,* [3]*U.S. Agency for International Development, Office of HIV/AIDS, Washington, United States,* [4]*U.S. Department of State, Office of the U.S. Global AIDS Coordinator and Health Diplomacy, Washington, United States,* [5]*U.S. Department of State, Humanitarian Information Unit, Washington, United States*

Background: Fisherfolk are a relatively mobile population subject to a variety of socioeconomic and behavioral risk factors that drive HIV infection in the Lake Victoria Basin. Although country-specific studies have established that populations residing near the lake experience higher HIV prevalence than the general populations of their respective countries, less is known about spatial patterns of HIV in the region as a whole. This study explores routine program data to detect spatial clustering of HIV positivity across Kenya, Tanzania, and Uganda. In addition, the study seeks to characterize the temporal stability of identified clusters of HIV positivity in Lake Victoria Lake Basin.





[Spatial Structure in HIV Testing Yield Within 50 km of Lake Victoria, July-September 2017]

Methods: We evaluated seven reporting quarters of HIV testing data for significant spatial structure. The quarterly data are from 2,256 PEPFAR-supported health facilities within 50 kilometers of the banks of Lake Victoria. We stratified by quarter facility-level data for 15,841,128 tests, of which 384,473 were positive, and aggregated mean HIV positivity to a mesh of tessellated hexagons. The analysis tested for spatial randomness using the Getis-Ord Gi* statistic.

Results: We detected four stable clusters of high HIV testing yield, present in each of the seven quarters, and two unstable clusters, appearing in at least three of the seven quarters. In addition, results indicated one potentially emerging cluster of high yield. A stable cold spot crosses the border of Kenya and Uganda.

Conclusions: Despite labor-related population mobility in the region, HIV testing results show persistent patterns in both space and time. High population mobility complicates linkage to care. However, consistently high testing yield in fixed places suggests that a geographically focused programmatic approach remains a valid and important part of this local response. Future studies should leverage routine program data and consider multiple geographic scales to assess both cross-border and internal disease dynamics.

TUPDE0103

Density mapping of dating app users across time and space in Mumbai, India

B. Eveslage[1], P. Shah[2], C. Parker[1], B. George[3], J.J. Baishya[4]
[1]*FHI 360, Washington, United States,* [2]*FHI 360, LINKAGES, New Delhi, India,* [3]*FHI 360, Country Director, New Delhi, India,* [4]*USAID, New Delhi, India*

Background: Dating apps make it easier and seemingly safer for men who have sex with men (MSM) to find partners. How, then, can HIV programs use available data to better align HIV outreach activities to the specific times and locations of MSM dating app usage while maintaining safety and privacy?

Methods: The USAID and PEPFAR-supported LINKAGES project in India created density maps of location-based dating app users in Mumbai to identify concentrations of users and enhance program coverage. Using ArcGIS software, Mumbai was overlaid with a gridwork of latitude/longitude points each two kilometers apart (374 points), and a second group of points at 1 kilometer distance (410 total). Data collectors used Android phones and an app to set their phone's Global Positioning System (GPS) location for each of the plotted coordinates, then opened Grindr to count the number of nearby online users. The number of online users within one kilometer of each 2-kilometer separated point was collected three times daily, over five days of one week in October 2017. The process was repeated in December 2017 for online users within 500 meters of each 1-kilometer separated point over 7 days. Excel's 3D maps plug-in generated short videos animating the changing density of Grindr users across the week and area of Mumbai. These activities never collected individual location data, and data are not granular enough to target people in physical settings.

[Figure 1: Density mapping in Mumbai compared - 1km radius sampling (left) versus more precise 500m radius sampling (right) showing clear high-density]

Results: An average of 3,810 online Grindr users were counted across metropolitan Mumbai. The highest number of online users was counted on midday Saturday and Sunday. On weekdays, counts increased later in the day. The second mapping revealed high-density locations of dating app use including several time-bound areas and 6 consistent areas with 23 or more online users within 500 meters of each coordinate (Figure 1).
Conclusions: This activity successfully identified physical clusters of online MSM at specific times of dating app usage, and estimated total online users in Mumbai. The LINKAGES program in India used these results to guide outreach to MSM on Grindr at high density locations through peer- and advertisement-based approaches that will be combined with location-specific referrals for services.

TUPDE0104

Optimizing access for the last mile: Geospatial cost model for point of care viral load instrument placement in Zambia

S.J. Girdwood[1], B.E. Nichols[1,2], C. Moyo[3], T. Crompton[4], D. Chimhamhiwa[4], S. Rosen[1,2], on behalf of EQUIP
[1]Health Economics and Epidemiology Research Office, Department of Internal Medicine, School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, [2]Boston University, Global Health, Boston, United States, [3]EQUIP Zambia, Lusaka, Zambia, [4]Right to Care, GIS Mapping Department, Johannesburg, South Africa

Background: Viral load monitoring programs have been scaled up rapidly throughout Africa, but little attention has been paid to how to optimize viral load access to the most remote healthcare facilities (the "last mile"). For the hardest-to-reach facilities in Zambia, we compared the cost of placing point of care (POC) viral load test instruments at or near facilities to the cost of an expanded sample transportation network (STN) to deliver samples to centralized laboratories.
Methods: Using data from the Zambian viral load program, we developed a geospatial optimization model that first optimized a STN for centralized labs for 90% of estimated viral load volumes, at a cost per test of $23.86. Exploratory cluster analysis was then conducted to identify ideal facilities for POC instrument placement amongst the remaining 10% of volumes. Optimal placement maximized both viral load coverage and instrument utilization. We evaluated the full cost (test and transport) per test under three scenarios:
1) POC placement at all facilities identified for POC;
2) an optimized combination of true on-site POC placement and "near POC" placement at facilities acting as POC hubs; and
3) integration into the centralized STN to allow use of centralized labs.
Results: Exploratory cluster analysis yielded optimal POC placement that covered 3.5% of total viral load volumes. Scenario 2 resulted in a cost per test of $37.97, 21% less than the cost per test of true-POC available at all of the same facilities (Scenario 1, $47.95). This is due to increased POC instrument utilization when an instrument can act as near-POC (median 23% instrument utilization), compared to only true-POC (11%). Scenario 3 was the most costly at $53.2 per test, due to high transport costs under the centralized model ($31.40 per test compared to $4.80 per test in scenario 2).

	Scenario 1 (POC at all facilities)	Scenario 2 (optimized combination of POC and near-POC)	Scenario 3 (expanded sample transport network)
Median total cost per test (IQR)	$47.95 (46.83-50.54)	$37.97 (36.6-40.28)	$53.16 (48.59-58.59)
Test (IQR)	$47.95 (46.83-50.54)	$33.13 (31.99-35.00)	$21.76 (20.33-23.58)
Sample transport (IQR)	$0	$4.80 (4.61-5.28)	$31.40 (28.26-35.01)
Projected annual number of tests conducted (% of total viral load volume)	59,892 (3.5%)		
Total cost of scenario (IQR)	$2.87m ($2.80m-$3.03m)	$2.27m ($2.19m-$2.41m)	$3.19m ($2.91m-$3.51m)
Savings from using optimized POC and near-POC	$597,465	-	$912,419

[Cost per viral load test by scenario for hardest-to-reach patients]

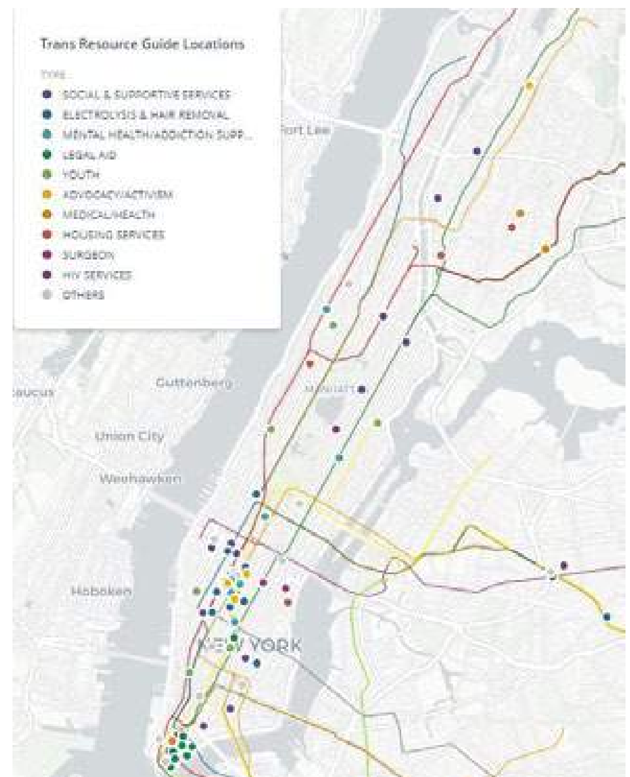
Conclusions: Point of care viral load testing may reduce the costs of providing testing services to the hardest-to-reach populations, despite the cost of equipment and low patient volumes. An optimal combination of true- and near-POC instruments can reduce the cost per test by 21-29% by reducing transport costs and increasing instrument utilization under the POC scenario.

TUPDE0105

Transgender resource map

M. Domingo[1,2]
[1]Callen-Lorde Community Health Center, Population Health, New York, United States, [2]Carto, Brooklyn, United States

Background: Transgender people face daily harassment and discrimination, which impacts their ability to access and receive services like healthcare. In addition to this, Transgender people face additional challenges when receiving services due to lack of competence and prejudice from service providers, especially medical care. It is no surprise this group faces the largest burden in new HIV infections in the United States. Very little has been done to ensure Transgender people are connected to quality and competent social and health services. Callen-Lorde Community Health Center, a leader in Transgender care in the United States, describes its approach to addressing this inequities using an innovative technology approach.
Description: Utilizing GIS (geographic information systems) software, Callen-Lorde's Population Health team mapped the geographic location and distribution of its Transgender patients in New York City's 5 boroughs by census tract. Simultaneously, all transgender specific resources and linkages kept by the clinic for referrals where mapped by address (Figure 1). The map allows individuals to search for specific services available in a given location. Services included things like Behavioral health resources, transgender surgery information, legal assistance and others.



[Figure 1]

Lessons learned: Transgender specific resources were available and abundant in New York, however they were mainly concentrated in the downtown central area of Manhattan, while most patients inhabited the farther regions of the city. Interactive maps and GIS technology allows our supportive staff to link patients to services and come up with outreach strategies to avoid discrimination and harassment. These maps

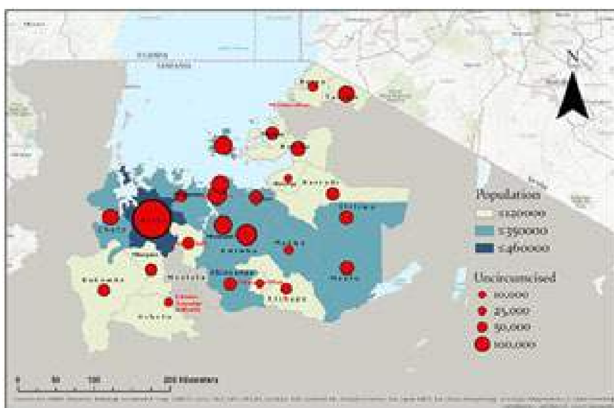
provide an opportunity to invite business into high-needs areas, helping to bridge inequities. Through this program, we are able to understand how to allocate resources in a strategic and targeted approach.
Conclusions/Next steps: GIS technology can be successfully utilized to bridge determinants of health in transgender communities. Innovative approaches are needed to help ensure transgender communities have the tools to connect to service that will support and treat them with dignity.

TUPDE0106

Use of geographic information system mapping for scaling-up voluntary medical male circumcision services in Tanzania

K. Nyalali[1], P. Sekule[1], P. Mwakipesile[1], M. Swai[1], J. Brasileiro[2], C. Brokenshire-Scott[2], L. Mphuru[1], K. Kazaura[3], D. Simbeye[3]
[1]IntraHealth International, Dar es Salaam, Tanzania, United Republic of, [2]IntraHealth International, Chapel Hill, United States, [3]Centers for Disease Control and Prevention, Dar es Salaam, Tanzania, United Republic of

Background: Scaling-up voluntary medical male circumcision (VMMC) becomes trickier as coverage increases and the number of eligible men decreases. IntraHealth International, with CDC funding, used geographic information system (GIS) mapping with information from community experts to identify geographical areas in Tanzania with large numbers of uncircumcised men for targeted service delivery.
Description: We collected 2016 ward-level male population projection data in the four IntraHealth-supported regions and shape files with geo-referenced points (e.g., ward boundaries, road networks, forests/vegetation, water bodies) from the National Bureau of Statistics. The geo-coordinates of health facilities were extracted from the national health facility registry and DATIM GIS interface and used to geo-reference facility locations. We subtracted 2011-2016 service delivery data on circumcised men from the PROMIS database to establish estimations of uncircumcised men in the respective wards of the four regions. Geo-coded data and shape files were overlaid into GIS software (ArcGIS Pro Esri 2017) and analyzed to create maps of facility locations, coverage and areas with high concentration of uncircumcised men where demand creation and VMMC scale-up were prioritized.
Lessons learned:
· Maps showed over 61% of uncircumcised men were located in 40% of the wards within the four regions.
· Community experts provided additional socio-economic factors needed for consideration in planning VMMC outreach campaigns such as accessibility, availability of water/electricity for sterilization of instruments, and availability of lodging for service providers.
· The number of men circumcised annually increased three-fold from 67,414 in 2016 to 225,093 in 2017; over 92% were aged 10-29 (PEPFAR priority age group), which was three times higher than previous years.
· The project achieved these results with a $7.1 million budget, an average of US$31.12 per client, significantly lower than the national estimate and previous years at US$50 and US$39.36, respectively.



[Distribution of uncircumcised men in IntraHealth-supported regions in Tanzania]

Conclusions/Next steps: Coupled with qualitative socio-economic information from community experts, interactive GIS mapping ensures efficiency in planning and monitoring for high-impact large-scale interventions at a minimum cost. Project designs should consider using interactive GIS maps to make strategic decisions for targeted high-impact interventions.

TUPDX01 PrEP in the real world: What are we learning?

TUPDX0101

The responsibility of PrEP: A qualitative exploration of men who have sex with men's use of informal PrEP in London

S. Paparini[1], W. Nutland[2,3], V.-K. Nguyen[1]
[1]Graduate Institute of International and Development Studies, Anthropology and Sociology of Development, Geneva, Switzerland, [2]London School of Hygiene and Tropical Medicine, London, United Kingdom, [3]PrEPster, London, United Kingdom

Background: Concerns have been raised that HIV pre-exposure prophylaxis (PrEP) will lead to 'risk compensation' (that MSM will use condoms less frequently, and increase their sexual risk because of PrEP). In England it has been argued that the drop in HIV incidence can be partially credited to PrEP-related activism and the initiative taken by MSM as early adopters of informal, online-purchased, generic PrEP. This suggests the contrary; namely, that PrEP provides an opportunity for men who have sex with men (MSM) to take individual responsibility for their own sexual health. However little research has examined the issue of "responsibility" in PrEP users.
Methods: An ethnography of PrEP in the United Kingdom has been carried out since 2016, using interviews, focus groups, and participant observation with policymakers, researchers, clinicians and PrEP users. As part of this, a formative qualitative project was conducted in partnership with PrEP activists to inform an intervention to support informal PrEP users. Focus groups were held with 20 MSM, based in London, who obtain PrEP informally, to explore their accounts and experiences of sourcing and using generic PrEP. This presentation reports findings from the focus groups in the context of the broader ethnography.
Results: In participants' accounts responsibility was not a single idea but an overarching theme for framing different concerns: control over their own health, relationships with other MSM and the gay community, and citizenship. The responsibility they felt towards themselves created uncertainties about their sexual risk without PrEP and on PrEP. Their responsibility towards their communities was put into practice through information-sharing and peer support of other potential PrEP-users. The few clinics that supported their informal PrEP use were seen as taking on the State's responsibility for their health as citizens.
Conclusions: The policy conditions in England, and the lack of access to PrEP have given rise to a widespread practice of informal PrEP sourcing and use. This is a self-directed form of prevention, yet has extended the notion of responsibility for PrEP beyond individual PrEP users to a collective responsibility of PrEP shared by MSM communities, and by PrEP providers to adequately support early adopters and informal users.

TUPDX0102

Attitudes regarding HIV, PrEP and condom use jointly predict risk compensation among men who have sex with men - findings from the VicPrEP implementation project, Melbourne

J. de Wit[1,2], D. Murphy[2,3], L. Lal[4,5,6], J. Audsley[5,7], C.K. Fairley[8,9], M. Stoove[4,10], N. Roth[11], R. Moore[12], B.K. Tee[13], N. Puratmaja[6], R.M. Grant[14,15,16], E. Wright[4,5,6]

[1]Utrecht University, Department of Interdisciplinary Social Science, Utrecht, Netherlands, [2]UNSW Sydney, Centre for Social Research in Health, Sydney, Australia, [3]University of Sydney, Department of Gender and Cultural Studies, Sydney, Australia, [4]The Burnet Institute, Melbourne, Australia, [5]The Alfred Hospital, Department of Infectious Diseases, Melbourne, Australia, [6]Monash University, Department of Infectious Diseases, Melbourne, Australia, [7]University of Melbourne, The Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [8]Melbourne Sexual Health Centre, Melbourne, Australia, [9]Monash University, Central Clinical School, Melbourne, Australia, [10]Monash University, School of Population Health and Preventive Medicine, Melbourne, Australia, [11]Prahran Market Clinic, Melbourne, Australia, [12]Northside Clinic, Melbourne, Australia, [13]The Centre Clinic, Melbourne, Australia, [14]Gladstone Institutes, San Francisco, United States, [15]University of California-San Francisco, School of Medicine, San Francisco, United States, [16]San Francisco AIDS Foundation, San Francisco, United States

Background: Potential risk compensation related to PrEP remains a major concern, and may exacerbate high rates of sexually transmissible infections. Recent reports from implementation projects provide initial evidence of reduced condom use amongst among men who have sex with men (MSM) using PrEP in community settings. To increase understanding and inform responses to risk compensation we assessed sociodemographic and attitudinal covariates of trends in condom use with casual partners among VicPrEP participants.

Methods: Initiated in 2014, VicPrEP was the first Australian PrEP demonstration project, undertaken through one sexual health clinic and three general practice clinics in Melbourne. A total of 115 participants were enrolled in one year and were offered PrEP for up to 30 months. Participants received baseline and 3-monthly self-report questionnaires during the first year of participation. Five-point rating scales were used to assess condom use (1 = never, 5 = always) and attitudes regarding HIV, PrEP and condoms (1 = low, 5 = high). Prospective data were analyzed using Generalized Estimating Equations.

Results: Frequency of condom use for anal sex with casual partners decreased significantly over one year follow-up (Baseline Median = 3.0, IQR = 2.0-4.0; 12 month Median = 2.0, IQR = 1.0-3.0; Wald Chi2 (df=4) = 21.03, p = 0.000), notably in the first 3 months of using PrEP. Multivariable analysis found that MSM who found HIV a more serious condition and found it more important to remain HIV-negative were more likely to continue condom use, as were MSM more concerned about adverse effects of PrEP. MSM who considered PrEP critical for personal HIV prevention and MSM who experienced more adverse impacts of condom use on sex were less likely to use condoms.

Conclusions: In this community implementation project, condom use with casual partners among MSM decreased markedly upon commencing PrEP. This underscores the importance of stressing PrEP's role as additional HIV prevention tool and that continued condom use contributes to preventing other sexually transmissible infections . Changes in condom use reflect the joint influence of men's attitudes regarding HIIV, PrEP and condoms, offering points of entry for community-based initiatives to raise awareness and examine risk compensation.

TUPDX0103

The new MTV generation: Using methamphetamine, Truvada and Viagra to enhance sex and stay safe

M.A. Hammoud[1], S. Vaccher[1], A. Bourne[2], B. Haire[1], T. Lea[3], F. Jin[1], L. Maher[1], G. Prestage[1]

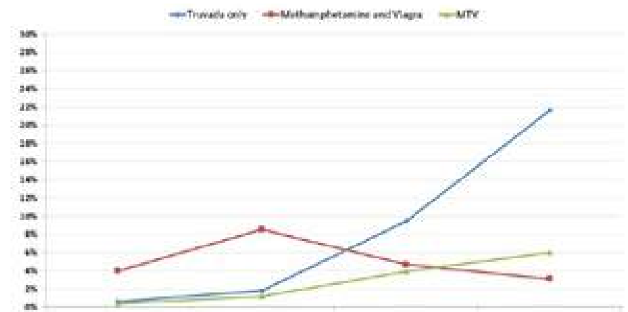
[1]The Kirby Institute, UNSW Australia, Medicine, Sydney, Australia, [2]Australian Research Centre in Sex, Health & Society, La Trobe University, Melbourne, Australia, [3]Centre for Social Research in Health, UNSW, Sydney, Australia

Background: Gay and bisexual men (GBM) often use illicit drugs to enhance sexual pleasure, commonly referred to as 'chemsex'. In particular, the use of methamphetamine and Viagra™ (or other erectile dysfunction medications) both together and separately are strongly predictive of incident HIV infection. Truvada™, as pre-exposure prophylaxis (PrEP), virtually eliminates HIV risk during condomless anal intercourse (CLAI). When HIV-negative GBM in intensive sex partying networks add PrEP to their party drug regimen, they actively reduce the possibility of HIV transmission during chemsex. We describe the prevalence and context of concurrent use of methamphetamine (M), Truvada™ (or its generic formulations, T), and Viagra™ (or other erectile dysfunction medication) (V; collectively, MTV).

Methods: The *Following Lives Undergoing Change* (FLUX) study is an online prospective observational study of licit and illicit drug use among Australian GBM. Between January and July 2017, 1831 HIV-negative and untested/unknown status GBM provided details about their use of MTV. Binary logistic multiple regression analyses were used to estimate adjusted odds ratios (aOR) and associated 95% confidence intervals (95%CI).

Results: During 2017, concurrent MTV use was reported by 6.0% of participants; 3.1% used methamphetamine and Viagra™ or other erectile dysfunction medication ('MV only') and 11.2% used Truvada™ as PrEP ('T only'). MTV prevalence in the cohort over time is shown in Figure 1. In multivariate analysis, compared to use of 'MV only', MTV was independently associated with CLAI with casual partners (aOR=6.78;95%CI=1.42-32.34) and 'fuckbuddies' (aOR=3.47;95%CI=1.41-8.56) in the previous six months. Compared to use of 'T only', MTV was independently associated with being older (aOR=3.95;95%CI=1.55-10.03) and engaging in group sex (aOR=3.31;95%CI=1.82-6.00). Greater social engagement with other gay men (aOR=1.44;95%CI=1.18-1.76) and having more sexual partners (aOR=2.30;95%CI=1.10-4.82) were independently associated with use of MTV compared to use of 'MV only' or 'T only'.

Conclusions: The addition of PrEP mitigates the increased HIV risk associated with party drug regimens, and these data demonstrate that this harm reduction strategy is being utilised by GBM. Interventions that promote harm reduction strategies, including the use of PrEP during chemsex could help reduce HIV transmissions within this at-risk population.



[Figure 1. The new MTV Generation: Using Methamphetamine, Truvada and Viagra to enhance sex and stay safe]

TUPDX0104

High incidence of hepatitis C virus (re-)infections among PrEP users in the Netherlands: Implications for prevention, monitoring and treatment

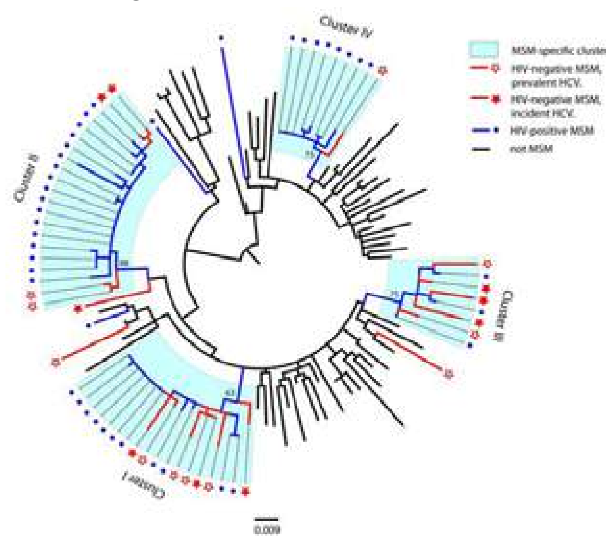
E. Hoornenborg[1], L.N. Coyer[1], R.C.A. Achterbergh[1], M.F. Schim van der Loeff[1], S. Bruisten[1], H.J.C. de Vries[1,2,3], T.J.W. Van de Laar[4], M. Prins[1,2], on behalf of the Amsterdam PrEP Project Team in the HIV Transmission Elimination AMsterdam Initiative (H-TEAM)
[1]*Public Health Service of Amsterdam, Amsterdam, Netherlands,* [2]*Academic Medical Center, Amsterdam, Netherlands,* [3]*RIVM, Bilthoven, Netherlands,* [4]*Sanquin Research, Amsterdam, Netherlands*

Background: Hepatitis C virus (HCV) prevalence was 4.8% among HIV-negative men who have sex with men (MSM) starting pre-exposure prophylaxis (PrEP) in the Netherlands. We studied the HCV incidence rate (IR), characteristics of newly infected individuals, HCV genotype distribution and phylogenetic clustering among MSM and transgender persons (TGP) who use PrEP in the Netherlands.

Methods: HIV-negative MSM (n=374) and TGP (n=2) participating in the Amsterdam PrEP project at the Public Health Service of Amsterdam were tested biannually for HCV antibodies, and subsequently for HCV RNA if antibodies were present. We analyzed data from study start (August 2015) through December 2017. We calculated the HCV IR, overall and separately for primary infection and re-infection, and described baseline characteristics of participants with incident HCV infection. HCV genotyping was performed by sequencing part of the HCV NS5B gene (420 bp). Phylogenetic trees were constructed to compare HCV strains from HIV-negative participants, HIV-positive MSM with acute or chronic HCV in Amsterdam and Dutch risk groups other than MSM.

Results: The median follow-up was 1.76 person years (py) (IQR 1.57-1.98). We diagnosed 12 incident HCV infections, all in MSM: 6 primary infections and 6 re-infections. The overall HCV IR was 1.9/100 py (95%CI 1.1-3.4). The IR of primary infection was 1.0/100 py (95%CI 0.5-2.2) and of re-infection 25.5/100 py (95%CI 11.5-56.8).

Incident HCV infections were of genotype 1a (n=9), 4d (n=1), 2b (n=1) and 3a (n=1). Phylogenetic analysis revealed that 8/9 HCV-1a infections were part of 4 large MSM-specific HCV-1a clusters containing MSM with and without HIV (Figure)



[Hepatitis C virus (HCV) phylogenetic tree for subtype 1a, comparing HCV sequences from HIV negative MSM with HIV positive MSM and unrelated persons.]

Median age of those with incident infection was 35 years (IQR 26-41), most were white (83%), chose for daily PrEP (92%) and reported chemsex (75%) before initiating PrEP (see table).

Conclusions: In the Netherlands, incidence of initial and re-HCV infection among HIV-negative MSM on PrEP was high and comparable to that observed in HIV-positive MSM. The high degree of phylogenetic clustering between HCV strains acquired by MSM with and without HIV suggests a shared transmission network. Regular HCV testing to provide prompt treatment as well interventions to lower HCV-related behavior should be offered to MSM on PrEP.

Age in years, median (IQR)	35 (26-41)
White ethnicity, no. (%)	10 (83%)
Living in Amsterdam, no. (%)	5 (42%)
Chose daily PrEP regimen, no. (%)	11 (92%)
Reported chemsex*, no. (%)	9 (75%)
Total number of anal sex partners in preceding 3 months, median (IQR)	19 (14-34)
Number of receptive condomless anal sex acts with unknown partners in preceding 3 months, median (IQR)	8 (3-22)
Chemsex is defined as use of gamma-hydroxybutyric-acid, mephedrone or crystal-methamphetamine around sex	

[Characteristics of 12 MSM with incident HCV infection, the Netherlands, 2015-2017. All data were collected at the study inclusion visit.]

TUPDX0105

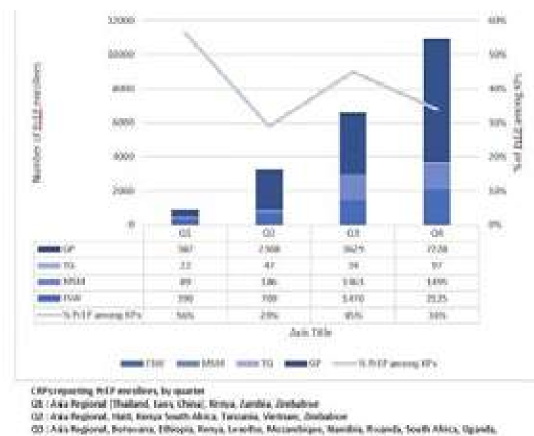
Expansion of HIV pre-exposure prophylaxis (PrEP) among key populations in PEPFAR's global program data, fiscal year 2016-2017

G. Djomand[1], T. Bingham[1], I. Benech[1], T. Wheeler[2], A. Sanicki[3], S. Mital[1]
[1]*Centers for Disease Control and Prevention, Division of Global HIV/AIDS and TB, Atlanta, United States,* [2]*United States Agency for International Development, Office of HIV/AIDS, Bureau for Global Health, Washington, DC, United States,* [3]*Office of the US Global AIDS Coordinator, Washington, DC, United States*

Background: Key populations (KP), such as men who have sex with men (MSM), female sex workers (FSW) and transgender persons (TG), experience a disproportionate risk of HIV infection compared to the general population (GP). Pre-exposure prophylaxis (PrEP) represents the preventive use of antiretroviral agents to reduce new HIV infections among HIV-negative individuals with significant risk behavior. PEPFAR, the largest bilateral funder of HIV programs globally, issued guidance to implement PrEP programming to reduce HIV incidence among KP, developed KP-specific monitoring indicators and began collecting KP disaggregated data in 2016-2017.

Methods: Program data on the number of people newly enrolled on oral PrEP are reported on a quarterly basis (Q1-Q4) as site-level totals by all partners receiving PEPFAR support. For each quarter, we summed the number across PEPFAR's 36 country or regional programs (CRP) that reported PrEP results among GP and KPs. We also calculated the proportion of all PrEP results contributed by KP and compared percentage change in PrEP enrollment for GP versus all KP groups between Q1 and Q4.

Results: Of the five CRPs that enrolled patients on PrEP in Q1, only three reported enrolling KPs. This increased to 8 of 13 CRPs in Q3 but decreased to 6 of 9 CRPs in Q4. In Q1, 501 KPs newly initiated PrEP (56% of all results) and in Q4, 3,717 KPs newly initiated PrEP (34% of all results) (Figure 1).



[Number and percentage of PrEP enrolees among key population and general population clients supported by PEPFAR, October 2016-September 2017]

All PrEP enrollment increased 1,133% from Q1 to Q4; 1,768% among GP and 642% among KPs. Among the KP groups, enrollment increased 445% among FSW, 1,580% among MSM, and 341% among TG between Q1 and Q4.

Conclusions: Over the four reporting periods in 2016-2017, PrEP enrollment increased substantially among both KP and GP, albeit with more attenuated success in scaling this effective HIV prevention intervention among key populations compared to the general population. To address slower growth in enrollment among all KPs, particularly for FSW and TG compared to GP, specific efforts are needed to streamline PrEP scale-up through advocacy with host country governments to address restrictive national policies and potential gender inequalities.

TUPDX0106

Altered TDF/FTC pharmacology in a transgender female cohort: Implications for PrEP

M.L. Cottrell[1], H.M. Prince[2], K. Maffuid[1], A. Poliseno[1], N. White[2], C. Sykes[1], J.A. Nelson[3], A. Peery[2], E. Dellon[2], L. Hightow-Weidman[2], J.L. Adams[4], C. Gay[2], A.D. Kashuba[1]
[1]UNC Eshelman School of Pharmacy, Chapel Hill, United States, [2]University of North Carolina School of Medicine, Chapel Hill, United States, [3]UNC Center for AIDS Research, HIV/STD Laboratory Core, Chapel Hill, United States, [4]University of the Sciences, Philadelphia, United States

Background: Transgender women (TGW) on feminizing hormone therapy (FHT) maintain estradiol (E2) concentrations 2-9 and 6-25 fold higher than cisgender women in the mid-follicular phase and cisgender men, respectively. E2 increases activity of 5´-nucleotidase enzymes, which can decrease the active metabolite tenofovir diphosphate (TFVdp) or increase its competing nucleotide (dATP), depending on cellular location. To assess intracellular pharmacology at HIV transmission sites, we measured TFVdp, emtricitabine triphosphate (FTCtp), and their competing nucleotides (dATP and dCTP, respectively) in rectal tissue (RT) of TGW vs postmenopausal cisgender women (CGW; a low E2 control group).

Methods: HIV-infected women on a Truvada® containing regimen with HIV< 50copies/ml and CrCl>60ml/min enrolled (N=4 TGW; N=4 CGW) between 01/2017 and 01/2018. Serum and RT biopsies were collected at a single visit. FHT included oral or injectable E2, medroxyprogesterone, and spironolactone. Serum E2 was measured with validated immunoassay (lower limits of quantification; LLOQ=20pg/ml). RT was homogenized and TFVdp/FTCtp and dATP/dCTP were measured by LC-MS/MS (LLOQ=0.1 and 0.05ng/ml, respectively). Values below limits of quantification (BLQ) were imputed at sample specific LLOQ (depending on biopsy size; 4/28 measures). All measures were BLQ for 1 TGW, and excluded from statistical analyses (Student's t-test and Pearson correlation using SASv9.4). Median (range) summary data are reported.

Results: Age, BMI and CrCl were 42(34, 46) vs 57(55, 59)years; 30(24, 42) vs 36(27, 38)kg/m²; and 114(100, 192) vs 108(61, 138)ml/min for TGW vs CGW, respectively. E2 concentrations in TGW [252(73, 490)pg/ml] were consistent with peak E2 in a typical periovulatory phase. TFVdp:dATP was 7-fold lower in TGW vs CGW (p=0.006; Table 1). One TGW exhibited TFVdp:dATP below an EC90 target ratio of 0.29. FTCtp:dCTP did not differ between groups and was above an EC90 target ratio of 0.07 in all participants. A significant inverse association was observed for $\log_{10}$E2 and TFVdp:dATP (r= -0.77; p=0.04).

Conclusions: This is the first description of TFVdp/FTCtp rectal concentrations in TGW on FHT. TFVdp relative to dATP was significantly lower in TGW and decreased with increasing E2. A cisgender male comparator will also be studied to confirm these findings. These data confirm in vitro findings and suggest that feminizing E2 may impact PrEP efficacy.

Analyte	CGW (N=4)	TGW (N=3)
TFVdp (fmol/g)	185158 (76265, 223542)	53674 (23240, 1170302)
FTCtp (fmol/g)	17247 (5959, 23181)	138293 (16303, 289495)
dATP (fmol/g)	7532 (5331, 11301)	547827 (6166, 656011)
dCTP (fmol/g)	6099 (2890, 8058)	80097 (5768, 251048)
TFVdp:dATP	20 (14, 30)	2.7 (0.08, 3.8)
FTCtp:dCTP	2.8 (2.0, 2.9)	2.3 (1.2, 2.9)

[Table 1. Median (Min, Max) Rectal Tissue Concentrations]

Tuesday 24 July

Poster Exhibition

Viral origins, evolution and diversity

TUPEA001

Evaluation of phylogenetic inference methods to determine direction of HIV transmission

R. Rose[1], A.D. Redd[2], S. Lamers[1], S.F. Porcella[3], S.E. Hudelson[4], E. Piwowar-Manning[4], M. McCauley[5], T. Gamble[6], E.A. Wilson[7], J. Kumwenda[8], M.C. Hosseinipour[9], J.G. Hakim[10], N. Kumarasamy[11], S. Chariyalertsak[12], J.H. Pilotto[13], B. Grinsztejn[14], L.A. Mills[15], J. Makhema[16], B.R. Santos[17], Y.Q. Chen[7], T.C. Quinn[2], M.S. Cohen[9], S.H. Eshleman[4], O. Laeyendecker[2,18], HPTN 052 Study Team
[1]BioInfoExperts, Thibodaux, United States, [2]NIAID, Baltimore, United States, [3]Division of Intramural Research, NIAID, NIH, Hamilton, United States, [4]Johns Hopkins Univ. School of Medicine, Pathology, Baltimore, United States, [5]FH I360, Science Facilitation Department, Washington DC, United States, [6]FHI 360, Science Facilitation Department, Durham, United States, [7]Fred Hutchinson Cancer Research Institute, Vaccine and Infectious Disease Science Division, Seattle, United States, [8]College of Medicine-Johns Hopkins Project, Blantyre, Malawi, [9]Univ. of North Carolina at Chapel Hill, Medicine, Chapel Hill, United States, [10]University of Zimbabwe, Harare, Zimbabwe, [11]YRGCARE Medical Centre, Chennai, India, [12]Chiang Mai University, Research Institute for Health Sciences, Chiang Mai, Thailand, [13]Hospital Geral de Nova Iguaçu and Laboratorio de AIDS e Imunologia Molecular (IOC/Fiocruz), Rio de Janeiro, Brazil, [14]Instituto Nacional de Infectologia Evandro Chagas-INI-Fiocruz, Rio de Janeiro, Brazil, [15]CDC Division of HIV/AIDS Prevention, KEMRI-CDC Research and Public Health Collaboration HIV Research Branch, Kisumu, Kenya, [16]Botswana Harvard Aids Institute, Gabarone, Botswana, [17]Servico de Infectologia, Hospital Nossa Senhora da Conceicao/GHC, Porto Alegro, Brazil, [18]JHU, Baltimore, United States

Background: It has been postulated that the direction of HIV transmission between two individuals can be determined by phylogenetic analysis of HIV sequences. This approach may be problematic, since HIV sequences from newly-infected individuals are often more similar to index sequences from samples collected years before transmission, compared to those from samples collected at the time of transmission. We evaluated the accuracy of phylogenetic methods for determining the direction of HIV transmission by analyzing next-generation sequencing (NGS) data from index-partner pairs enrolled in the HIV Prevention Trials Network [HPTN] 052 trial. HIV-infected index and HIV-uninfected partner participants were enrolled as serodiscordant couples; samples were analyzed from couples with index-to-partner HIV transmission that was confirmed by genetic linkage studies.
Methods: NGS for HIV gp41 (HXB2 coordinates: 7691-8374) was performed using plasma samples from 39 index-partner pairs (78 samples collected within 3 months of partner seroconversion). Maximum likelihood trees were generated using the entire data set using FastTree v.2. Topological patterns of HIV from each index-partner pair were analyzed.
Results: The analysis included 9,368 consensus sequences and 521,145 total sequence reads for the 78 samples analyzed. In 10% (4/39) of couples, the phylogeny was inconsistent with the known direction of transmission. In 26% (10/39) of couples, the phylogeny results could not discern directionality. In 64% (25/39) of couples, the results correctly indicated index-to-partner transmission; in two of these 25 cases, only one index sequence was closest to the most recent common ancestor.
Conclusions: Phylogenetic analysis of NGS data obtained from samples collected within 3 months of transmission correctly determined the direction of transmission in 64% of the cases analyzed. In 36% of the cases, the phylogenetic topology did not support the known direction of infection, and in one-third of these cases the observed topology was opposite to the known direction of transmission. This demonstrates that phylogenetic topology alone may not be sufficient to accurately determine the direction of HIV transmission.

TUPEA002

FAVITES: A framework for the simulation of compatible viral transmission networks, phylogenetic trees and sequences

N. Moshiri[1], M. Ragonnet-Cronin[2], J. Wertheim[2], S. Mirarab[3]
[1]University of California, San Diego, Bioinformatics and Systems Biology Graduate Program, BONITA, United States, [2]University of California, San Diego, Department of Medicine, La Jolla, United States, [3]University of California, San Diego, Department of Electrical and Computer Engineering, La Jolla, United States

Background: Reconstructing HIV transmission networks can greatly enhance epidemic intervention, but transmission network reconstruction methods have various limitations, and their accuracies are poorly understood, largely because it is difficult to obtain „truth" sets on which to test them and properly measure their performance.
Methods: We introduce a novel statistical framework of viral epidemic simulation, FAVITES, which is intended to simulate realistic viral contact networks, transmission networks, phylogenetic trees, and sequence data. The simulation process has been broken down into a series of abstract modules, and each implementation of a given module corresponds to a statistical model for that step of the simulation process. This gives users the flexibility to choose appropriate models and model parameters at ease.
We then perform a series of simulation experiments in which we model HIV transmission based on the at-risk population of San Diego, and we study various properties of the resulting transmission networks as well as analyze the performance of transmission cluster inference methods.
Results: We first show that the simulated phylogenetic trees have similar branch length distributions as trees inferred from a San Diego HIV-1 *pol* multiple sequence alignment as well as one from the Los Alamos National Laboratory, which supports the notion that model and parameter choices for transmission network and phylogenetic tree simulation were realistic and that the tool can indeed simulate realistic data. However, when compared against a profile Hidden Markov Model constructed from the San Diego alignment, the simulated sequences were unrealistic, implying that the model of sequence evolution used (GTR+Gamma) was inappropriate for modeling HIV *pol* evolution. We also show that existing transmission clustering tools tend to yield highly homogeneous clusters, but the clusters are typically incomplete and accuracy is sensitive to the transmission parameters.
Conclusions: We have created a framework that allows for the simulation of transmission networks, phylogenetic trees, and sequence data, and the framework is flexible to the user's virus and population of interest via choice of statistical model and model parameters. Further, we have demonstrated the need for more sophisticated models of HIV sequence evolution, which can easily be plugged into our framework once developed.

TUPEA003

Universal target capture of HIV sequences from NGS libraries

J. Yamaguchi[1], A. Olivo[1], O. Laeyendecker[2], K. Forberg[1], N. Ndembi[3], D. Mbanya[4], L. Kaptue[5], T. Quinn[2], G. Cloherty[1], M. Rodgers[1], M. Berg[1]
[1]Abbott Laboratories, Infectious Disease Research, Abbott Park, United States, [2]NIAID, NIH, Baltimore, United States, [3]Institute of Human Virology, Abuja, Nigeria, [4]Central Hospital de Yaoundé 1, Yaoundé, Cameroon, [5]Université des Montagnes, Bangangté, Cameroon

Background: Global surveillance of viral sequence diversity is needed to keep pace with the constant evolution of HIV. Recent next generation sequencing (NGS) methods have realized the goal of sequencing circulating virus directly from patient specimens. Yet, a simple, universal approach that maximizes sensitivity and sequencing capacity remains elusive. Here we present a novel HIV enrichment strategy to yield near complete genomes from low viral load specimens.
Methods: A non-redundant biotin-labeled probe set (HIV-xGen; n=652) was synthesized to tile all HIV-1 (groups M, N, O, and P) and HIV-2 (A and B) strains. Illumina Nextera barcoded libraries of either gene-specific (HIV-SMART) or randomly primed (Superscript) cDNA derived from in-

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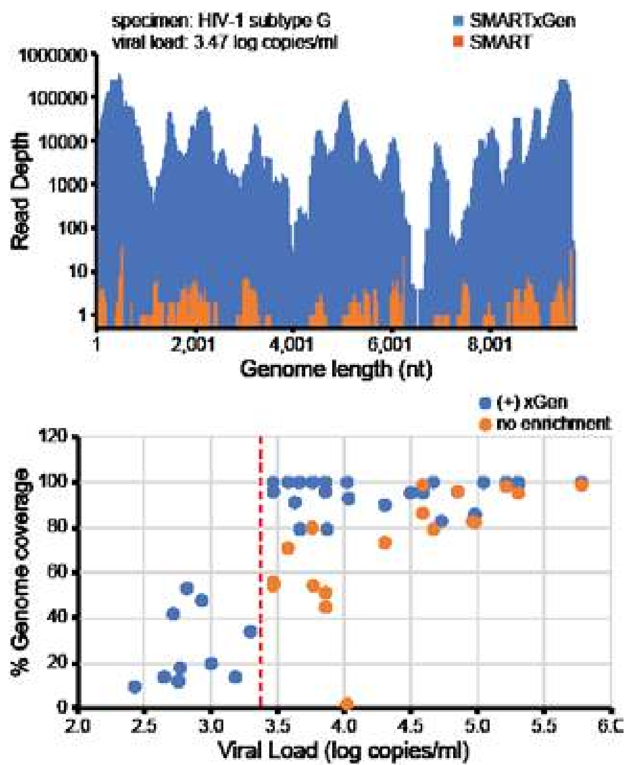
fected plasma were hybridized to probes in a single pool and unbound sequences were washed away. Captured viral cDNA was amplified by Illumina adaptor primers, sequenced on a MiSeq, and NGS reads were demultiplexed for alignment with CLC Genomics Workbench 9.0 software.

Results: HIV-xGen probes selectively captured and amplified reads spanning the entirety of the HIV phylogenetic tree. HIV sequences clearly present in unenriched libraries of specimens but previously not observed due to high host background levels, insufficient sequencing depth or the extent of multiplexing, were now enriched by >1000 fold. Thus, xGen selection not only substantially increased the depth of existing sequence, but also extended overall genome coverage by an average of 40%. We characterized 49 new, diverse HIV strains from clinical specimens and demonstrate a viral load cutoff of approximately log 3.5 copies/ml for full length coverage. Genome coverage was < 20% for 5/10 samples with viral loads < log 3.5 copies/ml and >90% for 34/39 samples with higher viral loads.

Conclusions: Characterization of >20 complete genomes at a time is now possible from a single probe hybridization and MiSeq run. With the versatility to capture all HIV strains and the sensitivity to detect low titer specimens, HIV-xGen will serve as an important tool for monitoring HIV sequence diversity.



[HIV xGen genome coverage map example and plot of coverage vs viral load]

TUPEA004

Near full-length sequence analysis reveals no evidence of HIV-1 replication during therapy

S.-K. Lee[1], A. Rogers[1], Y. Xu[1], J. Warren[1], N. Goonetilleke[1], S. Zhou[1], S. Kosakovsky Pond[2], M. Bednar[1], B. Hauser[1], C. Gay[1], J. Kuruc[1], N. Archin[1], J. Eron[1], D. Margolis[1], R. Swanstrom[1]
[1]University of North Carolina, Chapel Hill, United States, [2]Temple University, Philadelphia, United States

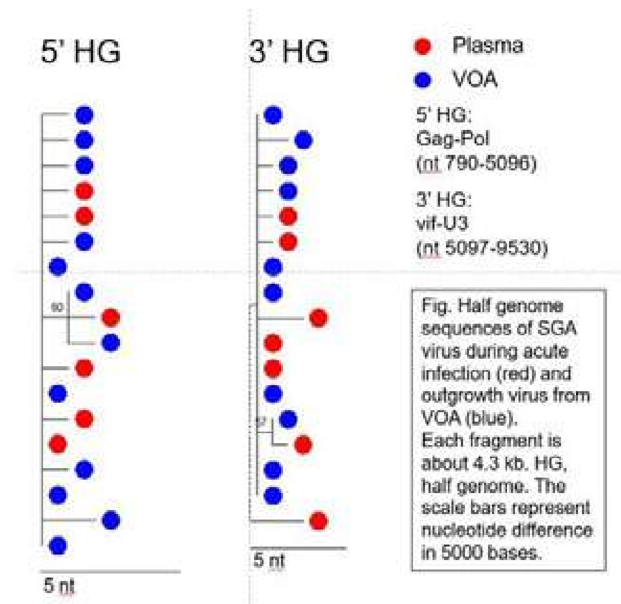
Background: HIV-1 persistence in reservoirs has been the major obstacle for eradication. It is still unclear how HIV-1 maintains its latent reservoirs. Current conflicting data suggest that HIV-1 reservoirs are sustained by long-term survival and/or proliferation of cells infected before the initiation of ART, or by ongoing low-level replication of virus in sanctuary sites where drug concentrations are suboptimal. In this study we investigated the possibility of ongoing viral evolution during suppressive therapy by comparing near full-length viral genomic sequences from plasma at the time of therapy initiation early after infection and from the latent reservoir after years of therapy.

Methods: 5 participants in the UNC Acute Infection Cohort who initiated therapy early after infection and who had been infected with a single variant were selected. The participants spent an average of 61 months on therapy before undergoing leukopheresis for viral outgrowth assays (VOA). 5'- and 3'- half genomes were generated from the pretherapy viremic samples by single genome amplification (SGA), and from the VOA wells by bulk PCR. Phylogenetic trees were inferred from pre-therapy and VOA sequences and interpreted for evidence of divergence.

Results: A total of 78 SGA half-genome sequences from the 5 pretherapy plasma samples and 73 half-genome sequences from VOA wells were used to examine changes in the viral population. Sequences representing virus outgrowth from the reservoir were identical or highly genetically similar to the pre-therapy plasma samples for each participant (see figure), indicating no discernible evolutionary divergence from the pre-therapy sequence as surveyed across the entire genome after an average of 5 years of therapy (average mean pairwise distance 0.08%; range, 0.03%-0.2%, with no phylogenetic clades comprising VOA sequences) (see figure).

No resistance mutations to the drugs used in the regimens were detected. CTL specificity was mapped for one participant and no putative escape mutations were found in the outgrowth virus.

Conclusions: The results do not support the hypothesis of ongoing viral evolution in any of the 5 subjects on suppressive therapy for an average of 5 years. These data are consistent with the reservoir originating from cells infected before the initiation of ART.



[Figure]

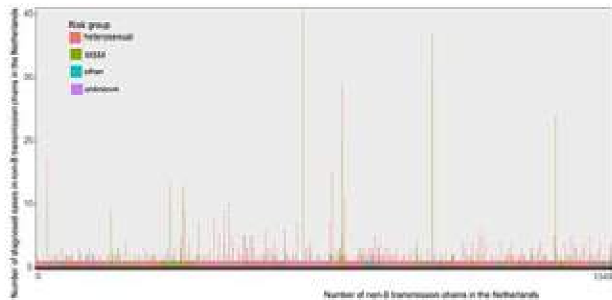
TUPEA005

Many introductions but little transmission of HIV-1 non-B subtypes amongst heterosexuals in the Netherlands

D. Bezemer[1], M. Hall[2], A. van Sighem[1], P. Reiss[1,3], C. Fraser[2], O. Ratmann[4]
[1]HIV Monitoring Foundation, Research, Amsterdam, Netherlands, [2]University of Oxford, Oxford Big Data Institute, Oxford, United Kingdom, [3]Academic Medical Center and Amsterdam Institute for Global Health and Development, Department of Global Health, Amsterdam, Netherlands, [4]Imperial College London, Department of Mathematics, London, United Kingdom

Background: An increasing proportion of newly diagnosed patients is infected with HIV-1 non-B subtypes, but little is known about the number, size, origin and composition of the transmission chains of these patients.

Methods: Viral phylogenetic analysis was used to identify and characterize distinct non-B transmission chains that circulate in the Netherlands. The first available *polymerase* sequence ≥750 nucleotides available per patient in the ATHENA cohort was selected; all available sequences from the Los Alamos National Lab HIV database were used to determine the phylogenetic context of non-B lineages in the Netherlands; and subtype-specific, viral phylogenies were determined with FastTree. Each viral lineage was associated to geographic regions with maximum parsimony based on the location of sequenced individuals, or on self-reported location of HIV acquisition. Dutch subtrees were extracted, and interpreted as distinct transmission chains in the Netherlands.
Results: By June 1st 2015, 9106/23,861 (38%) patients had a sequence available, and 2176 (24%) patients had a non-B subtype strain, of which 2030 in this study. Analysis by sample region had 1349 chains identified in the Netherlands (95%CI:1352-1399), where the majority 92% (1245) consisted of only 1-2 individuals (95%CI: 92-93). The figure illustrates the size of all identified non-B transmission chains in the Netherlands with patients colored by risk group. Ten transmission chains had ≥10 individuals (95%CI: 7-12). Six of these spread predominantly amongst men having sex with men (MSM), included 40% (130/328) of all MSM in the study, 78% of Dutch origin, and 95% reported to be infected in the Netherlands. One cluster of 13 was mixed MSM and heterosexuals. Three large chains included predominantly heterosexuals, and included only 2% (33/1403) of all heterosexuals in this study, 79% of foreign origin, and 56% reported to be infected abroad. Overall 82% of heterosexual in this study reported to be born abroad and 71% to be infected abroad. Only the 6 large national transmission chains amongst MSM were identified when the analysis was performed by region infection.
Conclusions: Viral phylogenetic analysis suggests that HIV-1 non-B infections amongst heterosexuals are predominantly introductions from abroad, whilst a few non-B subtypes formed sub-epidemics amongst MSM in the Netherlands.



[Non-B transmission chains in the Netherlands by size and risk group]

TUPEA006

HIV low level viremia can be caused by production of defective virus

A.J. Stam[1,2], M. Nijhuis[1], S. Loth[1], R. van Crevel[3], J. Rahamat-Langendoen[4], M.A.A. Claassen[5], H.S.M. Ammerlaan[6], J.E. Arends[2], M.E.E. van Kasteren[7], S.F.L. Lelyveld[8], W.F.W. Bierman[9], A.M.J. Wensing[1], LOWERIT Study Team
[1]UMC Utrecht, Medical Microbiology, Virology, Utrecht, Netherlands, [2]UMC Utrecht, Internal Medicine and Infectious Diseases, Utrecht, Netherlands, [3]Radboud University Medical Center, Internal Medicine, Nijmegen, Netherlands, [4]Radboud University Medical Center, Medical Microbiology, Nijmegen, Netherlands, [5]Rijnstate Hospital, Internal Medicine, Arnhem, Netherlands, [6]Catharina Hospital, Internal Medicine, Eindhoven, Netherlands, [7]Sint Elisabeth Hospital, Internal Medicine, Tilburg, Netherlands, [8]Spaarne Gasthuis, Internal Medicine, Haarlem, Netherlands, [9]University Medical Center Groningen, Internal Medicine, University of Groningen, Groningen, Netherlands

Background: A minority of HIV-infected patients demonstrate persistent low level viremia (LLV) despite the use of cART. It is still unclear if LLV is the consequence of viral production by activated HIV-infected cells, ongoing viral replication in sanctuary sites with suboptimal drug penetration, or both. It is important to distinguish between production and replication because ongoing viral replication and evolution may result in treatment failure.
Methods: The Dutch multicenter observational LLV cohort study (LOWERIT) intensively evaluated 31 patients with persistent LLV despite effective therapy and adherence counseling. LLV is defined as multiple viral loads (VL) between 50-1000cp/mL, at least one VL < 200cp/mL after at least 48 weeks of cART. At entry of the cohort all patients were switched to a boosted darunavir containing regimen for a duration of 48 weeks. Four subjects with persistent LLV at baseline, week 4 and week 8 or 12 were further investigated. VL was performed by standard diagnostics assays. RNA was isolated according to a LLV protocol using higher plasma inputs varying from 1.0 to 6.0 mL depending on VL, ultracentrifugation, followed by a RT-PCR of *pol* and Sanger sequencing of reverse transcriptase and protease genes.
Results: Four patients with a median age of 49 (range 45-51) years and median viral loads of 210cp/mL (baseline), 379cp/mL (week 4) and 201cp/mL (week 8/12) had their virus genotyped. There were no evident signs of HIV evolution and as such no selection of drug resistance was observed. Remarkably, in two patients with VL around 200cp/mL the viral population consisted of defective viruses. In one patient a protease active-site mutation was observed and in the other patient multiple stop codons in reverse transcriptase were detected.
Conclusions: Unexplained LLV despite active adherence counseling, effective therapy and frequent follow-up can be a consequence of production of defective HIV. The use of Sanger sequencing according to a low level viremia protocol can be a valuable tool to immediately distinguish between production and replication. Although residual viral replication could not be ruled out in the majority of patients, none of them showed clear signs of evolution nor selection of drug resistance.

Viral fitness and resistance

TUPEA007

Pol replicative capacity impacts disease progression in HIV-1 subtype C infection: Implications for vaccine design

D. Ojwach[1], T. Ndung'u[1,2,3], J. Mann[1]
[1]University of KwaZulu-Natal, HIV Pathogenesis Programme, Doris Duke Medical Research Institute, Durban, South Africa, [2]African Health Research Institute, Durban, South Africa, [3]Ragon Institute of MGH, MIT and Harvard, Massachusetts General Hospital and Harvard Medical School, Boston, United States

Background: CD8+ T cell mediated escape mutations can reduce viral replication and alter HIV-1 disease progression. We investigated the impact of immune-driven sequence variation in Pol, a highly conserved and immunogenic protein essential for viral replication, on viral replication capacity (RC) and disease progression in a large population of individuals infected with HIV-1 subtype C, the most prevalent subtype world-wide.
Methods: 487 patient-derived RT-integrase NL4-3 recombinant viruses were generated by electroporation of a green fluorescent reporter cell line (GXR cells) with plasma-derived *RT-integrase* PCR products and pNL43Δ*RT-integrase.* The replication capacities (RC) of recombinant viruses were determined by calculating the slope of increase in percentage infected cells, as measured by flow cytometry, from days 3-6 following infection.
Results: RT-integrase driven RC correlated significantly with viral load (r=0.28; p<0.0001) and CD4+T cell count (r=-0.27; p<0.0001) for the chronically infected patients and with subsequent viral load set point (r=0.28; p=0.02) and CD4+ T cell decline for the recently infected patients (p=0.013). Interestingly, 108 sequences had 51 additional base pairs compared to HXB2 and displayed significantly lower RC (p=0.0047). An analysis of the relationship between RT-integrase RC and host expression of HLA alleles, showed that HLA-A*3009 (n=5, p=0.048, q=0.07) and HLA-A*3303 (n=10, p=0.07, q=0.12) in the chronic infection cohort and HLA-A*26 (n=6, p=0.08), HLA-B*81(n=5, p=0.05) and HLA-B*07(n=6, p=0.02) in the recent infection cohort, were associated with decreased RC. In the recent infection cohort, increasing numbers of integrase HLA-associated polymorphisms present irrespective of host alleles significantly correlated

with lower RC (*r*=-0.25, *p*=0.024) and the association was stronger when limited to those in A list epitopes (*r*=-0.43, *p*<0.0001).Similar findings were observed with viral load set point suggesting that most HLA-associated polymorphisms that naturally arise in integrase lower RC. In the codon by codon analysis, the most pronounced decreases in RC were at Pol codons 396, 412, 427, 452,916 and 923.
Conclusions: The data suggest that RT-integrase-driven RC is clinically relevant. We identified immune-driven mutations in Pol that may significantly attenuate HIV. These data may inform which Pol epitopes are the most vulnerable for an attenuation-based vaccine.

TUPEA008

Evidence of high-level Raltegravir (RAL) resistance in patients from South Africa failing second-line antiretroviral therapy (ART)

A.E.A. Obasa[1,2], M. Classen[3], R. Cloete[4], K. Singh[2,5], U. Neogi[2], G. Jacobs[6]
[1]Stellenbosch University, Medical Virology, Cape Town, South Africa, [2]Division of Clinical Microbiology, Karolinska Institute, University of Stockholm, Department of Laboratory Medicine, Stockholm, Sweden, [3]National Health Laboratory Service (NHLS) Tygerberg, Department of Pathology, Cape Town, South Africa, [4]University of the Western Cape, South African Medical Research Council Bioinformatics Unit, South African National Bioinformatics Institute, Cape Town, South Africa, [5]University of Missouri, Department of Molecular Microbiology and Immunology and Christopher Bond Life Sciences Center, Missouri, United States, [6]Stellenbosch University, Pathology, Cape Town, South Africa

Background: South Africa has the largest HIV combination antiretroviral therapy (cART) roll-out program worldwide, currently accessible to approximately 3.4 million people. Resistance-associated mutation (RAMs) against antiretroviral inhibitors is a major challenge to the success of cART. HIV-Integrase (IN) has proven to be a viable target for highly specific HIV-1 therapy. There are currently three FDA-approved IN inhibitors (INIs): Raltegravir (RAL), Elvitegravir (EVG) and Dolutegravir (DTG).
Methods: Our diagnostic section at the Division of Medical Virology, Stellenbosch University and National Health Laboratory Services (NHLS), routinely screens for HIV-1 drug RAMs through the characterization of viral strains through analyses of the viral protease (PR) and reverse transcriptase (RT) gene. During this screens, the HIV-1 IN gene was used to analyse RAMs. Plasma samples were obtained from patients failing 2nd line cART and are currently receiving IN inhibitors (INIs). Samples were analysed by nested PCR and population-based conventional Sanger sequencing on the IN gene. RAMs were confirmed using Stanford HIV Drug Resistance Database.
Results: We analysed 13 patients currently receiving RAL as part of their cART regimen. Analyses revealed RAMs were present in 38% (n=5/13) patients. The most common major mutation was Y143R. Of the five patients with RAMs, four had a T97A accessory mutation in combination with major mutation Y143R confers high level of resistance to RAL, and are likely to be associated with low levels of EVG resistance. However, these mutations do not confer resistance to second-generation DTG, which was observed in 30.79% of samples (n=4/13). Genotypic analyses also revealed the absence of major and accessory RAMs at the rate of 53.8% (n= 7/13) and do not confer resistance to INIs.
Conclusions: In the absence of a cure for HIV, long-term cART outcomes need to be monitored effectively for maximum efficiency. RAMs lead to therapy escape mutants, which can ultimately cause cART failure. In the South African context, INIs are potentially a viable option for salvage therapy. Of importance, no major resistance to second-generation DTG were detected. However, there is still a need for the surveillance of the RAMs and ensure that patients receive the best possible treatment and care.

Entry (attachment, receptors and co-receptors, penetration and tropism)

TUPEA009

HIV-1 utilizes cellular galectin-3 to facilitate virological synapse mediated viral transmission and infection among CD4+ T cells

R.-Y. Yuan[1], C.-S. Yeh[1], W.-H. Wang[2], Y.-M.A. Chen[3], H.-Y. Chen[4], F.-T. Liu[4], S.-F. Wang[1,5]
[1]Kaohsiung Medical University, Department of Medical Laboratory Science and Biotechnology, Kaohsiung, Taiwan, Province of China, [2]Kaohsiung Medical University Hospital, Division of Infection Disease, Department of Internal Medicine, Kaohsiung, Taiwan, Province of China, [3]Kaohsiung Medical University, Center for Infectious Disease and Cancer Research, Kaohsiung, Taiwan, Province of China, [4]Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan, Province of China, [5]Kaohsiung Medical University Hospital, Kaohsiung Medical University, Department of Medical Research, Kaohsiung, Taiwan, Province of China

Background: Galectin-3 (Gal-3) is a -galactoside-binding lectin with multiple functions. Limited information is available regarding the role of Gal-3 in HIV-1 infection. We previously reported that Gal-3 promotes HIV-1 budding and Gal-3 was localized in immunological synapse (IS) as well as membrane lipid rafts. Several components for IS formation were known to be involved in VS formation, such as lipid raft and LFA-1. Accordingly, we hypothesized that cellular Gal-3 may play a role in VS mediated HIV-1 transmission and infection.
Methods: Gal-3 control and knockdown primary human CD 4+ T cells were generated using RNAi. Immunofluorescence staining and immunoblotting were used for evaluating VSs formation and their associated components colocalization with Gal-3. Membrane flotation and laurdan staining were performed to evaluate Gal-3 regulatory effects on polarization of membrane lipid rafts, LFA-1 and HIV viral proteins. Cell-to-Cell transmission and confocal live image observation were conducted to validate VSs formation and HIV cell-cell transmission efficacy correlated with Gal-3 expression. Mass spectrometry was performed to search the potential Gal-3 regulatory components relevant to VSs formation.
Results: Immunofluorescence staining and immunoblotting indicate that HIV-1 infection up-regulated Gal-3 expression and Gal-3 was colocalized with Gag, Env, Alix, CD4, LFA-1 at the lipid rafts(GM1) of cell-cell contact regions of primary CD4+ T cells. Gal-3 knockdown significantly reduced the colocalization of these proteins and VSs formation(~20% reduction) (p< 0.05). Membrane flotation data indicates that Gal-3 expression promoted colocalization and engagement of Gag, Env, LFA-1, Alix and flotinin-1(lipid raft marker) in lower sucrose density fractions. Laurdan staining results indicate significant higher lipid raft polarization toward intercellular contact regions in Gal-3 expressing CD4+ T cells(p< 0.001). Live image observation showed that Gal-3 associated with Gag from HIV-1 infected donor cells to the uninfected target cells via VSs. Cell-to-Cell transmission data indicates that Gal-3 knockdown in primary CD4+ T cells significantly reduced VS mediated HIV-1 transmission(p< 0.01). Mass spectrometry analyses indicate that cholesterol, sphingomyelin and phosphatidylcholine significantly ameliorated in Gal-3 knockdown CD4+ T cells compared with control groups(p< 0.01).
Conclusions: This study indicates that HIV-1 infection up-regulates Gal-3 to be utilized for facilitating VSs formation as well as HIV-1 cell-cell contact transmitted infection.

Viral replicative cycle (reverse transcription, integration, viral assembly and maturation)

TUPEA010

Analysis of the HIV-1 diversity in the remote areas of the Cape Winelands, Overberg and West Coast districts of the Western Cape Province of South Africa

S.G. Mikasi[1], B.G. Jacobs[2], S. Engelbrecht[2]
[1]Stellenbosch University, Pathilogy, Cape Town, South Africa,
[2]Stellenbosch University, Pathology, Cape Town, South Africa

Background: South Africa, with 7.1 million people infected, has the largest HIV-1 population worldwide, whilst approximately 3.4 million people are currently receiving combination antiretroviral therapy (cART). Although HIV-1 subtype C predominates in the region, we have seen an increased detection of non-C and unique recombinant form viral strains within the Western Cape Province. The emergence of HIV-1 drug resistant strains in South Africa is inevitable as cART coverage continues to increase.
Methods: In this study we analyzed the Protease (PR), Reverse Transcriptase (RT) and Intergrase (IN) regions of HIV-1 for diversity and resistance-associated mutations (RAMs) with a laboratory based PCR and Sanger Sequencing protocol. Two hundred HIV-1 viral load (VL) samples, from the Cape Winelands, West Coast and Overberg districts of the Western Cape Province were received from the National Health Laboratory Services (NHLS), with a VL of 2000 copies/ml and above. Sequence-specific subtype analyses were executed with the REGA HIV subtyping tool 3.0. Sequences were screened for RAMs using the Stanford University HIV Drug Resistance Database (HIVdb) 8.1.
Results: We successfully PCR amplified 170 (82.9%) PR, 166 (80.9%) RT and 143(81.3%) IN fragments. We could successfully sequence 173 (84.4%) of the samples included. HIV-1 subtype C was predominant (n = 144; 93.7%), with 5.3% of other subtypes detected. This includes A1 (n = 2; 1.3%), B (n = 4; 2.6%), D (n = 1; 0.7%) and H (n =1; 0.7%). No major RAMs were detected against PR and IN inhibitors. Minor RAMs were detected in 4 PR (3.7%) and 15 IN (16.1%) sequences analysed. RAMs against RT inhibitors were detected in 63 (61.7%) of the sequences analyzed.
Conclusions: As the national cART program continues to expand, HIV-1 diversity, viral load monitoring and drug resistance screening remains critical to the success of cART outcomes and reducing transmission rates. Subtype C is still the driving force of the epidemic in South Africa. Sequence analyses confirm that the majority of patients receiving VL testing have major RAMs against RT inhibitors used in first-line cART. Better surveillance systems for HIV diversity and drug resistance testing are required to ensure optimal success of cART.

TUPEA011

Resolving the intersection of HIV and the actin cytoskeleton

A. Ospina Stella, A. Aggarwal, S. Turville
The Kirby Institute, Sydney, Australia

Background: Direct cell-to-cell transmission of HIV is orders of magnitude more efficient than infection by cell-free virus, and is now recognized as a major mode of viral spread. Since this mechanism is strongly dependent on host cell motility and intercellular interactions, HIV uses multiple strategies to hijack the cellular actin cytoskeleton. Manipulation of actin dynamics leads to cell-type specific changes in leukocyte shape and behaviour that, together, promote overall spread of the infection. However, the involved mechanisms remain poorly understood at the molecular level.
Methods: Our study follows a systematic approach to evaluate the contribution of host actin regulatory proteins in the context of cell-cell HIV spread and cytoskeletal manipulation. To this end, we combined the power of CRISPR/Cas9 gene edition with high-resolution fluorescence microscopy, live cell imaging and self-developed viral transfer assays, to interrogate the loss-of-function phenotype of over 50 cytoskeletal regulators in infected myeloid cells (U937).
Results: Our results confirmed striking and versatile manipulation of the cytoskeleton by HIV, in particular via Rac1 and Cdc42 activated pathways. We also show the involvement of direct actin regulators in HIV-driven shifting of cellular actin pools into diverse membrane protrusion structures associated with cell motility and cell-cell contacts (e.g. Formins = filopodia, Arp2/3 = veils, Wave2 = pseudopodia). Furthermore, we partially characterize the mechanisms by which certain regulators enhance or decrease cell-cell viral transfer (e.g. Dia2, Rac1, cofilin, among others).
Conclusions: Our findings contribute to resolving the complex interactions between HIV and our cytoskeleton. The systematic nature of our study, combined with the use of cell types that are biologically relevant for HIV and of methods that allow total target-protein depletion, represent novel contributions to this field. A better understanding of these processes increases our ability to identify host proteins, rather than viral components, that can be targeted in the fight against HIV.
This not only reduces the probability of drug resistance, but also allows to capitalize resources from other areas of medical research (e.g. aberrant Rac1 activation is shared by all; HIV infection, cardiovascular/neurodegenerative disease and cancer).

Transcriptional and gene expression regulation (including regulatory genes)

TUPEA012

Analysis of Vpu-mediated CD4 and tetherin downregulation across major HIV-1 group M subtypes

G. Umviligihozo[1], K. Cobarrubias[1], S. Chandrarathna[1], N. Reddy[2], H. Byakwaga[3], C. Muzoora[3], B. Bwana[3], G. Lee[4], P.R. Harrigan[5], T. Ndung'u[2], P. Hunt[5], J. Martin[6], D. Bangsberg[7], Z.L. Brumme[1], M. Brockman[1]
[1]Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada, [2]University of Kwazulu Natal, Durban, South Africa, [3]Mbarara University of Science and Technology, Mbarara, Uganda, [4]BC centre for Excellence in HIV/AIDS, Vancouver, Canada, [5]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada, [6]University of California, San Francisco, United States, [7]Oregon Health Sciences University, Portland, United States

Background: Downregulation of CD4 and tetherin by the HIV-1 Vpu protein allows virus-infected cells to evade host immunity and promotes viral egress; however, little is known about the functional diversity of Vpu among HIV-1 subtypes.
Methods: Plasma samples were collected from chronic ART-naive HIV-infected individuals from Uganda and Canada. HIV-1 RNA was extracted and Vpu sequences amplified by nested RT-PCR. Amplicons were cloned into an expression vector that features separate promotors driving Vpu and GFP. Vpu clones were functionally assessed by flow cytometry for their abilities to downregulate CD4 and tetherin following transfection into an immortalized CD4+ CEM T-cell line. Each Vpu activity was normalized to that of negative (empty vector, set to 0) and positive (Vpu NL4-3 strain, set to 1.0) controls, such that values below 1.0 indicate reduced function. Vpu sequence polymorphisms associated with functional variation were identified using codon analysis based on Mann-Whitney statistics.
Results: A genetically diverse panel of 238 Vpu sequences was cloned and phylogenetically authenticated. Clones represented four major group M subtypes (A [n=48], B [89], C [18] and D [72]) as well as 1 H and 10 CRFs. The in vitro function of 212 Vpu clones was assessed. Normalized downregulation activity (median [IQR]) was 1.04 [0.95-1.17] for CD4 and 0.92 [0.86-0.96] for tetherin. Significant differences were observed between Vpu clones from different subtypes for downregulation of CD4 ($p=0.005$, Kruskal-Wallis) but not tetherin ($p=0.2$). Overall, subtype B clones displayed better in vitro CD4 downregulation function compared to clones from the other subtypes. Multiple Vpu amino acids were associated with variation in CD4 and tetherin downregulation function ($p<0.05$), which differed between subtypes.

Conclusions: Our results highlight the extent to which global HIV-1 sequence diversity may impact critical Vpu functions. Analysis of natural polymorphisms associated with Vpu function may identify novel motifs associated with natural variation in protein activity that contribute to differences in the disease outcome.

TUPEA013

HIV-1 p55^{Gag} interaction with Dicer induces a dysregulation of specific micro RNAs and other small non-coding RNAs

S.P. Alpuche-Lazcano[1], A. Daher[2], E. Rance[1,2], A.J. Mouland[1,2], A. Gatignol[1,2]
[1]McGill University, Experimental Medicine, Montreal, Canada, [2]Lady Davis Institute, Montreal, Canada

Background: Human immunodeficiency virus type 1 (HIV-1) p55^{Gag} polyprotein is the minimal component required for the virus assembly. During the HIV-1 replication cycle, p55^{Gag} interacts with different cellular RNAs and proteins, possibly disrupting several cellular pathways. RNA interference (RNAi) is a post-transcriptional gene silencing process in mammalian cells that controls cell differentiation, development, and immunity. The RNA Induced Silencing Complex (RISC) is composed of Dicer, TRBP, and Ago2 proteins that mediate the formation of micro RNAs (miRNAs), which target mRNAs. The RNAi pathway is functional during HIV-1 replication, but its activity can be modified. Our hypothesis is that subtle modifications may lead to the modifications of miRNAs processing or activity, and consequently of mRNA levels. Our objectives are to:
1) identify interactions between HIV-1 proteins and components of the RNAi pathway and
2) characterize how these interactions induce modifications in the quantity and quality of miRNAs and other non-coding RNAs.
Methods: We used indirect immunofluorescence, Proximity Ligation Assay (PLA) and co-immunoprecipitation (co-IP) to characterize protein-protein interactions. We determined the cleavage capacity of Dicer using a catalytic assay with miRLet7-c and mir29a. We identified miRNAs and other small RNAs bound to Dicer by using RNA immunoprecipitation and sequencing (RIP-seq) followed by bioinformatics analysis.
Results: We identified that HIV-1 p55^{Gag} co-localizes with Dicer by immunofluorescence on a confocal microscope. By co-immunoprecipitation, we show that the two proteins interact in an RNA-independent fashion. By PLA, we determine that p55^{Gag} -Dicer interaction occurs mainly in the cytoplasm and we quantify the interaction (P< 0.001). Our results show that Dicer catalytic activity is not impaired by p55^{Gag} for the amount or size of miRNAs Let7-c and miR29a. Sequencing analysis shows a dysregulation of the production of specific miRNAs and other small ncRNAs when p55^{Gag} interacts with Dicer.
Conclusions: We have demonstrated by different methods that HIV-1 p55^{Gag} interacts with Dicer. RIP sequencing analysis shows that p55^{Gag} interaction with Dicer changes the binding of several miRNAs and ncRNAs to Dicer, indicating a dysregulation of the incorporation of these miRNAs in the RISC. Our data contribute to the understanding of how HIV-1 can alter cellular gene expression.

Innate immunity

TUPEA014

DDX3 senses abortive HIV-1 RNA transcripts and enhances immunity against HIV-1

M. Stunnenberg, S. Gringhuis, T. Geijtenbeek
Academic Medical Center, Experimental Immunology, Amsterdam, Netherlands

Background: Antiviral immune responses are paramount in limiting HIV-1 replication. However, antiviral immune responses are actively inhibited since the virus blocks viral sensing by RNA sensors. Recently, it was discovered that novel RNA helicase DDX3 senses HIV-1. Interestingly, upon HIV-1 infection the virus integrates in the host genome and during transcription initiation of the virus, abortive HIV-1 RNA transcripts are formed. Abortive HIV-1 RNAs are transported out of the nucleus and are sensed by DDX3, which subsequently results in the induction of antiviral IFN and interferon-stimulated genes (ISGs). Whether abortive RNAs can also induce other innate and adaptive immune responses remains unknown. Studying the effect of DDX3 targeting in immune cells can provide new insights for vaccine design strategies.
Methods: We investigated innate and adaptive immune responses of human monocyte-derived dendritic cells (DCs) upon stimulation with various abortive RNA ligands of DDX3. We studied whether triggering of DDX3 with synthetic abortive HIV-1 RNA constructs induces antiviral IFN and ISGs, DC maturation and limit viral replication capacity. This was examined by qPCR and flow cytometry techniques.
Results: Here we show that triggering DDX3 by synthetic HIV-1 abortive RNA induces antiviral innate and adaptive immunity in human DCs. Upon stimulation with abortive HIV-1 RNA, DCs show IFN-dependent maturation by increased CD86 expression levels. In addition, stimulation of DCs with abortive RNA leads to the activation of adaptive immune responses by inducing various cytokines. Strikingly, stimulation with abortive HIV-1 RNA strongly inhibits replication capacity of HIV-1 infected DCs. These findings show that triggering of the HIV-1 sensor DDX3 with abortive viral transcripts induces antiviral innate and adaptive immunity.
Conclusions: We identified HIV-1 sensor DDX3 as key player in the induction of antiviral immunity by (i) activation of IFN and ISG responses, (ii) induction of DC maturation, (iii) induction of adaptive cytokines and iv) decreasing viral replication capacity. Triggering of DDX3 could direct T helper skewing towards a type I immune response. Therefore, triggering this HIV-1 sensor is important to activate both innate and adaptive immunity against HIV-1 and targeting of DDX3 is important for vaccine design.

TUPEA015

Antiretroviral therapy effect on lymphocyte numbers and phenotypes in HIV infected children

J.T. Orikiiriza[1,2,3], B. Kikaire[3], R. Nabatanzi[4], J. Nakawesi[5], D. Turitwenka[2], A. Kambugu[2], M. Lamorde[2], F. Mubiru[2], J. Normark[6], J. Achan[7], V. Musiime[8], F. Lithander[9], A. Mullen[10], M. Hennessy[11], D.G. Doherty[3]
[1]Rwanda Military Hospital, Pediatrics, Kigali, Rwanda, [2]Infectious Diseases Institute Makerere College of Health Sciences, Research, Kampala, Uganda, [3]Trinity College Dublin, Immunology, Dublin, Ireland, [4]Makerere University, Molecular Immunology, Kampala, Uganda, [5]Mildmay Uganda, Pediatrics and Child Health, Kampala, Uganda, [6]Umeå University, Clinical Microbiology, Umeå, Sweden, [7]Medical Research Council Unit, Research, Banjul, Gambia, [8]Makerere University College of Health Sciences, Pediatrics and Child Health, Kampala, Uganda, [9]University Hospitals Bristol NHS Foundation Trust and University of Bristol, NIHR Bristol Biomedical Research Centre (Nutrition Theme), Bristol, United Kingdom, [10]School of Medicine, King's College London, Diabetes and Nutritional Sciences Division, London, United Kingdom, [11]Trinity College Dublin, Pharmacology and Therapeutics, School of Medicine, Dublin, Ireland

Background: Antiretroviral therapy (ART) leads to restoration of $CD4^+$ T cells however, the effect on other T cell subsets has not been studied in HIV infected children. Our objective was to investigate the effect of ART on circulating lymphocyte numbers and phenotypes in HIV infected Ugandan children.
Methods: Peripheral blood mononuclear cells were prepared from 34 ART-naïve and 40 ART-experienced malnourished children and from 27 ART-naïve and 43 ART-experienced well-nourished children (WNC) with HIV infection. Malnutrition was defined as weight-for-height z score below 2 standard deviations of that expected for age or mid-upper arm circumference < 12.5 cm with no edema. ART-experienced children had received ART for ≥ 6 months. Cells were stained with monoclonal antibodies specific for CD3, CD4, CD8, CD19, CD56 and the V24J18, V1, V2, and V3 T cell receptors. Frequencies and absolute counts of $CD4^+$, $CD8^+$, $CD4^-CD8^-$ (double negative, DN) and $CD4^+CD8^+$ (double positive, DP) T cells, B cells, natural killer (NK) cells, invariant natural killer T (iNKT) cells and the V1, V2 and V3 subsets of T cells were assessed using multicolor flow cytometry and data analysis by Prism version 7.
Results: $CD4^+$ T cell frequencies and numbers were significantly higher in both malnourished (P≤0.0001 and 0.0002, respectively) and WNC (P=0.0003 and 0.05) who received ART compared to ART-naïve children.

While absolute numbers of NK cells were lower in the ART-experienced malnourished children compared to ART-naïve malnourished children (P=0.03) and absolute numbers of B cells were lower in ART-experienced WNC compared to ART-naïve WNC (P=0.02). Interestingly, the frequencies and absolute numbers of DN T cells were significantly reduced in both malnourished (P=0.06 and 0.03) and WNC (P=0.0002 and 0.0001) on ART compared to their ART-naïve counterparts. The frequencies and numbers of V1 T cells were lower in ART-experienced malnourished (P=0.02 and 0.02) children compared to ART-naïve malnourished children. CD8+ T cells, DP T cells, iNKT cells, V2 and V3 T cells were found at similar frequencies and numbers in ART-naïve and ART-experienced patients from both cohorts.

Conclusions: ART efficiently promotes recovery of CD4+ T cell repertoire in malnourished and WNC but inversely affects innate T cell populations.

TUPEA016

Neutrophil dynamics during the highly pathogenic SIVsab infection of pigtailed macaques

E. Brocca Cofano[1,2], H. Tianyu[1,2], R. Sivanandham[1,2], B.B. Policicchio[1,3], P. Sette[1,2], T. Dunsmore[1], G.S. Haret-Richter[1,2], A. Landay[4], C. Apetrei[1,5,6], I. Pandrea[1,2,6]

[1]University of Pittsburgh, Center for Vaccine Research, Pittsburgh, United States, [2]University of Pittsburgh, Pathology, Pittsburgh, United States, [3]University of Pittsburgh, Department of Microbiology and Molecular Genetics, Pittsburgh, United States, [4]Rush University Medical Center, Chicago, United States, [5]University of Pittsburgh, Microbiology and Molecular Genetics, Pittsburgh, United States, [6]University of Pittsburgh, Microbiology and Infectious Diseases, Pittsburgh, United States

Background: Neutrophils are key contributors to the innate immunity. They are rapidly mobilized at the site of infection and fight pathogens through phagocytosis, killing of the infected cells or activation of adaptive immune cells. The interaction between platelet and neutrophils is critical for the neutrophil chemotaxis and function at the inflammation sites. During HIV infection, neutrophil counts and function are impaired, which may lead to the increased incidence of opportunistic infection. We investigated the dynamics, proliferation, apoptosis and function of neutrophils in a highly pathogenic SIV infection and the impact of antiretroviral treatment (ART) on these parameters.

Methods: Seventeen pigtail macaques were included. All animal were infected intravenously with 300TCID50 of SIV. After 42 days, all animals received a triple coformulated antiretroviral therapy (ART) containing tenofovir, emtricitabine and dolutegravir (PMPA+FTC+DTG). Neutrophil absolute counts, apoptosis and proliferation were assessed by flow cytometry. T assess phagocytosis and respiratory burst activity, functional assays were performed, measuring PARs and TF expression on neutrophils after LPS and thrombin stimulation. Cytokines secreted by neutrophils post-PMA stimulation were measured by Luminex.

Results: SIV infection induced a significant loss of circulating neutrophils. After ART, neutrophil counts were partially recovered, but did not reach the preinfection levels. High postinfection levels of apoptosis of neutrophils, which persisted post-ART, may be the factor behind neutrophil loss. Significant increases of neutrophil proliferation (Ki-67) occurred early in SIV infection. During late infection, proliferation decreased below the baseline, suggesting a loss of neutrophil replicative capacity. SIV infection significantly decreased phagocytosis and respiratory bust of neutrophils and ART does not provide any short- or long-term benefit. PAR-1 and TF expression on neutrophils increased after LPS stimulation. A clear decrease of neutrophil capacity to secrete cytokines was observed. ART only partially improved neutrophil function.

Conclusions: Significant decrease of neutrophil counts and function occur in SIV infection, and are not restored by ART. Phagocytosis and respiratory burst alterations, together with LPS-dependent increases of PARs and TF may contribute to the tissue damage and coagulation abnormalities observed during SIV infection.

TUPEA017

SAMHD1 has a central role in restricting HIV-1 in macrophages and is responsive to interferons, viral sensing and tyrosine kinase inhibition

M.A. Szaniawski[1], A.M. Spivak[1], T. Hanley[1], A. Bosque[2], J. Alcami[3], M.T. Coiras[3], V. Planelles[4]

[1]University of Utah, Salt Lake City, United States, [2]George Washington University, Washington, United States, [3]Instituto de Salud Carlos III, Madrid, Spain, [4]University of Utah, Pathology, Salt Lake City, United States

Background: Macrophages are susceptible to HIV-1 infection despite abundant expression of a variety of anti-viral host proteins, perhaps most importantly the restriction factor sterile alpha motif domain and histidine/aspartic-acid domain-containing protein 1 (SAMHD1). SAMHD1 is subject to regulation by multiple cyclin-dependent kinases, which inactivate the enzyme by phosphorylation at a specific threonine residue (T592). We investigated the role of SAMHD1 and its phosphodependent regulation in the context of HIV-1 infection in primary human monocyte-derived macrophages, the ability of various interferons (IFN) and FDA-approved tyrosine kinase inhibitors to modulate this process.

Methods: CD14+ monocytes were isolated from whole blood of healthy donors and differentiated for seven days in medium containing 10% pooled human serum. Mature, adherent macrophages were incubated with various interferons or pharmacologic agents, then analyzed for SAMHD1 protein and T592 phosphorylation or infected with HIV-1. To determine the role of SAMHD1-mediated, IFN-induced HIV-1 restriction, cells were treated with exogenous deoxynucleosides or virus-like particles containing the SIV protein, Vpx.

Results: We show that stimulation by types I, II, and III interferons converge upon activation of SAMHD1 via dephosphorylation at Threonine-592 and do not exert their effect through changes in SAMHD1 protein levels. The IFN-induced anti-viral state was phenocopied by incubation with Dasatinib, a tyrosine kinase inhibitor, which resulted in dephosphorylation of SAMHD1 and profound protection from infection. While IFN-induced dephosphorylation of SAMHD1 correlated with transcriptional downregulation of the cyclin dependent kinase-1, dephosphorylation in response to Dasatinib was effected through a different mechanism.

Conclusions: This study shows that SAMHD1 activation, and not protein induction, is the major effector function induced by types I, II, and III IFN signaling in macrophages, and presents a pharmacologically actionable target through which HIV-1 infection can be subverted. We also show that CDK1 is the main kinase acting on SAMHD1 in primary macrophages. Additionally, regulation of SAMHD1 can be achieved through specific FDA-approved tyrosine kinase inhibitors that very potently restrict infection.

TUPEA018

Evidence for elevated inflammation in young gay and bisexual men

E. Morgan[1], H. Taylor[1], D. Ryan[1], R. D'Aquila[2], B. Mustanski[1]

[1]Northwestern University, Medical Social Sciences, Chicago, United States, [2]Northwestern University, Medicine, Chicago, United States

Background: Young men who have sex with men (YMSM), compared to their heterosexual counterparts, have been found to experience elevated levels of systemic inflammation. Prolonged exposure to increased inflammation has been associated with multiple comorbidities such as cardiovascular disease, diabetes, and cancers. Developing a better understanding of how inflammation varies among YMSM, particularly in the context of HIV infection, is a critical first step towards reducing systemic inflammation and averting its associated comorbidities.

Methods: Data were collected as part of the RADAR cohort of YMSM (aged 16-29) in Chicago from 2015-2017. HIV-positive participants were matched 1:1 with an HIV-negative participant based on demographic factors. C-reactive protein was assayed for all HIV-positive and matched HIV-negative participants. Cytokine panels (GM-CSF, IL-15, VEGF, MIP-1A, MIP-1B, IFN-G, IL-10, IL-12P70, IL-1B, IL-6, TNF-A) were completed for all HIV-positive participants and a subset of the HIV-negative partici-

pants. Pearson's correlation coefficients and adjusted linear regressions were utilized to assess the relationship between sexual risk behaviors and all biomarkers for inflammation.
Results: Among 1,031 RADAR participants, 148 (14.4%) were identified as HIV-positive. No difference in CRP was observed between those infected and uninfected with HIV. HIV status was negatively associated with IL-15 (p< 0.001) and positively associated with VEGF (p< 0.001), IL-12p70 (p< 0.01), IL-1B (p< 0.001), and TNF-A (p< 0.001). CRP was significantly associated with BMI (p< 0.01), however, it was not associated with drug or alcohol use, rectal gonorrhea or chlamydia, viral load, nor anti-retroviral therapy use. Psychosocial factors (e.g. depression, perceived stigma, etc) were minimally associated with VEGF, IFN-G, and IL-12p170, but not with CRP. In adjusted linear regression models, any receptive anal sex and any condomless receptive anal sex were both found to be significantly associated with IL-6 but not CRP.
Conclusions: In this analysis, we observed few significant associations with biomarkers of inflammation among YMSM. These findings suggest that factors responsible for elevated systemic inflammation among this population may be more complicated than previously thought. Further research needs to be conducted in this population to understand this phenomenon and to mitigate associated comorbidities.

Humoral immunity (including broadly neutralizing antibodies)

TUPEA019

Neutralizing antibody response in HIV-1 CRF02_AG infected subjects

A.J. Nanfack[1,2], G. Ambada[1], C. Courtney[2], A. Ndjolo[1], R. Duerr[2]
[1]Chantal Biya International Reference Center (CIRCB), Immunology and Microbiology, Yaounde, Cameroon, [2]New York University School of Medicine, Pathology, New York, United States

Background: One of the greatest challenges in the HIV-1 vaccine field remains the design of immunogens able to elicit antibodies that can neutralize diverse HIV-1 strains. Neutralizing antibodies are a critical component of the protective immunity required for developing an effective HIV-1 vaccine. In addition, it is necessary to design vaccine antigens which induce a potent and broadly neutralizing antibody response against various HIV-1 strains. So far, neutralizing Ab studies have mainly covered subtypes B and C. Here we evaluate neutralizing Ab response in HIV-1 CRF02_AG which is the most prevalent subtype in Cameroon.
Methods: Samples longitudinally collected (spanning on 7 years, 2001 - 2008) from 5 patients infected with HIV-1 CRF02-AG (ART naive) were used for this study. We assessed their breath and potency for heterologous neutralization. We performed TZM-bl neutralization assay using 2 primary viruses (both HIV-1 CRF02_AG), one tier1B (Bal26) and five tier2 (T250, Q23.17, Tro.11, Zm249 and X2131) viruses. Neutralization curves were shown as nonlinear regression fits calculated in GraphPad Prism. IC50 values were determined in the fitted curves for the reciprocal plasma dilutions at 50% neutralization.
Results: Neutralization responses remained weak for all the longitudinal plasma samples with IC50 values not exceeding 39 (plasma dilution) for primary viruses. One patient out of five exhibited a good neutralizing response for all the time points and to almost all the pseudovirus tested; particularly for Bal26 (222≥IC50≥588), Q23.17 (118≥IC50≥222) and X2131(93≥IC50≥322). The neutralizing responses for other patients were very contrasting depending to the pseudovirus tested; moderate response was observed for two patients for X2131 (IC50≥200) while others had IC50 ≤75. T250 was the most difficult pseudovirus to neutralize with the highest IC50 at 145 while Bal 26 was the easiest to neutralize with IC50>500. None of the patient was able to neutralize MLV-env pseudotyped HIV-1, thus confirming that none of the patients were receiving ART at the time of plasma isolation.
Conclusions: We have provided the initial insight into neutralizing breath and potency of HIV-1 CRF02_AG, therefore delivering valuable information into factors that might be mandatory for successful vaccine aiming at eliciting broad neutralizing antibodies against HIV.

TUPEA020

Broadly neutralizing antibodies and their specificities in chronic HIV-1 subtype C infection

K. Robertson[1], B. Ndlovu[1], L. Morris[2], P. Moore[2], T. Ndung'u[1]
[1]University of KwaZulu Natal, HIV Pathogenesis Programme, Durban, South Africa, [2]National Institute for Communicable Diseases, AIDS Virus Research Unit, Johannesburg, South Africa

Background: There is a global need for an effective HIV-1 vaccine and this may be achieved by eliciting broadly neutralizing antibodies (bNAbs). The development of bNabs occurs in only 10-30% of HIV-1 infected individuals. However the mechanism that leads to the development of bNAbs is unknown. The purpose of the study was to identify individuals that developed broadly neutralizing antibodies, determine their specificities on the viral envelope, and characterize the longitudinal kinetics of these bNAbs.
Methods: Twenty antiretroviral naïve individuals with chronic HIV-1 subtype C infection were screened for bNAbs at 3 years post enrolment. A standard panel of 18 HIV-1 pseudoviruses (6 subtype A, 6B and 6C) was used to screen the participants using the TZM-bl luciferase reporter gene assay. To characterize the kinetics of bNAbs over time, the individuals that developed bNAbs were followed up longitudinally for approximately 7 years post enrolment. Plasma viral loads and CD4+T cell counts were measured using Roche Amplicor assay or the Roche Ultrasensitive assay, and Trucount technology respectively. Specificity of the antibodies was determined using site-directed mutagenesis on known bNAb target epitopes.
Results: Forty seven percent of individuals developed bNAbs that neutralized all 18 pseudoviruses. In contrast, 89.5% neutralized at least half of the pseudoviruses. Participant SK008 and SK163 antibodies neutralized with high potency and breadth across heterologous viruses. The antibody longitudinal neutralization profiles illustrated peaks in neutralization, which corresponded to a drop in viral load in participant SK-008. The two participants did not map to the tested epitopes.
Conclusions: A higher than expected percentage of study participants developed bNAbs. Participant SK008 had the highest neutralization capability and should be sequenced longitudinally, along with autologous virus, to assess virus/host co-evolution. Neutralization profiles suggest a switch in antibody specificity and viral escape. Antibodies may be targeting novel epitopes or targeting alternative locations on known epitopes. Data from this study may have relevance to the development of an efficacious HIV-1 vaccine.

TUPEA021

Broadly neutralizing plasma antibodies obtained from an Indian donor with specificity to linear epitopes in V1 and V4 region of viral Env preferentially neutralize HIV-1 clade C

S. Deshpande[1], R. Kumar[1], S. Samal[1], S. Patil[1], T. Shrivastava[1], K.G. Murugavel[2], A.K. Srikrishnan[2], J. Bhattacharya[1,3]
[1]Translational Health Science and Technology Institute (THSTI), HIV Vaccine Translational Research Laboratory (HVTR), Faridabad, India, [2]YRG Care, Chennai, India, [3]International AIDS Vaccine Initiative, New York, United States

Background: Broadly neutralizing antibodies (bnAbs) developed in few individuals infected with HIV-1 are providing viral clues towards design and development of prophylactic and therapeutic vaccines. HIV-1 subtype C which accounts for majority of global infection majorly circulating strain in India.
In an IAVI Protocol G study, we examined the basis of neutralization breadth of plasma antibodies obtained from an anti-retroviral naïve Indian donor chronically infected with HIV-1 subtype C.
Methods: Neutralization breadth of the plasma antibodies was examined using a panel of 50 envelope (Env)-pseudotyped viruses in a TZM-bl assay. Antibody specificities was assessed by using chimeric Envs prepared between sensitive and resistant HIV-1 clade C Envs, depletion by monomeric and trimeric soluble Env proteins and competitive peptide inhibition assay by ELISA and TZM-bl neutralization assay.

Results: The plasma sample with viral RNA load of 50,668 copies/ml was found to neutralize >70% of the panel virus with median ID_{50} of 255.61. Interestingly, the neutralization breadth was found to be associated with HIV-1 clade C. Virus neutralization using chimeric Envs prepared between a sensitive (16055-2.3) Env and a resistant (PG80v1.eJ19) Env, indicate that plasma antibodies have major specificity to V1 and V4 region. Comparable data were obtained using autologous Envs. Significant loss of neutralization breadth of the plasma antibodies was found to be associated with depletion with monomeric gp120. Furthermore, competitive inhibition by different peptide sequences indicated that the neutralization breadth of the plasma antibodies was associated with linear epitopes in V1 and V4 region not reported earlier.

Conclusions: Our study identified discontinuous targets on gp120 associated with enhanced neutralization susceptibility of viruses to plasma of this particular individual. Such information will facilitate rational optimal designing of antigen bait towards successful isolation of bnAbs from this individual and also informed novel vulnerabilities associated with immune evasion in the course of natural infection.

TUPEA022

Generation of immunogens based on virus-like particles carrying HIV-1 envelopes from patients with broadly neutralizing responses within the first 6 months of infection

C. Beltrán-Pavez[1,2], N. González[1], A. Fabra García[3,4], A. Merino Mansilla[1], A. Olvera[5], J.M. Miró[6], C. Brander[5], J. Alcamí[1], E. Yuste[1], V. Sánchez-Merino[4]

[1]Institute of Health Carlos III, ISCIII, National Microbiology Centre, Madrid, Spain, [2]University of Barcelona, Faculty of Pharmacy and Food Science, Barcelona, Spain, [3]Radboud University, Medical Microbiology, Nijmegen, Netherlands, [4]IDIBAPS, Hospital Clinic of Barcelona, Barcelona, Spain, [5]IrsiCaixa. Hospital Germans Trias i Pujol., Badalona, Spain, [6]Hospital Clinic of Barcelona, Barcelona, Spain

Background: It is generally assumed that the induction of broadly neutralizing antibody (bNAbs) requires long periods of antigen exposure, an observation that complicates vaccine design. We have previously reported the identification of patients who displayed broadly neutralizing responses within the first 6 months of HIV infection. We hypothesize that viral envelopes from these patients would be ideal immunogens for bNAb induction. Since additional evidence indicates that native envelope conformation, a lipidic environment and good T-cell responses are required for an efficient induction of bNAbs, we generated HIV-1-Gag virus-like particles (HIV-1-Gag-VLPs) optimized as T-cell immunogens, and carrying HIV-1 envelopes from patients with bNAbs detectable during early stages of infection.

Methods: Plasmas were mapped for recognition of CD4bs, glycans and MPER, by ELISA and neutralization assays. HIV-1 envelopes were amplified and sequenced from plasma viral RNA. Major viral populations were analyzed by Neighbor-Joining, N-GlycoSite and Variable-Region-Characteristics tools. Envelope infectivity was characterized in TZM-bl cells. HIV-1-Gag-VLPs, generated with HIV-1-Gag optimized as a T-cell immunogen, carrying selected envelopes were produced in 293F cells and characterized by electromicroscopy, Western Blot and ELISA.

Results: HIV-1 envelopes from two patients were selected as immunogens: 887 and 936 (96 and 159 d.p.i, respectively), due to the capacity of their sera to neutralize across 4 subtypes (A, B, C and AE), a minor NXS/NXT ratio in N-glysosites and the absence of N332-glycosite. Epitope mapping of plasma from these patients showed recognition of N160 glycosite. Next, we generated expression vectors for these envelopes in which A501C, T605, and L535M mutations were added to stabilize trimers. Pseudotyped viruses generated with these envelopes were infectious, confirming trimer functionality. HIV-Gag-VLP characterization showed a spheric shape and 130 nm in diameter. In addition, VLPs efficiently incorporated both envelopes, and trimers were detected. Finally, antigenic characterization showed that VLPs expressed a significant amount of envelope that is recognized by trimer-specific antibodies (PGT151 and PGT145).

Conclusions: We generated HIV-1-Gag VLPs optimized as T-cell immunogens that incorporate, in a native conformation, HIV-1 envelopes from two patients who show broadly neutralizing responses in early infection. These vaccine prototypes are promising immunogens to reproduce the induction of bNAb in recent infection by vaccination.

TUPEA023

Identification of VRC01-like neutralizing antibody response in HIV-1 subtype C infected individuals from Southern India

P. Nandagopal[1], J. Bhattacharya[2], A.K. Srikrishnan[1], G. Rajat[3], C.R. Swathirajan[1], S. Saravanan[1], R. Vignesh[1], S.S. Solomon[1,4], S. Nikhil[3], M. Joyeeta[3], C. Shweta[3], K.G. Murugavel[1]

[1]YRG Center for AIDS Research and Education, Chennai, India, [2]Translational Health Science & Technology Institute (THSTI), HIV Vaccine Translational Research Laboratory, Faridabad, India, [3]International AIDS Vaccine Initiative (IAVI), New Delhi, India, [4]Johns Hopkins University School of Medicine, Baltimore, United States

Background: Identification of VRC01and other VRC01-like antibodies has been a breakthrough in the field of broadly neutralizing antibodies (bNAbs) owing their strong neutralization profile and enhanced efficacy. These CD4bs-binding antibodies are elicited only in a few individuals and have mostly been isolated from HIV-1 subtype B infected individuals. There are very few reports on the prevalence of VRC01-like antibodies in HIV-1 infected individuals in India.

Methods: In this study, plasma samples from 70 ART-Naïve HIV-1infected individuals at different stages of disease progression were tested against a heterologous panel of viruses (n=11) from subtypes A, B, C, G, AC, BC & AE. Samples with >50% neutralization breadth were then tested against an extended panel (n=19) of subtype C and A viruses to evaluate for broadly cross-reactive neutralization (BCN) response. The plasma samples exhibiting cross-reactive neutralization response were assessed for binding specificity to CD4bs through their affinity for the well-characterized resurfaced stabilized gp120 core (RSC3) protein probe and its cognate CD4bs mutants.

Results: Out of 70 samples screened, 28 (40%) showed neutralization activity, among them 8 (11%) had broad and potent neutralization response and 20 (29%) showed cross-reactive neutralization response. 11 (55%) of these cross-reactive plasma samples exhibited strong binding affinity to RSC3 core protein, of which 7 plasma samples showed reduced (> 3 fold) affinity towards RSCΔ371I/P363N probe (negative control) indicating presence CD4bs-specific neutralization response. In addition, two of these plasma samples from chronically infected individuals (slow progressors-LT-VNP28 & LT-VC 11) showed stronger (>3 fold) affinity towards RSC03/G367R mutant probe, suggesting presence of VRC01-like antibodies (Table.1).

Table 1: Cross-reactive neutralizing plasma samples (n=20) against RSC3 protein probes used to characterize CD4bs antibodies.

PID	Neutralization Breadth %	Neutralization Potency (GMT ID50)	CD4bs binding antibodies: RSC3 O.D	Result	RSC3 Δ371I P363N	Ratio	Result	RSC3 G367R	Ratio	Result	Interpretation
LT-VNP06	63	138	0.291	NB	0.219	1	-	0.187	1	-	-
TP18	57	134	0.548	NB	0.481	1	-	0.187	1	-	-
LT-VNP05	53	100	0.573	+	0.285	2	-	0.291	1	-	-
LT-VNP28	50	146	1.074	++	0.412	3	+	1.102	2	+	VRC01 like Antibodies
LT-VNP36	50	119	0.617	+	0.424	1	-	0.488	1	-	-
TP26	50	54	1.316	++	0.218	5	+	0.261	1	-	CD4bs Antibodies
TP34	47	177	0.550	+	0.214	3	+	0.304	1	-	CD4bs Antibodies
TP17	47	152	0.683	+	0.214	3	+	0.297	1	-	CD4bs Antibodies
LT-VNP05	47	88	0.726	+	0.231	3	+	0.318	1	-	CD4bs Antibodies
TP21	43	71	0.330	NB	0.288	1	-	0.289	2	-	-
LT-VC11	37	98	1.883	++	0.587	3	+	1.868	3	+	VRC01 like Antibodies
TP19	37	85	0.740	+	0.262	3	+	0.405	2	-	CD4bs Antibodies
TP13	37	77	0.445	NB	0.347	1	-	0.486	1	-	-
LT-VC08	37	57	1.929	++	1.889	1	-	2.037	1	-	-
TP12	33	88	0.322	NB	0.287	1	-	0.381	1	-	-
TP15	33	69	0.292	NB	0.242	1	-	0.250	1	-	-
LT-VNP10	33	66	0.407	NB	0.368	1	-	0.497	1	-	-
TP16	30	67	0.437	NB	0.196	2	-	0.198	1	-	-
TP07	27	56	0.500	+	0.261	2	-	0.272	1	-	-
TP22	27	61	0.090	NB	0.168	1	-	0.108	1	-	-

Cross-reactive neutralization antibody response dominated by CD4bs antibodies: Summary of binding antibodies mediating cross-reactive neutralization response (n=20). *OD at 450 is <0.5=NB: Not binding, 0.5-1.0=+, 1.0-2.0 ++ & >2.0 +++. Interpretation based on the fold decrease in O.D values when tested with point mutant protein (RSC3 Δ371I/P363N) in ELISA (Absent (-) : <3fold, present (+) ≥3.0 fold). Interpretation based on the fold increase in O.D values when tested with point mutant protein (RSC3/G367R) in ELISA (Absent (-) : <3fold, present (+) ≥3.0 fold) NB-Not Binding. Percentage of virus neutralized with an ID_{50} >100 against 30 heterologous virus panel. Geometric mean ID_{50} Titer (GMT) against 30 heterologous virus panel

[Table 1]

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Conclusions: To the best of our knowledge, this is the first report indicating the presence of VRC01-like CD4bs-binding antibodies in the plasma of HIV-1subtype C infected individuals from Southern India, and can pave the way for isolation and characterization of potent bNAbs from India to aid in design and development of vaccines and other therapeutic interventions.

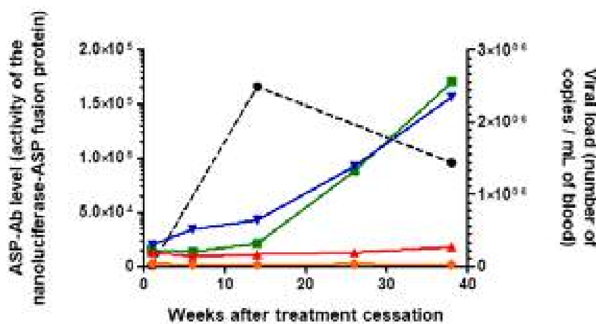
TUPEA024

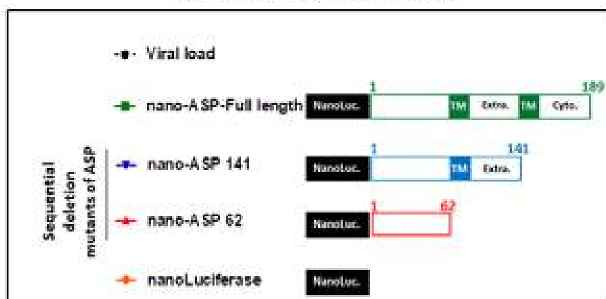
Characterization of the humoral response directed against the Antisense Protein of HIV-1 in patients

J. Savoret[1], P. Van de Perre[2], J.-M. Mesnard[1], A. Gross[1]
[1]*Infectious Disease Research Institute of Montpellier (IRIM), Montpellier, France,* [2]*National Institute of Health and Medical Research (INSERM), Montpellier, France*

Background: Recently we have shown that the gene encoding for the AntiSense Protein (ASP) of HIV-1 is uniquely conserved in the group M of HIV-1, which is responsible for the human pandemic. Although these results suggest a role for ASP in the HIV-1 virulence or transmission, the exact function of ASP in these events remains unknown. To better understand the impact of ASP expression in HIV-1 infection, we assessed the humoral response directed against ASP (referred as ASP-Ab) in HIV-1 infected patients using a nanoluciferase-ASP fusion protein immunoprecipitation system. We then wondered whether this response correlated with delayed progression to AIDS by comparing its dynamic trend over time to that of viral load.

Methods: Plasma samples from 40 HIV-1 infected patients from Burkina Faso (n=20) or South Africa (n=20) were used. The patients were women ineligible for HAART according to local recommendations and were initially recruited for a clinical trial investigating a new peri-exposure prophylaxis to prevent HIV-1 transmission by breastfeeding (PROMISE-PEP trial). In this context, patients were treated for several weeks during pregnancy and treatment was stopped after delivery. Samples were collected at different times after delivery to assess viral load. Taking advantage of this longitudinal follow-up, levels of ASP-Ab were assessed in the collected samples. Using constructs expressing sequential deletion mutants of ASP, the domains of ASP inducing a humoral response in patients were characterized.





[Dynamics of the viral load and of the humoral response directed against several domains of ASP in an untreated HIV-1 infected patient]

Results: High ASP-Ab levels were found in 20% of patients from Burkina Faso and in 10% of South African patients. Deletion of the cytoplasmic N-terminal domain of ASP did not impair the detection of ASP by patients' antibodies, contrary to deletions of predictive transmembrane and extracellular domains of ASP. Interestingly, one patient displayed antibodies recognizing all the deleted-forms of ASP and also showed very low viral load. Otherwise, two patients presented a progressive rise of the ASP-Ab levels after treatment cessation, which was followed by a decline in viral load.

Conclusions: All together, these results showed that the ASP-specific humoral response
(i) preferentially targets a major epitope of ASP;
(ii) varies over time following treatment cessation and
(iii) might be followed by a decline in viral load.

Cellular immunity

TUPEA025

The lower spare respiratory and glycolytic capacity of peripheral blood mononuclear cells from MSM is not associated with CMV infection

Z. Kruize, I. Maurer, K.A. van Dort, N.A. Kootstra
Academic Medical Center, Experimental Immunology, Amsterdam, Netherlands

Background: Previously we observed a higher proportion of senescent T cells in treated HIV-positive individuals and matched HIV-negative controls as compared to blood bank donors (BBD). The high levels of T cell senescence was strongly associated with CMV infection. Mitochondrial function and glycolysis play important roles in proliferation, terminal differentiation and effector functions of immune cells. Here we analyzed the effect of T cell senescence and CMV infection on the cellular energy metabolism.

Methods: PBMCs were obtained from men having sex with men (MSM) (n=40) and BBD (n=26). The immune phenotype (T cell differentiation CD45RA/CCR7/CD27; senescence CD27/CD28/CD57) was determined by flow cytometry.
The cell energy metabolism of PBMCs was analyzed using the Seahorse XFe96 Analyzer: Oxygen consumption rate (OCR) was measured to determine mitochondrial respiration and the extracellular acidification rate (ECAR) was analyzed to determine glycolysis.

Results: Immune phenotyping revealed a significant increase in CD4 and CD8 effector memory T cells ($CD45RA^-CD27^-CCR7^-$) and CD8 effector T cells ($CD45RA^+CD27^-CCR7^-$) in MSM as compared to BBD. Furthermore, a significant increase in CD4 and CD8 T cell senescence ($CD27^-CD28^-$; $CD57^+$; $CD57^+$ of $CD28^-$) was observed.
Analysis of the cell energy metabolism revealed that mitochondrial respiration was comparable between BBD and MSM, however lower spare respiratory capacity was observed in MSM (OCR; BBD 56.71 ± 24.76 vs MSM 36.65 ± 19.45, p=0.0004). The glycolytic capacity was significantly decreased in MSM (ECAR; BBD 7.55 ± 3.09 vs MSM 4.64 ± 1.54, p=$4.5x10^{-6}$).
Multivariate analysis showed that CMV infection was associated with increased proportions of CD8 effector memory, CD8 effector and senescent T cells, but not with lower spare respiratory and glycolytic capacity in MSM.

Conclusions: We observed that MSM had higher proportions of effector memory and senescent CD4 and CD8 T cells as compared to BBD, which could largely be attributed to high prevalence of CMV infection in MSM. Furthermore, we observed a significant decrease in spare respiratory and glycolytic capacity of PBMCs from MSM, which is indicative for a decreased proliferative ability of these cells. The lower spare respiratory and glycolytic capacity was not associated with CMV infection.

TUPEA026

TGF1 enhances R5 tropic HIV infection in activated and resting memory CD4 T cells through upregulating CCR5 expression

K.S. Lam, K.-W. Cheung, Z. Chen
University of Hong Kong, AIDS Institute, Hong Kong, Hong Kong

Background: TGF1 is upregulated in both acute and chronic HIV-1 patients. The level of TGF is associated with AIDS disease progression. However, whether TGF1 contributes to HIV pathogenesis remains largely unknown. Here, we found that TGF1 upregulates one of the major HIV coreceptors, CCR5 in memory CD4 T cells. Therefore, we hypothesize that TGF1 may facilitate R5 tropic HIV-1 infection in memory CD4 T cells through inducing CCR5 expression.
Methods: Memory CD4 T cells were isolated from peripheral blood mononuclear cells. Activated CD4 T cells were prepared by culturing in IL-2 and IL-15 for 4 days. Resting CD4 T cells were enriched by the depletion of CD25, CD69, and HLA-DR positive cells. TGF1 treatment was done for 3 days. Phenotype changes of the cells were analyzed by flow cytometry. The HIV susceptibility of the was studied by using pseudovirus and live-replicating virus. For viral outgrowth assay (VOA), infected resting CD4 T cells were stimulated by anti-CD3/anti-CD28/IL-2/IL-15 followed by co-culturing with MOLT4-CCR5 cell line for 7 days. The viral load was detected by TaqMan qPCR.
Results: Our result shows that TGF1 enhanced the percentage and MFI of CCR5 expression in both activated or resting memory CD4 T cells. This increase was inhibited by the TGF1 type I receptor antagonist - SB431542, indicating that the increase in CCR5 expression is TGF1 dependent. To evaluate the effect of TGF1 on CD4 T cells during HIV-1 infection, TGF1 stimulated CD4 T cells were infected with pseudotyped virus with R5 tropic HIV-1 envelope. We found that HIV-1 infection was significantly increased in TGF1 stimulated activated memory CD4 T cells. In contrast, TGF1 has no effect when the cells were infected with VSV enveloped pseudovirus. These results suggest that TGF1 promotes HIV infection through upregulating CCR5 expression. Due to the low HIV transcription efficiency in resting CD4 T cells, we assessed its susceptibility towards infection by HIV-1_{JR-FL} followed by VOA. Consistently, TGF1 also facilitated HIV infection in resting CD4 T cells.
Conclusions: Our results provide a new insight that TGF1 facilitates R5 tropic HIV-1 infection in activated or resting memory CD4 T cells through upregulating CCR5.

TUPEA027

Changes in circulating gamma delta T cell subset numbers in immunological and virological responders and non-responders among HIV-infected children on antiretroviral therapy

J.T. Orikiiriza[1,2,3], B. Kikaire[3], R. Nabatanzi[4], J. Nakawesi[5], D. Turitwenka[2], A. Kambugu[2], M. Lamorde[2], F. Mubiru[2], J. Normark[6], J. Achan[7], G. Ndeezi[8], V. Musiime[8], F. Lithander[8], A. Mullen[8], M. Hennessy[9], D.G. Doherty[3]
[1]*Rwanda Military Hospital, Pediatrics, Kigali, Rwanda,* [2]*Infectious Diseases Institute Makerere College of Health Sciences, Research, Kampala, Uganda,* [3]*Trinity College Dublin, Immunology, Dublin, Ireland,* [4]*Makerere University, Molecular Immunology, Kampala, Uganda,* [5]*Mildmay Uganda, Pediatrics and Child Health, Kampala, Uganda,* [6]*Umeå University, Clinical Microbiology, Umeå, Sweden,* [7]*Medical Research Council Unit, Research, Banjul, Gambia,* [8]*Makerere University College of Health Sciences, Pediatrics and Child Health, Kampala, Uganda,* [9]*Trinity College Dublin, Pharmacology and Therapeutics, School of Medicine, Dublin, Ireland*

Background: Circulating gamma/delta () T cell numbers are altered in patients with HIV infection, with expansions of V1 T cells and depletions of V2 T cells. T cells play important roles in innate immunity against pathogens and can carry out many functions that are normally mediated by CD4+ T cells, such as cytotoxicity and cytokine secretion. We examined circulating T cell subset frequencies and numbers in HIV-infected children on antiretroviral therapy (ART) in Uganda who achieve immunological response (restoration of CD4+ T cell numbers) and those who do not, and in patients who achieve a virological response (viral load reduction) and those who do not.
Methods: Peripheral blood mononuclear cells were isolated from 42 ART-experienced patients with HIV infection, of whom 4 were immunological non-responders with CD4+ T cell counts < 200/µl of blood, 4 were immunological intermediate responders (200-500 CD4+ T cells/µl) and 34 were immunological adequate responders (>500 CD4+ T cells/µl). Of the 42 patients, 30 had detectable viral loads (≥20 copies/ml) and 12 patients did not. Cells were stained with monoclonal antibodies specific for CD3, V1, V2, and V3 T cell receptor chains. Frequencies and absolute counts of V1, V2 and V3 subsets of T cells were assessed using multicolor flow cytometry.
Results: The frequencies of V1 T cells were significantly lower in the patients who achieved an immunological response compared to the immunological non-responders (P<0.02). These cells were also found at lower frequencies in the virological responders compared to the non-responders (P<0.02). In contrast, V2 T cells remained depleted in the immunological non-responder groups compared to the responders (P<0.05). The frequencies and numbers of V3 T cells were similar in all patient groups except in the intermediate responders.
Conclusions: V1 T cells are expanded in patients with HIV infection and their numbers decrease in patients with good immunological and virological responses to ART. In contrast, V2 T cells are depleted in HIV infection and they remain decreased in patient with a virological non-response, suggesting that they may become infected and killed by HIV.

TUPEA028

Antiviral activity correlates with the phenotype and polyfunctionality of stimulated CD8+ T-cells from HIV+ subjects who initiated cART at different time points after acute infection

J. Salido[1], M.J. Ruiz[1], C. Trifone[1], M.I. Figueroa[2,3], M.P. Caruso[1], M.M. Gherardi[1], O. Sued[3], H. Salomón[1], N. Laufer[1,2], Y. Ghiglione[1], G. Turk[1]
[1]*Universidad de Buenos Aires, Consejo Nacional de Investigaciones Científicas y Técnicas. Instituto de Investigaciones Biomédicas en Retrovirus y SIDA (INBIRS), Facultad de Medicina, Ciudad Autónoma de Buenos Aires, Argentina,* [2]*Hospital General de Agudos 'Dr. JA Fernández', Ciudad Autónoma de Buenos Aires, Argentina,* [3]*Fundación Huésped, Ciudad Autónoma de Buenos Aires, Argentina*

Background: HIV functional cure will largely depend on the capacity (natural or artificially modulated) of CD8+ T-cells (CD8TCs) to eliminate remaining infected cells, despite effective cART.
Aim: to evaluate the antiviral capacity of expanded HIV-specific CD8TCs, from HIV+ subjects with different timing of cART initiation after the acute phase of infection.
Methods: PBMCs from 25 HIV+ subjects on cART for 1 year were obtained. Twelve initiated treatment during chronic infection (Delayed Treatment, DT) and 13 within four months post-infection (Early Treatment, ET). PBMCs were stimulated with peptides pools spanning Nef and Gag proteins during 14 days. CD8TC phenotype (CD45RO, CCR7, CD95 and PD1 expression) and function (CD107a/b, IFN, IL-2, MIP-1 and TNF) were analyzed by flow cytometry post-expansion. Direct and indirect antiviral activity of expanded CD8TCs against autologous CD4TCs was evaluated by VITAL Assay (VA) and Viral Inhibition Assay (VIA), respectively. Non-parametric statistics were applied.
Results: HIV-specific CD8TCs showed a homogenous distribution of mono-, bi-, tri-, tetra- and pentafunctional cells in DT, while ET showed a higher proportion of monofunctional cells. A preservation of bulk and HIV-specific memory stem-cell ($CD8TC_{SCM}$) and central memory ($CD8TC_{CM}$) subsets was observed on ET. Contrary, DT showed a fully-differentiated profile (p< 0.005). Despite these, expanded CD8TCs from both groups equally mediated antiviral activity, evaluated either by VIA or VA. Nef-specific CD8TCs showed a higher magnitude of VIA and VA compared to p24-specific cells. VIA inversely correlated with both bulk (p=0.0438) and HIV-specific (p=0.0323) $CD8TC_{SCM}$ and with monofunctional cells (p=0.0235). Instead, VA magnitude directly correlated with the proportion of bulk terminal effectors CD8TCs (p=0.0402), inversely with bulk $CD8TC_{SCM}$ (p=0.0137) as well as directly with %CD107+ (p=0.0257), IFN+ (p=0.0373), TNF+ (p=0.0155) and tri- (p=0.025) and tetrafunctional (p=0.0278) CD8TCs able to degranulate and express IFN simultaneously.

Conclusions: Different cART initiation timing affected CD8TCs phenotype and polyfunctionality. However, it did not afffect direct and indirect antiviral activities. VIA magnitude correlated with CD8TC memory/effector differentiation profile, while VA was also associated with polyfunctionality, particularly with degranulation capacity. Overall, Nef emerged as an interesting candidate for therapeutic formulations aimed to modulate HIV-specific CD8TCs response since Nef-specific cells showed the best performance in our model.

TUPEA029

Comprehensive analysis of TCR cross-recognition against Gag TL9

G. Anmole[1], R.L. Miller[1], F. Ogunshola[2], B.D. Walker[3], T. Ndung'u[2,4], Z.M. Ndhlovu[2,3,4], M.A. Brockman[1,5,6]
[1]*Simon Fraser University, Molecular Biology and Biochemistry, Burnaby, Canada,* [2]*University of KwaZulu Natal, Doris Duke Medical Research Institute, Durban, South Africa,* [3]*Ragon Institute of MGH, MIT and Harvard, Cambridge, United States,* [4]*Africa Health Research Institute, Durban, South Africa,* [5]*Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada,* [6]*British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada*

Background: T cell receptors (TCR) play a crucial role in HIV-1 disease outcome as they recognize and facilitate the elimination of virus-infected cells. The ability of TCR to recognize HIV-1 escape variants also contributes significantly to long-term control. The TCR repertoire is highly diverse and sequence characteristics associated with enhanced cross-recognition of HIV-1 escape variants are poorly understood. To examine this, we characterized the sequence and function of TL9-specific TCR clones isolated from B*81:01 and B*42:01 individuals.
Methods: TCR repertoires from B*81:01 and B*42:01 individuals were examined using single cell sequencing. TCR alpha/beta clones from 3 B*81:01 and 3 B*42:01 individuals were transfected into Jurkat "effector" cells along with an NFAT-driven luciferase reporter and a CD8 expression plasmid. "Effector" cells were co-cultured with target cells expressing B*81:01 or B*42:01 pulsed with all possible single amino acid TL9 variants (N=180). TCR reactivity was quantified by luminescence. TCR recognition profiles were examined using hierarchical clustering and principle component analysis (PCA).
Results: Collectively, the TCR clones responded to 111 (of 171, 65%) TL9 peptide variants. Individual B*81:01 clones responded to 76, 62, and 103 variant peptides; while B*42:01 clones responded to 57, 55, and 63 variant peptides. Limited TCR reactivity against variants at positions 2, 5 and 6 suggested that they served as crucial sites for HLA binding or TCR contact. Hierarchical clustering analysis of TCR function indicated that one public B*42:01 clone grouped with the three B*81:01 clones. Similar results were found using PCA, where the public B*42:01 clone was placed in closer proximity to the B*81:01 clones. These four TCR clones also displayed better recognition of naturally occurring TL9 escape variants, indicating that they may play an important role in limiting disease progression.
Conclusions: This *in vitro* system provides a novel tool to characterize the function of TCR. Clustering TCR clones according to their peptide recognition profiles may aid in the identification of sequence features associated with enhanced antiviral activity, which would support the development of vaccines or therapeutics designed to prevent or eliminate HIV-1 infection.

TUPEA030

Selective immune cell depletion of mycobacterium tuberculosis (Mtb) in whole-blood bactericidal assay (WBA)

G.B. Cross[1,2], B.C. Yeo[2], M.C. Tan[2], R. Verma[2], Q. Lu[3], N.I. Paton[1,2]
[1]*National University Hospital, Singapore, Singapore,* [2]*National University of Singapore, Singapore, Singapore,* [3]*Singapore Clinical Research Institute, Singapore, Singapore*

Background: Whole-blood bactericidal assay (WBA) is an established *ex vivo* model which is used to test anti-mycobacterial efficacy of new drugs. Killing in this model includes a contribution from human immune cells although the exact nature of that contribution is not known. We investigated the effects of individual cell types on the growth of Mtb in WBA using immuno-magnetic a depletion approach.
Methods: Blood drawn from 8 healthy volunteers was depleted, in separate experiments, of macrophages, neutrophils, natural killer (NK), CD4T, CD8T, B and dendritic (DC) cells using specific monoclonal antibodies through a commercialised column-free magnetic platform (STEMCELL EasySep®). Extent of depletion was measured by cell cytometry and flurochrome-conjugated antibodies. Depleted blood was inoculated with Mtb, with and without rifampicin, and incubated for 72 hours. Quantity of viable Mtb was determined converting BACTEC® MGIT® time to positivity (TTP) values to estimate CFU change, using a standard curve of TTP vs. inoculum size.
Results: Most cell lines were successfully depleted (>75%). CD15 and CD123 cells were not successfully depleted (25.8% and 35.1% respectively); results from these are not reported. The difference in Mtb growth from non-cell-depleted blood (log10 CFU), with and without rifampicin present is shown in Table 1.

	NO RIFAMPICIN		WITH RIFAMPICIN	
Cell type depleted	Growth difference	95% CI, p value	Growth difference	95% CI, p value
Neutrophils (CD66b)	+0.62	0.45, 0.80, p<0.0001	-0.30	-0.59, -0.02, p=0.041
DC (CD11c)	+0.47	0.27, 0.68, p=0.001	-0.10	-0.19, -0.02, p=0.021
macrophages (CD14)	+0.23	0.10, 0.35, p=0.003	-0.20	-0.35, -0.04, p=0.018
NK (CD56)	+0.15	0.07, 0.23, p=0.002	-0.08	-0.23, 0.07, p=0.253
CD4T	+0.22	-0.01, 0.44, p=0.058	+0.03	-0.08, 0.13, p=0.544
CD8T	+0.09	-0.05, 0.23, p=0.145	0.00	-0.12, 0.13, p=0.981
CD19B	+0.13	-0.08, 0.35, p=0.173	+0.04	-0.08, 0.16, p=0.4352

[Table 1: Difference in Mtb growth (log10 CFU) vs non-cell-depleted blood]

In the absence of rifampicin, depletion of neutrophils, DCs, macrophages and NK cells increased Mtb colony count in WBA, with neutrophil depletion having the greatest impact. In the presence of rifampicin, depletion of neutrophils, DCs and macrophages enhanced bactericidal activity of the drug compared to intact whole blood.
Conclusions: In WBA, we found that innate immune cells, but not adaptive immune cells, control Mtb growth (depletion increases Mtb colony count). The paradoxical enhanced killing of Mtb seen with depletion of some innate immune cells (neutrophils, DCs and macrophages) when blood was incubated with rifampicin, may reflect intracellular sequestration of TB in these phagocytic cell populations and consequently partial protection from direct drug killing. Our results show that innate immune cells may play an important but complex role in WBA, which is important to understand when using the assay for TB drug screening purposes.

TUPEA031

An increased of T cell immunity in HIV-infected patients: A post-hoc analysis of the IPROTECT1 therapeutic vaccine Phase II study

P. Debre[1], B. Combadière[2], V. Vieillard[2], Iprotect1 Study Group
[1]*APHP, Paris, France,* [2]*CIMI-Paris, Paris, France*

Background: 3S is a highly conserved motif of HIV-gp41 protein that induced expression of NKp44L, a ligand of an activating NK receptor, on CD4+ T cells. High level of anti-3S antibodies (Abs) is associated with lower HIV-1 disease progression. Preclinical studies in infected macaques demonstrated that anti-3S Abs are associated with CD4+ T cell protection. VAC-3S is a therapeutic vaccine composed of 3S motifs-coupled with CRM197 carrier in aluminum salt adjuvant. Previous Phase 1 study demonstrated the safety of VAC-3S.

Methods: IPROTECT1 was a randomized, double-blind, placebo-controlled Phase 2 Study. Eighty-six patients with HIV RNA < 50 cp/mL on ART, with CD4 between 200 and 500 c/mm³ were randomized to receive 16 µg (n=24), 32 µg (n=25), 64 µg (n=23) VAC-3S or placebo (n=14). The primary endpoint was the proportion of vaccine responders one month after the third injection (W12). A post-hoc analysis, categorized patients in 3 groups according to anti-3S Ab response: non-responders (< 4-fold increase), low-responders (between 4 and 10-fold increase), and high-responders (≥10 fold-increase).
Results: Results: VAC-3S was well tolerated with no SAEs and no systemic AEs leading to premature discontinuation. The rate of immunization versus placebo was 45.8% (p=0.0026), 62.5% (p=0.0002) and 47.8% (p=0.0020) in the 16, 32 and 64 µg groups, respectively. In post-hoc analysis, 20 patients were HR, 16 LR and 50 NR. CD4 nadir, age, HIV duration did not impact anti-3S response. At week 48, a significant increase in CD4 count (+ 60 CD4/mm³; p=0.0029) was observed in patients with anti-3S Ab >100 AU. In high-responders was specifically determined significant increased of CD4/CD8 ratio and CD4 cell count (p=0.0029), and very significant decreased of PD1 on CD4+ T cells. (p=0.0005). Furthermore, anti-3S production was correlated positively with soluble dipeptidyl-peptidase 4 (DPP4) activity (p=0.0088, r=0.33), and negatively with expression of NKp44L activity in CD4+ T cells (p< 0.0001; r=-0.76).
Conclusions: VAC-3S was safe and induced a significant anti-3S Ab response. Very significant modulation of major markers associated with HIV protection was observed in patients with higher rate of anti-3S Ab.

Mucosal immunity

TUPEA032

Mucosal IL-7 response in the gut during HIV/SIV acute infection

C. Moraes-Cabe[1], M. Rancez[1], B. de Muylder[1], S. Morgado[1], M. Mas[1], R. Cheynier[1], A. Couedel-Courteille[1,2]
[1]Institut Cochin - INSERM U1016 - CNRS UMR8104 - Université Paris Descartes, Sorbonne Paris Cité, Paris, France, [2]Université Paris Diderot, Paris, France

Background: The very early events of the mucosal immune response to HIV/SIV infection still remain poorly understood. Our previous results demonstrate that IL-7 is expressed in the gut as part of the cytokine storm that occurs during initial virus dissemination, coincidently with viral spread and associated with an increased production of chemokines, leading to immune cell homing. The aim of this work was to identify mucosal cells responsible for this early IL-7 production as well as those responding to IL-7 by chemokine production in the gut.
Methods: We thus analysed separately different cell types, known to be present in the gut mucosa to find out how much they can up-regulate their IL-7 production upon inflammatory conditions or how much they are able to secrete chemokines upon IL-7 stimulation. We used epithelial and endothelial cells isolated from gut mucosa of healthy macaques, as well as human endothelial cells differentiated from circulating endothelial cell precursors. These cells were cultured with the supernatant of SIV-infected or non-infected activated PBL or stimulated by pro-inflammatory cytokines with or without IL-7. IL-7 production was measured by RT-qPCR and ELISA in the supernatant of cultured cells. CD127 expression was analysed by RT-qPCR and FACS analysis. Chemokine production was measured by RT-qPCR and MSD.
Results: We demonstrated that supernatants of infected activated PBLs boosted IL-7 production by epithelial cells, contrarily to the supernatants of non-infected PBLs. These cells also up-regulated their IL-7 production when stimulated by Interferons (IFNs). Endothelial cells showed an increased expression of CD127 when stimulated by TNF or IFNs, with higher expression when co-stimulated by IL-7, suggesting an increased responsiveness of cells to the IL-7 present in the gut environment during the SIV infection driven inflammatory status. In addition, IL-7 combined to inflammatory cytokines induced higher expression of chemokines by endothelial cells, such as IP-10, IL-8 and RANTES, which are important chemo-attractive molecules for immune cells.
Conclusions: This work demonstrates that IL-7 production by intestinal epithelial cells is up regulated by inflammatory signals and identifies endothelial cells as one of the chemokine-expressing cell types under IL-7 stimulation.

TUPEA033

Genital inflammation and cervical T-cell activation associated with sexually transmitted infections in adolescent girls and young women at high risk of HIV infection

S. Dabee[1], S.L. Barnabas[1,2], H.B. Jaspan[1,3], S.Z. Jaumdally[1], H. Gamieldien[1], K. Lennard[1], L. Masson[1], D.A. Lewis[4,5,6], C. Gray[1,7], J. Dietrich[8], G. Gray[8,9], N.N. Mkhize[6], A.-L. Williamson[1,7], T.J. Hope[10], F. Chiodi[11], R. Shattock[12], L.-G. Bekker[1,2], J.-A.S. Passmore[1,7]
[1]Institute of Infectious Disease and Molecular Medicine, University of Cape Town, Cape Town, South Africa, [2]Desmond Tutu HIV Foundation, Cape Town, South Africa, [3]Seattle Children's, Seattle, United States, [4]Western Sydney Sexual Health Centre, Parramatta, Australia, [5]University of Sydney, Centre for Infectious Diseases and Microbiology & Marie Bashir Institute for Infectious Diseases and Biosecurity, Sydney, Australia, [6]National Institute for Communicable Diseases, Johannesburg, South Africa, [7]National Health Laboratory Service, Cape Town, South Africa, [8]Perinatal HIV Research Unit, Health Sciences, University of Witwatersrand, Johannesburg, South Africa, [9]South African Medical Research Council, Cape Town, South Africa, [10]Feinberg School of Medicine, Northwestern University, Department of Cell and Molecular Biology, Chicago, United States, [11]Karolinska Institutet, Stockholm, Sweden, [12]Imperial College London, Department of Infectious Diseases, London, United Kingdom

Background: Sexually transmitted infections (STIs) increase the risk of HIV transmission and acquisition, but the underlying mechanisms are not fully known. Adolescent girls and young women (AGYW) are a key population disproportionately susceptible to HIV and other STIs. We hypothesised that STIs increase genital inflammatory cytokine concentrations and activated T-cells in AGYW.
Methods: In a cohort of 298 AGYW (16-22 years) from Cape Town and Soweto, South Africa, *Chlamydia trachomatis* (generic and L-serovar specific assays), *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, *Mycoplasma genitalium*, Herpes simplex virus (HSV)-2, *Haemophilus ducreyi* and *Treponema pallidum* were measured from vulvovaginal swabs using multiplex PCR, and HSV-2 serology was performed. Bacterial vaginosis (BV) was diagnosed using Nugent scoring. Concentrations of 44 cytokines were measured from genital secretions by Luminex. Cervical T-cell activation and proliferation markers (CCR5, CD38, HLADR, and Ki67) were measured from fresh cytobrushes using flow cytometry.
Results: Overall, 115/298 (38.6%) of these AGYW from South Africa had ≥1 STI (10% having multiple STIs) and all were asymptomatic. *T. vaginalis* and *C. trachomatis* were the most inflammatory infections, both significantly associated with 10/44 cytokines being elevated compared to AGYW with no STIs or BV. *T. vaginalis*-induced cytokine elevation had a significantly larger effect size than with *C. trachomatis*. *T. vaginalis* was also associated with the largest increase in CD4+CCR5+ and activated CD4+CD38+HLADR+ T-cell frequencies compared to other infections. *C. trachomatis* was more inflammatory in Cape Town-based AGYW while *T. vaginalis* was more inflammatory in Soweto. Interestingly, having detectable genital HSV-2 DNA was not associated with genital inflammation, although being HSV-2 seropositive was associated with the upregulation of 16/44 cytokines after adjusting for co-infections.
Conclusions: STIs are associated with increased HIV risk. Our findings suggest that a strong genital cytokine response, and an influx of activated HIV target cells to the genital mucosa, may be important mechanisms for elevated HIV risk. Devising new strategies to manage STI prevalence or moderate inflammatory responses to STIs could decrease the incidence of new HIV infections in AGYW.

TUPEA034

Differential genital inflammation associated with *Chlamydia trachomatis* sequence types in adolescent girls and young women at high risk of HIV infection

S. Barnabas[1,2,3], B. Versteeg[4], S. Dabee[2], D. Lewis[5,6,7], E. Muller[7], H. Jaspan[2,8], S. Jaumdally[2], H. Gamieldien[2], L. Masson[2], N. Mkhize[7], J. Dietrich[9], G. Gray[9,10], L.-G. Bekker[2,3], H. de Vries[4], S. Bruisten[4], J.-A. Passmore[2,11]
[1]Family Clinical Research Unit, Stellenbosch University, Cape Town, South Africa, [2]Institute of Infectious Disease and Molecular Medicine, University of Cape Town, Cape Town, South Africa, [3]Desmond Tutu HIV Foundation, Cape Town, South Africa, [4]GGD Public Health Service, Amsterdam, Netherlands, [5]Western Sydney Sexual Health Centre, Sydney, Australia, [6]Centre for Infectious Diseases and Microbiology & Marie Bashir Institute for Infectious Diseases and Biosecurity, Westmead Clinical School, University of Sydney, Sydney, Australia, [7]National Institute for Communicable Diseases, National Health Laboratory Service, Johannesburg, South Africa, [8]Seattle Children's, Seattle, United States, [9]Perinatal HIV Research Unit, Faculty of Health Sciences, University of Witwatersrand, Johannesburg, South Africa, [10]South African Medical Research Council, Cape Town, South Africa, [11]National Health Laboratory Service, Cape Town, South Africa

Background: *Chlamydia trachomatis* is highly prevalent in young people, with significant genetic diversity that may influence pathogenesis. *C. trachomatis* increases HIV risk in adolescent girls and young women (AGYW), and causes reproductive complications. We hypothesized that different *C. trachomatis* strains could increase genital inflammation, which could may influence HIV acquisition risk.
Methods: We enrolled 298 AGYW (16-22 years) from Cape Town (CPT) and Soweto, Johannesburg (JHB) South Africa (WISH cohort) who were tested for: *C. trachomatis* (including L-serovars), *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, *Mycoplasma genitalium*, Herpes simplex virus (HSV)-2, *Haemophilus ducreyi* and *Treponema pallidum* using multiplex PCR. Forty-four cytokines were measured in genital secretions by Luminex. The sequence types of *C. trachomatis* were determined using multilocus sequence typing based on five non-housekeeping and the *ompA* genes.(CPT n=52; JHB n=23).
Results: *C. trachomatis* was the most prevalent bacterial infection, found in of AGYW 41.6% in Cape Town and 17.4% in Soweto. It was associated with significantly elevated concentrations of 10/44 cytokines compared to their STI/BV-negative counterparts, including IL-1, IL-6, TNF-, IP-10, MIG, G-CSF, HGF, SCF, IFN-γ and IL-4. *C. trachomatis* was more inflammatory in Soweto (n=26) than in Cape Town (n=62). MLST was performed successfully on 75/88 cases, and 34 different sequence types (ST) (including 7 genovars) were detected. Of these, 15 were novel types. The three most common ones were ST12d (n=12), ST530b (n=11) and ST3 (n=9). There were no significant differences (p=0.187) in distribution by geographical site, as seen in a minimum spanning tree. Differential inflammation levels were seen, with ST12d being most inflammatory (IL-3, MCP-3, IFN-2 and -NGF upregulated). Cytokines were down regulated for ST319 (PDGF-BB, IL-7, HGF, IL-18, GM-CSF, MIP-1, IL-1, TRAIL and SDF-1), ST551 (IL-10, Eotaxin, IL-12(p70), IL-13, FGF basic, IL-9 and IFN-γ) and ST188d (SCGF-, MCP-3, IL-16, IL-2R, IFN-2, -NGF, and CTACK) while ST530b was neutral for inflammatory markers compared to uninfected women.
Conclusions: *C. trachomatis* was highly prevalent in this at-risk population and was associated with a robust inflammatory profile, although inflammation was sequence type-dependent. Understanding the mechanism through which *C. trachomatis* may increase inflammation and possibly HIV acquisition could be important in reducing HIV risk.

HIV testing and retesting (e.g. point of care diagnostics)

TUPEB035

Laboratory development of a modified ELISA assay for HIV-1 incidence estimation

L. Bai[1], R. Xin[1], C. Huang[1], N. Xiang[2], W. Chen[2], X.-G. Zhang[3], Professional Institution for HIV Lab Diagnosis and Intervention in Beijing
[1]Beijing Center for Disease Control and Prevention, AIDS and STI, Beijing, China, [2]Beijing Huada GBI Biotechnologies Ltd., Beijing, China, [3]Chinese Center for Disease Control and Prevention, National Institute for Viral Disease Control and Prevention, Beijing, China

Background: BED HIV-1 Capture EIA (BED-CEIA) was developed by US CDC to detect potential recent HIV-1 infections. Despite limitations of high cost and complicated operation procedures, it has been widely used in multiple cross-sectional analyses worldwide for HIV-1 incidence estimation, it was the only approved diagnostic kit for research use worldwide. In our study, we established a modified version of BED-CEIA named BED HIV-1 Capture Chemiluminescence Enzyme Immunoassay(BED-CCLEIA).
Methods: Biotinylated HIV-1 gp41 Peptides of subtype B ,E and D were synthesized separately and biotinylated by Beijing Scilight Biotechnology. HIV-1seroconversion panels were from BBI Diagnostics(Panel Z) and China national standards materials(PRB926, PRB958), with total 4 specimen.
Reproducibility and stability study of BED-CCLEIA were conducted. Reliability analysis was made with clinical specimen and HIV-1 Seroconversion Panels mentioned above.
Results: Our BED-CCLEIA exhibited a good concordance with BED-CEIA in experiment with controls from BED-CEIA (r^2 =0.95). Its intra-run CV was less than 10%, and inter-run CV was less than 15%, stability study(within 6 days at 37C) found no loss of the standardized values.
Controls and Calibrators were made and displayed a close RLU values with those from BED-CEIA, 95% confidence intervals had no significant difference with BED- CEIA.
A total of 246 HIV-1 serum samples and 4 recent HIV-1 infection samples were tested by BED-CCLEIA. the sensitivity and specificity was 96.2% and 80.1% respectively compared with BED-CEIA, the accordance rate was 87.4%. The results of consistent analysis indicated that the two methods achieve better coherence with a Kappa value of 0.75. Likewise, both the two identified the 4 specimens as recent infections.
Conclusions: Our modified assay displayed similar performance characteristics to the BED-CEIA in laboratory experiments. Further studies should be done to define the cut off value and window period which are applicable for hiv incidence analysis in china.

TUPEB036

Implementation lessons of integrating early infant diagnosis of HIV at point of care using Xpert® HIV-1 Qual in four public hospitals in Myanmar

W.L. Yee[1], H. Htay[1], Y. Mohamed[2,3], H.H. Tin[4], W. Thein[4], L.L. Kyaw[4], W.W. Yee[4], M.M. Aye[4], S. Badman[5], A. Vallely[5], X.-S. Chen[6], S. Crowe[2], M. Stoové[2], D. Anderson[2], P. Agius[2], C. Ryan[2], A. Kelly-Hanku[5], S. Luchters[2,3,7]
[1]Burnet Institute, Yangon, Myanmar, [2]Burnet Institute, Melbourne, Australia, [3]School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia, [4]National Health Laboratory, Yangon, Myanmar, [5]Kirby Institute, University of New South Wales, Sydney, Australia, [6]National Center for STD Control, Nanjing, China, [7]International Centre for Reproductive Health (ICRH), Department of Obsterics and Gynaecology, Ghent University, Ghent, Belgium

Background: Low coverage and delays in result communication of early infant diagnosis (EID) of HIV with centralized laboratory-based testing using dried blood spots has led to delays in treatment initiation. Point-of-care (POC) EID testing could improve timely treatment initiation, but differences in health systems could impact feasibility. We assessed the challenges and enablers to implementing the POC Xpert® HIV-1 qualitative assay in Myanmar.

Description: As part of a 14-month two-country randomized controlled stepped-wedge trial in Myanmar and Papua New Guinea, we integrated the Xpert® HIV-1 Qual test in routine services at four public hospitals in Myanmar, using public-sector healthcare workers. The time of transition to intervention POC testing was randomized across hospitals and introduced in a stepwise manner. During implementation, challenges and enabling factors encountered by hospital and research staff were observed, discussed, documented and synthesized by the research team.
Lessons learned: Limitations in clinic space, inconsistent power supply and inability to securely position the device at POC challenged implementation of POC EID testing. High staff workload led to ambiguities in task-sharing and a weak sense of ownership of the testing process. Communication gaps between health workers occasionally affected testing success and results communication. Successful strategies included implementing dedicated times for providing PMTCT services and improved communication protocols among health staff, and between health staff and patients. Implementation improved with on-site medico-social workers for results communication, and higher qualified laboratory technologists for conducting tests. The ease of use and short duration of the test was appreciated by the staff, but required accessibility to technical assistance from the reference laboratory to overcome technical challenges. The short shelf-life of the test and long delays in procurement hindered the implementation.
Conclusions/Next steps: Implementation of the Xpert® HIV-1 Qual for EID into public hospitals in Myanmar was feasible, but challenging given the suboptimal supply chain, convoluted communication pathways and logistical constraints. Dedicated PMTCT clinic times and clarity around roles and responsibilities facilitated introduction of this POC test. Improved coordination between hospital staff, test suppliers and technical support staff will ensure that the potential benefits of the POC EID testing are effectively harnessed.

TUPEB037

Volume and yield of pediatric HIV testing by modality in 21 PEPFAR-supported African programs

G. Siberry[1], J. Roffenbender[2]
[1]*US Department of State, Office of the Global AIDS Coordinator, Rockville, United States,* [2]*US Department of State, Office of the Global AIDS Coordinator (PEPFAR), Washington, United States*

Background: Case-finding for children living with HIV (CLHIV) remains suboptimal, contributing to persistently lower antiretroviral treatment (ART) coverage for children (< 15 years old).
Methods: Volumes and positivity rates of HIV testing for children in PEPFAR-supported programs in Africa during 2017 (fiscal year) were analyzed overall and by four modalities: inpatient wards, index testing, outpatient departments (OPD) and tuberculosis (TB) clinic. Early infant virologic diagnostic testing was excluded. Total testing exceeds the sum of the four selected modalities because we did not break out test results reported under modalities that were difficult to characterize for children (e.g, voluntary testing and counseling) or that were not primarily case-finding channels (eg, pre-circumcision testing). Results from Ghana were excluded because they were incomplete.
Results: HIV testing volume (volume), contribution to overall testing volume (% of Volume), positivity rates (POS rate), and contribution to country program positive results varied widely across the 21 country programs [Table]. In most countries, OPD testing contributed the greatest testing volume testing (51.5%) and cases identified (48.3%); however, on average, the OPD positivity rate (1.6%) was lower than the positivity rate overall (1.9%) and for all other modalities: inpatient, 2.0%; index, 4.8%; TB, 5.0%. While TB positivity rates were high in many countries, it accounted for < 2% of testing volumes (except 5% for South Sudan) and contributed < 6% of case-finding. Inpatient POS rate was < 5% for all countries except Botswana (6.3%). While index testing POS rates varied greatly, they were as high or higher than the overall POS rate for all but 3 countries (South Africa, Swaziland, Zambia) and accounted for >10% of new cases in 12 countries including >20% of all new cases in six countries.
Conclusions: Tracking pediatric testing results overall and by modality can help countries adjust testing programs to optimize identification and treatment of CLHIV. Inpatient testing remains an important but declining source of case identification. Index testing has variable yield that may reflect whether testing is limited to biologic children of parents with HIV; scaling this approach with fidelity is a key strategy for finding children in all settings.

	OVERALL			INPATIENT			INDEX			OUTPATIENT			TB		
	VOLume	POS rate	Positives	% of VOL	POS rate	% of POS	% of VOL	POS rate	% of POS	% of VOL	POS rate	% of POS	% of VOL	POS rate	% of POS
Angola	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Botswana	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Burundi	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cameroon	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cote d'Ivoire	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DRC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ethiopia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kenya	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lesotho	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Malawi	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mozambique	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Namibia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nigeria	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rwanda	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
South Africa	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
South Sudan	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Swaziland	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tanzania	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Uganda	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Zambia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Zimbabwe	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MEAN or TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[Table]

TUPEB038

Adapting HIV testing algorithms and clinical advice for people with persistently indeterminate test results - a novel national referral clinical service

C. Brown[1,2], S. Fidler[3,4], M. Khan[3], S. Kaye[3], D. Muir[4], P. Patel[1], A. Menezes[1], T. Mbisa[1], J. Tosswill[1], G. Taylor[3,4]
[1]*Public Health England, National Infection Service, London, United Kingdom,* [2]*Royal Free London NHS Foundation Trust, London, United Kingdom,* [3]*Imperial College London, London, United Kingdom,* [4]*Imperial College Healthcare NHS Trust, London, United Kingdom*

Background: HIV diagnosis relies on detecting HIV-specific antibody, viral antigens, genome, or whole virions. Certain rare individuals with persistently indeterminate test results have to live with uncertainty as to their true HIV status, and their best clinical management remains unknown. This may become increasingly an issue with the widespread availability of PrEP, PEP and early ART initiation, potentially delaying or altering the development of HIV-specific antibodies. We describe a new national referral clinical service, established to explore novel diagnostic algorithms and offer counselling and management of individuals with persistently indeterminate HIV test results.
Description: Eligible individuals were referred to our clinic by their medical provider via the Virus Reference Department of Public Health England, with the following results: multiple "reactive" or indeterminate HIV antibody tests on different platforms with indeterminate Western Blot profiles, in the absence of confirmed HIV RNA, DNA or p24 antigen tests. Additional blood was drawn for repeat multiple HIV antibody EIAs including in-house typing assays, HIV Western blot, HIV RNA (including ultralow copy HIV RNA to 1 copy /ml) HIV DNA (total and sorted CD4+ T-cells) including multiple primer sets, p24 antigen; infection screen including EBV, CMV, VZV, HTLV, HBV, HCV, STS; auto-antibodies; immune activation markers; HLA-DR and CD25 expression on CD4 and CD8 cells and CD4, CD8 counts and CD4:8 ratio.
Lessons learned: The first six individuals attended the service between October 2017 and January 2018: five were diagnosed with HIV infection, with one awaiting further investigation. Western blots sometimes yielded greater clarity, no co-infections were found, and CD4 counts and T-cell activation markers were normal. Ultra-sensitive RNA viral load and DNA testing on freshly-processed samples were useful adjuvants to traditional tests (see table).

Patient	HIV-1 EIA (Murex) S/CO	HIV Western blot	HIV RNA Ultra-sensitive	HIV DNA	CD4 count (300-1400)	CD4:8 ratio	CD4 DR% (4.6-10.9)	CD8 DR% (5.7-38.2)
1	7.5	p17, p24, gp41, gp160	1	+ve	807	2.0	5	13
2	15.3	p17, p24, gp41, gp120, gp160	0	-ve	785	2.5	8	23
3	16.5	p17, p24, p51, p66, gp41, gp120, gp160	9	+ve	811	2.0	7	16
4	6.4	p17, p25, p55, p31, p51, p66, gp41, gp120, gp160	0	-ve	1359	1.5	8	26
5	11.3	p24, gp160	17	-ve	1498	2.9	6	18
6	8.1	p24, gp120, gp160	0	-ve	839	2.1	5	17

[Testing details]

Conclusions/Next steps: This preliminary report of a novel HIV testing strategy has shown that with freshly processed samples, increased blood volumes and new technology, it has been possible to reach a definitive HIV diagnosis. As no data exist to inform the clinical management of cases identified as HIV+ in this setting, prolonged follow-up is required with support and counselling for people who have had to live with uncertainty for many years. Increased patient numbers will be presented.

TUPEB039

Making a big impact on expanding HIV inpatient testing with a small EHR modification

T. Nguyen[1], M. Hart[2], M. Tran[2], J. Rocha[2], A. Grigoriu, M.D.[2], W. Bracco[2], S. Walsh, M.D.[2], K. Lushbough, MD[3], M. Ghias[3], Y. Elamir, MD[3], W. Grist, MD[3], K. Bogdansky,MD[3], C. Faludi[3], L. Alerte[3]
[1]Jersey City Medical Center - RWJBarnabas Health, Center for Comprehensive Care, Jersey City, United States, [2]Jersey City Medical Center, Center for Comprehensive Care, Jersey City, United States, [3]Jersey City Medical Center, Jersey City, United States

Background: The CDC estimates over 1.2 million Americans are living with HIV and, of those, approximately 14% are unaware of their HIV-positive status. Since 2014, most hospitals adopted some form of Electronic Health Records (EHR) and the Centers for Medicare & Medicaid Services extended Medicare coverage for annual HIV screenings. Despite these developments, there has been limited progress in expanding HIV testing in inpatient settings. The present study was conducted at Jersey City Medical Center (JCMC) in an effort to expand HIV testing by implementing EHR modification in the form of testing prompts.
Methods: This retrospective study reviewed data since May 20, 2015 at JCMC, a teaching hospital that passed all lab work orders through an EHR system. The number of daily orders for HIV screenings was recorded for 371 consecutive days before EHR modification (n=371) to establish baseline data.
EHR modification occurred on the 372nd day of the study (May 25, 2016). This modification featured testing prompts displaying CDC guidelines for screening patients over the age of 18 for HIV whenever a physician ordered lab work for admitted patients. Orders for HIV screenings on this transitional date were excluded from analysis.
After EHR modification was completed, the number of daily orders for HIV screenings was recorded for an additional 371 consecutive days (n=371) for comparison until May 31, 2017. Testing data was available for all 743 consecutive days. Data was reviewed using unpaired t-test analysis.
Results: Since the beginning of this study - before testing prompts were implemented - JCMC inpatient units ordered an average of 8.58 (SD=3.36) HIV screenings per day. The average number of daily orders for HIV screenings increased twofold after EHR modification (M=17.25, SD=4.50), $t(740) = 29.72$, $p < .00001$. JCMC identified 134 HIV-positive and linked over 93% of these patients to care.
Conclusions: Conventional HIV screening methods in the inpatient setting might not be sufficient at detecting most HIV-positive cases. By implementing testing prompts in its EHR system to encourage increased testing for HIV, Jersey City Medical Center was able to increase the number of individuals aware of their HIV status and link them to care as needed.

CD4 measurement (e.g. point of care diagnostics)

TUPEB040

Performance evaluation of a point-of-care (POC) CD4 test device (Visitect® CD4) for use in resource-limited settings

V. Vidhyavathi[1], K. Kanthamani[1], P. Nandagopal[1], H. Syed Iqbal[1], J. Forbes[2], S. Sunil Suhas[3], E. Valente[2], S. Crowe[4], C. McMurran[2], D. Anderson[4], P. Balakrishnan[1]
[1]YRG Centre for AIDS Research and Education, Voluntary Health Services, Chennai, India, Infectious Diseases Laboratory, Chennai, India, [2]Omega Diagnostics, Scotland, United Kingdom, [3]Johns Hopkins University School of Medicine, Infectious Diseases Laboratory, Baltimore, United States, [4]Burnet Institute and Monash University, Melbourne, Australia

Background: CD4+ T lymphocyte counts remain the most common surrogate marker indicating immune status and disease progression in HIV-infected individuals. Although WHO guidelines recommend antiretroviral therapy (ART) irrespective of CD4 levels, establishing the CD4count is still important for prioritization of ART and monitoring in many settings. Laboratory-based CD4 measurement with the initial investment in flow cytometric technology, infrastructure requirements and expensive reagents makes it unaffordable for many resource-limited countries like India. Point- of- care (POC) CD4 testing would reduce costs and increase the likelihood of retention in care.
Methods: We evaluated the performance of the Visitect®CD4 lateral flow POC device using both finger-prick and venous blood samples from patients (n=200) attending the HIV clinic at YRG CARE Chennai, from May to September 2017.Visitect®CD4 test compares the patient blood test line intensity to that of a reference line of 350 cells/µL (Figure 1). The results of finger-prick and venous blood samples from each patient were assessed visually and compared with CD4 counts in the same venous blood sample measured by NAVIOS flow cytometer (Beckman Coulter, CA, USA).Visitect CD4 results were available within one hour.
Results: In our study, 123 were males and 77 were females and their median age was 40 years(IQR 36-48).Of 200 patients,144 had a CD4 count of < 350cells /µL and 56 had a CD4 count of >350cells /µL by flow cytometry. The sensitivity and specificity of the Visitect® CD4 test was calculated by comparing the POC test with flow cytometric results. Concordance between flow cytometric CD4 and Visitect CD4 was higher using venous blood versus finger prick samples (97 vs. 84%) (Table 1).
Conclusions:

	Flowcytometry			
Visitect®CD4 Test (Visual reading)	Venous blood		Fingerprick blood	
	<350 cells/µL	>350 cells/µL	<350 cells/µL	>350 cells/µL
<350 cells/µL	140	18	121	16
>350 cells/µL	04	38	23	40
Sensitivity %	97%		84%	
Specificity %	68%		74%	
Positive predictive value	89%		88%	
Negative predictive value	91%		64%	
Efficiency	89%		81%	

[Table 1. Performance characteristics of Visitect®CD4 Test]

The rapid POC Visitect CD4 test device provided acceptable results and is potentially a cost-effective alternative method to flow cytometric CD4 testing for the clinical management of HIV infection in resource-limited settings, further strengthening patient care in remote areas.

[Visitect®CD4 test device]

Viral load measurement (e.g. point of care diagnostics)

TUPEB041

Achieving the 3rd 90: Monitoring of viral load testing in Jhpiego- MCSP facilities in Haiti: A program intervention

S. Martelly[1], S.T. Omero[2], S. Stender[3], R.K. Bestien[2], R. Masse[4], K. Francois[5]
[1]Jhpiego, HIV/TB ID, Haiti, Haiti, [2]Jhpiego, Haiti, Haiti, [3]Jhpiego, Baltimore, United States, [4]USAID, Haiti, Haiti, [5]PNLS, Haiti, Haiti

Background: To achieve the 3rd 90, Haiti introduced viral load testing in July 2016, as the primary laboratory testing method to monitor HIV viremia in ART clients. Data indicated that 93,294 patients were on ART. Of those, 61,092 (65%) benefited from viral load testing, available in 99% of ART facilities. The low testing rate was due to lack of training and education offered to providers and clients. Jhpiego-Maternal Child Survival Program (MCSP) provided technical assistance to health facilities throughout Haiti, focusing on building the capacity of front line providers to offer routine viral load testing, and to act promptly if a patient's viral load is detectable. The testing has empowered providers to seek better longitudinal care for their clients.
Description: From October 2016 to September 2017,Jhpiego-MCSP project scaled up routine viral load testing in 42 facilities by training providers. A viral load reporting tool was developed to facilitate registration of clients, and to track clients testing eligibility. The tool involved adults and children on ART for 6 months, pregnant women on ART for 4 months, clients undetectable for 1 year, and with clinical failure. Also, assistance was provided with the transport of laboratory specimens, as well as return of test results to the clinician. Jhpiego-MSCP educated clients during supports group meetings to improve knowledge of viral load testing. Finally, the project collected and analyzed data in Excel, to monitor client's clinical status.
Lessons learned: From October 2016 to December 2017, 12,027 clients received ART (31% men; 69% women; of those, 7,897(66%) had a viral load test and received their results. A total of 5,029 (64%) achieved viral suppression (< 1000 copies/ml). All results were received within a 15-day time frame, through email accounts, set up by the National laboratory (LNSP). 2,868 clients with detectable viral (>1000 copies/ml), were monitored closely to reinforce adherence to ART.
Conclusions/Next steps: The utilization of the viral load tool as a clinical management tool, contributes to ensure proper care of people living with HIV. However, viral suppression rates are low, indicating clearly that more supportive counseling and innovative strategies are required for epidemic control of HIV in Haiti by 2020.

TUPEB042

Field evaluation of the Biocentric® platform for HIV viral load testing utilizing plasma samples in Swaziland: A diagnostic accuracy study

G. Maphalala[1], P.A.D. Uribe[2], Q. Mpala[2], P. Nxumalo[2], S. Kalombola[2], A. Bekele[2], T. Chawinga[2], M. Maphalala[2], R. Nesbitt[2], N. Ntshalintshali[3], R. de la Tour[4], E. Fajardo[5], J. Goiri[4], N. Phugwayo[1], S. Dlamini[1], A. Jani[2], I. Ciglenecki[4], B. Kerschberger[2]
[1]Ministry of Health (National Reference Laboratory), Mbabane, Swaziland, [2]Medecins Sans Frontieres (OCG), Mbabane, Swaziland, [3]Clinton Health Access Initiative (CHAI), Mbabane, Swaziland, [4]Medecins Sans Frontieres (OCG), Geneva, Switzerland, [5]Medecins Sans Frontieres (Access Campaign), Geneva, Switzerland

Background: Viral load (VL) testing is recommended by the World Health Organization (WHO) to monitor the effectiveness of antiretroviral therapy (ART), and it is being scaled-up in resource-limited settings. However, not all VL platforms commercially available have been thoroughly evaluated. We assessed the diagnostic performance of the Biocentric assay for VL quantification under routine field conditions in Swaziland.
Methods: From 10/2016 to 03/2017, paired plasma samples were collected prospectively from pre-ART and ART patients at Nhlangano and Lobamba health centres. Samples were tested blindly on the national reference method (Roche) and compared to the Biocentric assay at two labs (Nhlangano: Lab-1, Mbabane: Lab-2). Laboratory staff in Lab-1 were experienced with the Biocentric method and staff in the newly established Lab-2 were newly trained. We calculated precision (correlation, Bland-Altman) and accuracy (sensitivity, specificity) using the WHO-recommended VL threshold of 3.0 log_{10} (=1,000) copies/ml. In addition, the positive (PPV) and negative predictive (NPV) values were calculated assuming that 20% of VLs are detectable in patients on ART.
Results: In total 370 patients participated, of whom 364 (98.4%) paired samples were successfully analysed. Seventy (19.2%) samples had a VL>3.0 log_{10} on the reference standard. The correlation between both methods was high (r=0.93, p< 0.01) and the Bland-Altman analysis showed a minimal mean difference (-0.02 log_{10}; 95% limits of agreement: -1.15 to 1.11). Overall sensitivity and specificity were 88.6% (78.7-94.9) and 98.3% (96.1-99.4). Sensitivity was higher in Lab-1 (100% [71.5-100]) compared to Lab-2 (86.4% [75.0-94.0]) and specificity was similar (Lab-1: 97.9% [94.6-99.4]; Lab-2: 99.1% [94.9-100.0]). For both labs combined, the PPV was 92.9% (84.5-96.9) and the NPV was 97.2% (94.7-98.5). The PPV was similar between Lab-1 (92.1% [81.6-96.9]) and Lab-2 (95.9% [76.6-99.4]), and the NPV was higher in Lab-1 (100%) compared to Lab-2 (96.7% [93.9-98.2]).
Conclusions: The diagnostic performance of the Biocentric assay was comparable with the reference Roche assay. Inter-laboratory differences indicate, however, that attention should be paid to provision of sufficient trainings and quality control processes during the scale-up of VL testing.

TUPEB043

Increased access to HIV viral load testing among ART patients in Côte d'Ivoire (2015 to 2017)

C. Adje-Toure[1,2], A. Ekra[3], A. Micheline[1], L. Ya Kouadio[1], J.B. Amani[1], J. Hedje[1]
[1]Center for Disease Control, DGHT, Abidjan, Cote D'Ivoire, [2]Center for Disease Control, Abidjan, Cote D'Ivoire, [3]Center for Disease Control, DGHPT, Abidjan, Cote D'Ivoire

Background: Côte d'Ivoire use of HIV Viral load (VL) for the monitoring of patients receiving antiretroviral therapy (ART) began in 1998 as a pilot program under the UNAIDS/Ministry of Health Drug Access Initiative (DAI). From 2002 to 2014, VL testing was available to less than 10% of patients for immunologic and/or clinical failure monitoring, and was accessible only in Abidjan the capital. Following WHO 2015 guidelines and the need to increase access to VL testing, CDC used the lab in the box approach to scale-up and decentralize access to VL testing.
Methods: We analyzed 2015-2017 VL test results from aggregate patient data obtained from the laboratory information system of 15 VL laboratories. Testing coverage and viral load suppression rate by age group, gender and region were assessed. VL was measured using plasma on the Roche Ampliprep Cobas Taqman 48&96; patients had access to VL testing every 6 months during the first year and yearly thereafter.
Results: A total of 221,990 patients received ART nationally between October 2015 and August 2017, with a 12-month retention rate of 85%. Access to at least one VL test per year increased from 14% to 61% for a total of 134,877 patients during the study period, including 41.5% from districts outside of Abidjan. The number of laboratories increased from 6 to 15 in the same period. Among patients with access, 74% were female and 5.6% children (0-14 years). Seventy seven percent of tested patients achieved VL < 1000 copies/mL [95% CI: 55-82]; the VL suppression rate was similar for female and male, 78% and 77% respectively. While children and adolescents (15-19 years) had the lowest rate at 56% and 55% respectively, young adults' (20-24 years) rate was 67%, and patients ≥25 years, 79%.
Conclusions: The experience of Côte d'Ivoire provides evidence that routine VL can be achieved using appropriate scale-up strategies such as lab in the box, minimized reagent stock out, and a strong sample transportation system. The low rate of VL suppression in children and adolescents is a challenge that needs to be addressed in order to minimize appearance of HIV drug resistance strains.

TUPEB044

Are all people on antiretroviral treatment having their HIV viral load monitored? Gaps analysis in Latin America and the Caribbean

A. Leal, G. Ravasi, M. Alonso
Pan American Health Organization, Washington, United States

Background: By December 2016, Latin America and Caribbean (LAC) countries reached 56% antiretroviral treatment (ART) coverage among estimated people living with HIV in the region. Since 2013, WHO recommends viral load (VL) testing as preferred monitoring tool during ART, but gaps in VL access and coverage persist.

Description: We analyzed data officially reported in 2017 by 31 LAC country to UNAIDS /WHO/UNICEF through the Global AIDS Monitoring reporting system and AIDS Medicine and Diagnostic Service (AMDS) survey (situation at December 2016) to assess existing gaps in VL policies, capacity and coverage.

Lessons learned: All reporting countries have routine VL monitoring policies; 10% (3/31) reported partial implementation (Belize, Bolivia and Haiti). Most countries (80%; 25/31) have VL lab capacity; only Organization of Eastern Caribbean States (OECS) countries outsource VL testing to an external lab (Barbados). Most countries (61%; 19/31) recommend biannual VL monitoring, 32% (10/31) annual and 2 countries more frequent monitoring (Costa Rica, Bahamas). Comparing annual estimated VL volumes (based on people on ART and VL testing frequency in national policies; Data reported by 22 countries) 59% (13/22) countries performed ≤75% of the estimated volume (regional median 59%), while four (El Salvador, Grenada, Mexico, Peru) exceeded their estimated amount. VL coverage (proportion on ART with at least one VL test/year; data reported by 24/31 countries) showed a regional median of 82.4% (Range: 17.7-100); 42% countries (10/24) reporting VL coverage ≤75%; 3 countries with < 50% (Cuba, Ecuador, Haiti). VL coverage was 83.8% in Latin America (10 countries) and 74.5% in the Caribbean (14); 84.7% in men; 87.6% in women; 80% in children < 15; 84.6% in persons ≥15.

Conclusions/Next steps: Despite the adoption of routine VL monitoring policies and availability of lab services, VL coverage in people on ART falls short in many LAC countries. Programmatic causes should be further investigated and addressed to ensure optimal laboratory monitoring during treatment. In addition some inefficiencies were detected (too frequent VL monitoring; number of tests exceeding estimated volume) which should also be corrected.

Measuring ART adherence (drug levels, dried blood spots, hair sampling)

TUPEB045

A method to analyze tenofovir alafenamide (TAF) in hair for adherence monitoring

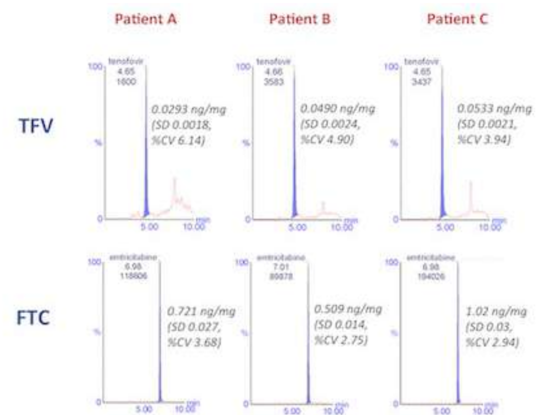
H. Okochi, A. Louie, K. Kuncze, C. Koss, L. Benet, N. Phung, M. Gandhi, UCSF Hair Analytical Laboratory (HAL)
University of California, San Francisco, United States

Background: As tenofovir (TFV) alafenamide (TAF)/emtricitabine (FTC) is increasingly used for HIV treatment and is under study for pre-exposure prophylaxis, methods to measure exposure and adherence to TAF are needed. Antiretroviral concentrations in hair samples reflect cumulative exposure and predict HIV treatment and prevention outcomes. TAF is metabolized to TFV in the plasma and then taken up into hair over time. We describe a method to analyze exposure to TAF/FTC in hair.

Methods: Hair samples were collected from patients on TAF/FTC-based therapy with HIV-1 RNA< 40 copies/ml for ≥6 months and >95% adherence (reported by patient and provider). TFV and FTC were extracted from hair (~5 mg) using 50% methanol containing trifluoroacetic acid and hydrazine dihydrochloride at 37°C overnight in a shaking water bath. The solution was evaporated and then injected into liquid chromatography/tandem mass spectrometry (Shimadzu LC-10S pump coupled to a Waters Quattro Ultima triple quadrupole mass spectrometer) using a reverse phase column (Synergi Polar-RP, 4 μm, 4.6x150mm). The linear dynamic standard curve range for TFV was 0.002-0.4 ng/mg hair and FTC was 0.02-4 ng/mg hair.

Results: The Figure shows sample chromatograms of hair TFV and FTC concentrations in 3 patients on TAF/FTC-based treatment. Hair from each individual were run in replicate 10 times with an average TFV concentration of 0.0293 nanograms/milligram (ng/mg) (standard deviation (SD) 0.0018, coefficient of variation (%CV) 6.14) in patient A; 0.0490 ng/mg (SD 0.0024, %CV 4.90) in patient B; 0.0533 ng/mg (SD 0.0021; %CV 3.94) in patient C. FTC concentrations also shown (Figure).

Conclusions: We describe a method to assess adherence and exposure to TAF/FTC in hair samples. Cumulative TFV concentrations among adherent patients on TAF using hair were similar to those in adherent patients on tenofovir-disoproxil-fumarate (TDF) in previous studies, despite levels of TFV or its metabolites in plasma and dried blood spots (DBS) being lower on TAF than TDF. Hair is collected non-invasively and stored and shipped without a cold chain or biohazard, offering additional advantages over plasma and DBS metrics. As TAF use expands for treatment and is anticipated for HIV prevention, an objective metric to monitor TAF adherence via hair levels will be useful.



[Chromatograms of TFV (top panels) and FTC (bottom panels) for 3 patients on TAF/FTC-based antiretorival therapy]

TUPEB046

A method to quantify dolutegravir, poised to become first-line therapy worldwide, in small hair samples as a metric of adherence and exposure

H. Okochi[1], N. Phung[1], K. Kuncze[1], S. Lockman[2], C. Koss[1], L. Benet[1], A. Louie[1], M. Gandhi[1], UCSF Hair Analytical Laboratory (HAL)
[1]*University of California, San Francisco, United States,* [2]*Harvard University, Boston, United States*

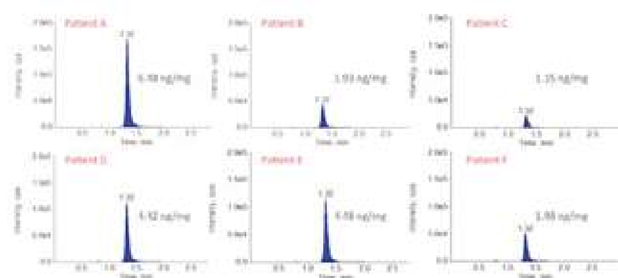
Background: Dolutegravir (DTG) has broad indications for HIV treatment, is an option for first-line therapy in global guidelines, and is being studied for prevention-of-mother-to-child-transmission (PMTCT). A long-acting investigational integrase inhibitor, cabotegravir, with similar chemical structural moieties to DTG, will have roles in both pre-exposure prophylaxis and treatment. Hair levels of antiretrovirals have proven useful as biomarkers of adherence and long-term exposure. We report, for the first time, the development of an assay to measure DTG concentrations in hair using liquid chromatography-tandem mass spectrometry (LC-MS/MS).

Methods: Hair samples were collected from HIV-infected patients on DTG-based regimens with long-standing virologic suppression (HIV-1-RNA < 40 copies/ml) and provider-and self-reported high adherence for analytical development and optimization. Sample preparation consisted of the incubation of hair (2 mg) in acidified methanol containing $^{13}C,^{2}H_{5}$-DTG (internal standard). The sample was evaporated to dryness and reconstituted. DTG was then extracted via liquid-liquid extraction using methyl *tert*-butyl ether and ethyl acetate. The organic layer was evaporated to dryness, reconstituted, and analyzed by the LC-MS/

MS system (Shimadzu Fluminent UFLC coupled to AB-Sciex API 5000 triple quadrupole mass spectrometer) via multiple reaction monitoring electrospray in positive ionization mode. The standard curve was linear over the range of 0.01-10 ng/mg. Quantitation of DTG was determined by plotting peak area ratios of DTG to $^{13}C,^{2}H_{5}$-DTG versus the nominal concentration of DTG.

Results: We quantified DTG concentrations in hair from six patients on DTG-based regimens (1.15, 1.93, 1.98, 4.42, 4.48 and 6.48 ng/mg). The analytical method exhibited high sensitivity (0.01 ng/mg) and a wide linear dynamic range (0.01-10 ng/mg) using 20-30 strands of hair. Precision (defined by the coefficient of variation) and accuracy (defined by relative error) were both < 15%.

Conclusions: We describe the development of a sensitive, specific, accurate and precise method to determine long-term adherence and exposure to DTG using small hair samples (20-30 strands). A similar method can be applied to analyze cabotegravir for exposure at the end of the dosing interval. Given that DTG is poised for first-line therapy worldwide and the recent launch of a large-scale study of DTG for PMTCT, the development of objective adherence assays to this ARV is important.



[Figure. Chromatograms of DTG for 6 patients on DTG-based antiretroviral therapy]

Drug resistance testing

TUPEB047

Antiretroviral drug resistance among Nigerian men who have sex with men

T.A. Crowell[1,2], G. Kijak[1,2], N. Ndembi[3], S. Tovanabutra[1,2], E. Sanders-Buell[1,2], A.M. O'Sullivan[1,2], A. Kokogho[1,4], S. Adebajo[5], R.G. Nowak[6], S.D. Baral[7], M.L. Robb[1,2], M.E. Charurat[6], J.A. Ake[1], TRUST/RV368 Study Group

[1]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [2]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [3]Institute of Human Virology-Nigeria, Abuja, Nigeria, [4]Henry M. Jackson Foundation for the Advancement of Military Medicine, Abuja, Nigeria, [5]Population Council Nigeria, Abuja, Nigeria, [6]Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, [7]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States

Background: As access to antiretroviral therapy (ART) increases, so does the potential for evolution and transmission of drug resistance. Surveillance for HIV drug resistance (HIVDR) informs the selection of empiric ART regimens and indications for genotypic testing. We evaluated HIVDR among ART-experienced and ART-naïve men who have sex with men (MSM) in Lagos and Abuja, Nigeria.

Methods: Adult MSM were recruited into the TRUST/RV368 cohort using respondent-driven sampling. Genotypic testing for HIVDR was performed upon enrollment of HIV-positive participants with HIV RNA ≥1000 copies/mL and at the time of seroconversion in participants with incident HIV. Major mutations conferring resistance to nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors (PIs) were identified using the IAS-USA 2017 Update of the Drug Resistance Mutations in HIV. Prior ART exposure was assessed by self-report and review of medical records. Samples from ART-naïve participants were evaluated for World Health Organization surveillance drug resistance mutations (SDRMs).

Results: From 3 April 2013 to 23 February 2016, 299 participants underwent HIVDR testing. Participants had median age 24 (interquartile range [IQR] 21-27) years, median CD4 350 (IQR 244-475), and mean HIV RNA 4.7 (standard deviation 0.73) log_{10}copies/mL. Among the 144 ART-naïve participants, 78 (54.2%) were < 25 years old and 31 (21.5%) had CD4 >500 cells/mm³. SDRMs were observed among two of 66 (3.0%) ART-naïve participants in Lagos and nine of 78 (12.0%) in Abuja. Of the 155 ART-experienced participants, 151 (97.4%) were prescribed ART at the time of HIVDR testing. Among ART-experienced participants, high-level resistance to NNRTIs was detected in 22 (14.2%) and NRTI resistance in 13 (8.4%). The most common mutations were K103N and M184V (Table). No major PI resistance mutations were detected.

	Lagos	Abuja	Total
ART-Naïve Participants	(n=66)	(n=78)	(n=144)
Any SDRM	2 (3.0)	9 (12.0)	11 (7.6)
Major NRTI Resistance	2 (3.0)	4 (5.1)	6 (4.2)
M41L	1 (1.5)	4 (5.1)	5 (3.5)
M184V	1 (1.5)	-	1 (0.7)
T215Y	-	1 (1.3)	1 (0.7)
Major NNRTI Resistance	1 (1.5)	7 (9.0)	8 (5.6)
K103N	-	3 (3.8)	3 (2.1)
Y181C	-	2 (2.6)	2 (1.4)
E138A	-	1 (1.3)	1 (0.7)
G190A	1 (1.5)	-	1 (0.7)
V108I	-	1 (1.3)	1 (0.7)
Major PI Resistance	-	-	-
ART-Experienced Participants	(n=83)	(n=72)	(n=155)
Major NRTI Resistance	3 (3.6)	10 (13.9)	13 (8.4)
M184V	2 (2.4)	9 (12.5)	11 (7.1)
K219E	-	4 (5.6)	4 (2.6)
K65R	1 (1.2)	2 (2.8)	3 (1.9)
K70R	-	3 (4.2)	3 (1.9)
M41L	1 (1.2)	1 (1.4)	2 (1.3)
D67N	-	2 (2.8)	2 (1.3)
Major NNRTI Resistance	7 (8.4)	15 (20.1)	22 (14.2)
K103N	7 (8.4)	10 (13.9)	17 (11.0)
Y181C	-	3 (4.2)	3 (1.9)
E138A	-	2 (2.8)	2 (1.3)
Y181V	-	1 (1.4)	1 (0.6)
V106A	-	1 (1.4)	1 (0.6)
Major PI Resistance	-	-	-

Abbreviations: ART, antiretroviral therapy; SDRM, World Health Organization surveillance drug resistance mutation; NRTI, nucleoside reverse transcriptase inhibitor; NNRTI, non-nucleoside reverse transcriptase inhibitor; PI, protease inhibitor

[Table. Antiretroviral Drug Resistance among Nigerian Men who have Sex with Men]

Conclusions: HIVDR among ART-experienced Nigerian MSM demonstrated a pattern consistent with failure of first-line therapy with NNRTI and NRTI components. Evidence of transmitted drug resistance was uncommon in Lagos but moderately common in Abuja, although underreporting of ART use may have led to misclassification of some participants as ART-naïve. These data support current empiric guidelines for PI-based second-line therapy and reinforce the importance of ART adherence programs with continued surveillance for HIVDR.

TUPEB048

HIV Integrase inhibitors resistance in treatment naïve HIV-1 infected populations in Taiwan: Impact of next generation sequencing

H.-C. Tsai, I.-T. Chen, P.-Y. Chou, S.S.-J. Lee, Y.-S. Chen

Kaohsiung Veterans General Hospital, Infectious Diseases, Kaohsiung, Taiwan, Province of China

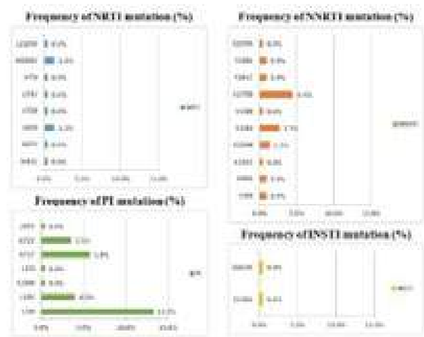
Background: Although HIV Integrase Strand Transfer Inhibitor (INSTI) resistance is low in HIV-1 infected treatment naïve population. As the use of INSTIs becomes more widespread, continued surveillance of primary INSTI resistance may be warranted. The aim of this study was to monitor the prevalence of INSTI resistance in Taiwan by using population sequencing and Illumina MiSeq sequencing.

Methods: A prospective study was conducted in antiretroviral therapy-naïve HIV-1-infected individuals at VGHKS from January 2013 to Dec 2017 in Taiwan. Drug resistance mutations were determined by ViroSeq™

system. In house PCR was used for genotyping INSTI resistance. Illumina MiSeq sequencing were used for measurement of INSTI resistances (≥1%) and compared the results with those from population sequencing. The drug resistance associated mutations were defined by the the 2017 IAS-USA HIV drug resistance associated mutations list and the integrase substitutions with a Stanford HIVdb score ≥ 10 to at least one INSTI.

Results: Among the total of 224 HIV-1 infected treatment naïve patients had tested for resistance in 2013 to 2017, of whom 97% were infected by MSM and 3% were infected by heterosexual. Subtype B HIV-1strains were found in 96% of the individuals and subtype CRF01_AE in 4%. The prevalence rate for NRTI, NNRTI, PI and INSTI resistance was 4%, 5.8%, 0.4% and 0.9%, respectively. The most common INSTI resistance associated mutation was G163K (0.4%) and E138A (0.4%). Among the 38 patients had simutaneously Illumina MiSeq sequencing and population sequencing, none had INSTI resistance associated mutation but the Illumina MiSeq sequencing detected 3 more INSTI resistance associated mutations (G163R 3.25%, S153Y 1.36% and Y143H 2.06%).

Conclusions: Our findings showed a low rate of HIV drug resistance to INSTIs (0.9%) in treatment naïve patients. Illumina MiSeq sequencing detected more INSTI resistance associated mutations at a low frequency. The clinical implications need further study.



[Prevalence of NRTI/NNRTI/PI/INSTI drug resistance associated mutations]

TUPEB049

Patterns of antiretroviral drug resistance in a rural HIV-1 infected cohort: Amajuba District, South Africa

J. Flores-Gonzalez
Madadeni Regional Hospital, Internal Medicine, Newcastle, South Africa

Background: One of the largest threats to the WHO 90/90/90 targets in HIV infection is the development of antiretroviral drug resistance. This is particularly of importance in rural underserved areas compared to urban settings. We explored the frequency and types of Drug Resistance associated Mutations (DRM) in an HIV infected population in rural Northern Kwazulu-Natal, South Africa.

Methods: Cross sectional,descriptive study of an adult cohort (> 15 years) attending the Advanced Care HIV Clinic at Madadeni Hospital who underwent genotype HIV resistance testing by DNA sequencing perfprmed at the Albert Luthuli Durban) and Charlotte Maxeke (Johannesburg) Hospitals Referral Laboratories. Stanford HIV Database algorithm was applied.

Results: 47 specimens from 50 patients were available: 5 treatment naïve patients, 14 first Line ART Failure (TDF + FTC/3TC + EFV/NVP) and 28 second Line ART Failure (ZDV + FTC/3TC + LPVr/ATVr) were analized. Female o Male ratio was 1,82. Mean age =27,9 (Range= 15-58). Wild type virus was confirmed in all treatment naïve patients.All first Line treatment failure cases showed high level resistance to EFV/NVP; 50 % were fully susceptible to ETV/RIL. ZDV associated DRM were absent in 13/14 cases (92,8 %); ABC and TDF resistance was present in 12/14 (85,7 %) and 9/14 (64,2 %), respectively. Among 28 successfully amplified specimens from second line ATR failure patients, PI associated DRM were detected in 19/28 (67,8 %). Among these, most common major PI mutations were M 46 I (71,4 %), V 82 A (57,1 %) and I 54 V (47,6 %). Concerning DRV resistance, 13/28 (46,4 %) demonstrated full susceptibility, 3/28 (10,7 %) intermediate level resistance and 12/28 (42,8 %) low level resistance.

Conclusions: Currently recommended First and Second Line ART regimens in the South African context remain valid, however,the accumulated resistance strains to DRV is concerning and demonstrates need for early detection of virological failure and optimization of adherence counselling and support, particularly in rural areas. First Line INSTI-based regimen will likely be needed in the way forward to achieving the 90/90/90 strategy success.

TUPEB050

HIV drug resistance analysis by Next Generation Sequencing among HIV infected pregnant women from Buenos Aires, Argentina

J.A. Sfalcin[1], A.G. Gomez[1], D. Cecchini[2], I. Zapiola[3], S. Fernandez Giuliano[3], L. Mammana[3], A. Seravalle[1], F.F. Fay[1], M.B. Bouzas[3]
[1]Centro de Diagnostico Medico de Alta Complejidad (CIBIC), Rosario, Argentina, [2]Hospital Cosme Argerich, Buenos Aires, Argentina, [3]Hospital de Infecciosas F. J. Muñiz, Buenos Aires, Argentina

Background: HIV-1 genotypic resistance testing is recommended in pregnant women to identify mutations associated with drug resistance, improving the selection of antiretroviral therapy (ART). Next Generation Sequencing (NGS) genotyping is able to detect minority variants (MVs) which cannot be detected by standard sequencing (SS) techniques as TRUGENE (Siemens). MVs have been shown to increase the risk of virological failure but its clinical use is still controversial. We aimed to evaluate the performance of NGS in a retrospective study from a cohort of HIV-infected pregnant women.

Methods: Baseline plasma samples collected during 2008-2014 corresponding to 40 naïve patients from a cohort of HIV-infected pregnant women were included in the present study. The median virus load was 4.2 log copies/mL and the median CD4 cell count was 390 cells/mm3. All samples previously genotyped by TRUGENE HIV-1 Genotyping Kit were sequenced using a PHAC protocol on a Miseq sequencer (Illumina). Bioinformatics analysis was performed using the HyDRA software for different thresholds of sensibility (NGS 1% and NGS 20%) and resistance mutations were identified according to WHO guidelines (TDRMs) and Stanford University major mutation lists (DRMs).

Results: 100% of sensitivity and specificity was observed between TRUGENE and NGS at 20% threshold. In addition, at NGS 1% MVs were detected, increasing the number of patients from 20 to 35% for TDRMS and from 25 to 42.5% for DRMs. The highest number of MVs was observed in the protease gene (table 1), representing less than 5% of the viral population for each patient. Thirty one patients received ART; of them 96.7% received boosted protease inhibitor (PI)-based therapy, with an adequate virological response in 86.6%.

Drug and mutation type	Trugene (n, %)	NGS 1% (n, %)	Percentage change in mutation prevalence with NGS (1%)
All TDRM	8 (20)	14 (35)	+75%
All DRM	10 (25)	17 (42.5)	+70%
IP TDRM	1 (2.5)	6 (15)	+500%
IP DRM	1 (2.5)	6 (15)	+500%
NRTI TDRM	2 (5)	4 (10)	+100%
NRTI DRM	2 (5)	3 (10)	+50%
NNRTI TDRM	6 (15)	7 (17.5)	+17%
NNRTI DRM	8 (20)	11 (27.5)	+37.5%

[Table 1. Number of patients with drug associated mutations for NGS (1%) and Trugene]

Conclusions: NGS increased the detection of resistance mutations, mostly in the protease gene. Such mutations had a low frequency (< 5%) within the viral population for each patient and were not associated with virologic failure. Considering its high genetic barrier, detection of additional mutations by NGS may not predict an impact in the efficacy of boosted PIs-based ART on this population. Despite this, NGS technology may improve drug resistance surveillance.

TUPEB051

Validation of a cost effective and sensitive HIV-1C integrase genotyping assay

K. Seatla[1,2], W. Choga[1], M. Mogwele[1,3], T. Diphoko[1,4], T. Mogashoa[1,5], L. Mupfumi[1,5], I. Kasvosve[4], S. Moyo[1,6], S. Gaseitsiwe[1,6]
[1]Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana, [2]Faculty of Health Sciences, University of Botswana, Gaborone, Botswana, [3]University of Botswana, Department of Biological Sciences, Gaborone, Botswana, [4]University of Botswana, Department of Medical Laboratory Sciences, Gaborone, Botswana, [5]University of Botswana, Faculty of Health Sciences, Gaborone, Botswana, [6]Harvard T.H. Chan School of Public Health, Department of Immunology & Infectious Diseases, Boston, United States

Background: Increasing access to highly potent antiretroviral (ARV) drugs necessitates the need for more sensitive monitoring of HIV drug resistance in Low and Middle Income Countries (LMIC). Botswana was one the first countries to introduce dolutegravir (DTG) based combination antiretroviral therapy (cART) as first line regimen. We optimised and evaluated an in-house integrase drug resistance assay (IH-Int) evaluated and compared to a commercially assay in Botswana with a background of HIV-1C infection.
Methods: We used 61 specimens from treatment naïve participants enrolled in a previous completed study. Specimens were tested using either ViroSeq™ Integrase Genotyping kit (VS) following manufacture's recommendation and an IH-Int. Drug resistance mutations were analysed using the Stanford HIV drug resistance database. We compared the concordance in mutations calls and amino acid sequence similarity between the two assays. The pairwise nucleotide and amino-acid identity were analysed using Mega 7.0.26.
Results: Among 61 specimens tested with IH-Int, 56 (92%) successfully amplified and for the 52 tested by VS, 42 (81%) successfully amplified. The lowest viral load detected by VS was 431 copies/ml and IH-Int 528 copies/ml. A total of 23 paired sequences showed a concordance of 96% in terms of major and minor INSTI mutations. One mutation, E92Q, was detected by VS and not detected by the IH-Int. The mean amino acid and nucleotide similarity were 99.73% (SD = 0.67) and 99.63% (SD = 0.98%). All participants were infected with HIV-1C. The cost per test of IH-Int was 40-70USD and for VS 200-300 USD.
Conclusions: The IH-Int assay had a high amplification success rate and high concordance with the commercial assay. It is significantly more affordable than the commercial assay. Our assay has the needed specifications for routine monitoring of participants on Dolutegravir based regimens in Botswana.

TUPEB052

Next generation sequencing of pooled samples provides comparable data to sanger sequencing for the detection of HIV protease inhibitor mutations

M. Yousif[1,2], S. Carmona[3,4], J. Ledwaba[1], K. Steegen[3,4], L. Morris[1,2], G. Hunt[1,2]
[1]National Institute for Communicable Diseases, Centre for HIV and STI, Johannesburg, South Africa, [2]University of the Witwatersrand, Virology, Johannesburg, South Africa, [3]University of the Witwatersrand, Molecular Medicine and Haematology, Johannesburg, South Africa, [4]National Health Laboratory Service, Johannesburg, South Africa

Background: South African national guidelines recommend HIV drug resistance (HIVDR) testing for all HIV-infected patients failing a protease inhibitor (PI) based regimen. Currently, Sanger sequencing is used for HIVDR testing, however the implementation of next generation sequencing (NGS) could improve sensitivity, reduce cost and increase specimen throughput. The aims of this study were to compare Sanger and Illumina NGS methods for their ability to detect PI drug resistance mutations among patients failing a PI regimen.
Methods: A total of 162 specimens with PI mutations detected by Sanger sequencing were selected for this study. A 1.7kb fragment spanning protease and reverse transcriptase genes was amplified using an in-house PCR assay. Library preparation was performed using a Nextera XT kit. Paired-end libraries were indexed and pooled in a single MiSeq run (96 specimens) and sequenced using MiSeq Reagent kit V3. FastQ files were analysed using DeepChek®. A consensus sequence was generated for each specimen to compare with Sanger sequences.
Results: The validation process of the NGS and Sanger sequences was done successfully using phylogenetic analysis and pairwise analysis. At the nucleotide level pairwise distance was >99%, while at the amino acid level it was >98%. Using a 15% cut-off for generating a consensus sequence, 155/162 (95.7%) of specimens showed similar HIVdb resistance mutation scores between Sanger and NGS, while 7 specimens (4.3%) showed discordance between the two techniques. When using 5-15% consensus cut-off, an additional 13 specimens (8%) showed discordance.
Conclusions: Detection of DRMs using MiSeq and Sanger sequencing showed high concordance (95.7%). The difference in the HIVdb resistance mutation scores was due to discrepancies in mutations detected. The discrepancies had minor impact on clinical interpretation as all scores were >15 for LPV/r and ATZ/r, which is the cut-off for switching patients to 3rd line therapy. The use of NGS for HIVDR testing is therefore reliable and allows for large specimen numbers to be tested in a more efficient workflow.

TUPEB053

Clinical characteristics of HIV-1-infected patients with multi-drug resistance to antiretroviral therapy - first results from the LOWER study

M. Däumer[1], E. Wolf[2], M. Bickel[3], A. Stoehr[4], H. Knechten[5], S. Esser[6], C. Wyen[7], I. Krznaric[8], M. Müller[9], J. Brust[10], J.-C. Wasmuth[11], H.-A. Horst[12], S. Holm[13], A. Thielen[14], C. Hoffmann[15]
[1]Institut für Immunologie und Genetik, Kaiserslautern, Germany, [2]MUC Research, München, Germany, [3]Infektiologikum, Frankfurt, Germany, [4]Institut für Interdisziplinäre Medizin, Hamburg, Germany, [5]PraxenZentrum Aachen, Aachen, Germany, [6]Universitätsklinikum Essen, Klinik für Dermatologie und Venerologie, Essen, Germany, [7]Uniklinik Köln, Klinik I für Innere Medizin, Köln, Germany, [8]Zentrum für Infektiologie, Berlin, Germany, [9]Gemeinschaftspraxis Schwabstraße, Stuttgart, Germany, [10]Mannheimer Onkologie Praxis, Mannheim, Germany, [11]Universitätsklinikum Bonn, Medizinische Klinik und Poliklinik I, Bonn, Germany, [12]Universitätsklinikum Schleswig-Holstein, Klinik für Innere Medizin II, Kiel, Germany, [13]Praxis Georgstraße, Hannover, Germany, [14]Institut für Immunologie und Genetik, Seq-IT GmbH, Kaiserslautern, Germany, [15]ICH Study Center, Hamburg, Germany

Background: The objective of the LOWER study is to analyse the clinical and virological characteristics of HIV-1 infected patients (pts) with multi-drug resistance (MDR) to antiretroviral therapy (ART).
Methods: From April to November 2017, this nation-wide study has enrolled pts with extended resistance in 13 large HIV centres in Germany. For inclusion, signed informed consent and documented evidence of major resistance-associated mutations (RAMs) to ≥3 ART classes of NRTIs, NNRTIs, PIs or INSTIs were mandated. In this sub-analysis, a first description of the cohort is provided.
Results: Of 243 pts (218 males, 25 females) with documented extended resistance, 208 (85.6%) had RAMs affecting NRTIs, NNRTIs and PIs, while 12 (4.9%) had RAMs affecting NRTIs, INSTIs and NNRTIs or PIs (triple class resistance, TCR). The remaining 23 (9.5%) pts had RAMs affecting all four classes (quadruple class resistance, QCR). Patient characteristics are depicted in Table 1. Median age was 55.1 years and median time since first HIV diagnosis was 24.6 years. Many pts had advanced HIV disease and extensive exposure to ART. In the vast majority, ART had been initiated prior to 2000 and had included exposure to mono- or dual therapy with nucleoside analogues. Only 7 patients had initiated ART after 2007, among them one patient with QCR. Of all patients with TCR and QCR, 89.5 % and 65.2 %, respectively, had a current HIV-RNA level below 50 copies/ml; only 7 patients had exhausted current treatment options. Of all patients, less than 5% showed a profound immune deficiency of less than 200 CD4-cells/µl.
Conclusions: In this large cohort of pts with extended resistance representing 25-30 % of all HIV-1 infected pts with MDR in clinical care in Germany, the vast majority had acquired MDR with insufficient ART regimens prior to 2000. Incident MDR is a rare event in Germany and the rate of pts with exhausted options remains low. Our results emphasize the caveats in the design of clinical trials testing new treatment options in patients in need for further options.

	Total	TCR	QCR
n (male gender, %)	243 (89.7 %)	220 (90.9 %)	23 (78.3 %)
Median age, years (range)	55.1 (21.4-80.1)	55.1 (21.4-80.1)	55.1 (28.8-66.3)
Non-R5 tropic virus	51.1 %	49.4 %	60.0 %
Median CD4 cells/µl (range)	566 (10-2293)	584 (107-2293)	336 (10-1077)
CD4 < 200 cells/µl	4.9 %	1.8 %	34.8 %
Prior AIDS-defining illness	53.7 %	53.0 %	60.9 %
Current HIV-RNA < 50 copies/ml	87.2 %	89.5 %	65.2 %
Initiation of ART prior 2000	82.1 %	81.5 %	89.5 %
Initiation of ART 2000-2007	14.7 %	15.6 %	5.3 %
Initiation of ART after 2007	3.1 %	2.9 %	5.3 %
Exposure to mono/dual NRTI regimens	76.2 %	75.5 %	84.2 %

[Table 1. Characteristics of patients with triple (TCR) or quadruple class resistance (QCR)]

Diagnostics of co-infections and comorbidities

TUPEB054

Satisfaction with anal cancer screening among men who have sex with men who are at risk for and living with HIV in Abuja, Nigeria

W. Dauda[1], C.H. Nnaji[1], N. Ndembi[1], J.M. Palefsky[2], U.C. Ononaku[1], C. Katu[1], A. Mitchell[3], T.A. Crowell[4,5], S.D. Baral[6], M.E. Charurat[3], K.J. Cullen[7], R.G. Nowak[3,7]

[1]Institute of Human Virology Nigeria, Research, Abuja, Nigeria, [2]University of California, Department of Medicine, San Francisco, United States, [3]Institute of Human Virology, University of Maryland, School of Medicine, Baltimore, United States, [4]U.S.Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [5]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [6]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States, [7]University of Maryland, Marlene and Stewart Greenebaum Cancer Center, Baltimore, United States

Background: Men who have sex with men (MSM) living with HIV are at increased risk for anal cancer despite effective antiretroviral therapy. Our objective was to evaluate satisfaction with anal cancer screening using high-resolution-anoscopy(HRA) among MSM at risk for and living with HIV.

Methods: Between March and August 2017, 190 MSM were screened for anal cancer at an HIV clinic in Abuja, Nigeria. Participants completed a 22-item questionnaire that evaluated level of satisfaction, distress, and whether symptoms of anal cancer would motivate future screening. Questions were on a 5-point likert scale and then categorized into three ordinal groups. Analyses characterized differences in satisfaction or knowledge of HRA by HIV status using Chi-square tests.

Results: Participants had a median age of 24 years(interquartile range: 22-28) and 63%(119/190) were living with HIV. There was no difference by HIV infection status in satisfaction (96-100%) on 10 of the 19 items related to convenience, staff interpersonal skills, physical surroundings, perceived technical competence, and general satisfaction (p>0.05). 89% were very anxious about having the procedure and 98% agreed to strongly recommend screening to their friends. HIV-uninfected as compared to MSM living with HIV reported more pain during the procedure (19.7% vs 8.5%, p=0.05), found it as uncomfortable as expected (17.1% vs. 6.7%, p=0.07) and agreed it caused great discomfort (19.7% vs. 9.2%, p=0.10), suggesting a trend towards more pain. HIV-uninfected participants also reported waiting longer (9.9% vs. 3.4%, p=0.10). Irrespective of HIV status, only 26-27% agreed to seek additional screening if they had rectal or abdominal pain, any bleeding, or constipation and/or unusually shaped stools.

Conclusions: Overall satisfaction was relatively high for HRA, indicating that implementation of anal cancer screening as part of services provided in a HIV clinic would be feasible with high acceptability. However, common symptoms of anal cancer were not understood as reasons to seek future screening. Anal cancers as a contributor to HIV-related morbidity and mortality have been understudied likely resulting in the limited awareness of common symptoms observed here. Moving forward necessitates increased dialogue of the illness, the utility of screening, and strategies to integrate into existing health systems.

TUPEB055

Effect of CD4 count on the performance of GeneXpert test for tuberculosis (TB) in people living with HIV (PLHIV) in Swaziland: A cross sectional diagnostic study

M. Pasipamire[1], N. Mahlalela[2], D. Khumalo[3], G. Maphalala[3], N. Lukhele[1], P. Mndzebele[1], S. Haumba[2]

[1]Ministry of Health, Swaziland National AIDS Programme, Mbabane, Swaziland, [2]University Research Co. LLC, Mbabane, Swaziland, [3]Swaziland National Reference Laboratory, Mbabane, Swaziland

Background: Swaziland has made progress in controlling the dual TB and HIV epidemic through the implementation of TB/HIV collaborative activities. Through the collaboration, 90% of PLHIV are routinely screened for TB. However, case detection remain a challenge despite increasing median CD4 count (CD4) among those initiating ART. We therefore conducted a study to evaluate diagnostic performance of Xpert-MTB/RIF (GeneXpert) by CD4 against sputum culture.

Methods: A cross sectional study was conducted from April to September 2015 at 4 health facilities. Participants attending ART clinics who screened positive for TB using the 4 symptom-based screening tool were enrolled for TB diagnostic evaluation. Two sputum samples were collected for GeneXpert and TB culture using MGIT. Blood was collected for CD4 testing using FACS Calibur. All samples were tested at National Reference Laboratory. Sensitivity and specificity analyses were done to evaluate GeneXpert. Logistic regression was done to determine factors associated with a true-positive GeneXpert (GeneXpert MTB-detected+ culture-positive). All analyses were done in STATA 12. Proportions, adjusted odds ratios (aOR) with 95% confidence intervals (95%CI) and p-values (p) were reported.

Results: There were 390/417 (94%) participants with sputum collected, 367 (94%) and 365 (94%) had valid culture and GeneXpert results respectively. Thirty (8%) had TB culture-positive results. Of the 30, 15 (50%) had MTB-detected by GeneXpert. The sensitivity of GeneXpert was 78% at CD4< 100 but decreased to 67% and 27% at CD4 of 100-< 200 and CD4≥200 cells/mm³ respectively. The specificity was consistently 100% at all CD4 levels. Positive predictive value was 100% for CD4< 200.

In multivariable analysis, GeneXpert was more likely to be truly-positive among those with CD4< 100 compared to those with CD4 ≥200 (aOR=16.47 (95%CI=1.69-36.34), p< 0.001). Those who were underweight (BMI< 18.5) were more likely to have a true positive GeneXpert compared to those with normal BMI of 18.5-25 (aOR=5.67 (1.50-21.45), p-value=0.011. Sex was not a significant factor (see Table).

Variable	Univariate			Multivariate		
	OR	95% CI	p-value	aOR	95% CI	p-value
CD4 count (cells/mm³)						
>200	1	Ref		1	Ref	
100-200	7.08	1.70 - 29.45	0.000	7.83	4.01 - 67.63	0.009
<100	11.80	3.85 - 49.53	0.007	16.47	1.69 - 36.34	0.000
Body mass index (kg/m²)						
18-25	1	Ref		1	Ref	
<18.5	4.18	1.23 - 14.24	0.022	5.67	1.50 - 21.45	0.011
>=25	1.25	0.33 - 4.74	0.745	1.65	0.41 - 6.73	0.485
Age group (years)						
<25	1	Ref		1	Ref	
25-49	0.42	0.09-2.04	0.281	0.18	0.03 - 1.09	0.062
50+	0.08	0.01-0.89	0.040	0.05	0.00 - 0.69	0.025
Sex						
Female	1	Ref		1	Ref	
Male	1.33	0.46 - 3.82	0.599	1.12	0.33 - 3.81	0.851

[Table_Factors associated with true positive GeneXpert (MTB-detected culture positive) results measured against culture]

Conclusions: In Swaziland, CD4 count was an independent factor associated with true-positive GeneXpert test. Therefore as the HIV epidemic is controlled, efforts to improve and increase the pace of new TB diagnostic technologies should be prioritised to maximise TB case detection.

TUPEB056

Anal, oral and genital distribution of HPV in PrEP-users MSM: Results at baseline of the ANRS IPERGAY HPV sub-study

L. Cotte[1], D. Veyer[2], I. Charreau[3], J.F. Flejou[4], H. Péré[5], E. Cua[6], J. Chas[7], I. Heard[8], C. Delaugerre[9], C. Capitant[3], J.M. Molina[10], IPERAGY ANRS
[1]Hopital Croix Rousse, Lyon, France, [2]Hopital Europeen Georges Pompidou, Virology, Paris, France, [3]SC10, Kremlin Bicetre, France, [4]Hopital Saint Antoine, Paris, France, [5]Hopital HEGP, Paris, France, [6]Hopital Universitaire de Nice, Nice, France, [7]Hopital Tenon, Paris, France, [8]Hopital Pitie Salpétrière, Paris, France, [9]Hopital Saint Louis - Université Paris Diderot, Virology, Paris, France, [10]Hopital Saint Louis, Paris, France

Background: HPV infection has been well studied in HIV-infected men having sex with men (MSM), but is less known in HIV-negative subjects. We report preliminary results of a study that aimed to describe the molecular epidemiology of HPV in 3 different anatomic sites to better understand the natural history of HPV.

Methods: HIV-negative MSM enrolled in the ANRS IPERGAY trial were included in the HPV sub-study. Anal, oral and genital swabs were collected at baseline and every 6 months during a 2-year-follow-up for HPV genotyping. Anal cytology was obtained at baseline and after 18/24 months. HPV genotyping was performed using AnyplexTM II HPV28 (Seegene®) that detects 19 high-risk (HR) and 9 low-risk (LR) HPV genotypes.

Results: 164 participants were enrolled, median age:34 (IQR: 27-42) years. The baseline prevalence of anal, oral and genital HPV infection was 92%, 12% and 37%, respectively. The prevalence of anal, oral and genital HR/LR HPV was 83%/68%, 11%/3% and 25%/12%, respectively. Multiple infections were observed in 77%, 3% and 17% of anal, oral and genital sites, with a median of 4 genotypes at the anal site. Anal cytology was normal at baseline in 32%, ASCUS in 23%, ASCH in 1%, LSIL in 40%, HSIL in 4% of cases. Participants with normal cytology were infected with a median of 2.5 HPV genotypes (IQR:1-4) vs. 4 (IQR:2-6) (p=0.006) in participants with abnormal cytology. Abnormal cytology results were associated with HR16 (p=0.046), HR66 (p=0.049), LR11 (p=0.012) and LR61 (p=0.01). HPV included in the nonavalent vaccine (HR 16, 18, 31, 33, 45, 52 and 58; LR 6 and 11) represented 38%, 43% and 36% of anal, oral and genital HR and 26%, 33% and 21% of anal, oral and genital LR, respectively.

Conclusions: High-risk HIV-negative MSM enrolled in the ANRS IPERGAY PrEP trial were heavily infected with HR and LR HPV at baseline; 2/3 of them presented with abnormal anal cytology. The number of detected HPV genotypes was associated with abnormal cytology, as well as HPV 16, 66, 11 and 61. Part of these infections could have been prevented by the nonavalent HPV vaccine.

TUPEB057

Diagnostic value of 18 FDG PET/CT in undiagnosed opportunistic infections among symptomatic HIV/AIDS patients

U.E. Mathew[1], N. Nischal[1], M. Tripati[2], C. Das[3], M. Soneja[1]
[1]All India Institute of Medical Sciences (AIIMS), Department of Internal Medicine, New Delhi, India, [2]All India Institute of Medical Sciences (AIIMS), Department of Nuclear Medcine, New Delhi, India, [3]All India Institute of Medical Sciences (AIIMS), Radiology, New Delhi, India

Background: Positron emission tomography (PET) with [F-18]-fluorodeoxy-glucose (FDG) is a sensitive tool for the localisation of pathology. However, the interpretation of FDG PET scans in HIV patients is challenging. We undertook this study to evaluate the diagnostic utility of 18 FDG-PET/CT scan in the diagnosis of opportunistic infections and correlate the SUVmax with specific opportunistic infections.

Methods: A total of 25 symptomatic HIV patients were enrolled in our prospective observational study. Patients were subjected to sequential investigative investigations according to our institute's protocol for evaluation of PUO patients and those who remain undiagnosed underwent FDG PET scans and were then included in this study.

Results: The study population were predominantly males (64% ;16/25) with mean age of 36.5 ± 15.5 years (range 21 - 52 years).The median CD4 count was 226 cells / mm^3 and majority of participants (72%) were on combined anti-retroviral therapy (cART). Predominant mode of transmission was through heterosexual contact (80%). Majority of our patients (92%) presented with fever of duration more than 3 weeks. All standard serological tests were inconclusive in our study population.

FDG PET CT was contributory to diagnosis in 24/25 patients and was able to detect opportunistic infection/neoplasm in 18 patients with disease. The most common finding was lymphadenopathy (96%) but metabolically active lymph nodes were present only in 18 patients (72%). Of the 3 patients with neurological symptoms, 2 of them had low FDG uptake corresponding to a diagnosis of PML while one patient had no FDG uptake and presumed to have drug induced encephalopathy secondary to Efavirenz. Sensitivity of PET-CT in diagnosing opportunistic infections/neoplasms was 100% with specificity of 71%, diagnostic accuracy of 92%, PPV of 94% and NPV of 100%. In comparison, CECT was contributory to diagnosis in 9 patients only. Moreover, three patients with imaging features suggestive of TB in CECT were suspicious for malignancy by FDG PET CT and confirmed to be malignant subsequently.

Conclusions: 18 FDG-PET CT is a useful diagnostic tool helpful to differentiate infections and malignancy in HIV infected patients and localise the best possible site for biopsy.

TUPEB058

Cervical cancer screening and prevalence and treatment of cervical abnormality in women living with HIV: Results from the Malawi population-based HIV impact assessment (MPHIA) 2015-16

S. Jonnalagadda[1], D. Payne[2], A. Voetsch[1], S. Forhan[1], E. Radin[3], C. West[2], A. Maida[2], L. Sithole[4], M. Odo[5], H. Patel[1], J. Cuervo-Rojas[3], C. Wang[3], H. Longwe[6], E. Kim[2], MPHIA Study Team
[1]Centers for Disease Control and Prevention, Division of Global HIV and TB, Atlanta, United States, [2]Centers for Disease Control and Prevention, Lilongwe, Malawi, [3]ICAP at Columbia University, New York, United States, [4]National AIDS Commission, Government of Malawi, Lilongwe, Malawi, [5]Ministry of Health, Government of Malawi, Lilongwe, Malawi, [6]ICAP at Columbia University, Pretoria, South Africa

Background: Cervical cancer (CC) screening and treatment of cervical pre-cancer is effective in CC prevention. UNAIDS recommends that all women living with HIV should be offered CC screening and treatment, if needed. Early antiretroviral treatment (ART) and HIV viral suppression (VS) might reduce risk of progression to invasive CC in HIV-positive women. We used the 2015-16 Malawi Population-based HIV Impact Assessment (MPHIA) data to describe CC screening in HIV-positive women in Malawi, a high HIV burden country with highest CC incidence, globally.

Methods: MPHIA is a nationally representative household survey. Consenting females aged 15-64 years were interviewed and tested for HIV using the national rapid test algorithm; positives were confirmed using Geenius™ HIV 1/2 Confirmatory Assay (Bio-Rad). ART use was defined as self-reported or presence of detectable ART in blood. Self-reported CC screening data were analyzed by HIV test result and ART status using weighted percentages and 95% confidence intervals (CI) that account for complex survey design.

Results: Among 1,507 HIV-positive women, 295 (16.0%; 95% CI: 13.4% - 18.6%) reported CC screening, compared to 758 of 8,375 (7.4%; 95% CI: 6.3% - 7.7%) HIV-negative women.

Among 1,110/1507 HIV-positive women on ART, 83.0% (95% CI: 80.0% - 86.0%) reported not being screened for CC. Percentage of HIV-positive women on ART who were not screened for CC was greatest in those aged 15-24 years (94.9%) and in women in rural areas (68.4%) (Table 1).

Among women screened for CC, 18/295 (5.3%; 95% CI: 2.3%-8.3%) HIV-positive and 23/758 (3.7%; 95% CI: 2.2%-5.2%) HIV-negative women reported an abnormal result. Of the 41 women with abnormal results, 17 (47.5%; 95% CI: 28.8%-66.3%) reported receiving same day pre-cancer treatment; 11 (30.0%; 95% CI: 12.5% - 47.3%) reported receiving different day treatment and 13 (22.6; 95% CI: 11.0%-34.1%) reported not receiving treatment. No differences were observed in pre-cancer treatment by HIV status.

Conclusions: CC screening in Malawi was low in general and in HIV-positive women, even among those on ART, indicating a missed opportunity. In the HIV test and treat era, strengthening integration of CC screening with HIV services could play a vital role in CC prevention.

Variable	Unweighted number of HIV positive women screened	Weighted percent of HIV positive women screened	95% CI	Unweighted Number of HIV positive women not screened	Weighted percent of HIV positive women not screened	95% CI	Unweighted denominator of HIV positive women
All HIV+ women on ART	237	17.0	14.0 - 20.0	873	83.0	80.0 - 86.0	1,110
15-24 years	6	5.1	0.7 - 9.5	83	94.9	90.5 - 99.3	89
25-34 years	55	12.4	8.0 - 16.8	303	87.6	83.2 - 92.0	358
35-44 years	111	21.7	16.9 - 26.5	295	78.3	73.5 - 83.1	406
45-59 years	51	22.8	14.6 - 31.1	133	77.2	68.9 - 85.4	184
60-64 years	14	12.2	4.4 - 19.9	59	87.8	80.1 - 95.5	73
Urban residence	161	31.6	25.1 - 38.0	356	68.4	62.0 - 74.9	517
Rural residence	76	12.0	9.8 - 22.2	517	88.0	77.8 - 90.2	593

[Cervical cancer screening in HIV positive women on ART, by age and residence]

TUPEB059

Xpert MTB/RIF for rapid diagnosis of extra-pulmonary tuberculosis in high HIV and tuberculosis burden settings

M. Tadesse[1], M. Bezabih[2], G. Abebe[1], D. Yilma[3], L. Rigouts[4]
[1]Jimma University, Mycobacteriology Research Center, Jimma, Ethiopia, [2]Jimma University, Pathology, Jimma, Ethiopia, [3]Jimma University, Internal Medicine, Jimma, Ethiopia, [4]Institute of Tropical Medicine, Biomedical Sciences, Antwerp, Belgium

Background: Ethiopia is known to have high prevalence of HIV and tuberculosis. The proportion of extra-pulmonary tuberculosis (EPTB) cases increased to 58% in HIV-infected patients. However, the diagnosis of EPTB remains challenging and EPTB cause excess mortality in people living with HIV.
The currently available tools are either low in sensitivity or require longer time to confirm EPTB. We determined the clinical utility of the Xpert MTB/RIF for the diagnosis EPTB in Ethiopia.
Methods: This study was carried out at a public tertiary care hospital in Ethiopia from August 2016 to June 2017. A total of 232 (68 HIV-positive and 164 HIV-negative) patients with clinically presumed of EPTB were included. Site-specific extra-pulmonary samples (98 lymph node aspirates, 63 pleural fluids, 38 cerebrospinal fluid and 33 peritoneal fluids) were collected and examined for TB by culture and Xpert MTB/RIF. The diagnostic accuracy of Xpert MTB/RIF was calculated compared to culture and stratified by HIV status and specimen types.
Results: Overall, 98 (42.2%) specimens were positive for *M. tuberculosis* by culture and 103 (44.4%) by Xpert MTB/RIF**.** There was higher proportion of EPTB cases among HIV-infected patients (48.5% versus 39.6%) than HIV-uninfected patients. The sensitivity of Xpert MTB/RIF for EPTB was 88% among HIV-infected patients and 92% among HIV-uninfected patients, with no statistically significant difference between the two groups. However, the Xpert MTB/RIF sensitivity was quite different among the specimen types. Xpert MTB/RIF has highest sensitivity for lymph node TB (91%), modest for TB meningitis (81%) and lowest for pleural (47%) or abdominal TB (43%). A negative Xpert MTB/RIF test on fluid specimens does not exclude the diagnosis of pleural or abdominal TB and patients with a high clinical probability of EPTB should be started on anti-TB treatment. The Xpert MTB/RIF specificity was high (92%) and not significantly affected by HIV-status or specimen types.
Conclusions: Xpert MTB/RIF is likely to be of greatest utility when diagnosing patients suspected of lymph node TB or TB meningitis, even in HIV-infected patients. Xpert MTB/RIF offered a rapid diagnosis and particularly important in life-threatening forms of EPTB, such as TB meningitis.

TUPEB060

Diagnostic accuracy of Xpert MTB/Rif in detecting pulmonary tuberculosis among people living with HIV at the research institue for tropical medicine

A. Gianan[1], N. Macalalad[2], M. Lucero[2]
[1]Research Institute for Tropical Medicine, Las Pinas, Philippines, [2]Research Institute for Tropical Medicine, Muntinlupa, Philippines

Background: Tuberculosis is a leading killer among people living with human immunodeficiency virus (HIV). HIV-infected individuals with latent TB are approximately 20-30 times more likely to develop TB disease than those who are HIV uninfected, at a rate of 8-10% per year. In the Philippines, there are 1,379,390 cases diagnosed with tuberculosis, 98.9% of this is Pulmonary TB while extra pulmonary TB is the remaining 1.1%.(6) At the Research Institute for Tropical Medicine (RITM), there have been about 5,000 cases of HIV since 1980's.
This study determined the diagnostic validity of Xpert MTB/Rif in identifying the presence of Pulmonary Tuberculosis among HIV patients at the Research Institute for Tropical Medicine.
Methods: This is a prospective cross sectional analytical study among HIV patients aged 19 and above who are infected with HIV and enrolled in RITM seen from January 2015 - March 2016. Patients with signs and symptoms of PTB were enrolled and submitted sputum for AFB smear, Xpert MTB/Rif and TB culture. This was processed following RITM protocol for pulmonary samples for Xpert MTB/Rif based on WHO guidelines.
All samples were processed for AFB smear and TB culture as part of the usual procedure for diagnosing PTB. Epi info was used for data entry program using single data entry system. Statistical analysis included the determination of sensitivity, specificity, positive predictive value, and negative predictive value of the Xpert MTB/Rif and AFB sputum smear using MTB culture as the gold standard. Categorical values were reported as frequencies and percentage while numerical values were reported as mean and standard deviation.
Results: A total of 272 patients were enrolled in the study. Xpert MTB/Rif has a sensitivity of 60.78% and specificity of 97.8%, high positive predictive value (88.57) and high negative predictive value (89.90). The turn around time for Xpert MTB/Rif and AFB smear is 4 and 6 days respectively. A prevalence (21.89%) of culture-proven pulmonary TB was diagnosed in this patient population.
Conclusions: Use of Xpert MTB/RIF as a screening tool might effectively reduce the risk of MDR-TB in HIV care and treatment settings and improve the prognosis of affected patients.

TUPEB061

Evaluation of a prototype cobas®MTB assay for use on the cobas® 6800/8800 Systems for the detection of *Mycobacterium tuberculosis* in a high burden HIV patient population

L. Scott[1], A. David[1], J. Furrer[2], F. Schneider[2], L. Govender[1], S. Kumar[2], F. Bastos[2], S. Lange[2], P. Loetscher[2], N. Martinson[3,4], E.M. Marlowe[5], W. Stevens[1,6]
[1]University of the Witwatersrand, Department of Molecular Medicine and Haematology, School of Pathology, Faculty of Health Science, Johannesburg, South Africa, [2]Roche Molecular Diagnostics, Development, Rotkreuz, Switzerland, [3]Perinatal HIV Research Unit Chris Hani Baragwanath Hospital, Johannesburg, South Africa, [4]Johns Hopkins University Center for Tuberculosis Research, Baltimore, United States, [5]Roche Molecular Diagnostics, Medical & Scientific Affairs, Pleasanton, United States, [6]National Priority Program of the National Health Laboratory Service, Johannesburg, South Africa

Background: *Mycobacterium tuberculosis* (MTB) is the leading cause of infectious disease death worldwide, especially in persons living with HIV/AIDS (PLWH). Per WHO guidelines, all PLWH should be tested for MTB. The study objective was to initiate preliminary evaluation of a prototype cobas® MTB assay for use on the cobas® 6800/8800 Systems to detect MTB from sputum and sediment specimens in a high burden HIV population.

Methods: A prospective accuracy evaluation was conducted to determine the sensitivity and specificity of the prototype cobas® MTB assay (cobas). Specimens tested included matched raw sputum and sediment among adults with presumptive TB in Johannesburg, South Africa. The performance of the prototype cobas was compared to the standard of care Cepheid Xpert® MTB/RIF and the commercially available Abbott RealTime MTB assays.

Results: A total of 294 patients were enrolled (59.9% HIV+) in the evaluation. Among smear +/culture + patients cobas identified 73/73 (100%) patients with TB from sediment and 72/73 (98.6%) from raw sputum, compared to 100% & 97.3% Xpert and 97.3% & 98.6% Abbott. Among the smear -/culture + patients, cobas identified 17/22 (77.3%) from sediment and 18/22 (81.8%) from raw sputum, compared to 77.3% & 72.7% for both Xpert and Abbott. Specificity was 95.5% & 97% for sediment and raw sputum, compared to 98.5 & 97.5 Xpert and 95.0% & 96%% Abbott respectively. Among the HIV cohort (n=176), in smear +/culture + patients cobas identified 52/52 (100%) patients with TB from sediment as well as raw sputum, compared to 100% & 98.1% Xpert and 98.1% & 100% Abbott. In smear -/culture + patients, cobas identified 13/17 (76.5%) from sediment and 14/17 (82.4%) from raw sputum, compared to 76.5% & 70.6% for both Xpert & Abbott. Specificity in HIV + patients was 94.4% and 95.3% in sediment and raw sputum, compared to 98.1% & 97.2% Xpert and 93.5% & 96.3% Abbott.

Conclusions: The prototype **cobas**® MTB for use on the **cobas**® 6800/8800 Systems demonstrated comparable performance to existing technologies, for both raw sputum and sediment specimens. This investigational MTB assay offers an automated, high-throughput, polyvalent platform for laboratories serving high burden HIV populations.

TUPEB062

Stopping HIV in its tracks - expanding testing for HIV and a common comorbid infection can halt the epidemic

C. Lushbough[1], L. Alerte[2], K. Bogdansky[3], Y. Elamir[3], C. Faludi[3], M. Ghias[3], W. Grist[3], K. Gyekye[2], M. Hart[2], T. Nguyen[2], J. Rocha[2], M. Tran[2], A. Grigoriu[1]
[1]*RWJ Barnabas Health - Jersey City Medical Center, Internal Medicine, Jersey City, United States,* [2]*RWJ Barnabas Health, Jersey City, United States,* [3]*RWJ Barnabas Health - Jersey City Medical Center, Jersey City, United States*

Background: It is estimated that 37,000 individuals are diagnosed with HIV while 160,000 are diagnosed with Hepatitis C Virus (HCV), often concurrently, in the state of New Jersey alone. Both viruses are well-known and widespread challenges to personal, societal, and governmental resources and, ultimately, human life. Current guidelines from the USPSTF recommend offering HIV screening every 1 - 5 years in accordance with risk and a 1-time screening for HCV infection to adults born between 1945 and 1965 (baby boomers). Early detection allows for early treatment, cure, and slowing of the spread of disease. We posited that expanding routine testing outside these recommendations would aid in early identification, management, containment, and, ideally, cure of these often-dreaded and still-fatal diseases.

Description: Jersey City Medical Center (JCMC) implemented EHR screening prompts to encourage providers routinely to screen all admitted patients equal to or greater than 18 years of age for HIV and HCV. JCMC's IT and Laboratory departments collected data continuously from January 1, 2016 to September 30, 2017.

Lessons learned: Testing volume increased 20% compared to baseline before intervention, resulting in the screening of 9,915 patients for HIV and 7,867 patients (3,335 baby boomers and 4,532 non-baby boomers) for HCV. Routine testing of eligible patients at our hospital revealed the profound impact of early identification: 1.80% of patients tested were positive for HIV while 3.85% were positive for HCV. Devastatingly, of those who tested positive for HCV, 40.3% did not meet screening guidelines. Finally, 46% of all positive patients were able to be connected with ongoing outpatient care.

Conclusions/Next steps: Given the nature of our high risk patient population - on all sides of current guidelines - and results thus far, we feel it is imperative to maximize the routine screening for HIV and HCV. We plan to maximize testing of inpatients by linking testing orders to admission order and are reviewing the plausibility of offering rapid testing to high risk populations such as those who frequent methadone clinics and needle exchange programs.

Biomarkers for the prediction of morbidity and mortality

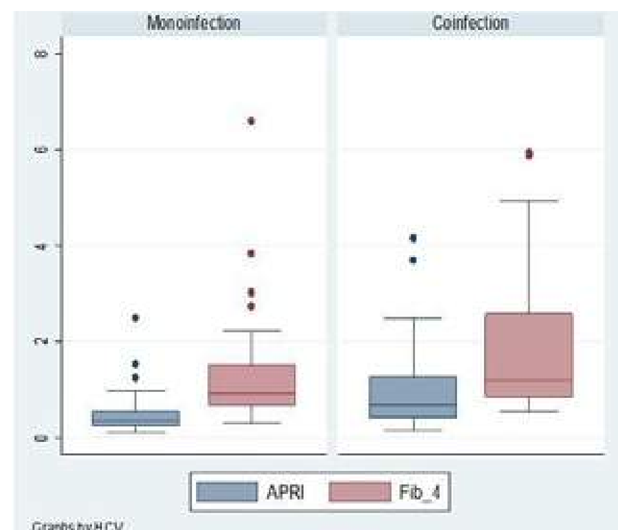
TUPEB063

Predictive value of hepatitis C seropositivity or liver fibrosis scores to detect low CD4+ T-cells counts following treatment for HIV in Egyptians: A cross-sectional study

A. Cordie[1], W. Kamal[2], M. Elsayid[3], A. Elsharkawy[1], S. Abdel Alem[1], Z. Abdellatif[1], M. Al Askalany[4], S. Meshaal[5], A. Kandeel[2], A. d'Arminio Monforte[6], G. Esmat[1]
[1]*Cairo University Hospitals, Endemic Hepatogastroenterology and Infectious Diseases, Cairo, Egypt,* [2]*Ministry of Health and Population, Preventive Sector, Cairo, Egypt,* [3]*Ministry of Health and Population, Cairo, Egypt,* [4]*Ministry of Health and Population, Imbaba Fever Hospital, Cairo, Egypt,* [5]*Cairo University Hospitals, Clinical Pathology Department, Cairo, Egypt,* [6]*University of Milan, Clinic of Infectious Diseases, Health Sciences, Milan, Italy*

Background: Hepatitis C viral co-infection and subsequent hepatic fibrosis development are thought to be associated with poor restoration of CD4+ T-cells. Less costly indicators of low CD4+ T-cell counts are needed in resource-limited settings. Our study aimed to assess whether or not an association exists between HCV seropositivity, calculated AST to platelet ratio index (APRI) or fibrosis-4 (FIB-4) score and low CD4+ T-cell counts < 200 cell/mm3 despite HIV viral load (VL) suppression.

Methods: This represents a cross-sectional study that comprised 94 patients living with HIV attending Imbaba Fever Hospital, Cairo, Egypt between June 2016 and May 2017. All patients received emtricitabine/tenofovir plus efavirenz for at least 6 months and had a suppressed VL. Out of them, 38 patients tested positive for HCV antibodies. Demographic data, recent CD4+ T-cell counts, platelet counts and serum ALT and AST levels were collected. Patients with reactive hepatitis B surface antigen, body mass index > 30kg/m² or reported regular alcohol intake were excluded. APRI and FIB4 scores were calculated. Independent predictors for CD4+ T-cell counts < 200 cell/mm³ after at least 6 months of VL suppression were identified by multivariable logistic regression.



[Figure.1: Median APRI and FIB4 scores in HIV monoinfected or HCV coinfected patients]

Results: HIV/HCV co-infected patients were more frequently males (92.1% vs. 71.4%, p=0.01) and smokers (73.7% vs. 46.4%, p=0.009). They had significantly lower mean CD4+ T-cell counts (299.33 ±150.72 vs. 412.53

±158.72 cells/mm3, P< 0.001), but higher median APRI and FIB4 scores (Figure 1). Both groups were comparable regarding age, BMI and ART duration. Higher APRI score was an independent predictor of CD4+ T-cell counts < 200 cell/mm3 despite VL suppression (30 patients) (OR, 2.83; 95% CI, 1.21-6.63, p=0.02). APRI score of >0.5 is associated with nearly 7 folds higher odds of having CD4 count < 200 (OR, 7.16; 95% CI, 1.43-35.96, p=0.01).
Both HCV seropositivity (OR, 2.32; 95% CI, 0.64-8.39, p=0.2) and higher FIB4 (OR, 1.38; 95% CI, 0.95-1.99, p=0.09) were not predictors.
Conclusions: HCV can affect negatively CD4+ T-cell counts among PLHIV. APRI score, but not FIB4 can be used as a simple independent predictor of low CD4+ T-cell counts in PLHIV and undetectable VL. These predictors deserve further validation.

TUPEB064

Evaluation of plasma glutathione levels in HIV-infected children in Benin City, Nigeria: A cross-sectional study

E. Ogonor, W.E. Sadoh, P.O. Abiodun
University of Benin Teaching Hospital, Child Health, Benin, Nigeria

Background: Glutathione is the most potent anti-oxidant in the human body and a principal tool for effective immune function in the normal population. Impaired glutathione metabolism as a result chronic oxidative stress during HIV infection has been shown to play a significant role in the disease pathogenesis and progression. While several studies have suggested HIV infection leads to glutathione deficiency, the evidence is inconclusive. Furthermore, there is dearth of literature on glutathione levels in HIV infected children in sub-Saharan Africa which has a high disease burden. Thus, the objectives of this study were to compare plasma glutathione levels between HIV infected and uninfected children and to determine if plasma glutathione has any relationship with WHO clinical and immunologic staging of HIV disease.
Methods: A cross-sectional study was conducted among 258 HIV infected children and their age and sex-matched controls in the two major hospitals (University of Benin Teaching Hospital and Central Hospital) that provide pediatric HIV care in Benin City between December 2015 and April 2016. Information was obtained using questionnaire. Almost all the HIV infected children (96.5%) were on antiretroviral therapy. Samples were collected in the morning and plasma glutathione levels were determined in both groups using the spectrophotometric method involving the Dithio-bis -2-nitrobenzoic acid/Glutathione reductase enzyme (DTNB/GR) technique. Data was statistically analyzed using paired t-test and spearman rank correlation.
Results: The mean (± SD) plasma glutathione level of the HIV infected children was 8.82 ± 2.39 µmol/l, and it was significantly lower than the mean (± SD) plasma glutathione level of the HIV uninfected, 13.11 ± 3.20 µmol/l (t = -17.35, p < 0.0001). Furthermore, there was no significant correlation between plasma glutathione and both WHO immunologic staging (r= 0.011, *p*= 0.869) and clinical staging of HIV (r=0.053, *p*=0.379).
Conclusions: The study supports the assertion that HIV/AIDS plays a pivotal role is causing glutathione depletion in infected children. Although it can be inferred that glutathione has no relationship with severity of HIV disease, further studies are needed to ascertain the benefit of glutathione supplementation in HIV infected children.

Characteristics	HIV positive Children n = 258 (%)	HIV negative Children n = 258 (%	χ2	p-value
Gender				
male	143 (55.4)	143 (55.4)	0.00	1.00
female	115 (44.6)	115 (44.6)		
age groups				
<5yrs	43 (16.7)	43 (16.7)		
5 - <10 yrs	68 (26.4)	68 (26.4)	0.00	1.00
10 - <15 yrs	104 (40.2)	104 (40.2)		
≤15yrs	43 (16.7)	43 (16.7)		
	Mean (± SD) age of the subjects was 9.83 ± 4.35 years	Mean (± SD) age of the controls was 9.48 ± 4.52 years		

[Socio-demographic characteristics of the HIV positive and negative children.]

TUPEB065

Longitudinal change in leukocyte telomere length and mitochondrial DNA in people living with HIV

R. Minami, S. Takahama, M. Komatsu, M. Yamamoto
National Hospital Organization, Kyushu Medical Center, Internal Medicine, Fukuoka, Japan

Background: Premature aging is an important issue in people living with HIV (PLHIV). Telomere length (TL) shortening and alterations in the biogenesis of mitochondrial DNA (mtDNA) are recognized as markers of cellular aging. Our previous cross-sectional study showed significant leukocyte TL shortening and decreased leukocyte mtDNA in PLHIV compared with healthy controls. In this study, we measured longitudinal changes in leukocyte TL and mtDNA in PLHIV receiving combination antiretroviral therapy (cART), and examined the clinical parameters affecting these changes.
Methods: We recruited PLHIV who visited our hospital from February 2012 to March 2017, and 141 HIV-uninfected controls. All PLHIV had received cART for > 6 months and had undetectable viral loads. Relative TL and mtDNA in leukocytes were estimated by quantitative real-time PCR. Linear regression analysis was used to determine the factors associated with longitudinal changes in TL and mtDNA. We assessed several variables associated with HIV infection (CD4, HIV-RNA before cART), cART (duration, regimen), and other clinical factors. We also measured TCR rearrangement excision circles (TREC) in peripheral blood to assess thymic output. Variables found to be important in univariate analysis were multivariate model candidates.
Results: Longitudinal assessment was possible in 278 cases. The median measurement interval was 45.5 months. At baseline and the second measurement, TL and mtDNA decreased significantly in PLHIV compared with the controls. The change in TL and mtDNA varied between PLHIV. During the follow up, TL recovered in younger PLHIV, while it shortened more in older PLHIV. Young age (< 50), renal function, TREC, and mtDNA were significantly positively related to the change in TL, and multivariate analysis showed that age, TREC, and mtDNA were independent factors. An NRTI sparing regimen, TREC, and TL were significantly positively related to the change in mtDNA, and each was an independent factor in multivariate analysis.
Conclusions: In our longitudinal study, TL and mtDNA recovery was positively correlated with TREC, which decreases with age and the progression of immunodeficiency in PLHIV. Our findings indicated that early ART with decreased toxicity can help improve outcomes among PLHIV.

TUPEB066

Plasma biomarkers of systemic inflammation and immune activation in advanced HIV infection in sub-Saharan Africa before and during antiretroviral therapy

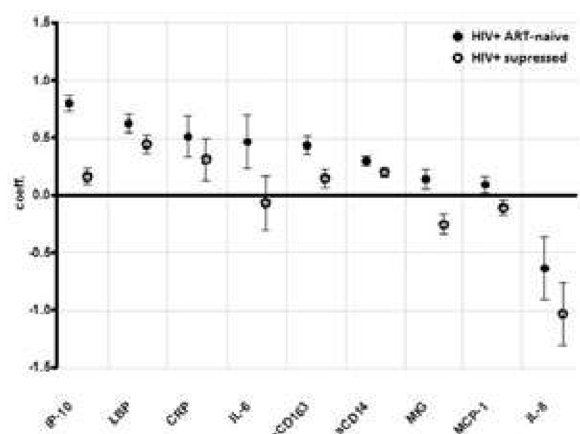
S. Kroeze[1], F. Wit[2], T. Rossouw[3], C. Kityo[4], M. Siwale[5], S. Akanmu[6], K. Mandaliya[7], P. Ondoa[1], P. Reiss[1,2], T. Rinke de Wit[1], N. Kootstra[8], R. Hamers[1]
[1]Academic Medical Center, Global Health, Netherlands, Netherlands, [2]Stichting HIV Monitoring, Amsterdam, Netherlands, [3]University of Pretoria, Immunology, Pretoria, South Africa, [4]Joint Clinical Research Centre, Kampala, Uganda, [5]Lusaka Trust Hospital, Lusaka, Zambia, [6]Lagos University Teaching Hospital, Lagos, Nigeria, [7]Coast Province General Hospital, Mombasa, Kenya, [8]Academic Medical Center, Experimental Immunology, Netherlands, Netherlands

Background: Elevated plasma biomarkers of HIV-induced systemic inflammation and immune activation (IIA) are characteristic of untreated HIV infection, and residual IIA during sustained viral suppression on antiretroviral therapy (ART) has been associated with (non)AIDS events and mortality. However, data in African populations with advanced HIV are limited. We assessed to what extent ART reduces IIA, and what factors are associated with residual IIA during suppressive ART in a multi-country cohort.
Methods: We included HIV-1-positive adults from 5 African countries enrolled in the PASER-M cohort, who had plasma HIV-RNA< 50 cps/ml after 12 months of ART (M12) on non-nucleoside reverse-transcriptase

inhibitor-based first-line ART, and HIV-negative blood bank donors (BBD) from 3 African countries. We measured 9 plasma biomarkers of monocyte activation (sCD14, sCD163), inflammation (CRP, IP-10/CXCL10, IL-6, IL-8/CXCL-8, MCP1/CCL2, MIG/CXCL9), and microbial translocation (LBP). Differences between log_{10}-transformed biomarker levels pre-ART and M12 were assessed using multivariable linear regression adjusting for age, sex and country. Associations of independent variables with IIA pre-ART and at M12 were assessed using multivariable linear regression.
Results: We included 428 HIV-positive participants and 90 HIV-negative BBD (Table). Compared to BBD, untreated HIV-positive participants had higher biomarker levels (all, except for IL-8/CXCL-8). In untreated HIV-positive participants, biomarker levels were positively associated with plasma HIV-RNA (IP-10, MCP1, sCD14, LBP, CRP) and negatively associated with CD4 (IL-8/CXCL-8, IP-10, MCP1, sCD14, CRP). In treated HIV-positive participants (M12), all biomarkers had decreased significantly compared to pre-ART values, with IP-10 showing the greatest decrease (Figure). Compared to BBD, treated HIV-positive participants (M12) had higher levels of sCD14, sCD163, IP-10/CXCL-10 and LBP, lower levels of IL8/CXCL-8, MCP1/CCL2 and MIG/CXCL9, and similar levels of IL-6. Biomarker levels at M12 were positively associated with pre-ART levels of the same biomarker; additionally, sCD14 and IP-10 at M12 were positively associated with pre-ART HIV-RNA. IIA was not associated with body mass index, pulmonary tuberculosis, chronic hepatitis B or HIV-1 subtype.
Conclusions: Suppressive ART partially mitigated IIA. Residual IIA was associated with high biomarker levels and HIV-RNA before ART start. These findings support policies for early ART initiation in African populations.

		HIV-positive (n=428)	HIV-negative (n=90)
Sex	Female	248 (58.0%)	22 (24.4%)
Age (median, IQR)		36 (32-42)	36 (30-44)
CD4 (median, IQR)		136 (75-203)	-
Country	Kenya	104 (24%)	-
	Nigeria	61 (14%)	29 (32%)
	South Africa	68 (16%)	30 (33%)
	Uganda	128 (30%)	31 (34%)
	Zambia	67 (16%)	-

[Patient characteristics]



The figure shows results of the multivariable linear regression analysis, adjusted for sex, age and country. The ratio of regression coefficients is plotted for each biomarker. Numerator: HIV-positive participants, either pre-ART (filled dots) or with viral suppression after 12 months of ART (M12) (open dots). Denominator: HIV-negative blood bank donors.

[Differences in levels of biomarkers]

Neurologic disorders

TUPEB067

Peripheral neuropathy in HIV-1 in diverse resource-limited settings: Lost feet on the ground

A. Vecchio[1], C.M. Marra[2], J. Schouten[2], H. Jiang[3], J. Kumwenda[4], K. Supparatpinyo[5], J. Hakim[6], N. Sacktor[7], T. Campbell[8], S. Tripathy[9], N. Kumarasamy[10], A. La Rosa[11], B. Santos[12], M. T. Silva[13], C. Kanyama[14], C. Firhnhaber[8], M. C. Hosseinipour[14,15], R. Mngqibisa[16], K. Robertson[15], 5199 and 5271 Study Teams
[1]Vita-Salute San Raffaele University, Milano, Italy, [2]University of Washington, Seattle, United States, [3]Harvard University, Boston, United States, [4]Queen Elizabeth, Blantyre, Malawi, [5]Chiang Mai University, Chiang Mai, Thailand, [6]Microbicide Trials Network, Harare, Zimbabwe, [7]John Hopkins University, Baltimore, United States, [8]University of Colorado Health Sciences Center, Denver, United States, [9]NARI, Pune, India, [10]Chennai Antiviral Research and Treatment, Chennai, India, [11]Asociacion Civil Impacta Salud y Educacion, Lima, Peru, [12]Hospital Nossa Senhora da Conceicao CRS, Porto Alegre, Brazil, [13]Fiocruz, Rio de Janeiro, Brazil, [14]University of North Carolina Project-Malawi, Lilongwe, Malawi, [15]University of North Carolina, Chapel Hill, United States, [16]Enhancing Care Foundation, Durban, South Africa

Background: Distal Sensory Peripheral Neuropathy (DSPN) is a common complication of HIV that may be a direct consequence of HIV infection, drug toxicity, or co-infections. The prevalence of DSPN in resource-limited settings (RLS) has not been studied comprehensively. Here we provide estimates of DSPN prevalence and severity in seven RLS countries for HIV+ ART-naive individuals compared to similar normative comparison participants without HIV.
Methods: Participants from AIDS Clinical Trials Group (ACTG) 5199 (International Neurological Study (INS, n=860 HIV+)) and ACTG 5271, the International Neurocognitive Normative Study (INNS, n=2400 HIV-) underwent the ACTG Neurological Examination to quantify presence, severity, and duration of neuropathy symptoms and signs (tingling, numbness, sensory loss; temperature, vibration, reflexes). HIV- normative data were used as comparisons to general population prevalence in these RLS settings. Associations between ART regimen and other covariates with neuropathy were estimated from generalized estimating equations.
Results: At baseline, 21.3% of HIV+ participants were diagnosed with DSPN, compared to 8.5% of HIV negative in the same settings (^{2}(df =1) = 96.49, p< .00001). DSPN decreased after beginning ART: 20.3% week 48, 17.5% week 96, 15.3% week 144, 10.3% week 192 Most of the DSPN was of equivocal or subclinical severity (>95%). Older individuals had higher odds of neuropathy (OR=1.49 (95% CI 1.25, 1.77) for each 10-year increment (p< 0.001). Women were more likely to have DSPN than men (Males OR=0.70 (95% CI 0.49, 0.99, p=0.046)). The prevalence of DSPN over time did not differ by randomized ART regimen, CD4 or RNA.
Conclusions: There was substantial prevalence of DSPN in HIV+ prior to ART initiation when compared to normative HIV- in RLS. DSPN in milder forms is often not detected in clinical practice. DSPN prevalence decreased with ART over time. Identification of strategies to reverse including early ART initiation or to ameliorate residual DSPN symptoms may improve functioning in individuals in RLS allowing more 'feet of the ground'.

Impairment	Week 0	Week 24	Week 48	Week 72	Week 96	Week 120	Week 144	Week 168	Week 192
Absent	656 (78.66%)	648 (80.00%)	609 (79.71%)	568 (81.03%)	491 (82.52%)	449 (83.46%)	447 (84.66%)	353 (86.73%)	184 (89.76%)
Subclinical	175 (20.98 %)	160 (19.75%)	153 (20.02%)	129 (18.40%)	102 (17.14%)	88 (16.36%)	80 (15.15%)	53 (13.02%)	20 (9.76%)
Mild	1 (0.12%)	1 (0.12%)	1 (0.13%)	1 (0.14%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Moderate	2 (0.24%)	1 (0.12%)	0 (0%)	3 (0.43%)	2 (0.33%)	1 (0.19%)	1 (0.19%)	1 (0.25%)	1 (0.49%)
End Stage	0 (0%)	0 (0%)	1 (0.13%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Total n Evaluated	834	810	764	701	595	538	528	407	205
Missing from Evaluation	26 (2.79%	6 (0.74%)	8 (1.03%)	4 (0.57%)	6 (0.99%)	3 (0.55%)	2 (0.38%)	0 (0%)	0 (0%)
Total n	860	816	772	706	601	541	530	407	205

[Presence and Level of Neurological Dysfunction Due to Neuropathy Over Time]

Tuesday 24 July
Wednesday 25 July
Thursday 26 July
Friday 27 July
Late Breaker Abstracts
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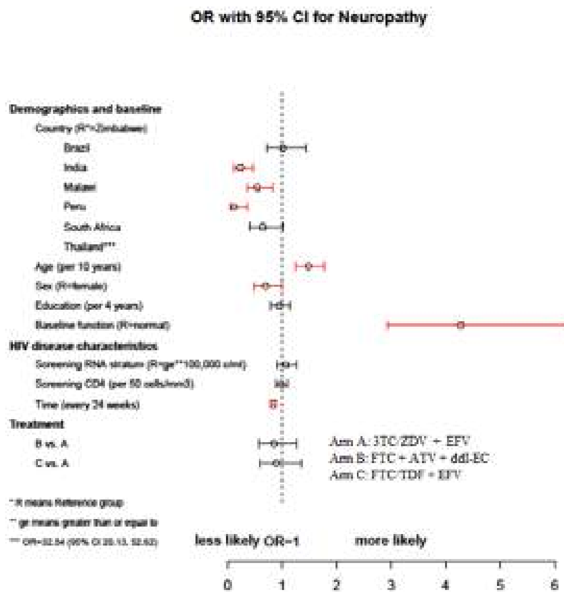

[Figure 1: Forest Plot Summarizing Associations with Neuropathy (ITT)]

TUPEB068

Subjective and objective improvement on cognition after discontinuing efavirenz in asymptomatic HIV patients

C.S. Hakkers[1], J.E. Arends[1], G.E. van den Berk[2], M.H.M. Ensing[1], I. Hooijenga[2], M. Vink[1], M.J.E. van Zandvoort[1], A.I.M. Hoepelman[1]
[1]UMC Utrecht, Utrecht, Netherlands, [2]OLVG Hospital, Amsterdam, Netherlands

Background: Combination Anti-Retroviral Treatment (cART) toxicity has an effect on cognition in HIV, with Efavirenz as the most notable example. Little is known about the long-term effect of Efavirenz use in patients who don't report overt cognitive complaints. The aim of this study was to assess the effect of switching Efavirenz (EFV) to Rilpivirine (RPV) in cognitive asymptomatic patients. We hypothesize an improvement in neurocognitive functioning when discontinuing Efavirenz.

Methods: 54 virologically suppressed, cognitive asymptomatic male HIV-infected patients on TDF/FTC/EFV (Atripla) were included and randomized (2:1) to switch to TDF/FTC/RPV (Eviplera) (switch group) or continue on Atripla (control group) for 12 weeks. At baseline and week 12, all patients underwent a standardized extensive neuropsychological assessment (NPA), and filled in questionnaires on quality of life, participation in society and mood. Effects of the switch were analyzed per group using a linear mixed Model. Moreover, Normative Comparison (NC) was used to assess improvement at individual level as compared to the control group.

Results: 14 control and 34 switch subjects completed the study. There were no differences at baseline for age, years of education or composite NPA Z-score. Group-analysis demonstrated a significantly better improvement for the switch group on the domains attention (p=0.041) and speed of information processing (p=0.014). NC- analyses showed that 5 (15%) out of the 34 patients who switched improved on NPA-score as compared to the control group. No improvement was found in quality of life, participation or mood as measured by questionnaires. Interestingly, subjective improvement in everyday life after switch (discontinuing Efavirenz) made 74% of the switch group chose for a regime without Efavirenz after study completion.

Conclusions: Switching from Atripla to Eviplera resulted in objective cognitive improvement on group level in cognitive asymptomatic patients. There is a discrepancy in objective and subjective cognitive complaints in this asymptomatic group which makes it challenging to identify patients that would benefit from discontinuing Efavirenz at beforehand.

TUPEB069

Different association pattern of each cognitive impairment with age and time of infection in HIV-infected patients

K. Komatsu[1], E. Kinai[1], M. Sakamoto[2], T. Taniguchi[3], A. Nakao[4], T. Sakata[5], A. Iizuka[5], T. Koyama[6], T. Ogata[7], A. Inui[8], S. Oka[1], for the HIV-Associated Neurocognitive Disorders in Japanese (J-HAND) Study Group
[1]National Center for Global Health and Medicine, AIDS Clinical Center, Tokyo, Japan, [2]Center for Comprehensive Community Medicine, Saga University, Saga, Japan, [3]Chiba University Hospital, Division of Infectious Diseases, Chiba, Japan, [4]Ehime University, Department of Hematology, Toon, Japan, [5]National Hospital Organization Fukuyama Medical Center, Fukuyama, Japan, [6]Kagoshima University Hospital, Kagoshima, Japan, [7]Kumamoto University Hospital, Kumamoto, Japan, [8]Juntendo University Faculty of Medicine, Department of General Medicine, Tokyo, Japan

Background: Despite a number of epidemiologic reports of HIV-associated neurocognitive disorders (HAND), detailed clinical characteristics, especially when and who can have worsening in each different cognitive function, and what function can be improved by antiretroviral therapy (ART), are still unknown.

Methods: In a Japanese nationwide multicenter study of 17 facilities with 1,399 HIV-infected patients
(J-HAND study), 728 participants completed 14 neuropsychological (NP) tests; Verbal Fluency (VF; category and letter), Digit Span (DS; forward and backward), Trail Making Test (TMT) A-B, Rey-Osterrieth Complex Figure Test (ROCFT; copy, immediate and delayed recall), Story Memory Test (SMT; immediate and delayed recall), Digit Symbol Subset (DSS), Grooved Pegboard (GP; dominant and non-dominant).

Results: In visuospatial and motor function, the prevalence of lower score (declined one or more standard deviation) significantly increased along age and time since diagnosis (p< 0.001 and < 0.001 in all three ROCFT and p=0.017 and 0.024 in GP (dominant), respectively) despite well-suppression of viral-load. Meanwhile, in VF letter, it decreased along age and time since diagnosis (p=0.001 and 0.005, respectively). Also in multivariate analysis, older age was associated with lower score in all three ROCFT and GP dominant [odds ratio (OR) [95% confidence interval (CI)] 1.801 (1.217-2.664), 2.402 (1.366-3.055), 2.691 (1.720-4.211), and 2.302 (1.145-4.628), respectively], and longer time since diagnosis was associated with lower score in ROCFT (delayed recall) (OR 1.224, 95%CI 1.045-1.434). In VF letter, older age and longer time since diagnosis were associated with better score [OR (95%CI) 0.449 (0.234-0.861) and 0.831 (0.692-0.997)]. In DSS and TMT-A, longer time since diagnosis were associated with better score [OR (95%CI): 0.808 (0.670-0.973) and 0.795 (0.665-0.949), respectively]. ART was significantly associated with better score in all NP tests.

Conclusions: Older patients in the late stage of HIV infection have higher risk of visuospatial and motor impairment despite ART. Meanwhile, younger patients in early stage of infection are more likely to have verbal impairment, which can be resolved by ART. Based on these findings, concise evaluation and appropriate supports can be established in accordance to individual background.

TUPEB070

Brain metabolic markers in HIV-infected individuals with or without antiretroviral therapy by magnetic resonance spectroscopy

J. Tanuma[1], T. Iida[1], M. Morooka[2], N. Arai[3], K. Kubota[2,4], S. Oka[1], Y. Ishizaka[5], M. Shimura[5]
[1]National Center for Global Health and Medicine, AIDS Clinical Center, Tokyo, Japan, [2]National Center for Global Health and Medicine, Department of Radiology, Tokyo, Japan, [3]National Center for Global Health and Medicine, Department of Neurology, Tokyo, Japan, [4]Southern TOHOKU General Hospital, Department of Radiology, Fukushima, Japan, [5]National Center for Global Health and Medicine, Department of Intractable Diseases, Tokyo, Japan

Background: HIV-associated neurocognitive disorder (HAND) has been a persistent concern even in the setting of suppressive antiretroviral therapy (ART). However, pathophysiology of HAND has not been well

understood. We aim to investigate brain metabolic markers in HIV-infected individuals with or without ART compared to those in non-HIV infected individuals with magnetic resonance spectroscopy (MRS).
Methods: From April 2013 through March 2015, 59 adult HIV-infected individuals including 37 with ART and 22 without ART and 24 age-matched healthy volunteers underwent MR imaging and single voxel ^{1}H-MR spectroscopy at 3.0 tesla to obtain ratios of N-acetylaspartate (NAA), choline (Cho), myo-inositol (MI) and lactate (Lac) to creatine (Cr) in left frontal white matter (FWM), parietal white matter (PWM), and hippocampus. The effect of ART central nervous penetration (CPE) score on those ratios was also studied. All participants were evaluated for cognitive function with a standard neurologic examination and a 70-minute battery of neuropsychological tests based on the Frascati criteria. Kruskal-Wallis test was used to compare brain metabolic markers between the groups.
Results: No significant difference was observed in ratios of NAA/Cr, Cho/Cr, MI/Cr between the groups in FWM, PWM and hippocampus. In contrast, Lac/Cr ratio in FWM was significantly higher in HIV-infected individuals not receiving ART than in HIV-infected individuals receiving ART and HIV-uninfected individuals (mean +/- SD, 0.35 +/- 0.25 in HIV-negative, 0.49 +/-0.28 in HIV-positive with ART, 0.65 +/- 0.55 in HIV-positive without ART, p=0.047). Among HIV-infected individuals, 10 in 37 with ART and 3 in 22 without ART were diagnosed as asymptomatic neurocognitive impairment (ANI), which did not correlate with any brain metabolite ratios. For those on ART, CPE scores were not associated with any brain metabolite ratios.
Conclusions: Lac/Cr ratio was the highest in the group of HIV-infected individuals without ART, whereas other metabolites were similar across the groups regardless of ANI diagnosis or CPE score.

TUPEB071

The effect of alcohol consumption on specific neuropsychological testing domains in patients enrolled in the Neurocognitive Assessment in the Metabolic and Aging COhort study (NAMACO)

K. Darling[1], N. Benghalem[1], I. Locatelli[1], I. Nadin[1], P. Brugger[2], K. Gutbrod[3], S. Frueh[4], R. Pignatti[5], U. Kunze[6], T. Lecompte[7], C. Hauser[3], B. Hasse[2], P. Tarr[8], M. Stoeckle[6], C. Di Benedetto[5], P. Schmid[4], R. Du Pasquier[1], M. Cavassini[1]
[1]Lausanne University Hospital, Lausanne, Switzerland, [2]Zurich University Hospital, Zurich, Switzerland, [3]Berne University Hospital, Berne, Switzerland, [4]St-Gallen University Hospital, St-Gallen, Switzerland, [5]Lugano University Hospital, Lugano, Switzerland, [6]Basel University Hospital, Basel, Switzerland, [7]Geneva University Hospital, Geneva, Switzerland, [8]Bruderholz Hospital, Bruderholz, Switzerland

Background: HIV-associated neurocognitive disorders (HANDs) are diagnosed based on neuropsychological (NP) testing and functional assessment. The effect of active or previous alcohol consumption on HANDs development is unknown. The aim of this study was to examine the effect of alcohol consumption on NP function among well-treated HIV-positive persons.
Methods: We analysed 981 patients aged >45 years old enrolled in the NAMACO (Neurocognitive Assessment in the Metabolic and Aging COhort) study. NAMACO is an ongoing, prospective, longitudinal, multicentre and multilingual study within the Swiss HIV Cohort Study (SHCS). NP testing was performed in five domains: motor skills, speed of information processing, attention/working memory, executive functions and verbal learning memory. Dichotomous and continuous outcomes for NP impairment were defined for each domain then analysed per domain and after summarising domains. Alcohol consumption was scored using a validated Alcohol Use Disorders Identification Test (AUDIT-C): consumption quantity and frequency, and occurrence/absence of binge drinking. Logistic and linear regression models were applied to estimate alcohol effect on, respectively, dichotomous and continuous NP impairment outcomes. All models were adjusted for socio-demographic data.
Results: Most included patients (mean age 54.5 years, 80% men, 92% Caucasian) had undetectable viral loads (96% with < 50 copies/ml; median nadir CD4 180). Binge drinking (4.2% of patients) significantly negatively impacted motor skills (OR 2.3, P=0.01), speed of information (OR 2.1, P=0.02) and overall NP function (OR 1.88, P=0.06). A significant U-shaped effect of AUDIT-C score was observed for motor skills and overall function, and a non-significant trend was observed for executive functions and speed of information (Figure 1). Continuous outcome models demonstrated a significant effect of increasing AUDIT-C score and binge drinking on executive and overall functions.
Conclusions: This is the first study to examine the effect of alcohol consumption on specific NP domains as well as on NP performance overall, using a validated score. We observe that the NP domains of motor skills and executive function are impaired with increased consumption while other domains are preserved. In assessing with HANDs, it may be possible to assess the contribution of alcohol by restricting NP analysis to domains we observe to be impaired.

TUPEB072

Higher prevalence of neurocognitive impairment among aging HIV-infected women despite lower comorbidities than men

A. Hiransuthikul[1], J. Samajarn[2], P. Vongsayan[2], N. Kijpaisalratana[2], W. Akarathanawat[2], A. Chutinet[2], S. Keadpudsa[1], T. Apornpong[1], S. Sakulrak[1], P. Chan[3], S. Gatechompol[1], W.M. Han[1], A. Sangarlangkarn[1], K. Ruxrungtham[1,4], A. Avihingsanon[1], HIV-NAT 006/HIV-NAT 207 Study Team
[1]HIV-NAT, The Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [2]Chulalongkorn Stroke Center, King Chulalongkorn Memorial Hospital, Division of Neurology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, [3]SEARCH, The Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [4]Faculty of Medicine, Chulalongkorn University, Department of Medicine, Bangkok, Thailand

Background: Neurocognitive impairment (NCI) is a major reason for poor quality of life and poor adherence among HIV-infected individuals. We assessed the prevalence and risk factors of NCI among aging HIV population. The association of subclinical atherosclerosis by common carotid intima-media thickness (cIMT) and NCI was also determined.
Methods: This was a cross sectional study of HIV-infected Thai individuals age ≥50 years who were followed in a prospective long term cohort at HIV-NAT, Thailand. Demographics, comorbidities, and cardiovascular risk factors were assessed. Cognitive performance was evaluated by the Thai version of the Montreal Cognitive Assessment (MoCA) with a cut-off of < 25/30 for diagnosis of NCI. Abnormal cIMT was defined as cIMT ≥0.9 mm or presence of carotid plaque.
Results: Among 357 participants (median [IQR] age of 54.4 [52.2-60.4] years, 37.5% female) enrolled, median CD4 was 614 (477-797) cells/µL, 97.2% had HIV RNA < 40 copies/mL, and the most common ART were TDF (84%) and efavirenz (58.3%). A total of 216 (60.5%) had NCI, and women had higher NCI prevalence than men (70.9% vs 54.3%, p=0.002). Women performed significantly worse than men in visuospatial/executive, naming, attention, language, abstraction, and orientation domains (p< 0.05). More women had education lower than bachelor degree (82.1% vs 61.0%, p< 0.001) and income < 300$/month (52.2% vs 31.8%, p< 0.001); whereas more men had HBV infection (25.1% vs 14.9%, p=0.02), HCV infection (13.1 vs 6%, p=0.03), class C CDC classification (20% vs 9.2%, p=0.007), diabetes mellitus (21.1% vs 9.7%, p=0.005), hypertension (51.1% vs 29.1%, p< 0.001), abnormal cIMT (6.4% vs 1.6%, p=0.042), and lower median CD4 cell counts (599 vs 675 cells/µL, p=0.01).
In multivariable regression analysis, women (adjusted odd ratio [aOR] 1.9; 95%CI 1.1-3.6, p=0.019), age ≥60 years (aOR 1.9; 95%CI 1.1-3.4, p=0.03), and education lower than bachelor degree (aOR 2.2; 95%CI 1.3-3.6, p=0.002) were associated with NCI. cIMT and HIV related factors were not associated with NCI.
Conclusions: In our aging HIV-infected cohort, women was independently associated with NCI despite lower NCI risk. More research is needed to understand the differences in the pathology, risk factors, and patient outcomes of NCI between HIV-infected men and women.

Depression and other psychiatric manifestations

TUPEB073

Association between changes in hazardous drinking and subsequent antiretroviral medication adherence, HIV viral control, and condomless sex

D. Satre[1,2], W. Leyden[2], C. Hare[3], S. Catz[4], M. Horberg[5], E. Williams[6], M. Silverberg[2]
[1]University of California, Psychiatry, San Francisco, United States, [2]Kaiser Permanente, Division of Research, Oakland, United States, [3]Kaiser Permanente, San Francisco, United States, [4]University of California, Davis, United States, [5]Kaiser Permanente Mid-Atlantic States, Rockville, United States, [6]University of Washington, Seattle, United States

Background: Previous studies of people with HIV (PWH) have found that hazardous drinking is common, and associated with condomless sex, worse antiretroviral (ART) adherence, and worse viral control. Here, we examined the association between changes in hazardous drinking and these outcomes in a sample of PWH.
Methods: Participants included 614 PWH from an HIV clinic in San Francisco, randomized to three alcohol interventions. The sample was 16% Hispanic, 10% Black, 63% White, 7% other; 97% male; with mean age of 49 years. Data included follow-up interviews at 6, 12 and 24 months, with self-reported alcohol measures (any days drinking over 4/5 drinks for women/men respectively, in the prior 30 days), any condomless sex with a negative/unknown status partner, ART adherence >95%; and HIV viral suppression (HIV RNA < 75/mL). The primary exposure was change in alcohol use compared with baseline, categorized as an increase (any, and ≥3 days), decrease (any, and ≥3 days) or no change (reference). Odds ratios were obtained using GEE methods that accounted for repeated observations, adjusting for demographics.
Results: At 24 months, 40% reported a decrease in hazardous drinking frequency (20% ≥3 days), 9% reported an increase (4% ≥3 days), and 51% reported no change. In adjusted models, any increase in hazardous drinking was associated with lower rates of ART adherence >95% (OR = 0.67, 95% CI = 0.45, 0.99, p = 0.046), and greater odds of condomless sex (OR = 1.41, 95% CI = 1.0, 2.0, p = 0.053). Those who reported a greater decrease in drinking (reduced by ≥3 days), had better HIV viral suppression in bivariate analysis (p < 0.03), which was not significant in the adjusted analysis (OR = 0.65, 95% CI = 0.39, 1.11, p = 0.112).
Conclusions: In this sample of PWH enrolled in a primary-care based alcohol intervention study, an increase in hazardous drinking was associated with worse ART adherence and higher prevalence of sexual HIV transmission risk behavior. Increased hazardous drinking should be an indicator to providers that PWH are at risk for other problems such as worse HIV treatment adherence and condomless sex.

TUPEB074

Prevalence of depression and suicidal ideation among people living with hiv/aids in a tertiary health facility in Ibadan, Nigeria

S.O. Ngene[1,2], F.A. Adenuga[3], B. Olusola Margaret[4], E. Godwin Joseph[5]
[1]One Love Foundation Support Group for PLWHA, Ibadan, Nigeria, [2]College of Medicine, University of Ibadan, Department of Epidemiology and Medical Statistics, Ibadan, Nigeria, [3]University of Ibadan, Department of Obstetrics and Gynaecology, Ibadan, Nigeria, [4]College of Medicine, University of Ibadan, Institute of Infectious Disease, Ibadan, Nigeria, [5]College of Medicine, University of Ibadan, Department of Chemical Pathology, Ibadan, Nigeria

Background: Depression and suicidal ideation is a common public health problem among people living HIV/AIDS, triggering profound detrimental impacts on quality of life, treatment adherence, disease progression, and mortality. There is dearth of information about these psychiatric co-morbidities particularly in the developing country context. This study thus investigated the prevalence of depression and suicidal ideation among people living with HIV/AIDS (PLWHA) in Ibadan, Nigeria.
Methods: A cross sectional study was conducted among 141 respondents that were selected using a systematic sampling technique. Data on socio-demographic characteristics, depression and reported attempt to commit suicide were collected using a pretested interviewer-administered questionnaire. The prevalence of depression was assessed using a 10-item Edinburgh depression scale. Descriptive statistics was used to describe the general characteristics of the sample while predictors of depression were determined using the Chi-Square test and binary logistic regression. All analyses were performed at a statistical significance level of 0.05.
Results: The mean age of the respondents was 35.0 years (standard deviation = 11.0). One half of the respondents were female. About 63.8% of the respondents were currently married. About 68.8% of the respondents were had at least two living children. Most respondents were depressed, about 6.4 % had ever attempted committing suicide. Gender (AOR = 3.72, 95% CI, 1.67 - 8.29), Ages 25-34 years (AOR = 4.50, 95% CI, 1.48 - 13.69), 35-44 years (AOR = 6.04, 95% CI, 2.01 - 18.14) and ≥ 45 years (AOR = 3.68, 95% CI, 1.05 - 12.93) independently predicted depression.
Conclusions: The finding of this study indicated that depression and suicidal ideation were common among PLWHA. These results identify potential targets to mitigate risk through establishment of psychological counselling services and promoting greater adaptation to living with HIV/AIDS.

TUPEB075

Results of anxiety and depression screening as part of routine HIV care

M.J. Kleene, E. van Gorsel, J. Lijmer, D. Ait Moha, K. Brinkman, I. Schouten, N. van der Meche, G. van den Berk
OLVG, Internal Medicine, Amsterdam, Netherlands

Background: Anxiety and depression are prevalent comorbidities in HIV. In the Netherlands, suicide is an important cause of death among HIV patients. To enhance the quality of HIV care, we started screening routinely for depression and / or anxiety as part of a regular HIV quality of life questionnaire. Here we report the preliminary results.
Methods: Anxiety and depression were measured using the 14 items of the Hospital Anxiety and Depression Scale (HADS) with a cut-off score of 15 to identify people with a potential disorder. Participants were asked to complete the HADS by rating how they have felt on the basis of symptoms that had occurred in the week before their consultation.
Results: From November 2016 until December 2017, 1091 individuals participated. 1032 (94.6 %) were male, median age was 50.9 yrs;(range 20-81). HADS score was > 15 in 298 /1091 of cases (27.3 %) ,12-15 in 128 /1091 (11. 7%) and < 12 in 665 /1091 (60.9%) patients.
Psychiatric evaluation was performed in 52 /298 patients (17.7%), resulting in a psychiatric diagnosis (figure 1) in 48 /52 (90.6%) patients. Already 49 /298 (patients (16.4%) reported that they received psychosocial care and 110 /298 (patients (36.9%)) considered that a referral not necessary after discussion and with 83 / 298 patients (27.9%) the score was not discussed during the outpatient visits.
Conclusions: Regular assessment of mental health leads to earlier recognition of psychiatric disorders such as depression and an anxiety disorder which has proven to effectively prevent further deterioration . In 27.3% of cases, an elevated HADS score was observed, leading to a new psychiatric diagnosis in 48 patients, 4 patients did not receive a psychiatric diagnosis. In this case, it led to referral of 53 patients who otherwise wouldn't have been in psychiatric care. In most other cases it initiated a conversation about the patients mental health and overall health related quality of life.

TUPEB076

Higher prevalence of depression among aging HIV-positive compared to HIV-negative individuals

A. Hiransuthikul[1], S. Sakulrak[1], T. Apornpong[1], A. Avihingsanon[1], J. Jamthong[1], W.M. Han[1], S. Gatechompol[1], S. Kerr[1,2], A. Sangarlangkarn[1], K. Ruxrungtham[1,3], HIV-NAT 207 Study Team
[1]*HIV-NAT, The Thai Red Cross AIDS Research Centre, Bangkok, Thailand,* [2]*Kirby Institute, University of New South Wales, Sydney, Australia,* [3]*Chulalongkorn University, Department of Medicine, Faculty of Medicine, Bangkok, Thailand*

Background: Depression is associated with HIV infection in many ways: a risk for HIV acquisition, a comorbidity of HIV infection, progression to AIDS, and one of the major causes contributing to poor quality of life among HIV-positive individuals. We sought to assess the prevalence and risk factors of depression among aging people living with HIV.
Methods: This was a cross sectional study of aging (≥50 years) HIV-positive and HIV-negative Thai individuals enrolled at HIV-NAT, Thailand. Depression was evaluated by a 15-item depression screening test developed and validated by the Department of Mental Health, Ministry of Public Health of Thailand. A cut-off of >6/15 indicates clinical depression. Multivariable logistic regression was used to determine factors associated with depression.
Results: Among 358 HIV-positive and 103 HIV-negative participants enrolled, with median (IQR) age of 54.8 (52.1-59.1) years and 37.5% were female, 105 (22.8%) had depression. Median (IQR) duration since ART initiation was 16.1 (12.5-19.1) years, 97.2% had HIV RNA < 50 copies/mL, and 58.4% had lipodystrophy, in the HIV-positive participants. Compared to HIV-negative participants, HIV-positive participants more frequently had income lower than 5000 THB (160 USD) per month (22.9% vs 12.6%, p=0.02), were unemployed (18.4% vs 8.7%, p=0.02), had hypertension (42.7% vs 26.2%, p=0.002), and had depression (25.4% vs 13.6%, p=.0.01).
More HIV-positive than HIV-negative participants had feelings of disappointment and self-blame (19.8% vs 6.8%, p=0.002), loss of self-confidence (21.2% vs 5.8%, p< 0.001), loss of interest (19.3% vs 6.8%, p=0.003), slower thinking (52.2% vs 40.8%, p=0.04), loss of appetite (15.9% vs 7.8%, p=0.04), and trouble falling asleep (37.7% vs 24.3%, p=0.01).
In multivariable models, HIV-positive status (adjusted odd ratio [aOR] 1.99; 95%CI 1.07-3.7, p=0.03) and income less than 5000 THB ($160) per month (aOR 1.89; 95%CI 1.14-3.13, p=0.01) were associated with depression. Among HIV-positive individuals, history of exposure to stavudine was associated with depression (aOR 1.88; 95%CI 1.02-3.45, p=0.04). Lipodystrophy was not associated with depression in HIV-positive individuals (p=0.5).
Conclusions: Depression is not uncommon among aging HIV-positive Thai individuals. HIV-positive status, low income and a history of stavudine use were independently associated with depression.

TUPEB077

Association between access to public distribution system, food security and depression among female sex workers in India

S.K. Patel[1], B. Mahapatra[1], M. Battala[1], Y. Atmavilas[2]
[1]*Population Council, HIV and AIDS Program, New Delhi, India,* [2]*Bill and Melinda Gates Foundation, New Delhi, India*

Background: Food security is one of the important contributing factors among female sex workers (FSWs) to engage in risky sexual behaviors and mental health problems in developing countries. However, studies exploring the relationship between food security and mental health among FSWs in India are limited despite having potential program and policy implications. This study examines the prevalence of depression, and its association with FSW's access to public distribution system (PDS) and their food security in India.
Methods: The study draws data from a large cross-sectional survey conducted in Nov-Dec 2017 among 3589 FSWs across five states of India. Besides collecting information on the FSWs' background characteristics, other information were also collected such as food security, access to PDS in the past 12 months, and depression was assessed using CESD-R10 scale. Descriptive statistics, frequency, bivariate and multivariate logistic regressions were used for analysis.
Results: More than half of the FSWs (52%) were found to have depression in the past 12 months. FSWs from Tamil Nadu state experienced higher depression (66%) compared to other states. At the same time, approximately two-fifths of FSWs reported not having food security (44%) and not accessing PDS (41%). FSWs who did have not have access to PDS (56% vs. 49%, AOR: 1.2, 95% CI: 1.1-1.4) and reported of food insecurity (68% vs. 39%, AOR: 3.2, 95% CI: 2.7-3.6) were more likely to be depressed than others. FSWs who belonged to the below poverty line category were more than two times higher likely to be depressed than their counter parts.
Conclusions: The study highlighted that depression is significantly associated with not having access to PDS and food insecurity among FSWs. The current HIV prevention activities in India require an integrated program approach to focus on addressing the mental health and social protection issues. To support this, the PDS should be strengthen among the FSWs as it has been one of the most important instrument of ensuring food security in India. To support this, interventions and research-based evidence will be highly needed to ensure that mental health issues are properly addressed among high-risk groups.

TUPEB078

Prevalence and treatment of insomnia in persons with HIV well engaged in medical care

S. Oster, P. Barbosa, S. Prieto, P. Bloom, D. Fierer, J. Weiss
Icahn School of Medicine at Mount Sinai, Medicine, New York, United States

Background: Studies have shown a higher prevalence for rates of insomnia in persons with HIV infection than in the general population. High rates of comorbid psychiatric diagnosis in persons with HIV infection contribute to insomnia symptomatology. Effectively treating insomnia is important for increasing quality of life within this patient population.
Methods: This is an analysis of baseline data from a larger study of the effects of Mindfulness-based Stress Reduction on chronic inflammation in HIV-infected adults 45 years and older with virologic suppression. The participants were categorized as either positive for insomnia (I-POS) or negative for insomnia (I-NEG) at baseline by review of chart diagnosis of insomnia and/or medication prescribed for insomnia. I-NEG and I-POS subjects were compared at baseline on self-report measures of depression (Beck Depression Inventory-II; BDI), anxiety (PROMIS), and fatigue (PROMIS).
Results: 84 subjects were recruited from HIV practices at Mount Sinai Health System. The subjects had a mean age of 58.2 years (SD=6.7) and were predominantly male (56%), and members of ethnic minority groups (57.1% black, non-Hispanic; 33.3% Hispanic). They had a mean CD4+ count of 620.7 cells/mm^3 (SD=333.0) and 71.4% had a comorbid psychiatric diagnosis. Forty-three of the 84 patients (51.2%) had insomnia (I-POS). The I-POS and I-NEG groups did not differ significantly on baseline characteristics other than comorbid psychiatric diagnosis being higher in I-POS subjects (81.4%) than in I-NEG subjects (61.1%) [p=0.038]. Being on an antiretroviral regimen containing efavirenz (n=7) was not related to a diagnosis of insomnia. There were no significant differences in baseline depression, fatigue, or anxiety scores between the I-POS group (means = 15.6, 22.3, 19.9 respectively) and the I-NEG group (means = 14.9, 20.1, 18.1). Less than half (46.5%) of the I-POS participants were prescribed medication specifically to treat insomnia.
Conclusions: Older adults with HIV infection who are engaged in medical treatment and adherent to antiviral therapy with virologic suppression still report a high prevalence of insomnia. Comorbid psychiatric diagnosis is related to the prevalence of insomnia. Further research into additional treatment for insomnia, particularly non-pharmacologic (e.g., mindfulness based interventions and cognitive behavioral therapy for insomnia [CBT-I]) is warranted in persons aging with HIV infection.

TUPEB079

Comparison of depression and anxiety between HIV-positive and HIV-negative people

F. Lampe[1], A. Miners[2], N. Kreif[3], A. Miltz[1], A. Phillips[1], J. Sewell[1], L. Sherr[1], J. Anderson[4], R. Gilson[1], R. O'Connell[5], A. Clarke[6], M. Johnson[7], E. Wilkins[8], S. Collins[9], J. Elford[10], A. Speakman[1], A. Rodger[1], for the ASTRA and AURAH Study Groups
[1]University College London, London, United Kingdom, [2]London School of Hygiene and Tropical Medicine, London, United Kingdom, [3]University of York, York, United Kingdom, [4]Homerton University Hospital NHS Foundation Trust, London, United Kingdom, [5]Barts Health NHS Trust, London, United Kingdom, [6]Brighton and Sussex University Hospitals NHS Trust, Brighton, United Kingdom, [7]Royal Free London NHS Foundation Trust, London, United Kingdom, [8]Pennine Acute Hospitals NHS Trust, Manchester, United Kingdom, [9]HIV i-Base, London, United Kingdom, [10]City University London, London, United Kingdom

Background: People with HIV experience a high burden of mental health problems, but the extent to which this is due to HIV specifically is unclear. We compared the prevalence of depression and anxiety between people with HIV and a matched 'at risk' HIV-negative group.
Methods: HIV-negative individuals in the AURAH study, recruited from UK GUM clinics (2013-14) were matched (with replacement) to HIV-positive individuals in the ASTRA study, recruited from UK HIV-outpatients (2011-12). Individuals aged 30-69 years were included. Matching variables were: gender/sexual orientation; age; ethnicity; education level. Depressive symptoms [PHQ-9 score≥10/27], anxiety symptoms [GAD-7 score≥10/21], and depression overall [subject report of current medical or other therapy for depression, and/or major or other depressive disorder on PHQ-9], were compared between HIV-positive and HIV-negative groups, using logistic generalised estimating equations, adjusted for matching variables, accounting for repeated observations. The HIV-positive group was assessed overall, and split by: (i) ART/VL status; (ii) time since HIV diagnosis.
Results: 2699 HIV-positive and 759 unique HIV-negative individuals (2699 matches with replacement) were included; mean age 45 years; 73% MSM; 16% women; 17% Black African ethnicity; 44% university education. Prevalences for HIV-positive versus HIV-negative were: 26.5% vs 11.5% for depressive symptoms [adjusted odds ratio, aOR(95%CI): 3.2(2.4,4.3)]; 21.2% vs 10.9% for anxiety symptoms [2.7(2.0,3.6)]; 34.5% vs 16.3% for depression overall [2.6(2.0,3.3)]. For each measure, odd ratios for HIV-positive versus HIV-negative were elevated across all ART/VL categories, and increased steadily with longer time since HIV diagnosis. For example, for depression overall, compared to HIV-negative, aOR were 2.5(1.9,3.2) for on ART with VL≤50c/mL, 3.6(2.6,5.1) for on ART with VL>50c/mL and 2.6(1.9,3.6) for not on ART, and 1.6(1.1,1.2), 2.2(1.6,3.0), 2.4(1.8,3.2), 2.9(2.2,3.9), 3.3(2.4,4.4) and 4.1(2.9,5.8) for time since HIV diagnosis < 2, 2-5, 5-10, 10-15, 15-20 and ≥20 years respectively.
Conclusions: These results give further evidence that living with HIV has a considerable adverse impact on mental health. The effect was evident among those recently diagnosed, but longer time since diagnosis appears to be a crucial additional factor, which may reflect poorer HIV prognosis in earlier years and/or psychological, socio-economic or biological effects of ageing with HIV.

Malignancies (AIDS and non-AIDS)

TUPEB080

Burden and characteristics of cancer in an HIV cohort at Newlands Clinic, Zimbabwe: A cross sectional descriptive study

S. Bote[1], T. Shamu[2], C. Chimbetete[1,3], M. Wellington[3]
[1]Newlands Clinic, HIV Care, Harare, Zimbabwe, [2]Newlands Clinic, Lab Services, Harare, Zimbabwe, [3]Newlands Clinic, Medical, Harare, Zimbabwe

Background: HIV- infected persons have increased risk of AIDS-defining (ADC) and non-AIDS defining cancer (NADC). However, the burden of cancer has not been documented in Zimbabwe. Thus, we described the burden, characteristics and outcomes of cancer in an HIV cohort in Zimbabwe.
Methods: Data from all cancer cases diagnosed (histologically) and recorded at Newlands Clinic between February 2004 to 30 October 2017 were abstracted. CD4 counts, viral loads, WHO stage, antiretroviral therapy regimen (ART) and outcomes were analysed using SPSS and presented as frequencies, percentages, medians and interquartile ranges (IQR).
Results: A total of 8589 patients were seen during the study period and 185 cancers were recorded. These were presented (illustrated in table 1) according to the following year bands (year of diagnosis): up to 2004 (pre-ART era), 2005-2010 (early ART era) and 2011-2017 (post-ART era).
In pre-ART era (up to 2004), 11 cases were diagnosed, median age was 34 (IQR19-39) years; 6/11 were females and 10/11 were in WHO 4. The median CD4 count was 158 (IQR 23-317) cells/mm^3 and 10/11 were ART naïve. ADCs; Kaposi's sarcoma (KS) was diagnosed in 72.7% (n=8), and Non-Hodgkin's lymphoma (NHL) in 18.2% (n=2). There was 1/11 NADC.
Between 2005 and 2010, 40 cases were diagnosed, 60.0% (n=24) females and median age 37 (IQR 32-44) years. 50% were ART naïve and 92.5% (n=37) were in WHO 3 or 4. There were 80% (n=32) ADCs and 20% (n=8) NADCs.
Post-ART era (2011-2017); 134 cases were recorded; median age 41 (IQR 35-49) years and 66.4% (n=89) females. The median CD4 count was 223 (IQR 116-456) cells/mm^3 and 63.2% (n=84) were WHO 3 or 4. The majority were on ART (79.1%, n=106). ADCs comprised 68.7% while NADCs were 31.3% (n=41).
At the time of analysis, 38.4% (n=71) had died and 93.4% (n=67) of these were directly related to cancer.
Conclusions: KS prevalence decreased in the post ART era while other ADCs (NHL and cervical cancer) and NADCs increased over time. Cancer related mortality was high. Active surveillance of cancer with early detection and treatment is recommended at all stages of HIV infection.

Cancer Type	Pre ART era (Up to 31 December 2004)	Early ART era (1 January 2005 - 31 December 2010)	Post ART era with increased cancer screening(1 January 2011-31 October 2017
Total Cancer Cases	11	40	134
AIDS-Defining Cancer (n,%)	10 (90.)	32 (80.0)	92 (68.6)
Kaposi´s Sarcoma	8 (72.7)	25 (62.5)	11 (11.9)
Non Hodgkins Lymphoma	2 (18.2)	6 (15.0)	40 (29.9)
Cervical Cancer	-	1 (2.5)	36 (26.8)
Non AIDS Defining Cancer	1 (9.1)	8 (20.0)	42 (31.30
Hodgkins	1 (9.1)	3 (7.5)	6 (4.5)
Anogenital			15 (11.1) (Penis 5,vulva 9,anal 1)
Others		5 (12.5) (Breast, Colon, Hepatoma)	21(5.7) (Breast 8, leukemia 2, myosarcoma 1, kidney 1, pancreas 1,eosophageal 3,choriocarcinoma 1,ovarian 1,hepatoma 2,colon 1,

[Table 1: Cancer types according to the year of diagnosis]

TUPEB081

The impact of HIV on hepatocellular cancer survival in Nigeria

E. Okeke[1], M. Davwar Pantong[1], B. Mullen[2], M. Duguru[1], O. Agbaji[1], A. Sagay[1], R. Murphy[2], C. Hawkins[2]
[1]Jos University Teaching Hospital, Jos, Nigeria, [2]Northwestern University, Feinberg School of Medicine, Chicago, United States

Background: Hepatocellular carcinoma (HCC) is an increasing cause of mortality in HIV-infected patients. Despite the high prevalence of both HIV and HCC in Nigeria, the impact of HIV on HCC presentation and survival in this region is unknown. The aims of this study were to compare host and tumor characteristics between HCC patients with and without HIV and examine the impact of HIV on survival.

Methods: This prospective observational study was conducted at the Jos University Teaching Hospital, Jos, Nigeria. Adults (>18yrs) with a known HIV serostatus and diagnosis of HCC using AASLD criteria were enrolled between Sept-2015 and Sept-2017 and followed until Dec-2017. Demographic features, tumor characteristics, and survival were compared between HCC patients with and without HIV using Fisher's exact or chi-square tests. Survival curves were generated using Kaplan-Meier plots and compared using the log rank test.

Results: 101 patients (10 HIV-infected and 91 HIV-uninfected) were enrolled [male 72%; median age 48 (IQR 35-60)]. 60% HIV-infected patients were receiving ART; 90% had CD4 counts ≥ 200/mm³ at the time of HCC diagnosis and 25% had HIV RNA levels < 50 copies/mL. 70% HIV-infected and 56% HIV-uninfected were infected with chronic HBV (HBsAg+). Most patients (98%) had ≥1 symptom of HCC at presentation. Alcohol use was reported in one-third of patients and median quantities consumed did not differ between HIV-infected and -uninfected patients. The duration of symptoms prior to HCC diagnosis was significantly shorter in HIV-infected vs. HIV-uninfected patients [93 (IQR 54-132) vs. 155 (93-248] days; p=0.02]. By the end of follow-up 10/10 (100%) HIV-infected and 97/101 (96%) HIV-uninfected patients had died. The probability of survival at three months was 22% and 48% in HIV-infected and -uninfected patients, respectively (p=0.02). Median time to death was significantly shorter in HIV -infected vs. -uninfected patients [23 (IQR 12-88) vs. 80 (IQR 26-177) days; p=0.04].

Conclusions: Extremely high rates of early mortality were observed in this relatively young cohort of Nigerian patients with HCC. HIV infection was associated with a faster disease course and significantly shorter survival. More aggressive HCC surveillance may be warranted in HIV-infected patients particularly if they are co-infected with chronic HBV.

TUPEB082

Characteristics of HIV positive Rwandan women testing positive for human papillomavirus (HPV) and visual inspection after acetic acid (VIA): Implications for cervical cancer prevention in resource limited settings

G. Murenzi[1], J.D. Sinayobye[1], T. Rurangwa[2], H.-Y. Kim[3], K. Anastos[4], P.E. Castle[5], A. Adedimeji[5]
[1]Rwanda Military Hospital, Research and Clinical Education Division, Kigali, Rwanda, [2]Rwanda Military Hospital, Obstetrics and Gynecology, Kigali, Rwanda, [3]Data Solutions, New York, United States, [4]Albert Einstein College of Medicine, Medicine, Epidemiology and Population Health, Bronx, United States, [5]Albert Einstein College of Medicine, Epidemiology and Population Health, Bronx, United States

Background: With expanded access to ARTs, HIV+ women in LMICs are living longer, but may have increased risk of invasive cervical cancer (ICC), the 2nd most common cause of cancer morbidity in LMIC women. While HPV vaccine is most effective in preventing ICC, generations of women already exposed to HPV will not benefit from vaccination. Thus, secondary prevention remains a necessary strategy to reduce incidence of ICC. Limited resources for prevention however require identifying optimal methods for screening, including understanding characteristics of women who are most at risk for ICC. This study describes the characteristics of women most at risk for HPV and VIA positivity after screening for ICC and cervical precancer.

Methods: We recruited 2478 HIV+ Rwandan women aged 30-54 years receiving care from selected health facilities located in Kigali. We evaluated screening tests (high risk HPV testing and VIA) traditional triage tests (HPV16/18/45 detection, VIA), and potential new biomarkers for triage (E6/E7, CINtec Plus [p16 and Ki-67 Dual Stain] of screen-positive women. All screen positive women undergo ascertainment to obtain unbiased estimates of sensitivity specificity, and positive and negative predictive value. We conducted preliminary descriptive statistics to highlight associations between socio-demographic characteristics that predict HPV and VIA positivity.

Results: Overall, 2478 women were enrolled of which 653 (26.4%) tested positive for HPV [HPV+] and 482 (19.5%) for VIA [VIA+]. Mean age was 39.5 for HPV[+] and 40.9 for VIA[+]. Majority of women were married, lived in Kigali and of low socioeconomic status. Age, marital status, age of sexual debut, age when had first child and use of oral contraceptives were significantly associated (p=< 0.0001; 95% CI) with HPV[+]. Significant association was found between being married, low socioeconomic status, contraceptive use and pre-menopausal status and VIA[+].

Conclusions: Understanding predisposing factors as well as characteristics of women most at risk for HPV and VIA could help inform the design of programs aimed at preventing ICC through early screening and detection using optimal strategies that maximize the use of scarce resources in LMICs.

TUPEB083

Early detection of anal cancer in men who have sex with men (MSM) living with HIV by incorporating digital anorectal examinations (DARE) into routine HIV care: A prospective cohort study

J.J. Ong[1,2], S. Walker[2], A. Grulich[3], J. Hoy[2,4], T. Read[2,5], C. Bradshaw[2,5], S. Garland[6], R. Hillman[7], D. Templeton[3], J. Hocking[8], B. Eu[9], B. Tee[10], E. Chow[2,5], C. Fairley[2,5]
[1]London School of Hygiene and Tropical Medicine, London, United Kingdom, [2]Monash University, Melbourne, Australia, [3]Kirby Institute, University of New South Wales, Sydney, Australia, [4]The Alfred Hospital, Melbourne, Australia, [5]Melbourne Sexual Health Centre, Melbourne, Australia, [6]University of Melbourne, Department of Obstetrics and Gynaecology, Melbourne, Australia, [7]University of Sydney, Westmead Clinical School, Sydney, Australia, [8]University of Melbourne, Melbourne, Australia, [9]Prahran Market Clinic, Prahran, Australia, [10]Victorian AIDS Council, Melbourne, Australia

Background: MSM living with HIV have the highest risk for anal cancer. The majority of anal cancers are detected in late stages where morbidity and mortality are high. We provide 'real-world' data on the feasibility of incorporating regular DARE into routine HIV care for MSM living with HIV. We monitored the referral rate to colorectal specialists, which may be a driver of cost.

Methods: In 2014, we recruited 327 MSM living with HIV, aged 35 and above, from Melbourne, Australia. Men were recruited from one major sexual health centre(n=187), two high HIV caseload general practices (n=118) and one tertiary hospital (n=22). Men were followed for two years and DARE was recommended at baseline, year 1 and year 2. Data were collected regarding patient and physician experience, and health service use. An ordered logit model was used to assess the relationship between sociodemographic factors and the number of DAREs received (1, 2 or 3). Potential confounding factors such as the site of recruitment, income level and HIV duration were adjusted for.

Results: Men had a mean age of 51 (SD±9) years, were Australian born (69%), current smokers (32%), and had a mean CD4 of 630 (SD±265) cells per mm³, with no significant differences between clinical sites. Overall, 232(71%) men received all three DAREs, 71(22%) received two DAREs, and 24(7%) only had one DARE. The referral rate to a colorectal surgeon was 3.8 referrals per 100 DAREs: lowest in the sexual health clinic (1.7/100 DARE), followed by GP clinics (5.6/100 DARE) and the tertiary hospital (13.2/100 DARE, P=0.01). One stage 1 anal cancer and eight anal intraepithelial lesions were detected. Receiving a greater number of DAREs was associated with: age >50 years(adjusted odds ratio(AOR)=1.98, 95%CI:1.10-3.55), ex-smoker(AOR=2.32, 95%CI:1.17-4.56), and current smoker (AOR=2.00, 95%CI:1.00-3.98).

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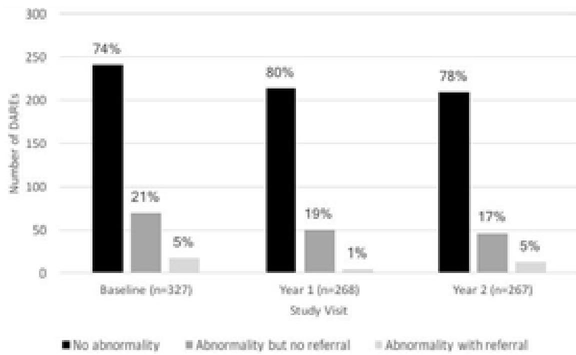

[Figure 1 DARE diagnoses at baseline, year 1 and year 2 visits for men who have sex with men living with HIV, Australia.]

Conclusions: Integrating an early cancer detection program into routine HIV clinical care is feasible, particularly in settings where anal cytology and high-resolution anoscopy services are unavailable. Though referral rates to colorectal surgeons remained low over the two years, there was heterogeneity depending on site of recruitment. An education program to up-skill HIV physicians in early anal cancer detection could reduce the number of referrals.

Cardio-vascular disease

TUPEB084

Undiagnosed heart disease in a cohort of Malawian HIV-infected adults on antiretroviral therapy

R. Hoffman[1], T. Canan[2], F. Chibwana[3], D. Kahn[1], J. Grotts[4], L. Longwe[3], Z. Boas[2], K. Gama[3], A. Moses[3], J. Currier[1], J. Currier[2], EQUIP Innovation for Health

[1]David Geffen School of Medicine at the University of California, Department of Medicine, Los Angeles, United States, [2]David Geffen School of Medicine at the University of California, Department of Cardiology, Los Angeles, United States, [3]Partners in Hope Medical Center, Lilongwe, Malawi, [4]University of California, Department of Biostatistics, Los Angeles, United States

Background: Antiretroviral therapy (ART) extends lifespan to near normal and has been associated with high rates of non-communicable diseases, particularly hypertension and heart disease. Limited data exist around rates of heart disease in stable patients on ART in sub-Saharan Africa.

Methods: Between June 2016 to October 2017, we performed blood pressure measurements, electrocardiograms (ECG), and echocardiograms on HIV-infected adults (≥18 years) who were on ART ≥12 months, and were attending routine clinic visits, to evaluate rates of hypertension and undiagnosed heart disease. Surveys were performed to collect sociodemographic and lifestyle information. Uni- and multivariate logistic regression was used to evaluate predictors of echocardiographically-confirmed heart disease.

Results: A total of 202 individuals were evaluated, median age 45 years, (IQR 39,52), 52% female, median duration on ART 6.8 years (IQR 4.6,8.8), 27% on medication for hypertension, and 7% of those with a viral load in the last year (5/67) with virologic failure (>1,000 copies/ml). Twenty-four percent of participants did not carry a diagnosis of hypertension but had an elevated systolic (≥140 mmHg) and/or diastolic (≥90mmHg) blood pressure at the clinic visit (measurement confirmed by a second clinician at the time of the visit). Only 2% of individuals were characterized as having a sedentary lifestyle. Two percent of the cohort reported smoking, and 17% reported alcohol intake (average of 4 drinks per week). One-quarter of individuals (n=50) had one or more abnormalities on echocardiogram. The most common findings were mild mitral, aortic, or tricuspid valve regurgitation (17%), left ventricular hypertrophy defined as septum or wall >1.2cm (10%), reduced left ventricular systolic function defined by ejection fraction < 50% (5%), and small pericardial effusion (5%). Predictors of an abnormal echocardiogram included older age, longer duration on ART, elevated blood pressure, abnormal ECG, and virologic failure (Table).

In multivariate analysis, older age (aOR:1.04, p=0.02), abnormal ECG (aOR:3.6, p=0.001), and virologic failure (aOR:27.7, p=0.003) remained significant.

Conclusions: Hypertension and undiagnosed heart disease were common in this cohort of HIV-infected individuals on ART in Malawi. ECG may be a simple screening tool to identify high-risk patients. Long-term follow-up is needed to determine whether mild abnormalities progress to clinically significant disease.

Variable	Unadjusted OR (95% CI)	P - value
Age (median 45, IQR 39-52)	1.05 (1.01-1.08)	0.005
Sex, n (%) Male, 97 (48) Female, 105 (52)	Reference 1.0 (0.53-1.90)	0.99
Body Mass Index (median 24, IQR 21-28)	1.06 (1.00-1.14)	0.07
Duration on ART, years (median 6.8, IQR 4.6-8.8)	1.11 (1.00-1.23)	0.05
SBP ≥140 mmHg, n (%) No,109 (54) Yes, 93 (46)	Reference 2.65 (1.37-5.14)	0.003
DBP ≥90 mmHg, n (%) No, 133 (66) Yes, 69 (34)	Reference 1.96 (1.02-3.78)	0.045
Abnormal electrocardiogram**, n (%) No, 135 (67) Yes, 67 (33)	Reference 4.66 (2.37-9.17)	<0.001
Viral load > 1000 copies/mL†, n (%) No, 62(93) Yes, 5 (7)	Reference 13.13 (1.43-120.40)	0.008
Chest pain, shortness of breath, or exercise intolerance, n (%) No, 168 (83) Yes, 34 (17)	Reference 1.03 (0.35-3.04)	0.96

*Echocardiograms were performed by local clinicians or radiology technicians and over-read by cardiologists. Limited echocardiograms were considered abnormal based on evaluation of ventricular size and function, atrial size, valvular morphology and function, presence of pericardial fluid, and inferior vena cava size and collapse.
**Electrocardiograms were read initially by local clinicians and over-read by cardiologists. Abnormal electrocardiogram was defined by abnormalities in any of the following: rate, rhythm, axis, intervals, morphology and/or ischemic changes.
†Viral load only included if a value was measured within 12 months of the clinic visit during which echocardiogram was performed (n=67)

[Associations between patient characteristics and abnormal echocardiogram in HIV-infected adults on ART in Malawi, n = 202]*

TUPEB085

Morbidity among HIV-positive people: A population-based study in 43,545 UK patients

P. McGettigan[1], M. Daskalopoulou[2], S. Denaxas[2], N. Matin[3]

[1]Queen Mary University of London, London, United Kingdom, [2]University College London, London, United Kingdom, [3]Barts Health NHS Trust, HIV Medicine, London, United Kingdom

Background: Age-associated comorbidities are more prevalent amongst HIV-positive populations compared with general population groups but this has not been examined in the UK. We used linked electronic health records (EHRs) in England to compare prevalence of and risk factors for nine cardiovascular, respiratory, and renal co-morbidities, and multi-morbidity amongst HIV-diagnosed cases and non-HIV-diagnosed controls.

Methods: We constructed a nested case-control study using anonymised linked primary care and hospital EHR data and CALIBER tools.1 Amongst adult patients registered with one of 707 general practices in England between 01/1997 and 07/2016, we identified HIV-diagnosed cases by developing an EHR phenotyping algorithm using HIV diagnoses during the study period, and matched to non-HIV-diagnosed controls by five-year age groups and sex (1:4 ratio). Previously-validated case definitions identified patients with asthma, chronic obstructive pulmonary disease (COPD), type II diabetes, heart failure, hypertension, myocardial infarction, peripheral arterial disease, renal disease, and stroke.2 Multi-morbidity was examined as the presence of at least two co-morbidities. Conditional logistic regression was used to derive odds ratios (ORs) for the association of HIV diagnosis with prevalence of each co-morbidity.

Results: Among 43,545 individuals (38% female, mean age at matching 39 years), there were significant differences (p< 0.001) in morbidity risk factors between HIV-diagnosed cases (n=8,709) and controls (n=34,836) in terms of ethnicity (black African 28% vs 2% respectively), current smoking (28% vs 23%) and heavy alcohol use (10% vs 6%). (Table

1) HIV-diagnosed cases had significantly higher odds of prevalent diagnoses for hypertension, asthma, type II diabetes, renal disease, stroke, myocardial infarction, and of multi-morbidity compared with age and sex-matched controls. (Table) Heart failure, COPD, peripheral arterial disease, or unstable angina did not appear more prevalent amongst HIV-diagnosed cases.

Conclusions: This large UK-based study of HIV-associated morbidity in almost nine thousand HIV-diagnosed cases is the first to include general population controls and is unique in demonstrating a substantially higher burden of co-morbidity and of multi-morbidity amongst HIV-positive cases versus the controls.

References:

1. https://www.ncbi.nlm.nih.gov/pubmed/23220717
2. https://www.ncbi.nlm.nih.gov/pubmed/24881994

		HIV-diagnosed (N=8709)	Non HIV-diagnosed controls (N=34,836)		
Risk factors	**Total N**	**%**	**%**		**p-value**
Mean age, years (SD)	43545	39.2 (13.5)			-
Women	16645	38.2	38.2		-
Ethnicity					
White	7702	33.8	54.2		
Black African	1687	28.4	2.3		
All other	6717	37.7	43.5		**
Socioeconomic deprivation					
Least deprived	6343	11.5	22.7		
Most deprived	5922	29.8	16.1		**
Smoking status					
Non-smoker	8057	60.3	63.4		
Former smoker	1696	11.8	13.5		
Current smoker	3037	27.9	23.1		**
Alcohol status					
Non- or former drinker	2262	52.3	45.4		
Occasional drinker	1607	28.2	33.9		
Moderate drinker	667	9.7	14.5		
Heavy drinker	332	9.9	6.2		**
Comorbidities	**Total N**	**%**	**%**	**OR [95%CI]**	**p-value**
Hypertension	4580	12.0	10.1	1.2 [1.1,1.3]	**
Asthma	3257	9.2	7.0	1.3 [1.2,1.5]	**
Type II diabetes	2716	8.6	5.6	1.6 [1.4,1.7]	**
Renal disease	1708	6.5	3.3	2.1 [1.8,2.3]	**
Heart failure	1210	2.9	2.8	1.0 [0.9,1.2]	ns
COPD	842	2.1	1.9	1.1 [0.9,1.3]	ns
Stroke	658	1.9	1.4	1.4 [1.2,1.7]	**
Myocardial infarction	522	1.5	1.1	1.3 [1.1,1.6]	*
Peripheral arterial disease	292	0.8	0.6	1.3 [1.0,1.7]	ns
Unstable angina	107	0.3	0.2	1.5 [1.0,2.3]	ns
Multimorbidity (=2 comorbidities)	3733	10.6	8.1	1.4 [1.2,1.5]	**

** p<0.05; ** p<0.001; ns: not significant (p>0.05); OR: odds ratio by conditional logistic regression*

[Table 1]

TUPEB086

Effects of Nef exosomes on bystander uninfected cells

M. Bukrinsky[1], B. Brichacek[1], D. Sviridov[2]
[1]George Washington University School of Medicine and Health Sciences, Microbiology, Immunology and Tropical Medicine, Washington, United States, [2]Baker Heart and Diabetes Research Institute, Melbourne, Australia

Background: Recent studies demonstrated that Nef is incorporated into extracellular vesicles (exosomes) produced by HIV-infected cells and that exosomal Nef has pathogenic activity against uninfected bystander cells. However, mechanisms of this activity have not been determined, limiting the search for therapeutic agents. The purpose of this study was to determine whether the effects of exosomal Nef mimic the effects of endogenously produced Nef.

Methods: Exosomes were purified by differential centrifugation from supernatants of Nef-transfected HEK293T cells. Exosomal RNA was assayed by RNAseq, and exosomal proteins - by mass spectrometry. Monocyte-derived macrophages (MDM) were differentiated for 6 days in the presence of M-CSF and treated with Nef exosomes for 48 h. ABCA1 expression was assayed by Western blot, cholesterol efflux - by release of radiolabeled cholesterol, and lipid rafts - using fluorescently labeled cholera toxin B subunit. HIV infection was analyzed by fusion assay, and cytokine release - by ELISA.

Results: Analysis of exosomes from Nef-transfected cells demonstrated the presence of Nef protein and mRNA and increased abundance (relative to exosomes from mock-transfected cells) of miRNAs regulating cholesterol metabolism, in particular hsa-miR-27a-3p. Exosomal Nef downregulated ABCA1, inhibited cholesterol efflux, and increased abundance of lipid rafts in MDM. MDM treated with Nef exosomes exhibited pro-inflammatory features producing increased amounts of IL-6 and TNF in response to LPS stimulation.

Conclusions: Nef exosomes released from HIV-infected cells suppress cholesterol efflux in macrophages and likely in other cells. This increases lipid raft abundance and promotes pro-inflammatory responses. Given that Nef is produced from infected cells even when virus production is fully blocked by anti-retroviral treatment, these findings may explain persistent inflammation observed in successfully treated HIV patients with undetectable HIV load.

TUPEB087

Is the risk of myocardial infarction in PLHIV associated with atazanavir or darunavir exposure?

D. Costagliola[1], V. Potard[1], S. Lang[2], N. de Castro[3], L. Cotte[4], X. Duval[5], C. Duvivier[6], S. Grabar[1,7], M. Mary-Krause[1], M. Partisani[8], S. Ronot-Bregigeon[9], A. Simon[10], P. Tattevin[11], L. Weiss[12], D. Zucman[13], C. Katlama[1,10], F. Raffi[14], F. Boccara[2], for the French Hospital Database on HIV (FHDH-ANRS CO4)
[1]Sorbonne Université, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique, Paris, France, [2]AP-HP, Hôpital Saint-Antoine, Paris, France, [3]AP-HP, Hôpital Saint-Louis, Paris, France, [4]Hospices Civils de Lyon, Hôpital de la Croix-Rousse, Lyon, France, [5]AP-HP, Hôpital Bichat Claude Bernard, Paris, France, [6]AP-HP, Centre d'Infectiologie Necker-Pasteur, Paris, France, [7]AP-HP, Groupe Hospitalier Cochin Broca Hôtel-Dieu, Paris, France, [8]Hôpitaux Universitaires de Strasbourg, Strasbourg, France, [9]AP-HM, Hôpital Sainte Marguerite, Marseille, France, [10]AP-HP, Hôpital Pitié-Salpêtrière, Paris, France, [11]Hôpital Universitaire Pontchaillou, Rennes, France, [12]AP-HP, Hôpital Européen Georges Pompidou, Paris, France, [13]AP-HP, Hôpital Foch, Suresnes, France, [14]CHU de Nantes, Nantes, France

Background: The DAD study has reported an increased risk of cardiovascular diseases in PLHIV exposed to darunavir (DRV) but not to atazanavir (ATV). Our objective was to evaluate associations between exposure to ATV or DRV and the risk of myocardial infarction (MI) in a nested case-control study within FHDH-ANRS-CO4.

Methods: Cases were patients who had a first validated MI between 2006 and 2012, using the European Society of Cardiology definition. Up to 5 controls were selected at random with replacement among patients with no history of MI, followed at the time of MI diagnosis (index date) in the same clinical center, matched with the case for age (+/- 3 years) and sex. Conditional logistic regression models were used to adjust for potential confounders not considered to be on the causal pathway between ARV and MI (sub-Saharan origin, family history of premature coronary artery disease, hypertension, smoking, current cocaine or IV drug use, body mass index, viral load (VL), CD4 nadir and CD4/CD8 ratio) and for cumulative exposure to each antiretroviral drug (ARV).

Odds-ratio per 5 years	Atazanavir	Darunavir
Univariable analysis	1.32 (0.84-2.08)	1.14 (0.36-3.59)
Multivariable analysis adjusted for exposure to other ARVs	1.39 (0.84-2.29)	0.61 (0.16-2.36)
Multivariable analysis adjusted for exposure to other ARVs and potential confounders	1.54 (0.87-2.73)	0.51 (0.11-2.32)
Multivariable analysis adjusted for exposure to lopinavir, indinavir and abacavir	1.27 (0.80-2.03)	0.86 (0.27-2.75)
Multivariable analysis adjusted for exposure to lopinavir, indinavir and abacavir and potential confounders	1.29 (0.76-2.20)	0.79 (0.21-2.98)

[Risk of myocardial infarction according to exposure to ARV]

Results: A total of 408 validated MI cases and 1250 controls were included. At enrollment in FHDH, 81% of participants were ARV naïve. Cases were mainly male (88%) with a median age of 49 years. All traditional cardiovascular risk factors were more frequent in cases than in controls. At the index date, 69% of cases and 76% of controls had a VL< 50 copies/mL (p=0.0070), the CD4 nadir was lower (161 vs 185/mm³, p=0.0387) and the CD8 count higher (914 vs 837/mm³, p< 0.0001) in cases compared to controls, while no difference was observed for the current CD4 count

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(498 vs 495/mm3, p=.3664). A total of 109 cases (27%) and 288 controls (23%) had been exposed to ATV and 41 (10%) cases and 107 (9%) controls to DRV. There was no significant association between exposure to ATV or DRV and the risk of MI (Table). Results were robust in sensitivity analyses.
Conclusions: In FHDH, exposures to ATV or to DRV were not significantly associated with the risk of myocardial infarction, adjusting for complete ARV history contrary to the analysis in DAD.

TUPEB088

Association between CD4 cell count and blood pressure and its variation with Body Mass Index categories in HIV-infected patients

C. Akem Dimala[1,2,3], B. Momo Kadia[4], B.-L. Kemah[3,5], M. Tindong[3,6], S.P. Choukem[3,7,8]
[1]London School of Hygiene and Tropical Medicine, London, United Kingdom, [2]Southend University Hospital, Essex, United Kingdom, [3]Health and Human Development (2HD) Research Network, Douala`, Cameroon, [4]Foumbot District Hospital, Foumbot, Cameroon, [5]Ashford and St Peter's Hospitals NHS, Department of Vascular Surgery, Surrey, United Kingdom, [6]Universite Libres Bruxelle, Department of Public Health, Brussels, Belgium, [7]Douala General Hospital, Department of Internal Medicine, Douala, Cameroon, [8]Faculty of Health Sciences, University of Buea, Department of Internal Medicine and Paediatrics, Buea, Cameroon

Background: There are increasing reports of an association between low CD4 cell count in HIV infected patients and hypertension through mechanisms of persistent immune activation and chronic inflammation. Although a raised body mass index (BMI) is a known risk factor for hypertension, its effect on the CD4 count-blood pressure association has still not been fully elucidated. The aim of this study was to establish whether an independent relationship exists between CD4 count and hypertension and if this relationship is modified or confounded by BMI.
Methods: A secondary data analysis of a cross-sectional study carried out at a referral hospital of the South West region of Cameroon was conducted. This study enrolled two hundred HIV/AIDS patients to whom a standardized questionnaire was administered and a physical examination done. Standard WHO definitions of hypertension and BMI categories were used. A linear regression model and the Chi-square test were used to test for associations between continuous and categorical variables respectively, and a logistic regression model was used to assess for the association between CD4 cell count and hypertension while controlling for confounders.
Results: No linear association was observed between the log CD4 cell count and both systolic (p = 0.200, r = 0.12) and diastolic blood pressures (p = 0.123, r = 0.14) respectively. Patients with CD4 cell count ≥350 cells/µl were three times more likely to have hypertension (OR: 3.07, 95% CI: 1.32 - 7.16, p = 0.006). After adjusting for BMI, patients with CD4 cell count ≥350 cells/µl were two and a half times more likely to have hypertension (AOR: 2.50, 95% CI: 1.05 - 5.93, p = 0.032) and there was no effect modification from BMI (test of homogeneity, p = 0.721). There was no independent relationship between CD4 count and hypertension after controlling for age, sex, family history of hypertension, BMI-defined overweight, HAART use and duration of HIV infection (AOR: 1.66, 95% CI: 0.48 - 5.71, p = 0.419).
Conclusions: This study did not identify any independent relationship between CD4 count and hypertension. Large prospective studies are therefore recommended to better explore this relationship between HIV-infection and CD4 cell count.

TUPEB089

Endothelial colony forming cell function is reduced and negatively associated with activated monocytes in HIV

S. Gupta[1], Z. Liu[2], E. Sims[3], M. Repass[3], L. Haneline[4], M. Yoder[4]
[1]Indiana University School of Medicine, Medicine/Infectious Diseases, Indianapolis, United States, [2]Indiana University School of Medicine, Biostatistics, Indianapolis, United States, [3]Indiana University School of Medicine, Medicine, Indianapolis, United States, [4]Indiana University School of Medicine, Pediatrics, Indianapolis, United States

Background: HIV infection is associated with a higher risk of cardiovascular disease, perhaps due to inflammation from higher levels of activated intermediate CD14+16+ monocytes. We previously found that the numbers of true endothelial progenitor cells, or endothelial colony forming cells (ECFC), were negatively associated with the numbers CD14+16+ monocytes in HIV-infected patients. We sought to extend these findings by assessing the effects of HIV and CD14+16+ monocytes on actual ECFC function to generate new blood vessels.
Methods: We prospectively obtained blood samples from 15 HIV-healthy volunteers, 8 HIV+/ART-naïve patients, and 15 HIV+/ART+ patients who were virologically-suppressed while receiving a standard TDF(or TAF)/FTC/INSTI regimen (Table). Using ANOVA, we compared the effects of plasma from these three groups on ECFC proliferative capacity function parameters (network area, cell area, network length, network branch points) using IncuCyte assays. We also performed Pearson correlations to identify associations between these ECFC functional parameters with CD14+16-, CD14+16+, and CD14dim16+ monocyte subsets from these same groups.
Results: ECFC proliferative capacity parameters were significantly worse in HIV+/ART- patients compared to HIV- controls and HIV+/ART+ patients (Table), even when adjusted for demographics, CD4, HIV-1 RNA, and classic CVD risk factors (smoking, BMI, lipids). Network length and branch points were also worse in HIV+/ART+ compared to HIV- controls. In the HIV+ patients, each ECFC proliferative capacity parameter was negatively correlated with proportions of CD14+16+ monocytes (-0.66< r< -0.58; all p< 0.05), with similar correlations in the individual HIV+/ART- and HIV+/ART+ groups; no correlations were found with the other monocyte subsets. No significant correlations between ECFC functional parameters and monocyte subsets were found in the HIV- group.

Characteristic	HIV- (n=15)	HIV+/ART- (n=8)	HIV+/ART+ (n=15)	P-value
Age (SD), y	37.45 (12.06)	34.46 (8.03)	43.90 (9.59)	0.09
Male sex (%)	9 (60)	5 (62.50)	13 (86.67)	0.26
Black race (%)	1 (6.67)	5 (62.50)	9 (60.00)	0.0031
CD4 cell count (SD)/µL	------	525.75 (220.27)	584.47 (323.73)	0.65
Network area (SD), mm/mm2	0.1118 (0.0372)	0.07612 (0.0312)	0.1067 (0.0467)	0.019
Cell area (SD), mm2/mm2	0.1947 (0.0340)	0.1443 (0.0226)	0.1869 (0.0515)	0.0008
Network length (SD), mm/mm2	2.6284 (0.4851)	1.7340 (0.4359)	2.3829 (0.5634)	<0.0001
Network branch points (SD), 1/mm2	7.2713 (2.2585)	3.2967 (1.5425)	5.7103 (2.8635)	<0.0001

[Table: Participant Characteristics and ECFC Proliferative Capacity Parameters]

Conclusions: The ability of ECFC to generate new blood networks were significantly impaired by plasma from untreated HIV and ART-treated HIV when compared to HIV-negative, healthy volunteers. These functional parameters were adversely associated specifically with activated, intermediate monocytes. These data extend our previous findings by demonstrating that HIV-related inflammation may impair vascular regenerative potential and thus may be a novel mechanism by which HIV, even when treated with modern ART, is associated with a higher risk of cardiovascular disease.

TUPEB090

Clinical characteristics and mortality outcomes of people Living with HIV (PLHIV) with Atrial Fibrillation in British Columbia, Canada

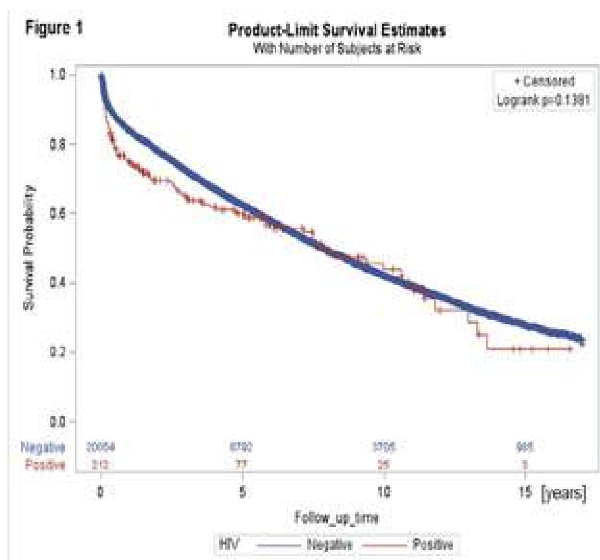
P. Vizcarra[1,2], K. Salters[2], O. Eyawo[2,3], M. Ye[2], M. Lu[2], M. Bennett[4,5], J.S. Gonzalez Montaner[2,6], R.S. Hogg[2,3], S. Guillemi[2]
[1]HIGA 'Gral San Martin', Infectious Disease, La Plata, Argentina, [2]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada, [3]Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada, [4]Vancouver Coastal Health, Vancouver, Canada, [5]University of British Columbia, Department of Medicine, Division of Cardiology, Vancouver, Canada, [6]University of British Columbia, Faculty of Medicine, Vancouver, Canada

Background: Previous research from our group demonstrated that PLHIV were diagnosed with Atrial Fibrillation (AF) a median of 10 years earlier than HIV-negative individuals (HIV-neg). This current analysis compares comorbidities, treatment-uptake and outcomes of PLHIV vs. HIV-neg individuals with AF diagnosis.

Methods: We used data from the Comparative Outcomes and Service Utilization Trends (COAST) study, a population-based cohort of PLHIV and a 10% general population sample aged ≥19 years, that utilizes clinical and administrative health data from the BC Centre for Excellence in HIV/AIDS and Population Data BC. International Classification of Diseases 9/10 codes were used to identify AF diagnosis, comorbidities, stroke and mortality outcomes, from 1996 to 2013. Bivariable analyses, comparing comorbidities, treatment-uptake and age-adjusted incidence rate estimates are presented.

	PLHIV (n=212)	HIV-negative individuals (n= 20,064)	p-values
Substance use disorder (with alcohol), N (%)	102 (48)	2,058 (10)	<0.001
Chronic kidney disease, N (%)	54 (25)	3,529 (18)	0.003
Hypertension, N (%)	123 (58)	14,925 (74)	<0.001
Ischemic heart disease, N (%)	95 (45)	12,058 (60)	<0.001
Heart failure, N (%)	95 (45)	10,218 (51)	0.076
Diabetes mellitus, N (%)	55 (26)	6,172 (31)	0.130
Chronic obstructive pulmonary disease, N (%)	56 (26)	4,961 (25)	0.570
Hyperthyroidism, N (%)	6 (3)	692 (3)	0.623
Anticoagulants utilization, N (%); [Warfarin]; [Direct oral anticoagulants]	96 (45); [90 (42)]; [12 (6)]	11,252 (56); [10,501 (52)]; [1,720 (9)]	0.002; [0.004]; [0.172]

[Table 1. Prevalence of AF-related conditions and anticoagulation uptake]



[Kaplan-Meier survival curve for atrial fibrillation in PLHIV and HIV-negative individuals]

Results: A total of 20,276 individuals diagnosed with AF were identified (PLHIV: 212, HIV-neg: 20,064). Age-adjusted incidence rate of AF was 4.8 per 1000 Person-Years (‰PY) in PLHIV and 4.0‰PY in HIV-neg, rate ratio (RR): 1.2 (95%CI: 0.9-1.4). Compared to HIV-neg population, PLHIV had higher prevalence of substance and alcohol use (48% vs. 10%, p< 0.001) and chronic kidney disease (25% vs. 18%, p=0.003) while HIV-neg had more hypertension (74% vs. 58%, p< 0.001) and ischemic heart disease (60% vs. 45%, p< 0.001). PLHIV with AF received less oral anticoagulation (45% vs. 56%, p=0.002), warfarin being the main agent (42% vs. 52%, p=0.004) (Table 1).

The age-adjusted rate for stroke was significantly higher in PLHIV [48.5 per 100 Person-Years (%PY); 95%CI: 44.2-52.8] vs. 12.9%PY (95%CI: 12.5-13.4) in HIV-neg, RR: 3.7 (95%CI: 3.4-4).

The age-adjusted rate for all-cause mortality was 9.5%PY (95%CI: 7.3-11.7) in PLHIV vs. 3.5%PY (95%CI: 3.3-3.6) in HIV-neg (RR: 2.7; 95%CI: 2.1-3.4). The highest RR was observed among men aged 19-49 years (RR: 6.9; 95%CI: 3.5-13.6). Figure 1 shows survival estimates for both populations.

Conclusions: PLHIV had less traditional underlying conditions for AF and oral anticoagulants utilization compared to HIV-neg. Incidence of stroke and mortality rates were higher in PLHIV. The latter was particularly higher among younger men living with HIV. This finding illustrates the need to consider AF diagnosis and treatment at an earlier age in PLHIV.

TUPEB091

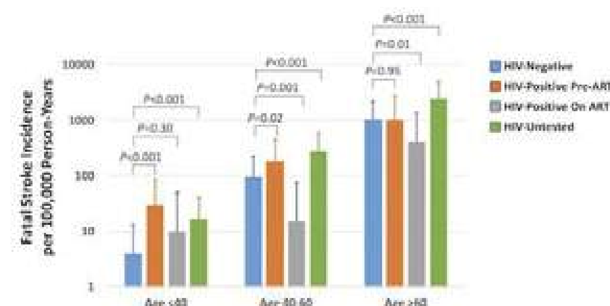
HIV infection, antiretroviral therapy and stroke mortality in South Africa: A population-based cohort study

M. Siedner[1], K. Herbst[2], J. Manne-Goehler[3], A. Abdallah[4], A. Vandormael[5], D. Pillay[6], F. Tanser[6], T. Barnighausen[6]
[1]Harvard Medical School, Boston, United States, [2]Africa Health Research Institute, Mtubatuba, South Africa, [3]Harvard School of Public Health, Boston, United States, [4]Mbarara University of Science and Technology, Mbarara, Uganda, [5]University of KwaZulu-Natal, Durban, South Africa, [6]Africa Health Research Institute, Durban, South Africa

Background: HIV infection, particularly with advanced and untreated disease, is associated with increased risk of stroke in resource-rich settings. However, less is known about the contributions of HIV infection, or its treatment, on stroke in sub-Saharan Africa, where nearly 70% of the world's population living with HIV reside.

Methods: We conducted a population cohort study in which residents over 15 years of age in the rural uMkhanyakude District of Northern KwaZulu-Natal were observed from 2004-2016. Individuals were offered HIV testing annually and deaths were investigated with verbal autopsy. Our primary outcome of interest was fatal stroke, as determined by the immediate or underlying cause of death at verbal autopsy (GBD code 108 or VA code 04.02). Our primary explanatory variable of interest was a time-varying indicator of HIV-status, defined as HIV-negative, HIV-positive, or HIV-unknown; and, separately, using a fourth category that divided HIV-positive individuals into those prior to and after antiretroviral therapy (ART) initiation, which was determined by clinical records. We estimated fatal stroke incidence rates and fit Cox proportional hazards models, adjusted for age and sex, with robust standard errors.

Results: A total of 99,101 individuals contributed 549,606 person-years of observation. We documented 1,084 fatal strokes, for an overall crude incidence of 197 strokes per 100,000 person-years (95% CI: 185-209). Whereas younger individuals with HIV not on ART had a significantly higher crude incidence of stroke than uninfected individuals, there was no difference between these groups in those over 60 years, as the rate of stroke in the general population increased (Figure).



[Fatal stroke incidence by HIV serostatus and age in rural South Africa]

	Adjusted Hazard Ratio	95%CI	P-value
Female	1.09	0.96 - 1.24	0.20
Age <40	Reference		
Age 40-60	15.01	10.95 - 20.58	<0.001
Age >60	136.46	102.66 - 181.39	<0.001
HIV negative	Reference		
HIV positive pre-ART	1.79	1.30 - 2.46	<0.001
HIV positive on ART	0.57	0.30 - 1.09	0.09
HIV positive (all)	1.31	0.97 - 1.77	0.08

[Cox proportional hazards model of predictors of fatal stroke]

In contrast, people over 40 with HIV who had initiated ART had a significantly lower incidence of fatal stroke than HIV-uninfected individuals. In hazard models adjusted for age and sex, the increased risk of stroke due to HIV infection appears entirely accounted for by HIV-positive participants not yet on ART.

Conclusions: Fatal stroke is common in rural South Africa. Although untreated HIV infection increases the incidence of fatal stroke in younger individuals, those on ART appears to have a decreased rate of stroke compared to the general population, particularly in older age groups.

TUPEB092

Within subject variability of HDL-cholesterol in HIV-infected patients

B. Roca[1], A. Mendoza[1], M. Roca[2], L. Castillo[1], C. González[1], L. Pastor[1]
[1]Hospital General Universitario de Castellón, Castellón de la Plana, Spain, [2]Hospital Provincial de Castellón, Castellón de la Plana, Spain

Background: Within-subject variability of cardiovascular risk factors may influence the development of cardiovascular disease. We aimed to improve knowledge on HDL-cholesterol variability and its clinical significance in HIV-infected patients, a population at high risk of cardiovascular disease.

Methods: This was:

1) A cross-sectional study to quantify variability of HDL-cholesterol between two consecutive visits and to determine factors associated with such variability, and

2) A retrospective-prospective cohort study to assess the possible relationship between HDL-cholesterol variability and the occurrence of cardiovascular events. Both studies were carried out in the same group of patients.

Results: A total of 307 patients were included, mean ± standard deviation of their age was 45.1 ± 8.5 years, and 225 of them (73.3 %) were male. The absolute difference (after squaring and root squaring) of serum HDL-cholesterol level between the first and the second visit was 12.1 ± 9.2 mg/dL. In 65 patients (21.2 %) the absolute value of the difference between both serum HDL-cholesterol level results was 20 mg/dL or higher. In a multivariable analysis, the number of cigarettes smoked per day showed a significant, negative, correlation with the absolute difference in serum HDL-cholesterol level between the two visits. Overall, during the retrospective and the prospective cohort parts of the study, a total of 26 patients (8.5 %) suffered a cardiovascular event; variability of HDL-cholesterol was similar in those patients than in those who did not suffer a cardiovascular event (P = 0.71).

Conclusions: Within-subject variability of HDL-cholesterol was substantial among our HIV-infected patients. Smoking was inversely correlated with such variability.

TUPEB093

Increased type I INF response among HIV infected men with cardiovascular disease

P. Vassalini[1], L. Celani[1], E.N. Cavallari[1], M. Statzu[2], G. Corano Scheri[1], G. Antonelli[2], V. Vullo[1], C. Scagnolari[2], G. d'Ettorre[1]
[1]Sapienza University of Rome, Public Health and Infectious Diseases, Rome, Italy, [2]Sapienza University of Rome, Pasteur Institute-Cenci Bolognetti Foundation, Department of Molecular Medicine, Laboratory of Virology, Rome, Italy

Background: Continuous production of type I IFN is a prominent feature of chronic HIV infection and might contribute to immune activation leading to immune dysfunction and premature bone, brain and atherosclerotic vascular disease. In this case control study, we examined the hypothesis that alterations in blood IFN production might contribute to the presence of coronary atherosclerosis in patients with HIV.

Methods: One hundred and six long term virologically suppressed HIV men with (n= 34) or without (n=72) coronary heart disease (CHD), recruited from the Dpt. of Public Health and Infectious Diseases of the "Sapienza" University of Rome (Italy), were included in this study. A control group of gender and age matched healthy individuals (n= 22) was also examined. IFN-alpha/beta and ISG56 mRNAs levels were evaluated in blood samples using TaqMan assays. Differences between groups were examined using the Mann-Whitney test. Pearson correlation coefficient was used to determine correlations. A p-value less than 0.05 was considered statistically significant. All analyses were performed with SPSS v.17.0 for Windows.

Results: There were no significant differences, between the two groups in age, CD4 T cell count, or antiretroviral therapy duration. Increased amount of IFN-alpha, IFN-beta and ISG56 mRNAs was recorded in HIV men with CHD compared to those without CHD and healthy controls (CHD + vs CHD -,; p< 0.001; CHD + vs Healthy subjects, p< 0.001 for all genes analyzed). In contrast, similar levels of IFN-alpha/beta and ISG56 were recorded between HIV patients without CHD and healthy subjects. High levels of IFN-beta and ISG56 gene expression in HIV infected patients showed significant correlations with the Framingham Risk score (IFN-beta p=0.04 r=0.237; ISG56 p=0.022 r=0.347). No such differences were recorded for IFN alpha levels (p>0.05). In addition, no relationships were recorded between IFN-alpha/beta and ISG56 levels and the presence of significant stenoses (i.e grade II-IV).

Conclusions: We provide evidence that the measurement of type I IFN response might help to identify HIV individuals at risk for cardiovascular disease progression.

TUPEB094

Early detection of cardiac dysfunction in asymptomatic adult HIV-infected patients

H.S. Toh[1], C.-T. Liao[2], W.-T. Chang[2], H.-J. Tang[3], Z.-C. Chen[2], H.-C. Ku[3]
[1]Chimei Medical Center, Department of Intensive Care Medicine, Tainan, Taiwan, Province of China, [2]Chimei Medical Center, Department of Cardiology, Tainan, Taiwan, Province of China, [3]Chimei Medical Center, Department of Infectious Diseases, Tainan, Taiwan, Province of China

Background: HIV infection is associated with cardiac dysfunction due to multifactorial causes. However, early cardiac dysfunction is usually asymptomatic and cardiovascular disease (CVD) is always detected late. 2D speckle-tracking echocardiography (2DSTE) has been used to detect early cardiac deformation in various CVD. This study aims to explore the early cardiac deformation and dysfunction by 2DSTE in asymptomatic HIV-infected patients in Taiwan.

Methods: HIV-infected patients were recruited prospectively from a medical center in southern Taiwan from 1 June 2017 to 31 October 2017. Medical records, history of HIV infection, risk factors for CVD were reviewed. Patients with symptoms or history of heart failure were excluded. 2DSTE was performed to calculate left ventricular (LV) and right ventricular (RV) global longitudinal strain (GLS). A cut-off value of -15% and -18% was used to define impaired LV and RV GLS respectively.

Results: A total of 100 patients were recruited during the period. Their mean age was 37.4 years and 94 of them are male. 44% had history of AIDS and 8 of them have a CD4 count < 200 cells/mm3 at the time of

enrolment. The mean CD4 count was 515.6 cells/mm3 and 87% of them had a viral load < 200 copies/mm3. The median duration of HIV diagnosed and antiretroviral treatment are 3 years (IQR 2-5.5) and 36 months (IQR 14-37) respectively. In echocardiography, only one patient has impaired LV ejection fraction (< 50%) and 8 patients have impaired RV systolic function (TAPSE < 16mm). However, 9 patients have pulmonary hypertension. The mean LV GLS was -18.9 ± 2.6% and RV GLS was -20.0 ± 6.7%. 91% and 68% of the patients have abnormal LV GLS and RV GLS, respectively.

Conclusions: This is the first study applying 2DSTE in Asian HIV-infected population. We found that impaired cardiac deformation is highly prevalent, despite a preserved LV and RV systolic function derived by the traditional echocardiography. Besides, a relatively high proportion of pulmonary hypertension is also noted. Further study is needed to investigate the clinical impact of these early changes and the effect of antiretroviral therapy.

Echocardiographic data	N = 100
LV ejection fraction (LVEF %), mean ± SD	66.0 ± 5.3
LV systolic dysfunction (LVEF < 50%), n(%)	1 (1)
LV diastolic dysfunction (E/A < 0.8), n (%)	7 (7)
LV GLS (%), mean ± SD	-18.9 ± 2.6
Impaired LV GLS (LVGLS < -15%), n (%)	91 (91)
RV systolic dysfunction (S' <11.5 or TAPSE <16), n (%)	8 (8)
RV GLS (%), mean ± SD	-20.0 ± 6.7
Impaired RV GLS (RVGLS < -18%), n (%)	68 (68)
Pulmonary hypertension (RVSP > 25mmHg), n (%)	9 (9)

[Echocardiographic data of the study population]

TUPEB095

Effect of statin on coronary calcium distribution, mass and volume scores and associations with immune activation among HIV+ persons on antiretroviral therapy

C.T. Longenecker[1,2], S. Margevicius[1], J. Lipinski[1], M.D. Schluchter[1], D.L. Wilson[1], G.A. McComsey[1,2]
[1]*Case Western Reserve University School of Medicine, Cleveland, United States,* [2]*University Hospitals Cleveland Medical Center, Cleveland, United States*

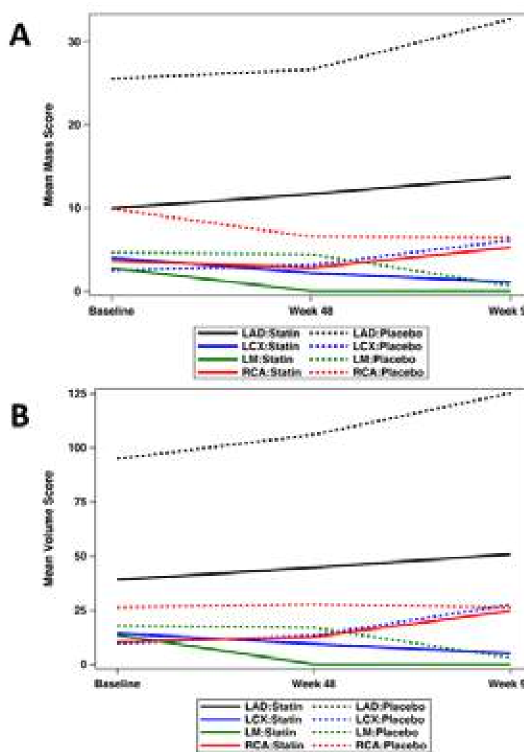
Background: Although inflammation has been associated with whole heart coronary artery calcium (CAC) among HIV+ persons on antiretroviral therapy (ART), prior studies have not evaluated the distribution of calcium or separated mass vs. volume components of the calcium score which have been differentially associated with clinical events in the general population. Statins may also have a greater effect on mass compared to volume of calcified coronary plaque.

Methods: The SATURN-HIV trial randomized 147 HIV+ subjects on ART to rosuvastatin 10mg daily vs. placebo. We re-analyzed coronary calcium scans from 0, 48, and 96 weeks to determine mass and volume scores in addition to per vessel and whole heart Agatston score. We also calculated number of vessels with any CAC and the diffusivity index [1-(CAC in most affected vessel/total CAC). Mixed effects models, ordinal logistic regression, and generalized estimating equations were used to examine the statin effect and associations with biomarkers of inflammation and immune activation across the 3 time points.

Results: Median age at study entry was 46 years; 78% were male and 68% African American. Median CD4+ was 613 and half were on protease-inhibitors. Fifty-four subjects had CAC >0 at baseline, of whom 24 (16% of subjects overall) had >1 vessel affected with a mean (SD) diffusivity index of 0.24 (0.17) in statin vs. 0.18 (0.15) in placebo. Randomization to statin therapy was not associated with change in mass score (p=0.65, Figure), volume score (p=0.76, Figure), number of involved vessels (p=0.51), or diffusivity index (p=0.13).

After adjustment for age and systolic blood pressure, there was an association of soluble CD14 with total Agatston score (p=0.05) and borderline association with number of involved vessels (p=0.09) across all 3 time points. There were no consistent longitudinal associations of inflammation markers with diffusivity index or mass/volume score.

Conclusions: Among HIV+ persons on ART, rosuvastatin 10mg daily did not have a significant effect on volume, mass, or regional distribution of coronary calcium over 96 weeks. We extend previous cross-sectional observations to show that soluble CD14 is associated with whole heart CAC over time and independently of age and systolic blood pressure.



[Figure. Effect of rosuvastatin 10mg daily on (A) coronary calcium mass score and (B) volume score. LAD, left anterior descending; LCX, left circumflex; LM, left main; RCA, right coronary artery]

TUPEB096

Age moderates the association between HIV infection and carotid intima media thickness: Evidence for elevated risk in younger HIV-infected individuals

Y. Ding[1,2], H. Lin[3], C. Ning[1], X. Qiao[1], X. Chen[1], D. Zhao[1], K. Wang[1], L. Li[1], Z. Jin[1], X. Chen[3], M. Gao[1,2], N. He[1,2]
[1]*Fudan University School of Public Health, Epidemiology, Shanghai, China,* [2]*The Key Laboratory of Public Health Safety of Ministry of Education, Fudan University, Shanghai, China,* [3]*Taizhou City Center for Disease Control and Prevention, Taizhou, China*

Background: Individuals with human immunodeficiency virus (HIV) infection are at increased risk of cardiovascular disease (CVD) in spite of combination antiretroviral therapy (cART). Atherosclerosis is a well-known predictor of CVD in the general population. HIV infection has been associated with subclinical atherosclerosis but data are not consistent and limited by relatively small sample. We evaluated possible effect modification (interaction) of age on the association of HIV infection and carotid atherosclerosis.

Methods: This study was conducted in 2017 in Taizhou prefecture, Zhejiang province in Southeastern China. 1391 HIV-infected adults and 2782 age-, and gender- frequency-matched HIV-uninfected individuals were recruited and administered with a face-to-face questionnaire interview and physical examinations. Carotid intima-media thickness (cIMT) was measured by ultrasonography.

Results: 1311 (94.2%) of 1391 HIV-infected patients were on cART with median duration of 2.3 years (interquartile range 0.6-4.4). HIV-infected individuals had significantly higher values of cIMT than HIV-uninfected individuals (0.74±0.38 vs 0.69±0.39; *P*< 0.001). This association remains sig-

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nificant after adjustment for age, sex, education, smoking, body mass index, waist circumference above cut-off, dyslipidemia, and hypertension (*P*< 0.001). A significant but negative interaction between age and HIV infection on cIMT was observed (*P*=0.008). Age-stratified analysis showed that the difference in cIMT between HIV-infected and uninfected individuals was significant in the young (17-29 years) (0.56±0.16 vs 0.47±0.13 mm; *P*< 0.001) and middle-aged (30-49 years) (0.66±0.24 vs 0.61±0.20 mm; *P*< 0.001) adults but not in the older adults (≥50 years) (0.93±0.52 vs 0.90±0.43 mm; *P*=0.207). Such age-specific differences remained significant (B=0.10, SE=0.01, *P*< 0.001; B=0.06, SE=0.01, *P*< 0.001, respectively) in the young and older age groups after adjustment for above-mentioned variables with multiple linear regression. For HIV-infected individuals, cIMT was independently associated with age (B=0.01 per 10 years, SE=0.007, *P*< 0.001), waist circumference above cut-off (B=0.05, SE=0.02, *P*=0.021) and on cART (B=-0.10, SE=0.04, *P*=0.013).

Conclusions: The more evident effect of HIV infection on subclinical atherosclerosis is more evident among young and middle-aged HIV-infected individuals, partly due to lesser important role of traditional risk factors and more important role of HIV infection on atherosclerosis among younger HIV-infected patients.

TUPEB097

Prevalence of early cardiac dysfunction and covariates in children living with HIV in Western Kenya

A. McCrary[1], W. Nyandiko[2], A. Keter[3], M. Nyambura[3], N. Thielman[4], G. Bloomfield[4], P. Barker[5]

[1]Duke University, Pediatric Cardiology, Durham, United States, [2]Moi University, Child Health, Eldoret, Kenya, [3]Moi University, Biostatistics, Eldoret, Kenya, [4]Duke University, Medicine and Global Health, Durham, United States, [5]Duke University, Pediatrics, Durham, United States

Background: HIV-associated cardiac dysfunction has severe consequences, and traditional measures of echocardiography underestimate disease. Novel echocardiographic measures may detect early disease in time for possible intervention. The aims of this study are to define the prevalence of early cardiac dysfunction in children living with HIV and the relationships between cardiac function and same-day HIV viral load levels.

Methods: Using a cross-sectional study design, we performed echocardiograms and obtained plasma HIV RNA levels on children who were perinatally infected with HIV engaged in care at Moi Teaching and Referral Hospital in Eldoret, Kenya. Early cardiac dysfunction was defined as left ventricular global longitudinal strain (LVGLS) z-score < -2 or myocardial performance index (MPI) ≥ 0.5. The relationship between measures of cardiac function and HIV RNA levels and the assessment of other clinical covariates (age, sex, duration prior to and on antiretrovirals, and AZT exposure) with measures of cardiac function were modeled using linear regression.

Results: 303 children (mean age 9.8±3.2 years, range 1-16 years) with perinatally acquired HIV were enrolled. The mean BMI-for-age z-s core was -1.0±1.1. The median duration on antiretrovirals was 5.4 years (IQR 3.1, 7.7). 117 children (38.6%) had been exposed to AZT (median duration of exposure 2.6 years, IQR 0.0, 5.4). 101 of 298 (33.9%) had HIV RNA measurements ≥ 40 copies/ml. 9 of 303 (3%) children had LVGLS-for-BSA z-scores ≤ -2 meeting the criteria for early cardiac dysfunction, and 69 of 293 (23.5%) children had an MPI ≥ 0.5. In multivariate analysis, neither LVGLS z-score nor MPI were associated with HIV RNA levels ≥ 40 copies/ml or any clinical variables in the model [0.11 (95%CI -0.28, 0.5) and 0.0 (95%CI -0.02, 0.02), respectively].

Conclusions: Nearly one quarter of these HIV-infected children demonstrated echocardiographic evidence of cardiac dysfunction, based primarily on abnormal MPI measurements. This finding was not correlated with same-day HIV RNA levels or other clinically relevant variables. Further investigation into the clinical significance of this finding is urgently needed as abnormal MPI measurements have been shown to be predictive of heart failure in at risk populations.

TUPEB098

Switching from an abacavir (ABC)/lamivudine (3TC)-based regimen to a single-tablet regimen of elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide (E/C/F/TAF): Cardiovascular disease risk profile analysis from a randomized controlled study in virologically-suppressed adults

F. Raffi[1], A. Antinori[2], M. Ramgopal[3], J.M. Molina[4], H.J. Stellbrink[5], G. Rizzardini[6], J. Olalla[7], A. Gori[8], C. Miralles[9], P. Kumar[10], M. Das[11], E.T. Chan[11], W. Garner[11], D. Piontkowsky[11], S.K. Chuck[11], R. Haubrich[11]

[1]CHU de Nantes, Nantes, France, [2]Istituto Nazionale Malattie Infettive Lazzaro Spallanzani IRCCS, Rome, Italy, [3]Midway Immunology and Research Center, Fort Pierce, United States, [4]Hôpital Saint Louis, Paris, France, [5]ICH Study Center, Hamburg, Germany, [6]ASST Fatebenefratelli Sacco - Ospedale Luigi Sacco, Milan, Italy, [7]Hospital Costa del Sol, Marbella, Spain, [8]ASST di Monza - Azienda Ospedaliera San Gerardo, Monza, Italy, [9]CHU de Vigo - Hospital Alvaro Cunqueiro, Vigo, Spain, [10]Georgetown University Medical Center, Georgetown, United States, [11]Gilead Sciences, Foster City, United States

Background: In addition to HIV infection, lopinavir, darunavir, and abacavir (ABC) have been associated with increased cardiovascular disease (CVD). Switching from an ABC/3TC-based regimen (ABR) to E/C/F/TAF maintained high virologic suppression and was well tolerated through 24 weeks. Given the increased CVD risk associated with ABC, the effect of the switching from ABR to E/C/F/TAF on CVD risk was evaluated.

Methods: Adults with HIV-1 RNA < 50 copies/mL were randomized 2:1 to switch to E/C/F/TAF or continue their current ABR in an open-label, international study. Two equations were used to calculate participants' CVD risk at baseline and week 24: 1) American College of Cardiology/American Heart Association (ACC/AHA) 2013 Pooled Cohort Risk equation estimated the 10-year risk for a first atherosclerotic cardiovascular event (ASCVD); 2) D:A:D Study 2015 equation estimated the 5-year risk and accounted for current ABC use and cumulative exposure to other NRTIs and PIs.

Results: Baseline CVD risks were balanced between arms for both equations used (table). At week 24, ASCVD analysis showed small median increases in CVD risk that were not different between E/C/F/TAF and ABR arms (+0.1% vs +0.2%; p=0.46); D:A:D analysis showed a decreased median CVD risk in E/C/F/TAF vs. an increased median CVD risk in ABR arm (-0.8% vs +0.2%, p < 0.001).

Conclusions: Compared to the ASCVD analysis, using a validated equation specific for people living with HIV (PLH) that accounted for the CVD risk associated with ABC (D:A:D equation) demonstrated switching from ABR to E/C/F/TAF decreased CVD risk statistically significantly. For PLH with CVD risk factors, switching from ABC/3TC-based regimens to E/C/F/TAF may be clinically beneficial.

	E/C/F/TAF (N=183)		ABC/3TC + 3rd Agent (ABR) (N=91)		
CVD Risk Score	N	Median (Q1, Q3)	N	Median (Q1, Q3)	P-value
ASCVD Equation (%): Estimates 10 Year CVD risk, sex- and race-specific					
Baseline	175	4.4 (2.0, 10.5)	88	4.8 (1.5, 7.2)	0.38
Change at Week 24	159	0.1 (-0.5, 1.0)	85	0.2 (-0.3, 1.1)	0.46
D:A:D: Equation (Full) (%): Estimates 5 Year CVD Risk					
Baseline	161	3.3 (1.7, 6.8)	79	3.4 (1.7, 6.6)	0.67
Change at Week 24	147	-0.8 (-1.9, -0.2)	77	0.2 (-0.3, 0.7)	<0.001

P-values for the between treatment group comparisons are based on the 2-sided Wilcoxon rank sum test. The ACC/AHA Pooled Cohort Equation risk estimates are valid for ages 40-79 years, for total cholesterol 130-320 mg/dL, for HDL 20-100 mg/dL, and for SBP 90-200 mmHg. The D:A:D risk estimates are valid for ages 18-75 years, for total cholesterol 2.3-9.9 mmol/L, for HDL 0.41-2.6 mmol/L, for SBP 90-180 mmHg, and for CD4 20-1350 cells/uL. The out of range values for each were imputed as follows: if the values were less than the lower bound of the valid range, the lower bound value was used for calculation; if the values were more than the upper bound of the valid range, the upper bound value was used for calculation.

[Table]

TUPEB099

Menopause, cardiovascular risk factors, and cerebrovascular function in the women's interagency HIV study

F. Chow[1], Y. Ma[2], R. Scherzer[2], P. Tien[2]
[1]University of California, San Francisco, Neurology, San Francisco, United States, [2]University of California, San Francisco, Medicine, San Francisco, United States

Background: Rates of cerebrovascular disease are higher in women living with HIV (WLWH) than in demographics-matched HIV-uninfected (HIV-) women. Although cardiovascular (CV) risk profiles differ between women and men, most studies investigating stroke risk factors in HIV have not been stratified by sex or have been in men-only cohorts. We evaluated the association of HIV, traditional vascular risk factors, peri/postmenopause (defined by undetectable anti-Mullerian hormone), and immune activation with cerebral vasoreactivity, a measure of cerebrovascular function that correlates with stroke risk, in the Women's Interagency HIV Study (WIHS).
Methods: We recruited women from the San Francisco WIHS site who were ≥40 years of age with at least one CV risk factor. WLWH were on stable antiretrovirals for at least 24 weeks with undetectable HIV RNA and CD4 count ≥400 cells/mm^3. Cerebral vasoreactivity was assessed using the transcranial Doppler breath holding challenge. We used linear regression models to identify risk factors associated with cerebral vasoreactivity.
Results: We included 31 WLWH and 16 HIV- women of a similar mean age (56 vs. 53 years, p=0.31). WLWH were 29% white, 39% black, and 19% Hispanic, while HIV- women were 13% white, 69% black, and 6% Hispanic (p=0.22). Median duration of HIV infection was 14 years. Of traditional vascular risk factors, WLWH had smaller median waist circumference (103 vs. 116 cm, p=0.008) and lower median body mass index (30 vs. 36 kg/m^2, p=0.059) compared with HIV- women. HIV was associated with lower (worse) cerebral vasoreactivity, although this was not statistically significant (-0.13, p=0.37). In age and race-adjusted linear regression models, peri/postmenopause (-0.71, p=0.013), hepatitis C (-0.44, p=0.044), history of CV disease (-0.50, p=0.038), current smoking (-0.29, p=0.11), and higher sCD163 (-0.19 per doubling, p=0.072) were associated with lower cerebral vasoreactivity, although the latter two did not reach statistical significance.
Conclusions: We did not find a statistically significant association between HIV and cerebrovascular function in this small cohort of virally suppressed WLWH. These data provide preliminary evidence that menopause, in addition to several modifiable vascular risk factors, may significantly impact cerebrovascular risk in women with well-controlled HIV.

TUPEB100

CVD risk progression upon initiation of ART in an African cohort

A. Vos[1,2,3], M. Moorhouse[2], S. Lalla-Edwards[2], K. Klipstein-Grobusch[1,4], D. Grobbee[1], R. Barth[3], F. Venter[2]
[1]Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, Netherlands, [2]Wits Reproductive Health and HIV Institute, Witwatersrand University, Johannesburg, South Africa, [3]Department of Internal Medicine, University Medical Center Utrecht, Utrecht, Netherlands, [4]School of Public Health, Witwatersrand University, Johannesburg, South Africa

Background: The risk of cardiovascular disease (CVD) is increased in HIV infection. Initiation of antiretroviral therapy (ART) modifies the risk. This study aims to gain insight into CVD risk and progression of CVD risk in a well characterized cohort of HIV-infected individuals initiating ART in a clinical trial.
Methods: We used the data from one of three sites of a clinical randomized controlled trial (clinical.trial.gov NCT02670772) comparing low-dose stavudine to tenofovir in South Africa, from 2012 to 2016. Both drugs were administered with efavirenz and lamivudine for 96 weeks in antiretroviral-naïve HIV-infected adults. Only participants with a follow-up of more than 6 months were included. CVD risk was calculated at baseline and at end of follow-up using the 10-year Framingham risk score (FRS. The difference in CVD risk progression per year was tested using a Mann-Whitney U Test.
Results: 497 participants (82.8% of the total cohort) were available for this analysis. Median follow-up time was 95.2 weeks. Mean age at baseline was 34.9 (SD 7.8) years, and 56.7% were female. 74 patients (14.9%) were smokers, 47 participants (9.5%) were on anti-hypertensive drugs and 1% were known diabetics. Mean CD4 cell count was 200cells/mm^3 at baseline. CVD risk was low in general; 96.2% had a FRS < 10% both at baseline and at end of follow-up. There was a small gain in weight (1.5kg) and glucose overall but no impact on blood pressure over 96 weeks. Median FRS in the whole group was 1.85% at baseline and 1.94% at end of follow-up (p < 0.001). Median progression of FRS per year was 0.118% for the stavudine group and 0.016% for the tenofovir group (p < 0.001).
Conclusions: CVD risk according to the FRS is low in a young urban ART-naïve HIV-infected population. Stavudine use is associated with a sharper increase in 10-year CVD risk than TDF use, but is now rarely used anywhere in the world. CVD risk over a longer period, as well as the development of locally appropriate correlates with clinical end points, needs evaluation in future studies. More research is indicated on the effect of previous d4T exposure on current CVD risk.

TUPEB101

Prevalence and risk factors associated with carotid plaque and intima-medial thickness in virologically suppressed HIV-infected Asians

A. Avihingsanon[1,2], S. Siwamogsatham[2], A. Chutinet[2], O. Putcharoen[2], T. Aponpong[1], A. Hiransuthikul,[1], S. Gatechompol[1], W. Min Han[1], S. J. Kerr[1,3], K. Ruxrungtham[1,2], HIV-NAT 207/HIV-NAT006 Study Team
[1]HIV-NAT, Thai Red Cross AIDS Centre, Bangkok, Thailand, [2]Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, [3]Kirby Institute, University of New South Wales, Sydney, Thailand

Background: The magnitude and risk factors of subclinical atherosclerosis in an Asian HIV-infected population is limited. Carotid intima-media thickness (cIMT) test has been one of the predictors for the risk of cardiovascular disease (CVDs) and mortality. We evaluated the prevalence and risk factors related to carotid atherosclerosis among well suppressed HIV-infected adults receiving long-term ART from Thailand.
Methods: A cross-sectional study of HIV-infected adults aged >50 years and free from CVDs was conducted in Thailand. Ultrasonography of the carotid was performed and read by cIMT experienced neurologists who were blinded from the patient care. Subclinical atherosclerosis was defined by carotid plaque or cIMT of the common carotid artery >0.9 mm. Multiple logistic regression was used to predict the prevalence of subclinical atherosclerosis and the relationship between other covariates.
Results: Totally 316 HIV-infected adults (median age 54.4 years, 61% men, 15.8% diabetes, 40.2% hypertension) were included. The median duration of ART was 16.3 years and 32% were currently on boosted PI. The mean overall cIMT of the common carotid arteries were 0.63 (IQR 0.55-0.72) mm. Men had higher cIMT (0.64 (IQR 0.56-0.76) vs 0.60 (IQR 0.53-0.70), p=0.03. Overall, 3.8% had ciMT >0.9 mm and 27.6% had carotid plaque. From the multivariate logistic regression analysis, age [odds ratio (OR) 1.06; 95% confidence interval (CI) 1.003-1.12; p=0.04] and CD4 nadir < 200 cells/mm^3 [OR 1.8; 95%CI 1.02-3.18, p=0.04] were significantly associated with subclinical atherosclerosis. ART regimen and hs-CRP were not associated with subclinical atherosclerosis.
Conclusions: In this well suppressed HIV-infected Asian cohort, one-third of them had subclinical atherosclerosis. Advanced age and low nadir CD4 cell count was significantly associated with subclinical atherosclerosis. This findings support early ART initiation.

TUPEB102

Predictor of cardiovascular events and mortality in a Spanish cohort of HIV-infected patients

H. Albendín Iglesias[1], C.S. Caro Martinez[2], A. Perez Salvador[1], C.E. Galera Peñaranda[1], E. Bernal Morell[3]
[1]HCUVA, Internal Medicine, Murcia, Spain, [2]Hospital Vega Baja, Cardiology, Alicante, Spain, [3]Hospital General Reina Sofia, Infectious Diseases, Murcia, Spain

Background: HIV infection is characterized by a state of profound and continuous immune-activation. It is likely that the variables associated with the control of the infection are predictors of cardiovascular events. The objective of our study was to evaluate the predictors of major adverse cardiac events (MACE).
Methods: Retrospective analysis of 671 medical records of HIV-infected patients who were attended in the Internal Medicine consultation of the Virgen de la Arrixaca Hospital (Murcia) for the period January 2000 to December 2013. Events MACE that occurred until September 2017 were collected. The median follow-up was 16.7 years. A univariate and multivariate Cox analysis was performed to evaluate the factors associated with MACE.
Results: Fifty five MACE occurred during the follow-up period. The MACE predictors were age (per year, Hazard ratio (HR) =1.07, 95% Confidence interval (CI), 1.04-1.09, p < 0.001), male sex (HR = 2.26, 95% CI, 1.26-4.04, p = 0.006), arterial hypertension (HR =1.41, 95% CI, 1.06-1.85, p = 0.016), diabetes mellitus (HR = 1.49, 95% CI,1.05-1.85, p =0.026), chronic kidney disease (HR = 2.39, 95% CI, 1.01-5.62, p = 0.047), AIDS (HR = 1.59, 95% CI, 1.21-2.1, p = 0.001) and the CD4 / CD8 ratio less than 0.4 (HR = 2.49, 95% CI, 1.43-4.32, p = 0.001), HIV viral load higher than 200 copies/ml (HR = 4.45, 95% CI, 2.47-8.01, p < 0.001). In the multivariable Cox regression analysis, the independent predictors of MACE were age (per year, HR =1.07, 95% CI, 1.04-1.10, p < 0.001), sex male (HR = 2.16, 95% CI, 1.06-4.41, p = 0.034), smoking (HR = 1.42, 95% CI, 1.01-2.00; = 0.047) and the HIV viral load higher than 200 copies/ml (HR = 5.94, 95% CI 3.13-11.26, p < 0.001). The C statistic model was 0.78 (95% CI, 0.71-0.84, p < 0.001).
Conclusions: Traditional risk factors (smoking habits, sex male and age) were associated with MACE events as general population. On the other hand, HIV viral load > 200 copies was a powerful predictor of MACE event in HIV infected patients. So it is highlights the importance of antiretroviral treatment and virological control to prevent cardiovascular events.

TUPEB103

Changes in cardiovascular risk calculation and in fasting lipids in virologically suppressed patients randomized to switch to tenofovir alafenamide versus continuing abacavir

A. Winston[1], D.A. Wohl[2], H.-J. Stellbrink[3], L. Lopez-Cortes[4], P. Mallon[5], P.E. Sax[6], I. Brar[7], Y.-P. Liu[8], L. Zhong[8], S.E. Collins[8], H. Martin[8], D. Sengupta[8], E. Quirk[8], M. Das[8]
[1]Imperial College, Section of Infectious Diseases, Department of Medicine, London, United Kingdom, [2]University of North Carolina, Department of Medicine, Division of Infectious Diseases, Chapel Hill, United States, [3]ICH Study Center, Hamburg, Germany, [4]Hospital Universitario Virgen del Rocio/CSIC/Universidad de Sevilla, Instituto de Biomedicina de Sevilla, Sevilla, Spain, [5]University College Dublin, School of Medicine, Dublin, Ireland, [6]Brigham and Women's Hospital and Harvard Medical School, Division of Infectious Diseases, Boston, United States, [7]Henry Ford Hospital, Detroit, United States, [8]Gilead Sciences Inc., Foster City, United States

Background: Both tenofovir alafenamide (TAF) and abacavir (ABC) are considered lipid-neutral antiretroviral drugs, however comparisons between these agents have not thus far been described. We examined the effect of switching from ABC-containing to TAF-containing regimens on fasting lipids and cardiovascular (CV) risk.
Methods: We analyzed 1119 virologically suppressed participants in two randomized controlled trials of switching from ABC to TAF. Study 1717 assessed switching from ABC/ lamivudine (3TC) + 3rd agent to emtricitabine (FTC)/TAF + remaining on the same 3rd agent (n=556), and Study 1844 from ABC/dolutegravir/3TC to bictegravir/FTC/TAF (n=563). We assessed fasting lipids, 10-year CV risk using the AHA/ACC Pooled Cohort Equations and 5-year CV risk using the D:A:D algorithm (full model). Individuals were classified using clinical cutoffs for risk scores: <7.5%, 7.5% to < 10%, and ≥ 10%. We assessed the change in risk categories from baseline using rank analysis of covariance, and compared median changes from baseline with Wilcoxon rank sum test.

	TAF-containing regimen	ABC-containing regimen	
	Week 48 median (Q1, Q3)	Week 48 median (Q1, Q3)	p value
Total Cholesterol (mg/dL)			
Baseline	188 (165, 219)	194 (168, 220)	0.22
Change at Week 48	0 (-17, 19)	2 (-15, 20)	0.23
Direct LDL Cholesterol (mg/dL)			
Baseline	117 (97, 130)	121 (101, 143)	0.06
Change at Week 48	1.5 (-13.0, 19.0)	3.0 (-12.0, 16.0)	0.88
Non-HDL Cholesterol (mg/dL)			
Baseline	133 (112, 161)	138 (116, 164)	0.13
Change at Week 48	1.0 (-16.0, 17.0)	2.0 (-15.0, 17.0)	0.90
HDL Cholesterol (mg/dL)			
Baseline	52 (42, 63)	50 (42, 62)	0.17
Change at Week 48	-1 (-6, 4)	1 (-4, 7)	<0.001
Total Cholesterol : HDL ratio			
Baseline	3.6 (2.9, 4.4)	3.8 (3.0, 4.7)	0.07
Change at Week 48	0.0 (-0.4, 0.4)	0.0 (-0.5, 0.4)	0.16
Triglycerides (mg/dL)			
Baseline	118 (81, 160)	119 (86, 171)	0.36
Change at Week 48	-4.0 (-29.0, 29.0)	1.5 (-30, 30)	0.27
ACC/AHA 10-year risk score			
Baseline	4.3 (2.0, 8.9)	4.1 (1.8, 9.2)	0.57
Change at Week 48	0.0 (-0.7, 0.9)	0.0 (-0.7, 0.6)	0.16
D:A:D CVD 5-year risk score			
Baseline	3.6 (1.7, 7.3)	3.3 (1.5, 6.8)	0.23
Change at Week 48	-0.6 (-1.6, -0.2)	0.2 (-0.1, 0.7)	<0.001

The ACC/AHA Pooled Cohort Equations risk estimates are valid for ages 40-79 years, for total cholesterol 130-320 mg/dL, for HDL 20-100 mg/dL, for SBP 90-200 mmHg. The D:A:D risk estimates are valid for ages 18-75 years, for total cholesterol 2.3-9.8 mmol/L (89-383 mg/dL), for HDL 0.41-2.6 mmol/L (16-100 mg/dL), for SBP 90-180 mmHg, and for CD4 20-1350 /uL. The out of range values for each were imputed as follows: if the values were less than the lower bound of the valid range, the lower bound value was used for calculation; if the values were more than the upper bound of the valid range, the upper bound value was used for calculation.

[Table]

Results: 562 adults switched to TAF and 557 continued ABC. Baseline characteristics were balanced: median age 49 years (range 20 to 79), 85% men, 22% black, median CD4 count 683 cells/μL (interquartile range 510, 893), 33% hypertension and 10% diabetes. At Week 48, no differences were seen in TC, LDL, non-HDL, triglycerides or TC:HDL ratio. Participants who switched to TAF had a small decline in HDL compared to ABC. There were no differences in 10-year CV risk categories or median risk change at Week 48 by AHA/ACC equations (p=0.80 and p=0.16). Using the D:A:D algorithm, TAF was associated with a small decline in CV risk compared to ABC at Week 48 (p< 0.001) attributable to the removal of the coefficient for current ABC use. Virologic suppression and safety were similar between groups.
Conclusions: Switching from ABC to TAF did not result in clinically significant changes in lipids or in the calculated AHA/ACC ASCVD or D:A:D CV risk scores. These findings suggest that TAF and ABC have similar effects on lipids and CV risk calculations that do not include ABC as a CV risk factor.

TUPEB104

Cardiovascular disease risk assessments and fasting lipid changes in virologically suppressed patients randomized to switch to tenofovir alafenamide versus continuing tenofovir disoproxil fumarate

C. Orkin[1], F. Castelli[2], Y. Yazdanpanah[3], J. Rockstroh[4], C. Brinson[5], G. Diperri[6], Y.-P. Liu[7], L. Zhong[7], S.E. Collins[7], H. Martin[7], D. Sengupta[7], M. Das[7]
[1]Royal London Hospital, Grahame Hayton Unit, London, United Kingdom, [2]University of Brescia and Spedali Civili General Hospital, University Department of Infectious and Tropical Diseases, Brescia, Italy, [3]Hôpital Bichat Claude Bernard, Paris, France, [4]University Hospital Bonn, Bonn, Germany, [5]Central Texas Clinical Research, Austin, United States, [6]University of Torino, Unit of Infectious Diseases, Department of Medical Sciences, Torino, Italy, [7]Gilead Sciences Inc., Foster City, United States

Background: The 91% higher plasma levels of tenofovir (TFV) from tenofovir disoproxil fumarate (TDF) versus tenofovir alafenamide (TAF) are associated with lower fasting levels of protective (HDL) and harmful (LDL) cholesterol through an unclear mechanism. No difference in atherosclerotic cardiovascular disease (ASCVD) risk scores are seen in treatment-naïve patients. The impact on cardiovascular risk of switching from a regimen containing TDF to one containing TAF is unknown.

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Methods: We pooled data from 2587 virologically suppressed participants on 3 randomized, active controlled trials that assessed switching to TAF versus continuing TDF. We measured fasting lipids and calculated 10-year ASCVD risk using the AHA/ACC Pooled Cohort Equations. We classified individuals by clinical risk categories: < 7.5%, 7.5% to < 10%, and ≥ 10% using the rank analysis of covariance method to compare the change from baseline in risk categories and Wilcoxon rank sum test to compare median values at Week 48.
Results: 1537 adults switched to TAF and 1050 continued TDF. Baseline characteristics included: 87% men, 21% Black, median CD count 654 cells/μL (IQR 500, 830), 25% hypertension and 5% diabetes, were balanced between groups. Median age was 44 years (IQR 35, 50) versus 45 years (IQR 36, 51) for TAF versus TDF respectively (p=0.021). At Week 48, there was a small difference in median change from baseline ASCVD scores, no difference in median risk score between TAF and TDF groups (see table) and no change from baseline in categorical ASCVD risk score classifications (p= 0.06). After switching to TAF, modest increases were observed in all fasting lipids and a small difference in TC:HDL ratio between groups.
Conclusions: Switching from TDF to TAF did not result in any significant change in ASCVD risk scores at Week 48 compared to continuing TDF and did not alter clinical classifications of ASCVD risk despite modest increases in both protective (HDL) and harmful (LDL) cholesterol. We used the AHA/ACC equation to compare calculated risk scores in TDF versus TAF takers within a relatively young, healthy, and mostly male cohort with low baseline cardiovascular risk. Long term cohort data is needed to characterize clinical cardiovascular event rates.

	TAF-containing regimen	TDF-containing regimen	
	Median (Q1, Q3)	Median (Q1, Q3)	p value
ACC/AHA 10-year risk score			
Baseline	2.7 (1.1, 5.6)	3.0 (1.3, 5.8)	0.092
Week 48	2.9 (1.3, 6.0)	2.9 (1.3, 5.7)	0.97
Change from baseline at Week 48	0.1 (-0.3, 0.7)	0.0 (-0.5, 0.5)	<0.001
Total Cholesterol (mg/dL)			
Change from baseline	17 (-2, 37)	3 (-12, 18)	<0.001
Direct LDL Cholesterol (mg/dL)			
Change from baseline	9 (-7, 26)	1 (-13, 13)	<0.001
Non-HDL Cholesterol (mg/dL)			
Change from baseline	15 (-3, 33)	3 (-12, 16)	<0.001
HDL Cholesterol (mg/dL)			
Change from baseline	2 (-3, 8)	0 (-4, 6)	<0.001
TC:HDL ratio			
Change from baseline	0.1 (-0.3, 0.6)	0.0 (-0.4, 0.4)	<0.001
Triglycerides (mg/dL)			
Change from baseline	8 (-22, 44)	0 (-29, 28)	<0.001

The ACC/AHA ASCVD risk estimates are valid for ages 40-79 years, for total cholesterol 130-320 mg/dL, for HDL 20-100 mg/dL, for SBP 90-200 mmHg; the out of range values were imputed as follows: if the values were less than the lower bound of the valid range, the lower bound value was used for calculation; if the values were more than the upper bound of the valid range, the upper bound value was used for calculation.

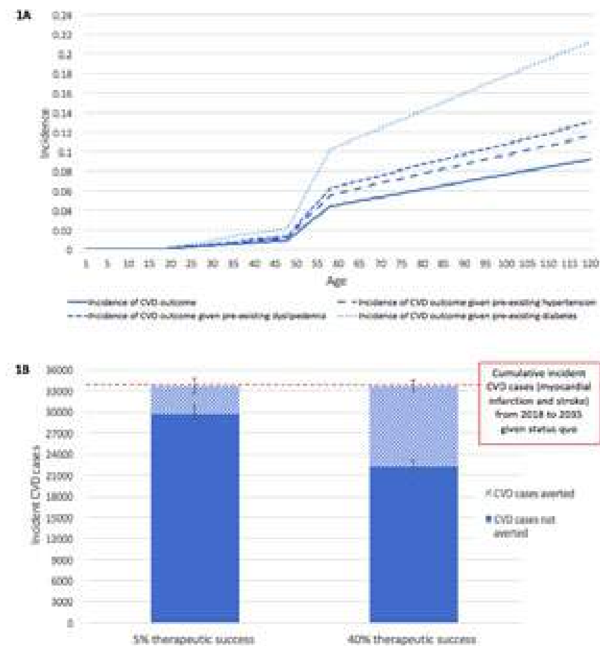
[Table.]

TUPEB105

The potential impact of integrating services for the secondary prevention of cardiovascular outcomes into HIV care in Kenya: A mathematical modelling study

R. Cassidy, P. Perez-Guzman, T. Hallett, M. Smit
Imperial College London, Department of Infectious Disease Epidemiology, London, United Kingdom

Background: Cardiovascular disease (CVD) is estimated to contribute more than 13% of deaths in Kenya. National guidelines now recommend integration of secondary preventative services for CVD risk factors into care for people living with HIV (PLHIV). However, coverage remains very low. Our aim is to quantify the impact of comprehensive provision of antihypertensive and lipid lowering medication as per national guidelines on CVD incidence amongst PLHIV in care.
Methods: We developed an individual-based multi-disease model for Kenya, simulating HIV infection, progression and treatment, and incidence of major non-communicable diseases (NCDs). The model was parameterized using national and regional surveillance and epidemiological data and accounts for the impact of pre-existing NCDs (diabetes, hypertension and dyslipidaemia) on risk of CVD outcome (myocardial infarction (MI) and stroke) (Figure 1A). We evaluated the impact of integrating a screen-and-treat intervention for hypertension and dyslipidaemia into HIV care on CVD outcomes, using recommended screening intervals (every three years) and treatment guidelines, from 2018 to 2035. Therapeutic Success (TS) was assumed to range from 5-40% and to decease CVD risk to that of age-matched controls without hypertension or dyslipidaemia.
Results: Our model predicts a baseline of 33,700 (32,619-34,781) cases of CVD outcomes between 2018 and 2035 amongst PLHIV in care, MI incidence of 102.7 (98.8-106.6) and stroke incidence of 104.7 (100.4-108.9) per 100,000 person-years. Prevalence of related NCDs is predicted to increase over the same period (hypertension: 40.2% to 54.9%, dyslipidaemia: 26.4% to 39.3% and diabetes: 1.8% to 4.0%). A screen-and-treat intervention could avert 12%-34% of MI cases and 11%-33% of stroke cases among PLHIV between 2018 and 2035 (Figure 1B), depending on assumed probability of TS. This equates to 1 case averted for every 87-261 screening tests administered, depending on TS assumed. MI incidence could decrease to between 94.0 (89.5-98.6) and 68.5 (64.1-72.9) and stroke incidence to between 93.1 (89.7-96.5) and 68.8 (64.1-73.5) per 100,000 person-years.
Conclusions: Screening and treatment of high blood pressure and cholesterol in PLHIV in care could avert a large burden of CVD outcomes in this population, with the impact strongly modulated by the probability of achieving treatment success.



[Fig 1A Incidence of CVD by age given pre-existing NCD. 1B Cumulative incident number of CVD cases between 2018-2035 at baseline and with intervention.]

TUPEB106

Improvement in the prediction of cardiovascular events by adding HIV-viral load to a cardiovascular risk scale

H. Albendín Iglesias[1], C.S. Caro Martinez[2], A. Perez Salvador[1], C.E. Galera Peñaranda[1], E. Bernal Morell[3]
[1]HCUVA, Internal Medicine, Murcia, Spain, [2]Hospital Vega Baja, Cardiology, Alicante, Spain, [3]Hospital General Reina Sofia, Infectious Diseases, Murcia, Spain

Background: The immunovirological variables in HIV infected patients can be predictors of cardiovascular events. The aim of our study was to analyze the discriminative improvement of the COMVIH-COR scale by adding variables such as HIV viral load.

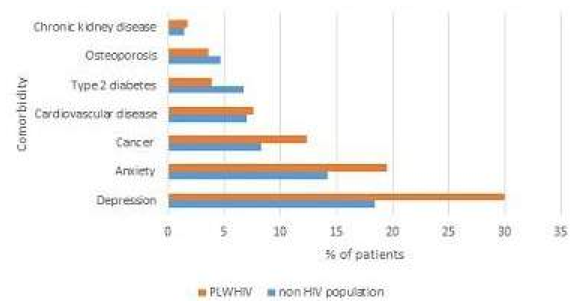
Methods: Retrospective analysis of 671 medical records of HIV-infected patients who were attended in the Internal Medicine consultation of the Virgen de la Arrixaca Hospital (Murcia) for the period January 2000 to December 2013. Major adverse cardiac events (MACE) that occurred until September 2017 were collected. The median follow-up was 16.7 years. The COMVIH-COR scale was calculated at the event or at the end of the follow-up. The improvement in the reclassification of the COMVIH-COR scale after the addition of the viral load variable greater than 200 copies/ml was performed.
Results: The COMVIH-COR risk scale was calculated in 507 patients. The area under the curve COMVIH-COR risk scale model was 0.72 (95% confidence interval (CI), 0.68-0.76) compared to 0.76 (95% CI, 0.72-0.79) of the model in which CV greater than 200 copies/ml was added to the COMVIH-COR scale (p = 0.201). The Integrated Discrimination Improvement (IDI) showed that the viral load improved the classification of the COMVIH-COR risk scale for the prediction of MACE events. (Relative IDI, 3.8%, p = 0.014). Similarly, the NRI (Net Reclassification Index) showed an improvement in the reclassification of the risk when it was added to the COMVIH-COR (p = 0.021) The distribution of the MACE event rate (per 1000 patient / year) according to the viral load and the risk level showed higher rates in those patients with HIV viral load higher than 200 copies/ml in all levels: low (2.8 versus 1.6), moderate (11.9 versus 5.1), at high risk or very high (13.2 versus 7.4).
Conclusions: The COMVIH-COR risk scale developed for HIV-infected patients had a modest predictive capacity for major adverse cardiac events. The addition of a virological marker (HIV viral load > 200 copies/ml) to the COMVIH-COR scale significantly improved its predictive capacity, which suggests that in clinical practice we should take into account the control of HIV replication as a factor of cardiovascular risk.

TUPEB107

Chronic disease prevalence and management in Australian adults with HIV: Use of a national longitudinal general practice dataset to identify and address gaps in patient care

C. Weston[1], K. Lembke[1], J. Yoo[1], N. Raffoul[1], D. Gracey[2], J. Reeve[1]
[1]*NPS MedicineWise, Sydney, Australia,* [2]*Royal Prince Alfred Hospital, Sydney, Australia*

Background: The evolution of HIV into a chronic disease presents new challenges for the management of a range of HIV-associated non-AIDS comorbidities.
Cardiovascular (CV) disease and its prevention are important considerations in the management of people living with HIV (PLWHIV). Limited literature exists on how CV and renal diseases are managed in PLWHIV in Australia. We aimed to characterise PLWHIV being cared for their general practitioners, and investigate how well their CV and renal risk factors were being managed in line with current guidelines.
Methods: An Australian primary care dataset was used to characterise the prevalence of selected co-morbidities in PLWHIV. A cardiovascular and renal focus were selected after interviews with HIV specialists and general practitioners. The ethics approved real-world dataset used contains longitudinal, de-identified, whole-of-practice data from general practices and holds individual patient data for more than 3.5 million Australians. The management of risk factors for cardiovascular and renal disease was then compared to best practice guidelines.
Results: In September 2017, 4,492 patients 18 years or older were identified in the dataset as PLWHIV, representing 17.7% of the estimated 25,313 PLWHIV in Australia. Males accounted for 95.3% of the cohort and 66.5% were 45-74 years old.
Depression, anxiety, cardiovascular disease and cancer were the commonest co-morbidities recorded and were all more common than in the non-HIV population (Chart 1). Local guidelines recommend annual monitoring of cardiovascular and renal risk factors. Sixty three percent of PLWHIV had a blood pressure recorded in the dataset in the last year, 60% an eGFR, and 25% an LDL-cholesterol.
Of those with measurements available, 74% had a systolic blood pressure below 140mm Hg, 17% had a LDL cholesterol below 2 mmol/L (target management goals) and 30% had an eGFR in the normal range (>90mL/min/1.73m²).



[Chart 1: Prevalence of comorbidities in PLWHIV compared to the non HIV population]

Conclusions: This study quantified the significant level of co-morbidities in Australians living with HIV and identified specific areas for improvement in the management of cardiovascular and renal risk factors. The study was used as the basis of a reflective quality improvement activity delivered to 16 general practices, with the aim of improving the quality of clinical care in Australians living with HIV.

Bone disease

TUPEB108

Prevalence and predictors of bone mineral density among perinatally HIV-infected adolescents on antiretroviral therapy (ART) in the Cape Town Adolescent Antiretroviral Cohort (CTAAC)

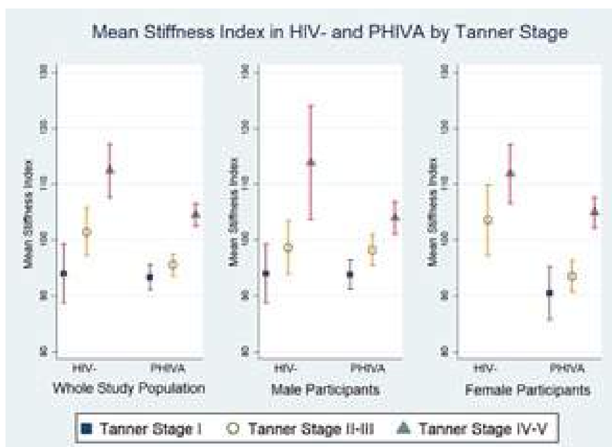
S. Mahtab[1], C. Scott[2], T. Machemedze[1], N.A. Asafu-Agyei[1], L. Frigati[1], L. Myer[3,4], H. Zar[1]
[1]*University of Cape Town, Department of Pediatrics & Child Health, Red Cross War Memorial Children's Hospital, and SA MRC Unit on Child & Adolescent Health, Cape Town, South Africa,* [2]*University of Cape Town, Department of Pediatric Rheumatology, Red Cross War Memorial Children's Hospital, Cape Town, South Africa,* [3]*University of Cape Town, Division of Epidemiology & Biostatistics, Cape Town, South Africa,* [4]*University of Cape Town, Centre for Infectious Diseases Epidemiology & Research, Cape Town, South Africa*

Background: Access to ART has reduced morbidity and mortality in perinatally HIV-infected adolescents (PHIVA), but long-term complications including low bone mineral density (BMD) remains a concern. In high income countries, low BMD has been reported in 10-54% of HIV-infected adolescents. We studied the prevalence and predictors of low BMD among South African PHIVA on ART.
Methods: We evaluated the calcaneus stiffness index (SI) in a cross-sectional analysis using Quantitative Ultrasonography (QUS), a reliable and non-invasive method to screen BMD. Adolescents 11-17 years old were included. SI was considered low if z-score < -2 SD using age and sex matched HIV-uninfected controls (HIV-) as a reference. Multiple logistic regression was used to examine the adjusted association between low SI and both HIV-related and traditional risk factors in PHIVA.
Results: Overall 407 PHIVA (median age: 14 years; 50% female; median age at ART initiation: 4.2 years) and 92 HIV- (median age: 14 years; 54% female) were included. Median duration on ART was 9.8 years (IQR 6.8-11.5) with 38% initiating ART at ≤2 years of age. PHIV+ had low mean SI and BMI z-score compared to HIV- (99 vs 105, p=< 0.001) and (-0.19 vs 0.43, p=< 0.001) respectively.
At Tanner Stage I, the mean SI between PHIVA and HIV- were similar (93 vs 94, p=0.832). During puberty, mean SI increased with Tanner stage in both PHIVA and HIV- but there was more significant increase among HIV- controls; Tanner stage II-III (96 vs 101, p=0.009) and Tanner stage IV-V (104 vs 112, p=0.001).
Among PHIVA on ART, 52 (13%) had low SI. After adjusting for age, gender and Tanner stage, exposure to Lopinavir/Ritonavir (LPV/r) (OR=2.31, p=0.012) and viral load >50 copies/ml (OR=2.06, p=0.023) were associated with increased risk of low SI. However, exposure to Efavirenz (EFV) (OR=0.41, p=0.009) was associated with decreased risk of low SI.

Conclusions: In South African PHIVA, SI appears significantly different from HIV- controls especially in late puberty. LPV/r exposure and high viral load are risk factors for low SI and exposure to EFV seems to be associated with better SI. Longitudinal study of BMD is needed to evaluate long term effects.

Variable	OR* (95% CI)	p-value
Viral load(copies/ml) <50, ≥50	Ref, 2.06 (1.11-3.83)	0.023
CD4 count (cells/ul) ≤499, ≥500	Ref, 0.53 (0.27-1.05)	0.067
WHO HIV staging Stage I-II, Stage III-IV	Ref, 1.84 (0.67-5.04)	0.234
Age at initiation of ART 0-5 years, 6-14 years	Ref, 0.52 (0.24-1.10)	0.089
Current ART regimen 2 X NRTI + NNRTI, 2 X NRTI + PI	Ref, 1.62 (0.83-3.16)	0.162
Ever on TDF Not exposed, Exposed	Ref, 0.53 (0.18-1.52)	0.237
Ever on EFV Not exposed, Exposed	Ref, 0.41 (0.21-0.80)	0.009
Ever on LPV/r Not Exposed, Exposed	Ref, 2.31 (1.20-4.47)	0.012
** All models are adjusted for age, gender and Tanner stage*		

[Logistic regression models for key predictors of low stiffness index amongst PHIVA on ART.]



[Mean stiffness index among PHIVA and HIV- controls by Tanner stage]

TUPEB109

Increased beta-2 microglobulinuria predicts low BMD in young HIV+ patients on TDF

T. Taniguchi[1], M. Tsukiji[2], T. Sakurai[1], H. Igari[1]
[1]*Chiba University Hospital, Department of Infectious Diseases, Chiba, Japan,* [2]*Chiba Unversity Hospital, Department of Pharmacy, Chiba, Japan*

Background: HIV+ patients treated with Tenofovir Disoproxil Fumarate (TDF) are known to have risk for developing low bone mineral density (BMD) and hence are in high risk for fracture. However, current recommendation is to screen bone density with dual-energy x-ray absorptiometry (DXA) in men aged ≥50 and postmenopausal women. We evaluated the prevalence and risks for low BMD in our HIV+ patients, and then sub-analyzed patients aged < 50 and on TDF.

Methods: A single-centered cross-sectional study was performed among HIV+ patients, analyzing BMD by DXA. We assessed factors associated with low BMD (osteopenia or osteoporosis, defined by T-scores of -1.0 to >-2.5, and ≤ -2.5, respectively) in either lumbar spine or hip by chi-square or Fisher's exact test for univariate and binary logistic regression for multivariate analyses.

Results: Of 215 HIV+ patients with DXA performed (median age 46 [interquartile range (IQR) 39-57], 87% male, median CD4+ cell count [CD4] 516 cells/mm[sup]3[/sup] [IQR 333-684] and 71% (n=153) on TDF), 61% (n=127) had low BMD in either lumbar spine or hip. When adjusted by age, sex, CD4 count and smoking habit, patients on TDF (adjusted odds ratio (aOR): 2.1[95% confidence interval (CI); 0.97-4.7]), increased beta-2 microglobulinuria (> 320mcg/L) (aOR: 2.5 [95%CI; 1.2-5.3] and Body Mass Index (BMI) < 25 (aOR: 2.4[95%CI; 1.2-5.0] were risk factors for low BMD. Patients aged < 50 and on TDF (n=105) had high rate of low BMD (64%, n=67) , and after adjustment with age, sex, smoking habit, BMI and CD4 count, significant risk factor for low BMD in this population was increased beta-2 microglobulinuria (aOR: 3.5[95%CI; 1.1-11.1]).

Conclusions: Low BMD is common in young HIV+ patients on TDF. High risk patients warrants screening for low BMD with DXA. Young HIV+ patients on TDF with increased beta-2 microglobulinuria have 3.5-fold higher risk for developing low BMD. To determine high risk patients for low BMD, a spot urine beta-2 microglobulin test may be helpful.

TUPEB110

Vitamin D does not modulate Immune-mediated bone loss during ART initiation

E.T. Overton[1], E. Chan[2], T. Brown[3], J. Kinslow[4], A. Landay[4], K. Melbourne[5], H. Ribaudo[2], M. Yin[6], ACTG 5280 Study Team
[1]*University of Alabama, Birmingham, United States,* [2]*Harvard Chan School of Public Health, Boston, United States,* [3]*Johns Hopkins University School of Medicine, Baltimore, United States,* [4]*Rush Medical College, Chicago, United States,* [5]*Gilead Sciences, Foster City, United States,* [6]*Columbia University, Medicine, New York, United States*

Background: Bone loss with ART initiation may be related to changes in immune function, including expression of receptor activator of nuclear factor kappa-B ligand (RANKL) which leads to osteoclast activation. Vitamin D (VitD) and calcium(Ca) supplementation (vitamin D3 4000 IU calcium carbonate 1000 mg daily) attenuates ART-associated bone loss, but it is unclear whether this effect is mediated through immunomodulation.

Methods: In this secondary analysis of A5280, a 48-week, randomized, double-blind, placebo-controlled study of VitD/Ca supplementation in HIV+ persons initiating efavirenz/emtricitabine/tenofovir, we measured lymphocyte phenotypes and RANKL expression by median fluorescence intensity (MFI) on cells at baseline and 48 weeks. Changes were evaluated within and between treatment groups by Wilcoxon signed rank and Wilcoxon rank sum tests, respectively. Spearman correlations were estimated to evaluate the relationship between cellular phenotypes and bone mineral denity (BMD).

Results: Of 165 eligible participants enrolled, 138 had samples for cellular phenotypes at baseline and week 48 (64 in VitD/Ca and 74 in placebo). Markers of CD4, CD8, and B cell activation (CD38+HLA-DR+) declined from baseline to 48 weeks (all p < 0.001, table), but did not differ between arms. There was no decline in either %T cells (CD4 and CD8) expressing RANKL or expression of RANKL by MFI. B cell expression of RANKL by MFI declined in both arms with a greater decline in the placebo arm. CD4 and CD8 activation markers were not correlated with BMD at baseline (|r|≤ 0.15 and p>0.09 for all), but greater declines in CD4 activation correlated with greater declines in hip and spine BMD in both arms (0.25 ≤ r ≤0.37, all p < 0.05). A greater decline in CD8 activation was correlated with greater declines in both hip and spine BMD in the placebo arm only (hip r=0.31, p=0.009; spine r=0.25, p=0.035). Other correlations between changes in markers and BMD were modest and not apparent on scatterplots.

	VitD/Ca Arm			Placebo Arm		
	Baseline Median (Q1, Q3)	Change Median (Q1, Q3)	p-value (within arm)	Baseline Median (Q1, Q3)	Change Median (Q1, Q3)	p-value (within arm)
%(CD4+) CD38+HLA-DR+	6.8 (3.8, 12.8)	-3.0 (-5.8, -0.9)	<0.001	8.3 (4.6, 11.1)	-3.6 (-7.0, -1.1)	<0.001
% (CD8+) CD38+ HLA-DR+	18.0 (12.3, 33.0)	-13.9 (-23.2 -9.1)	<0.001	22.8 (12.5, 32.2)	-17.2 (-25.8, -7.7)	<0.001
% (CD19+) CD38+ HLA-DR+	94.0 (88.0, 97.4)	-2.0 (-5.1, -0.3)	<0.001	92.5 (86.2, 95.9)	-3.1 (-6.7, -0.1)	<0.001
% (CD4+) RANKL+	77.3 (62.1, 87.1)	1.1 (-3.1, 8.1)	0.20	74.0 (49.4, 91.6)	0.7 (-3.7, 6.5)	0.44
% (CD8+) RANKL+	81.1 (68.3, 90.5)	-0.9 (-5.4, 5.5)	0.84	82.9 (63.6, 91.2)	-0.2 (-5.8, 5.8)	0.70
CD4+ RANKL MFI	1223 (1126, 1415)	3 (-81, 119)	0.70	1215 (1081, 1485)	10 (-86, 101)	0.83
CD8+ RANKL MFI	1226 (1112, 1453)	-18 (-108, 135)	0.90	1268 (1118, 1477)	-15 (-113, 91)	0.32
CD19+ RANKL MFI	8230 (7014, 9684)	-694 (-1646, 445)	0.002	8189 (6892, 9327)	-1187 (-2488, -250)	<0.001

[Table: Changes in Selected Lymphocyte Phenotype Markers and RANKL Expression from Baseline to Week 48 by Treatment Arm]

Conclusions: Reductions in markers of T and B cell activation are characteristic of ART initiation. Reductions in lymphocyte activation modestly correlate with bone loss. However, VitD/Ca supplementation does not appear to mitigate bone loss through modulation of immune activation or expression of RANKL.

TUPEB111

Bone mineral density and prevalence of osteoporosis in HIV-infected patients in comparison with a reference Spanish population: The importance of local normative ranges

C. Sobrino[1], J. Gallego[2], M.J. Vivancos[2], F. Lopez[1], M.J. Perez-Elías[2], J. Loarce[1], M. Vazquez[1], J.L. Casado[2]
[1]Ramon y Cajal Hospital, Rheumatology, Madrid, Spain, [2]Ramon y Cajal Hospital, Infectious Diseases, Madrid, Spain

Background: HIV-infected patients have less bone mineral density (BMD) than non-HIV population. According to current guidelines, the normal BMD reference range is that derived from the US NHANES III (National Health and Nutrition Examination Survey). However, local variations of BMD could change the interpretation of bone loss and the prevalence of osteoporosis (OP) in this population.
Methods: This was a cross-sectional study in a homogenous cohort of HIV-infected patients (RyC cohort, EC 009/17). Data of femoral neck and spine BMD were obtained by DXA (Dual-Energy X-ray Absorptiometry) from 949 patients (241 women, 25%) and compared with the results of a nationally representative Spanish cohort (14 centers) including 2442 subjects (1305 women, 53%) aged 20-80 years.
Results: Overall, mean age was 45.4 yrs (women, 46.5 yrs). The Spanish reference cohort showed a reduced BMD (-7%, 3-12%) in comparison with NHANES, especially in middle aged women. HIV-infected patients had a lower BMD than Spanish cohort in both spine and femoral neck localizations for the different age strata (p< 0.001), not significant in femoral neck for males aged 30-39 (n=152 patients, 0.848 vs 0.869 gr/cm2; p =0.07). Using NHANES data, the prevalence of OP was 26% in women in the Spanish cohort and 41% in our HIV population.
By contrast, if the Spanish data are used as normative range, the prevalence of OP decreased in HIV females, significant between 40-60 years (from 26.5 to 23.5% in spine, p< 0.01).
Although OP in spine was less frequent in males by using Spanish data (p< 0.01, OP decrease from 17.8 to 6.5%), there was more OP in femoral neck in males older than 40 yrs (from 13.5 to 21% in 60-69; p< 0.01).
Conclusions: Our data demonstrate that HIV-infected patients had a significantly reduced BMD in comparison with both US and Spanish reference data for all the age strata.
However, the prevalence of osteoporosis could change if local representative cohorts are used as normative data, with almost 30% of patients being reclassified.

TUPEB112

Abnormal bone histomorphometry in men with HIV infection before and after ART initiation

J. Ramalho[1], C. Steller[1], J. Galvão[2], M. Eira[3], R. Pereira[1], M. Yin[4], T. Nickolas[4], L.M. Reis[1], V. Jorgetti[1], R.M. Moyses[1]
[1]University of São Paulo, São Paulo, Brazil, [2]Universidade 9 de Julho, São Paulo, Brazil, [3]Instituto de Infectologia Emilio Ribas, São Paulo, Brazil, [4]Columbia University, New York, United States

Background: Reduction in bone mineral density (BMD) is a known metabolic complication of HIV infection and antiretrovial therapy (ART). We aimed to investigate changes in bone-related proteins and bone histomorphometry in ART-naïve HIV men initiating treatment with tenofovir disoproxil fumarate (TDF), lamivudine (3TC) and efavirenz (EFV).
Methods: In 16 ART-naïve men with HIV infection, we evaluated bone structure, turnover and mineralization by iliac crest bone biopsy with histomorphometry before and 12 months after ART initiation. Receptor activator of nuclear factor kappa- ligand (RANKL) and fibroblast growth factor (FGF-23) levels in serum and bone were determined using MILLIPLEX@ multiplex assays. Main exclusion criteria were eGFR < 60ml/min/1,73m², metabolic bone disease, cirrhosis, diabetes, and medications affecting bone metabolism. BMD was assessed by DXA.
Results: Mean age was 29..8 years, mean BMI was 24.4±2.4, [MY1] with median viral load of 28,685 (5,628-68,540) copies/mL and mean CD4 of 478±189 cells. At baseline, three patients (19%) had Z score ≤ -2 at any site. Before treatment, 25% had low bone trabecular volume and 19% had decreased cortical thickness. Cortical porosity was normal in all of them. Decreased bone formation rate was seen in 88% and abnormal mineralization lag time in 63%. Increased osteoclastic and eroded surface were seen in 44 and 31%, respectively. We observed reduction in BMD at L1-L4 (-2.1%, p 0,048), FN (-2,8%, p 0.001) and TH (-3%, p 0.04) after 12 months. Histomorphetric study revealed reduction in osteoblastic surface (1.3 [0.5 - 2.3] vs 3.5 [1.8 - 6.4]%, p 0.02) and increase in cortical porosity (3.7 ± 1.7% vs 6.3 ± 3.5%, p 0.049) and thickness (663.5 ± 163.1 vs 886.9 ± 349.4 mm, p 0.04). Reduction in serum RANKL (15.2 [10.0 - 21.9] vs 10.9 [7.5 - 16.8] pg/ml, p 0.049) and FGF-23 (18.1 [13.4 - 25.4] vs 14.11 [8.9 - 21.7], p 0.04) levels were also detected.
Conclusions: Abnormalities in bone volume, turnover and mineralization are common among HIV-infected persons even before ART exposure. Bone loss with TDF, 3TC and EFV was accompanied by changes in cortical parameters and in osteoblastic surface, along with reduction in serum RANKL and FGF-23.

Renal disease

TUPEB113

Renal safety of TAF vs. TDF or ABC in a pooled analysis of 27 Phase 2/3 clinical trials

S.K. Gupta[1], F.A. Post[2], J.R. Arribas[3], A. Pozniak[4], D. Podzamczer[5], A. Clarke[6], T. Mudrikova[7], E. Negredo[8], S. Guo[9], L. Zhong[9], H. Martin[9], E. Quirk[9], D. Sengupta[9], M. Das[9]
[1]Indiana University, School of Medicine, Department of Infectious Diseases, Indianapolis, United States, [2]Kings College London, London, United States, [3]Hospital Universitario La Paz, Madrid, Spain, [4]Chelsea and Westminster Hospital NHS Foundation Trust, London, United Kingdom, [5]Hospital Universitari de Bellvitge, Barcelona, Spain, [6]Royal Sussex County Hospital, Brighton, United Kingdom, [7]University Medical Center Utrecht, Department of Internal Medicine, Utrecht, Netherlands, [8]Germans Trias i Pujol University Hospital- Universitat Autònoma de Barcelona, Barcelona, Spain, [9]Gilead Sciences Inc., Foster City, United States

Background: Compared to tenofovir disoproxil fumarate (TDF), tenofovir alafenamide (TAF) has improved renal safety in individual randomized trials. We present pooled analyses of renal safety of TAF vs. TDF or TAF vs. abacavir (ABC) in treatment-naïve and switch studies including over 7500 children and adults.
Methods: We pooled data from 27 studies (7 in treatment-naïve participants, 19 in virologically suppressed, 1 in both treatment-naïve and virologically suppressed adults). Most studies were randomized and double-blinded; pediatric studies were single-arm, open-label. All participants who initiated or switched to TAF-based regimens (elvitegravir/cobicistat/emtricitabine [FTC]/TAF, rilpivirine/FTC/TAF, FTC/TAF, bictegravir/FTC/TAF) were compared with those who initiated or continued regimens containing either TDF or ABC. Rates of participants discontinuing drug due to renal adverse events (AEs) or proximal renal tubulopathy (PRT, determined using common MedDRA terms) from each group were analyzed. We compared urine albumin/creatinine (Cr; UACR), beta-2-microglobulin (B2m):Cr, and retinol binding protein (RBP:Cr) from 11 randomized studies.
Results: 7662 participants were enrolled across studies (n=7595 TAF, n=2668 TDF, n=916 ABC). Baseline median age was 42 years, 19% women, 27% Black. Pooled data included exposure of 12,575 person-years (py) to TAF, 5947 to TDF, and 1029 to ABC. Three vs. 16 (p< 0.001) participants discontinued TAF- vs. TDF-based regimens due to a renal AE. None vs. 10 cases of PRT occurred with TAF vs. TDF (p< 0.001). Participants initiating TAF- vs. TDF- or ABC-based regimens had greater decreases or smaller increases at Week 48 in renal biomarkers (p< 0.05; Table). Participants

switching from TDF to TAF had decreases in tubular proteins at Weeks 48 and 96 (p< 0.001; Table). No differences in proteinuria were noted after switching to TAF- vs. continuing ABC-based regimens.

Conclusions: HIV-1-infected individuals who initiated or switched to TAF had significantly fewer renal AEs, including 0 PRT cases, compared to those on TDF. These pooled data from 27 studies, with over 12,500 py of follow-up in children and adults on TAF, strongly suggest a comparative renal safety advantage for TAF compared to TDF. Finally, initiating TAF vs. ABC was associated with biomarker improvements, and overall results demonstrated that TAF has a renal AE profile that is similar to ABC.

Treatment Naïve Participants				
		TAF-based (n=1180)	**TDF-based (n=867)**	**ABC-based (n=315)**
RBP:Cr	Baseline (ug/g)	67.4 (47.5, 101.0)	67.1 (45.6, 94.1)	83.7 (58.9, 120.4)*
	% Change at W48	10.7 (-22.6, 51.4)	51.2 (3.0, 132.5)	19.9 (-16.0, 58.9)
	p-value vs TAF-based	-	<0.001	0.024
B2M:Cr	Baseline (ug/g)	101.4 (69.8, 171.3)	103.1 (68.0, 173.0)	109.8(77.6, 191.8)
	% Change at W48	-29.2 (-57.2, 7.0)	23.3 (-33.8, 166.4)	-18.1(-54.2, 17.4)
	p-value vs TAF-based	-	<0.001	0.014
UACR	Baseline (mg/g)	5.0 (3.4, 8.3)	4.9(3.5, 8.8)	5.4(3.7, 9.1)
	% Change at W48	-3.1 (-32.4, 40.8)	7.1 (-26.3, 62.2)	6.2 (-23.6, 57.7)
	p-value vs TAF-based	-	0.001	0.005
Participants who Switched from TDF- to TAF-based Regimens				
		TAF-based (n=2291)	**TDF-based (n=1801)**	**p-value**
RBP:Cr	Baseline (ug/g)	118.6 (75.4, 241.5)	122.9(78.6,240.9)	0.21
	% Change at W48	-26.1(-57.8, 8.2)	24.1 (-18.0, 90.1)	<0.001
	% Change at W96	-2.3 (-42.0, 46.7)	61.2 (6.3, 162.2)	<0.001
B2M:Cr	Baseline (ug/g)	139.6 (75.0, 496.0)	142.7 (76.9, 484.6)	0.78
	% Change at W48	-43.3 (-77.1, 0.0)	19.4 (-30.7, 125.1)	<0.001
	% Change at W96	-25.8 (-71.1, 20.6)	53.0 (-21.9, 191.9)	<0.001
UACR	Baseline (mg/g)	6.0 (4.0, 11.8)	6.2 ((4.1, 11.8)	0.66
	% Change at W48	-13.2 (-42.3, 28.2)	12.2 (-21.6, 59.9)	<0.001
	% Change at W96	-5.4 (-40.9, 40.1)	27.0 (-15.7,95.1)	<0.001
Participants who Switched from ABC- to TAF-based Regimens				
		TAF-based (n=607)	**ABC-based (n=601)**	**p-value**
RBP:Cr	Baseline (ug/g)	99.4 (67.7, 152.6)	97.8 (68.6,149.4)	0.98
	% Change at W48	12. 4 (-17.9, 67.7)	24.4 (-13.4,70.4)	0.07
B2M:Cr	Baseline (ug/g)	80.6 (52.6, 148.1)	81.2 (52.3, 146.5)	0.95
	% Change at W48	11.5 (-30.3, 76.6)	9.5 (-34.3, 85.0)	0.78
UACR	Baseline (mg/g)	5.7 (4.0, 10.7)	5.6(3.7, 10.5)	0.45
	% Change at W48	14.0 (-22.7, 59.0)	7.3 (-20.4, 63.2)	0.84

Data are presented as median (Q1, Q3); p-values were from Wilcoxon rank sum test.
*Baseline RBP:Cr in Treatment-naïve participants TAF vs. ABC-based regimens: p<0.001

[Renal biomarkers]

TUPEB114

Estimates of glomerular filtration rate in HIV infected individuals using creatinine and cystatin c based measurements

A. Spence[1], R. Teran[2], R. Harold[3], N. Nigam[4], A. Paredes[1], P. Kumar[1], J. Timpone[1], J. Umans[5,6], S. Kassaye[1]
[1]Georgetown University Medical Center, Division of Infectious Diseases and Travel Medicine, Washington, United States, [2]Columbia University, Department of Epidemiology, New York, United States, [3]George Washington University, Division of Infectious Diseases, Washington, United States, [4]University of Chicago, Section of Gastroenterology, Hepatology, and Nutrition, Chicago, United States, [5]Medstar Health Research Institute, Hyattsville, United States, [6]Georgetown-Howard Universities Center for Clinical and Translational Science, Washington, United States

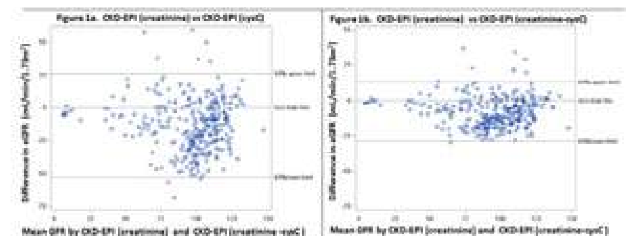
Background: Development of chronic kidney disease (CKD) in individuals with HIV is multifactorial, affected by virus, viral co-infection, and/or antiretroviral (ARV) use. Assessing kidney dysfunction by accurate estimations of glomerular filtration rate (GFR) is important for HIV therapeutic decisions. We compared GFR estimates (eGFR) using creatinine and cystatin c (cysC) based equations.

Methods: Participants were enrolled in a cross-sectional study. Demographics and creatinine (IDMS-creatinine standardized) were abstracted from the medical record. CysC was measured in a certified laboratory using an immunoassay standardized to the ERM®-DA471/IFCC reference. GFRs were calculated using Chronic Kidney Disease Epidemiology Collaboration creatinine (CKD-EPIc), CKD-EPIc-cysC (creatinine + cysC), and CKD-EPIcysC (cysC) equations (creatinine + cysC). Participants with at least two creatinine-based estimates of GFR < 60 were considered to have CKD. Agreement was assessed by the Bland-Altman method.

Results: Among 306 HIV-infected participants, the median age was 49(range: 21-83), 216(71%) were male, and 182(60%) African-American. The baseline median CD4+ was 640mm3 (IQR 454-808), 94% had an HIV RNA < 200c/mL, and only 7(2%) were not on ARVs. 44(15%) had HIV/HCV co-infection, and 20(7%) had HIV/HBV co-infection. CysC measurements were performed on 301(98%), and 36(11%) had CKD.

Plots of differences between eGFR by creatinine only versus cysC-containing (figure 1a) or creatinine only versus cysC with creatinine (figure 1b) demonstrated varying limits of agreement. The 95% limits of agreement were wider, -68.5 and 59.3 mL/min/1.73m2 (CKD-EPIc and CKD-EPIcysC) vs -29.6 and 36.9 (CKD-EPIc and CKD-EPIc-cysC). Percent agreement between estimates was 65.4% (CKD-EPIc and CKD-EPIcysC) vs 73% (CKD-EPIc and CKD-EPIc-cysC). There were differences in classification across stage I and II categories of kidney function, with use of cysC leading to more participants classified in stage I (CKD-EPIcysC 76% and CKD-EPIc-cysC 73%) compared to 54% in stage I using the CKD-EPIc estimate (table 1).

Conclusions: Both CKD-EPIc-cysC and CKD-EPIcysC GFR estimates demonstrated varying agreement with CKD-EPIc in this predominantly African-American cohort, with 20-23% of individuals with stage I disease by cysC differentially categorized as stage II using creatinine-only based estimates. Further studies are needed that provide a longitudinal assessment of factors, including race, that mediate differences between cysC-based versus creatinine-based estimates of GFR in HIV-positive individuals.



[Figure 1 (Bland Altman Plot): Figure 1a plots agreement between a creatinine based estimate of GFR and a cysC based estimate. Figure 1b plots agreement between a creatinine based estimate of GFR and a creatinine-cysC-based estimate.]

STAGE	CKD-EPI Creatinine No.(%)	CKD-EPI Cystatin C No.(%)	CKD-EPI Creatinine-Cystatin C No.(%)
I	163 (54%)	229 (76%)	219 (73%)
II	102 (34%)	47 (16%)	56 (19%)
IIIa	19 (6%)	9 (3%)	12 (4%)
IIIb	9 (3%)	8 (3%)	6 (2%)
IV	0 (0%)	1 (0%)	1 (0%)
V	8 (3%)	7 (2%)	7 (2%)
Stage I = GFR >90 mL/min per 1.73m^2; Stage II - GFR 60 to 89 mL/min per 1.73m^2; Stage IIIa - GFR 45 to 59 mL/min per 1.73m^2; Stage IIIb - GFR 30 to 44 mL/min per 1.73m^2; Stage IV - GFR 15 to 29 mL/min per 1.73m^2; Stage V - GFR <15 mL/min per 1.73m^2 or treatment by dialysis			

[Table 1: Classification of participants by eGFR]

TUPEB115

The prevalence of impaired renal function in well-treated people living with HIV is low but remains higher than in uninfected controls

N. Petersen[1], A. Dehlbæk Knudsen[1], A. Mocroft[2], D. Kirkegaard-Klitbo[1], E. Arici[1], J. Lundgren[3], T. Benfield[4], P. Oturai[5], B. Nordestgaard[6,7], B. Feldt-Rasmussen[8], S. Dam Nielsen[1], L. Ryom[3]
[1]Rigshospitalet, Viro-Immunology Research Unit, Department of Infectious Diseases, Copenhagen, Denmark, [2]Institute for Global Health, UCL, Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), London, United Kingdom, [3]CHIP, Center of Excellence for Health, Immunity and Infections, Department of Infectious Diseases, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark, [4]Hvidovre Hospital, Department of Infectious Diseases, Copenhagen, Denmark, [5]Rigshospitalet, Department of Clinical Physiology, Nuclear Medicine and PET, University of Copenhagen, Copenhagen, Denmark, [6]Herlev and Gentofte Hospital, The Copenhagen General Population Study, Department of Clinical Biochemistry, Copenhagen, Denmark, [7]University of Copenhagen, Faculty of Health and Medical Sciences, Copenhagen, Denmark, [8]Rigshospitalet, Department of Nephrology, Copenhagen, Denmark

Background: The prevalence of renal diseases appears to be higher among people living with HIV (PLWH) compared to HIV-negative persons, although previous studies focused in populations at increased risk of renal disease, such as those with uncontrolled HIV infection, of African descent or with hepatitis C (HCV) coinfection. We therefore aimed to determine if HIV is an independent predictor of impaired renal function in HIV-populations without these risks compared to that in matched uninfected controls.
Methods: Caucasian PLWH, virologically suppressed on combination antiretroviral treatment, without IDU, or HCV co-infection were recruited from the Copenhagen comorbidity in HIV infection (COCOMO) study. Sex and age matched uninfected controls were recruited from the Copenhagen General Population Study. We defined impaired renal function as estimated glomerular filtration rate (eGFR) ≤60 mL/min/1.73m² in a single measurement and assessed associated factors using logistic regression adjusting for age, sex, BMI, cumulative smoking, diabetes, hypertension, and educational level.
Results: Among 598 PLWH and 2,598 controls, the prevalence of impaired renal function was 4% (95%CI: 2%-5%) and 2% (95%CI: 1%-2%), respectively. After adjustment, HIV status was independently associated with impaired renal function, odds ratio (OR): 3.4 (95%CI: 1.8-6.3). Aside from HIV, older age (OR per decade older: 5.3 [95%CI 3.9-7.2]), male sex (OR: 4.3 [95%CI 2.2-8.3]), and diabetes (OR: 2.9 [95%CI 1.2-6.7]) were independently associated with impaired renal function. Among PLWH, mode of transmission, current CD4 T cell count, CD4 T cell nadir, time with HIV and previous AIDS-defining diagnosis were not associated with impaired renal function. The association between HIV and impaired renal function increased as persons aged (p=0.02, test for interaction).
Conclusions:

	PLWH (N=598)	Uninfected controls (N=2,598)	PLWH with impaired renal function (N=21)
Age, median (IQR)	51 (44-60)	51 (44-60)	72 (67-75)
Sex (male), n (%)	530 (89)	2313 (89)	15 (72)
Diabetes, n (%)	27 (5)	10 (4)	4 (19)
Hypertension, n (%)	266 (46)	1458 (56)	18 (86)
BMI (kg/m2), median (IQR)	24 (22-27)	26 (24-29)	23 (20-27)
Pack-years, median (IQR]	19 (8-33)	15 (6-26)	19 (15-40)
Serum creatinine, mg/dl, median (IQR)	83 (76-92)	82 (75-89)	111 (94-129)
eGFR, ml/min/1.73m2 (CKD-EPI), median (IQR)	89 (78-100)	91 (82-100)	56 (48-58)
eGFR ≤60 ml/min/1.73 m2, n (%)	21 (4)	43 (2)	21 (100)

[Characteristics]

The prevalence of impaired renal function was low among well-treated PLWH with few other risk factors for impaired renal function. However, the prevalence of impaired renal function, even in this low-risk group, remained higher than in uninfected controls. HIV was an independent risk factor and the impact of HIV seemed to be accentuated among older individuals. Impaired renal function, albeit relatively rare in well-treated PLWH, therefore still remains a concern requiring ongoing attention and monitoring.

Metabolic, lipid and endocrine complications, including obesity and lipodystrophy

TUPEB116

Triglycerides/glucose index is a simple and clinically useful surrogate for insulin resistance among non-diabetic HIV-infected Aging in Asia

T. Apornpong[1], N. Sookkasame[1], S. Sakulrak[1], A. Hiransuthikul[1], W.M. Han[1], S. Gatechompol[1], S. Kerr[1], L. Wattanachanya[2], K. Ruxrungtham[1,3], A. Avihingsanon[1], HIV-NAT 207 Study Team
[1]HIV-NAT, The Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [2]Division of Endocrinology and Metabolism, Department of Medicine, and Hormonal and Metabolic Disorders Research Unit, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, [3]Chulalongkorn University, Department of Medicine, Faculty of Medicine, Bangkok, Thailand

Background: Insulin resistance (IR) is associated with a cluster of abnormalities that increase cardiovascular diseases (CVDs). Direct measurement of insulin resistance are clinically impractical. Several indices including 1) metabolic syndrome (Mets), 2) plasma triglyceride/high-density lipoprotein cholesterol ratio (TG/HDL-C index) and 3) Plasma triglyceride x glucose (TyG) index have been proposed to identify individuals who are insulin resistant. We aimed to evaluate the abilities of TyG index and TG/HDL-C to predict IR among Asian HIV-infected aging (≥50 years old) patients without diabetes, who received ART for a median of 16 years.
Methods: We enrolled 285 virologically suppressed HIV-infected Thais without overt diabetes mellitus/CVD to this analysis. Homeostatic model assessment (HOMA-IR) was used to establish insulin resistance using a cut off of >2. The TyG index was calculated as ln[triglycerides (mg dl^{-1}) × fasting glucose (mg dl^{-1})/2]. Pearson's correlation coefficients were used to assess the linear relationship between TyG index, HOMA-IR and ASCVD, and ROC analysis was used to assess threshold cutoffs.
Results: 58.25% were males with median age 54 yrs, BMI of 23 kg/m2. In the IR group, hypertension, body mass index (BMI), waist hip ratio, body fat, visceral fat rating, fasting insulin, fasting plasma glucose, triglyceride levels, TG/HDL-C index, TyG index and Mets were significantly higher than in the non-IR group.
The median TyG index was significantly different between the IR group (N=84) and non-IR group (N=201), at 9.1 (IQR8.7-9.4) and 8.7 (IQR 8.3-9.1), respectively (P< 0.001).
The median TG/HDL-C index was significantly higher among the IR group than non-IR group [4.3 (IQR 2.8-6.3) vs 2.8 (IQR 1.8-4.5); P< 0.001]. The TyG index and TG/HDL-C were well correlated with HOMA-IR (r=0.39; P< 0.001 and r=0.31; P< 0.001, respectively).
The TyG index showed a strong positive association with ASCVD (r=0.35; P< 0.001). The cut-off of the TyG index for diagnosis of insulin resistance was 9.0 with sensitivity 0.61 and specificity 0.72. HOMA-IR score increased by 57% for every 1 unit increase in TyG.
Conclusions: Compared with HOMA-IR, the TyG index is a simple, and clinically useful surrogate marker of insulin resistance among Aging HIV-infected patients.

TUPEB117

Obesity and inflammation in HIV+ mono-infected individuals on antiretroviral therapy (ART) in the Miami Adult Studies in HIV (MASH) cohort

J. Hernandez, M. Mudgal, A. Campa, S. Martinez, L. Seminario, J. Jasmin, A. Johnson, C. Teeman, Q. Liu, M.K. Baum
Florida International University, Miami, United States

Background: Obesity is becoming increasingly prevalent in People Living with HIV (PLWH). In the U.S., 22% and 18% of PLWH are overweight and obese. These prevalence rates are comparable to the national average, and are higher among minorities. Obesity is independently associated with systemic inflammation in PLWH. In HIV-infected individuals on ART, levels of inflammation tend to decrease.

However, HIV infection is associated with chronic low-level inflammation even after years of ART use. The purpose of this study is to determine the association between obesity and inflammation in HIV+ mono-infected and HIV/HBV/HCV un-infected individuals.
Methods: Participants were selected from the ongoing Miami Adult Studies in HIV (MASH) cohort. The HIV mono-infected participants were on stable ART. Obesity (BMI ≥30kg/m²) was obtained from the anthropometric assessment. Blood samples were collected to assess inflammation and lipid panel. Inflammation was assessed with high sensitivity C-reactive protein (hsCRP) levels > 3 mg/L; a commercial laboratory determined the lipid panel. Descriptive statistics, Wilcoxon test, and regression analyses were used to analyze the data.
Results: There were 384 participants; mean age was 53.6±8.3 SD years, 56% were male and 63% Black non-Hispanics; 65% (n=251) were HIV mono-infected and the rest were not infected. Obesity was significantly associated with higher hsCRP levels among HIV mono-infected compared to un-infected individuals (P< 0.001). Multiple regression showed that in the HIV mono-infected group, obesity was also strongly related to hypertriglyceridemia (P< 0.001), lower HDL cholesterol levels (P=0.002), and hyperglycemia (P< 0.001). Compared to uninfected, the HIV mono-infected group had higher triglycerides levels [median 112.5 (IQR=81-171) vs. 97 (IQR=69-151), (P=0.004)] and lower HDL levels [median 54 (IQR=44-68) vs. 56 (IQR=47-71), (P=0.038)]. Obese HIV mono-infected individuals were 2.64 times more likely to have high levels of inflammation (OR=2.64, 95% CI:1.516-4.590, P < 0.001) than those of normal weight (BMI < 25kg/m²) after controlling for age, gender and smoking status.
Conclusions: Obese HIV mono-infected participants on stable ART had high levels of inflammation, dyslipidemia and hyperglycemia. These risk factors contribute to chronic low-grade inflammation, creating an inflammatory environment that promotes disease progression and increase in non-AIDS co-morbidities including metabolic syndrome, cardiovascular diseases, and diabetes.

TUPEB118

No evidence of increased risk of thyroid dysfunction in well-treated people living with HIV

M. Harsløf[1], A. Dehlbæk Knudsen[1], T. Benfield[2], J. Lundgren[1], B. G. Nordestgaard[3,4], U. Feldt-Rasmussen[5], S. Dam Nielsen[1]
[1]Rigshospitalet, University of Copenhagen, Viro-immunology Research Unit, Department of Infectious Diseases, Copenhagen, Denmark, [2]Hvidovre Hospital, University of Copenhagen, Department of Infectious Diseases, Copenhagen, Denmark, [3]Herlev Hospital, University of Copenhagen, The Copenhagen General Population Study, Department of Clinical Biochemistry, Herlev and Gentofte Hospital, Herlev, Denmark, [4]University of Copenhagen, Faculty of Health and Medical Sciences, Copenhagen, Denmark, [5]Rigshospitalet, University of Copenhagen, Department of Medical Endocrinology, Copenhagen, Denmark

Background: Autoimmune thyroid diseases have been reported following immune reconstitution and older observational studies without uninfected controls have suggested an increased prevalence of thyroid dysfunction in people living with HIV (PLWH).
Our primary aims were to investigate the prevalence and associated risk factors of thyroid dysfunction in well treated PLWH and matched uninfected controls and to examine whether HIV is independently associated with thyroid dysfunction in the modern combination antiretroviral therapy (cART) era.
Methods: 826 PLWH from the Copenhagen co-morbidity in HIV infection (COCOMO) Study were frequency matched on age and sex with 2,503 uninfected controls recruited from the Copenhagen General Population Study. Thyroid stimulating hormone (TSH), free thyroxine, total thyroxine and total triiodothyronine were measured, and medical treatment for hypo- or hyperthyroidism was recorded. We used multinomial logistic regression adjusting for age, sex, ancestry, smoking, alcohol, diabetes, high-sensitivity C-reactive protein and estimated glomerular filtration rate to examine the association between HIV and thyroid dysfunction and multivariate linear regression to study the association between HIV and serum TSH concentrations. Further multinomial regression in PLWH was used to examine the association between HIV-related risk factors (CD4 T cell count, CD4 T cell nadir, and duration of HIV) and hypothyroidism and hyperthyroidism.
Results: The PLWH were generally well-treated with 95% having undetectable viral replication. Among PLWH and controls 31 (3.8%) and 114 (4.6%) had hypothyroidism, and 7 (0.8%) and 21 (0.8%) had hyperthyroidism, respectively. In adjusted analyses, we found no significant associations between HIV and hypothyroidism OR 0.8 [0.6, 1.3] p = 0.40 or between HIV and hyperthyroidism OR 1.1 [0.5, 2.5] p=0.91. Serum TSH concentration was comparable for HIV infected and uninfected individuals (p=0.6). HIV-related risk factors were not associated with hypothyroidism or hyperthyroidism.
Conclusions: The prevalence of hyperthyroidism and hypothyroidism was similar in well treated PLWH and uninfected controls. HIV status was not associated with thyroid dysfunction or with serum TSH concentration. CD4 T cell counts, CD4 T cell nadir and duration of HIV were not associated with hypothyroidism or with hyperthyroidism. Thus, in well-treated PLWH there was no evidence of increased risk of thyroid dysfunction.

Thyroid function	PLWH n=826	Uninfected controls, n=2,503	p
Medical treatment for hypothyroidism, n (%)	5 (0.6)	38 (1.5)	0.07
Medical treatment for hyperthyroidism, n (%)	3 (0.4)	7 (0.3)	0.99
Biochemical thyroid function, n (%)			0.86
Euthyroid	787 (96.3)	2,366 (96.3)	
Overt hypothyroidism	8 (1.0)	16 (0.7)	
Subclinical hypothyroidism	18 (2.2)	61 (2.5)	
Overt hyperthyroidism	1 (0.1)	3 (0.1)	
Subclinical hyperthyroidism	3 (0.4)	11 (0.4)	

[Table 1: Medical treatment for thyroid dysfunction and results from thyroid function assays in nontreated PLWH and uninfected controls]

TUPEB119

Higher prevalence of insulin resistance among non diabetes HIV-infected ageing Asian received long term ART compared to HIV uninfected control

T. Apornpong[1], N. Sookkasame[1], S. Sakulrak[1], A. Hiransuthikul[1], W.M. Han[1], S. Gatechompol[1], L. Wattanachanya[2], J. Jamthong[1], S.J. Kerr[1,3], A. Sangarlangkarn[1], K. Ruxrungtham[1,4], A. Avihingsanon[1], HIV-NAT 207 Study Team
[1]HIV-NAT, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [2]Division of Endocrinology and Metabolism, Department of Medicine, and Hormonal and Metabolic Disorders Research Unit, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, [3]Kirby Institute, University of New South Wales, Sydney, Australia, [4]Chulalongkorn University, Research and Innovation, Bangkok, Thailand

Background: Insulin resistance (IR), a risk factor for type 2 diabetes mellitus (T2DM) and cardiovascular disease, is increasingly seen in HIV-infected patients. Asians typically have higher visceral fat compared to non-Asians at the same body mass index (BMI). We determined the prevalence and predictors of IR, in an ageing population of HIV positive who received long term ART and age/sex matched HIV-negative controls.
Methods: A cross sectional study was conducted in Bangkok among 297 HIV infected and 86 HIV negative controls aged ≥50 years without overt T2DM. Homeostatic model assessment (HOMA-IR) was used to establish IR, using a cut off of >2. Visceral fat rating was measured using body impedance assessment, and liver fibrosis was performed by Fibroscan. Multiple logistic regression was performed to find associations between IR and potential risk factors.
Results: Participants were male (60%) with median (IQR) age 54.4 (51.9-58.3) years. Most were non-smokers and reported no alcohol consumption. HIV positive had been taking ART for a median of 16.1 (11.9-19.1) years and 97% had HIV RNA< 50 c/mL. Baseline characteristics amongst study groups were similar, but compared to HIV-negative participants, HIV-positive participants had lower BMI (median 22.8 vs 24.6kg/m²), percent body fat (23%VS 25.4%), and visceral fat rating in the high range (26% VS 44%), but higher prevalence of hypertension (HT) (37% VS 20%) and Hepatitis C (10% VS 2%). IR was prevalent in 29% of HIV-positive compared to 16% in HIV-negative participants. In an adjusted model (Table 1), IR was associated with HIV status (adjusted odds ratio [aOR] 5.22

(95%CI 1.91 - 14.24); P=001), HT (aOR 2.8 (95%CI 1.48-5.28); P=0.002) , hs-CRP >3mg/L (aOR 2.35 (95%CI 1.15 - 4.79); P=0.02), high visceral fat scores (aOR 3.87 (95%CI 1.81 - 8.29); P=0.001 and higher liver fibrosis scores (aOR 1.08 (95%CI 1.002 - 1.17); P=0.045). Association of ART regimen and IR was not observed.

Conclusions: Despite having lower BMI and body fat, aging HIV-infected patients had a significantly higher prevalence of IR compared to HIV negative controls. Apart from HIV infection, IR in our cohort was associated with HT, high hs-CRP, visceral fat rating and liver fibrosis.

		Univariate			Multivariate	
Risk factors	OR	95%CI	p	aOR	95%CI	p
HIV-Positive VS HIV-Negaive	2.10	1.12-3.92	0.02	5.22	1.91-14.24	0.001
HT	2.21	1.38-3.54	0.001	2.80	1.48-5.28	0.002
hs-CRP (mg/L) group						
hs-CRP>3 VS hs-CRP<3	2.25	1.33-3.78	0.002	2.35	1.15-4.79	0.019
Visceral fat rating						
1-9 (normal)	Ref			Ref		
10-59 (high)	2.46	1.48-4.08	<0.001	3.87	1.81-8.29	0.001
Liver stiffness, (KPa)	1.07	0.999-1.14	0.05	1.08	1.002-1.17	0.045

[Predictor for IR]

TUPEB120

At risk alcohol consumption increases risk for metabolic comorbidities in persons living with HIV (PLWH)

P. Molina[1], L. Simon[2], D. Welsh[2], T. Ferguson[2], M. Brashear[2], S. Primeaux[2], D. Mercante[2]
[1]*Louisiana State University Health Sciences Center, Physiology and Alcohol Research Center, New Orleans, United States,* [2]*LSUHSC, New Orleans, United States*

Background: Reduced HIV mortality in the post-ART era and increased survival of PLWH is associated with an increased risk of metabolic comorbidities. Similarly, at risk alcohol consumption is associated with increased risk for comorbidities, and its prevalence is higher in PLWH. Our preclinical studies show that chronic binge alcohol administered simian immunodeficiency virus (SIV)-infected ART male rhesus macaques develop metabolic dyshomeostasis despite the absence of fasting dysglycemia. We hypothesized that at risk alcohol use increases the prevalence of metabolic dyshomeostasis in PLWH.

Methods: PLWH (N=365; 69% male; 84% African American; mean age 48.2 ±10 yrs), in care were enrolled in our ongoing longitudinal translational study. Measures of insulin resistance (IR; by homeostasis model assessment (HOMA), lipid profile, Bennet index, and insulin sensitivity index (McAuley index) corrected for fat free mass (Mffm), alcohol use (self-report and phosphatidylethanolamine (Peth)), and body composition were obtained. Multivariable linear and logistic regression analyses were performed to assess associations between metabolic parameters and alcohol consumption.

Results: 40.3% of subjects met at risk drinking criteria (AUDIT ≥8) and 48.5% met IR criteria (HOMA-IR >1.9). Visceral adiposity index (VAI) calculated as (waist:hip circumference/ lean mass:total mass) was higher in women than in men (median 0.60 in women vs. 0.29 in men). IR (HOMA-IR, and Bennet index) was associated with alcohol use (Time Line Follow Back and PEth), after adjusting for gender, age, waist circumference (p-value< 0.05). Frequency of elevated HOMA-IR was 60.7% in PEth positive PLWH in contrast to only 39.2% in PEth negative PLWH. IR (Mffm) index was associated with increasing AUDIT and PEth (p-value = 0.01). In women, menopausal status was an effect modifier of the association of alcohol use and IR.

Conclusions: These findings indicate a positive association of alcohol use and IR in PLWH. Our current studies will further elucidate the potential mechanisms, and whether lifestyle interventions such as exercise can ameliorate the disease burden in these individuals.

TUPEB121

Weight gain after ARV initiation correlates with increased inflammatory biomarkers and protease inhibitor usage

E. Laidlaw[1], A. Gouel-Cheron[1], S. Kuriakose[2], A. Pau[1], A. Rupert[2], M. Nason[1], V. Sheikh[1], J. Mican[1], M. Manion[1], I. Sereti[1]
[1]*NIAID/NIH, Bethesda, United States,* [2]*Leidos Biomedical Research, Inc., Frederick, United States*

Background: People with HIV (PWHIV), despite viral suppression on ART, are at greater risk for metabolic diseases, possibly compounded by obesity. Greater weight increases have been associated with lower CD4 counts and higher viral loads (VL) at pre-ART, and with specific ARV class. Higher levels of IL-6 and CRP have been associated with obesity in PWHIV. We hypothesized greater weight gain after ART initiation is associated with immune dysregulation and inflammation.

Methods: ART-naïve participants with CD4 < 100 cells/μL were enrolled in a prospective study, initiated on ART, and followed for 160 weeks (wk). Participants who were lost to follow-up, had VL >500 c/mL at wk160, or became pregnant were excluded from this analysis.

Participants' BMI were calculated at wk 0, 48, 160 and were categorized as underweight/normal (BMI< 25), overweight (BMI 25-30), and obese (BMI >30). Percent weight change from 0-48 weeks and from 0-160 weeks were grouped into changes < 0%, 0-10%, 10-30%, and >30%. Non-parametric testing (Kruskal-Wallis, Spearman Rank), Fisher Test, and linear regression were used for all analyses.

Results: 143 participants were included, baseline characteristics are listed in Table 1. Median percent weight change was +14% (IQR 7.7%; 24%) at wk48 and +18% (7%; 28%) at wk160. At wk0, 46 (32%) participants were overweight or obese, which increased to 102 (71%) at wk160. There was no statistical difference between BMI at wk160 and baseline OI (p=0.24) or CD4 (p=0.601). Regression analysis was performed on five biomarkers at wk160 and weight change. Only CRP (p=0.009) and sCD14 (p=0.007) had a significant correlation. Since the largest weight gain occurred in the first year, further analysis at wk48 was done. In a multivariate linear regression, adjusting for baseline OI, CD4, age, and gender, ART regimen was significantly associated with weight change at wk48: negatively with NNRTI (p=0.012), positively with PI (p=0.001), but not with InSTI (p=0.38).

Conclusions: Significant weight gains are observed in HIV participants starting ART at low CD4 counts that can lead to obesity with higher levels of persistent inflammation. Differences in regimen may be related to selection bias and should be addressed in trials with randomized treatments.

	Patients (n=143)
Gender, n (%)	Male: 103 (72%); Female 40 (28%)
Age pre-ART (years), median (IQR)	39 (31; 46)
Race, n (%)	Black 78 (55%); White 48 (33%); Indian/Alaskan Native 1 (1%); Multiple Races 11 (8%); Unknown 5 (3%)
Ethnicity, n (%)	Hispanic/Latino 55 (39%); Not Hispanic/Latino 86 (61%)
BMI, mean (IQR)	Pre-ART 23.4 (20.5; 25.8)
Cholesterol (mg/dL), median (IQR)	Total 147 (123; 175); Triglycerides 144 (100; 198); HDL 35 (26; 46); LDL 84 (62; 104)
CD4 (cells/μL), median (IQR)	Pre-ART 22 (9; 50)
Viral Load pre-ART (log 10 copies/ml), mean (IQR)	5.12 (4.69; 5.5)
ARV Class Initiated at week 0	PI 41 (28.7%); NNRTI 91 (63.6%); InSTI 21 (14.7%)

[Table 1: Demographics and Baseline Characteristics]

TUPEB122

Obesity, overweight and NCDs in HIV+ patients in urban DREAM centres in Mozambique: A review of routine clinical data

F. Ciccacci[1], A.M. Doro Altan[2], A. Passanduca[3], E. Mutemba[3], N. Majid[3], S. Orlando[1], S. Mancinelli[1], P. Scarcella[1], L. Palombi[1], M.C. Marazzi[4]
[1]University of Rome Tor Vergata, Department of Biomedicine and Prevention, Rome, Italy, [2]Community of S. Egidio, DREAM Program, Rome, Italy, [3]Community of S. Egidio, DREAM Program, Maputo, Mozambique, [4]LUMSA University, Rome, Italy

Background: Economic growth in African countries is driving to new health challenges for health systems. Despite nutritional interventions to reduce impact of wasting, especially in HIV programs, few epidemiological data about overweight, obesity and NCDs are available. Mozambique is one of the most HIV affected countries in the world (83.000 new HIV infections in 2016), and is now experiencing the raise of new health concerns linked to increase of life expectancy of general population and HIV+ patients.

Methods: A retrospective analysis of routine clinical and laboratory data from HIV+ patients collected in 3 urban health centers (Maputo, Machava and Beira) run by DREAM program in Mozambique was carried out. All HIV+ patients aged>18 years, attending the centers in the period 1-Jan-2017 to 23-Jan-2018 were considered. Nutritional status was evaluated through BMI: < 18.5 wasting, 18.5-24.9 normal weight, 25-29.9 overweight, >30 obesity.

Results: Files from 12,946 patients (69.4% women) in ART were analyzed. Median age, BMI, HB and CD4 were respectively: 40 years (34-48 - n.12,946) 23.5kg/m2 (20.8-27.4 - n.12,946), 12.2mg/dL (11.1-13.3 - n.13,431) 497cell/mm3 (342-665 - n.13,389), 82.9% of patients (7,513/9,965) with a VL measurement in the period were < 400copies/mL.

Nutritional status was as follows: 997(7.7%) were malnourished, 6,953(53.7%) normal weight, 3,133(24.2%) over-weight, 1,863(14.4%) obese. In a logistic regression model, obese and overweight patients were more likely women (OR=2.2 CI:2.05-2.49), had CD4 count>200cell/mm3 (OR=1.9 CI:1.61-2.24), had better housing conditions (OR=1.6 CI:1,30-2.16) and a secondary school degree (OR=1.2 CI:1.15-1.43).

In a multivariate analysis, patients with BMI>24.9 had increased risk of being affected with hypertension (OR=2.8 CI:1.78-4.47), diabetes (OR=6.6 CI:1.37-32.52) and eGFR< 90ml/min (OR=1.4 CI:1.20-1.76).

Conclusions: Obesity and overweigh are common among PLWH on treatment in Mozambique, and requires special interventions. New epidemiology challenges are arising with the improvements of socio-economic conditions of African patients and health programs should pay special attention to overweight, obesity and related NCDs.

TUPEB123

Incidence and risk factors for type 2 diabetes mellitus in HIV-positive adults in TAHOD

W.M. Han[1], A. Jiamsakul[2], S. Kiertiburanakul[3], O.T. Ng[4], B. Sim[5], L.P. Sun[6], K.V. Nguyen[7], J.Y. Choi[8], M.P. Lee[9], W.W. Wong[10], A. Kamarulzaman[11], N. Kumarasamy[12], F. Zhang[13], J. Tanuma[14], C.D. Do[15], R. Chaiwarith[16], T.P. Merati[17], E. Yunihastuti[18], S. Pujari[19], R. Ditangco[20], S. Khusuwan[21], J. Ross[22], A. Avihingsanon[1]
[1]HIV-NAT, The Thai Red Cross AIDS Research Center, Bangkok, Thailand, [2]Kirby Institute, UNSW, Sydney, Australia, [3]Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, [4]Tan Tock Seng Hospital, Singapore, Singapore, [5]Hospital Sungai Buloh, Sungai Buloh, Malaysia, [6]National Center for HIV/AIDS, Dermatology & STDs, Phnom Penh, Cambodia, [7]National Hospital for Tropical Diseases, Hanoi, Vietnam, [8]Division of Infectious Diseases, Department of Internal Medicine, Yonsei University College of Medicine, Seoul, Republic of Korea, [9]Queen Elizabeth Hospital, Hong Kong SAR, Hong Kong, [10]Taipei Veterans General Hospital, Taipei, Taiwan, Province of China, [11]University Malaya Medical Centre, Kuala Lumpur, Malaysia, [12]Chennai Antiviral Research and Treatment Clinical Research Site (CART CRS), YRGCARE Medical Centre, VHS, Chennai, India, [13]Beijing Ditan Hospital, Capital Medical University, Beijing, China, [14]National Center for Global Health and Medicine, Tokyo, Japan, [15]Bach Mai Hospital, Hanoi, Vietnam, [16]Research Institute for Health Sciences, Chiang Mai, Thailand, [17]Faculty of Medicine Udayana University & Sanglah Hospital, Bali, Indonesia, [18]Faculty of Medicine Universitas Indonesia - Dr. Cipto Mangunkusumo General Hospital, Jakarta, Indonesia, [19]Institute of Infectious Diseases, Pune, India, [20]Research Institute for Tropical Medicine, Muntinlupa City, Philippines, [21]Chiangrai Prachanukroh Hospital, Chiang Rai, Thailand, [22]TREAT Asia, amfAR - The Foundation for AIDS Research, Bangkok, Thailand

Background: Comorbidities including diabetes mellitus (DM) among HIV-infected adults are of increasing clinical concern in the combination antiretroviral therapy era (cART). Studies have shown that hepatitis C (HCV) co-infection is linked to the development of type 2 DM in HIV-infected adults. We aimed to determine incidence and risk factors associated with DM in HIV-positive adults in Asian settings.

Methods: HIV-positive patients from the TREAT Asia HIV Observational Database (TAHOD) without DM prior to ART initiation were included in the analysis. DM was defined as having a fasting blood glucose ≥126 mg/dL, HbA1C ≥6.5%, a 2-hour plasma glucose ≥200 mg/dL, or a random plasma glucose ≥200 mg/dL. HCV co-infection was defined by a positive anti-HCV antibody test. Cox regression models, stratified by site, were used to identify risk factors associated with DM.

Results: Of 1927 patients included, 127 patients were diagnosed with DM after ART initiation. Median follow-up time from ART initiation was 5.9 years (IQR: 2.8-8.9 years). The crude incidence rate of DM was 1.08 per 100 person-years (100PYS), 95% confidence interval [CI] (0.9-1.3). The incidence of DM was 1.18 per 100PYS among patients with positive anti-HCV, and 1.05 per 100PYS in HCV negative patients. Positive anti-HCV was not associated with DM in the univariate analysis (p=0.22). In multivariate analysis, age 41-50 years (hazard ratio [HR]: 2.90, 95% CI: 1.46-5.76, p=0.002) and age >50 years (HR: 5.0, 95% CI: 2.34-10.75, p< 0.01) compared to age ≤30 years, body mass index (BMI) >30 kg/m^2 (HR: 3.98, 95% CI: 1.37-11.58, p=0.011) and high blood pressure (HR:1.83 95% CI: 1.00-3.36, p=0.050) were significantly associated with the development of DM. The hazard was reduced for female sex (HR: 0.51, 95% CI: 0.29-0.9, p=0.021).

Conclusions: Type 2 DM in this Asian cohort of HIV-infected adults is common and associated with hypertension, BMI and age but not HCV co-infection; early detection and proper management of DM are essential.

TUPEB124

Immune activation and insulin resistance: Evaluating the association between microbial translocation and insulin resistance in HIV-infected adults in Uganda; a cross-sectional analysis

M. Reid[1], I. Golovaty[1], Y. Ma[1], S. Okello[2], R. Sentongo[2], M. Feng[3], A. Tsai[4], B. Kakuhikire[2], R. Tracy[5], P. Hunt[6], M. Siedner[2], P. Tien[1]
[1]UCSF, Department of Medicine, San Francisco, United States, [2]Mbarara University of Science & Technology, Department of Medicine, Mbarara, Uganda, [3]Massachusetts General Hospital, Department of Medicine, Boston, United States, [4]Massachusetts General Hospital, Department of Psychiatry, Boston, United States, [5]University of Vermont, Department of Pathology and Laboratory Medicine, Burlington, United States, [6]UCSF, Department of Experimental Medicine, San Francisco, United States

Background: Microbial translocation and resulting immune activation are hypothesized to contribute to insulin resistance (IR) among people with HIV. Yet, whether microbial translocation and/or monocyte activation are drivers of IR in HIV+ adults in East Africa, where genetics, environmental exposures, and HIV disease treatment differ substantially from North American and European countries, is unknown.

Methods: Using multivariable regression analysis, we evaluated associations of HIV infection and homeostasis model assessment of insulin resistance (HOMA-IR) in 297 adults (70 HIV+ women, 79 HIV+ men, 73 HIV- women, 76 HIV- men) from the UGANDAC cohort. We aimed to determine whether intestinal fatty acid binding protein (I-FABP), monocyte activation markers soluble (s)CD14 and sCD163, and the pro-inflammatory cytokine interleukin 6 (IL-6) mediated this association. We excluded individuals with a diagnosis of diabetes.

Results: HIV+ and HIV- participants were of similar mean age (51 years) and body mass index (BMI) (23kg/m^2). Mean (standard deviation [SD]) HOMA-IR was significantly greater in HIV+ participants (2.5 [SD=3.8] vs. 1.8 [SD=2.4]) p=0.043). Markers of immune activation and I-FABP were generally higher among HIV+ compared to HIV- participants. In multivariable regression analyses, HIV infection was associated with 37% greater HOMA-IR than those without HIV infection (Table);greater BMI and female sex were also associated with greater HOMA-IR in adjusted models. Addition of sCD14 to models strengthened the association of HIV-serostatus and female sex with HOMA-IR. Neither addition of sCD163 nor I-FABP affected these associations. In models restricted to HIV+ only, neither CD4 nadir nor pre-treatment viral load were associated with greater HOMA-IR, but BMI (7%, 95% CI: 2%, 13%) and female gender (73%, 95% CI: 18%, 154%) were.

Conclusions: HIV infection is associated with greater IR in Uganda. This association was not mediated by decreased gut integrity. Interestingly, the association of IR with HIV infection and female gender were strengthened after adjustment for sCD14 but not sCD163, and the association of BMI was not altered by either immune marker, suggesting the possibility of distinct immune pathways to IR in Uganda. Further study is needed to understand the relationship of HIV, obesity, and sex hormones on IR in this setting.

TUPEB125

Immunosuppression and HIV viremia associated with increased atherogenic cholesterol concentrations in older people with HIV

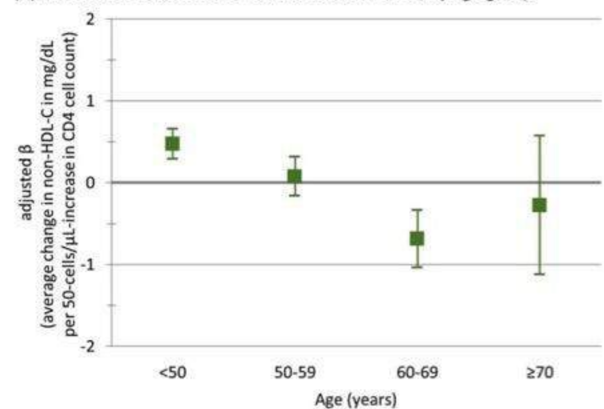
M. Levy, A. Greenberg, M. Magnus, N. Younes, A. Castel, DC Cohort Executive Committee
Milken Institute School of Public Health at the George Washington University, Department of Epidemiology and Biostatistics, Washington, United States

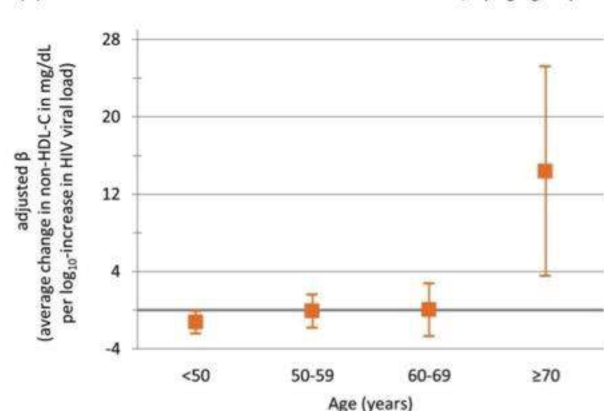
Background: Immunosuppression and HIV viremia have been associated with unfavorable lipid profiles. Prior research has also shown that older HIV-infected persons may have a greater prevalence of metabolic and cardiovascular disease than is expected due to the independent effects of HIV and age alone. To explore reasons for this disproportionate burden, we investigated whether associations of CD4 count and HIV viral load (VL) with non-high-density lipoprotein cholesterol (non-HDL-C) and HDL-C differed by age.

Methods: Longitudinal clinical and laboratory data were collected between 2011-2016 for HIV-infected outpatients enrolled in the DC Cohort study, a multicenter prospective observational study in Washington, DC. Using data for 3,912 patients aged ≥21 years with ≥1 cholesterol result and contemporaneous CD4/VL results, we conducted multivariable linear regression with generalized estimating equations to model non-HDL-C and HDL-C concentrations. Pairwise interaction terms among CD4 count, HIV VL, and age were included and followed by stratified analyses.

Results: Among 3,912 patients (median age 50; 78% male; 76% Black), 8% had CD4 count ≤199 cells/μL and 18% had HIV VL ≥200 copies/mL. Associations between CD4 count/VL and non-HDL-C concentrations differed by age. Higher CD4 count was associated with higher non-HDL-C among patients aged ≤49 (=+0.47 mg/dL per 50-cells/μL-increase in CD4 count [95% CI: 0.29, 0.65]), but was associated with lower non-HDL-C among patients aged 60-69 (=-0.69 mg/dL [95% CI: -1.04, -0.34]) (CD4-age interaction, p< 0.001) (Figure). Higher log10 VL was associated with lower non-HDL-C among patients aged ≤49 (=-1.26 mg/dL per log10-increase in VL [95% CI: -2.44, -0.09]), but was associated with higher non-HDL-C among patients aged ≥70 (=+14.37 mg/dL [95% CI: 3.54, 25.20]) (VL-age interaction, p< 0.001). Although no age differences were detected for HDL-C, higher log10 VL was more strongly associated with lower HDL-C concentration when CD4 count was ≤199 cells/μL (=-2.66 mg/dL per log10-increase in VL [95% CI: -3.52, -1.80]) versus 200-500 (=-2.15 [95% CI: -2.79, -1.52]) or >500 cells/μL (=-1.51 [95% CI: -2.17, -0.85]) (CD4-VL interaction, p=0.001).

Conclusions: We detected an age-modified relationship between immunosuppression and viremia and atherogenic cholesterol patterns. These findings may contribute to our understanding of the high risk of dyslipidemia observed among persons aging with HIV.





*Adjusted for CD4 count, log_{10} HIV viral load, sex, race/ethnicity, HIV transmission group, history of smoking, history of injection drug use, depression, anxiety/stress disorder, hypertension, diabetes, body mass index category, hepatitis C infection, chronic kidney disease, serum albumin, length of time since HIV diagnosis, current antiretroviral regimen class, and current use of a lipid-lowering agent.

[Figure]

TUPEB126

F/TAF, E/C/F/TAF and R/F/TAF do NOT contribute to insulin resistance: The TAF-IR study

C.D. Spinner[1], S. Schulz[1], U. Bauer[1], J. Schneider[1], J. Bobardt[1], R.M. Schmid[1], A. Zink[2], A. Balogh[3], H. Bidner[4], E. Wolf[3], R. Iakoubov[1]
[1]University Hospital Klinikum rechts der Isar, Department of Medicine II, Munich, Germany, [2]University Hospital Klinikum rechts der Isar, Department of Dermatology and Allergology, Munich, Germany, [3]Muc Research, Munich, Germany, [4]University Hospital Klinikum rechts der Isar, Münchner Studienzentrum, Munich, Germany

Background: The change in insulin-sensitivity (IS) and evolution of diabetes-mellitus in HIV-patients, both contributing to cardiovascular morbidity and mortality, has been associated with specific antiretroviral drugs or classes. Only limited data exists on metabolic effects of regimens including newer drugs such as fixed dose combinations (FDC) based on tenofovir alafenamide (TAF), particularly concerning IS.
Methods: In this prospective, open-label, randomized study we investigated the effects on IS of tenofovir alafenamide/emtricitabine (F/TAF) alone and in FDC with elvitegravir/cobicistat (E/C/F/TAF) or rilpivirine (R/F/TAF). Healthy, male volunteers were randomly assigned to one of the three study arms (10 per study arm). IS was measured using golden standard method of hyperinsulinemic euglycemic clamp (HEGC) technique before and 14 days after initiation of study medication. Before both measurements, a constant insulin infusion (2 mIU/(kg*min)) was infused over 2 hours, glucose infusion was adjusted as necessary to achieve stable glucose levels (target 90±5 mg/dl). Adherence to study medication was verified by pill counting and plasma TAF level measurements. IS was evaluated using the mean glucose disposal rate normalized to body weight (M_{BW}, [mg glucose/(min*kg)]), as calculated during clamp measurement. Sample size was calculated to detect a relevant decrease in M_{BW} of ≥3. To test for statistical significance of global differences in baseline characteristics between groups and pairwise differences in IS (baseline versus day 14), the Kruskal-Wallis test and the paired Student's t-test were used, respectively.
Results: N=30 subjects underwent randomization; 1 subject in the F/TAF arm withdrew consent and 1 in the R/F/TAF arm had to be excluded due to technical error during HEGC, resulting in 28 subjects in the per-protocol population. No significant differences were detected concerning baseline characteristics.

Parameter (Mean±SD)	F/TAF	E/C/F/TAF	R/F/TAF
Number of Subjects	9	10	9
Age (years)	26.3 (±6.3)	27.0 (±3.2)	24.8 (±3.5)
Weight (kg)	76.7 (±11.4)	73.5 (±6.1)	81.4 (±8.0)
Body height (cm)	181.1 (±12.0)	180.6 (±3.4)	184.8 (±6.9)
BMI (kg/m2)	23.3 (±0.9)	22.5 (±1.8)	23.8 (±1.1)
Fasting blood glucose (mg/dl)	85.1 (±6.4)	84.3 (±5.7)	79.4 (±8.7)

[Table 1: Baseline characteristics of the per-protocol study population]

IS did not differ between groups before treatment. None of the studied antiretroviral combinations resulted in a significant change of IS after 14 days compared to baseline, as measured by M_{BW} (F/TAF: 11.42±3.04 (SD, standard deviation) vs. 11.43±3.23, p=0.49; E/C/FTAF 10.04±2.49 vs. 10.95±4.26, p=0.30; R/F/TAF: 11.03±1.96 vs. 13.01±4.11, p=0.13).
Conclusions: Our study shows for the first time that neither treatment with FDC of F/TAF, nor E/C/F/TAF, nor R/F/TAF affects IS, as measured by HEGC.

Hepatic complications (e.g. NASH)

TUPEB127

A comprehensive assessment of hepatobiliary disorders in HIV-infected patients treated with dolutegravir, elvitegravir, raltegravir or darunavir in the OPERA Database

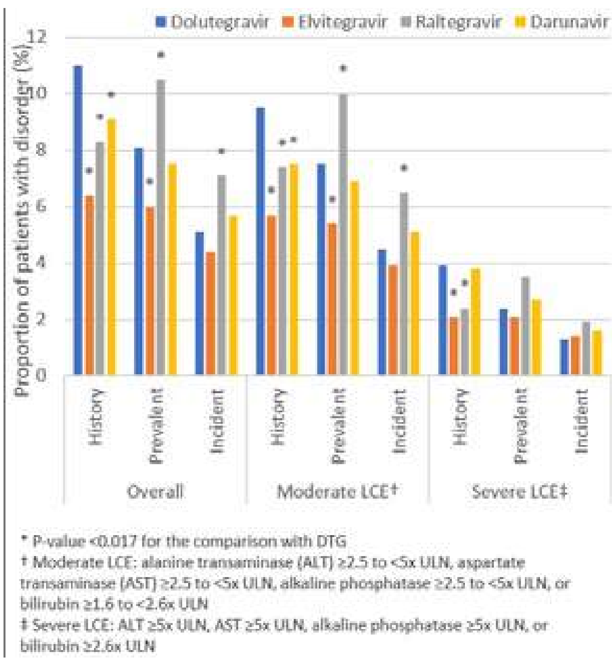
M. Wohlfeiler[1], K. Mounzer[2], L. Brunet[3], J. Fusco[3], V. Vannappagari[4], L. Curtis[5], N. Payvandi[5], M. Aboud[4], R. Hsu[6,7], P. Lackey[8], G. Fusco[3]
[1]AIDS Healthcare Foundation, Miami, United States, [2]Philadelphia FIGHT, Philadelphia, United States, [3]Epividian, Durham, United States, [4]ViiV Healthcare, Research Triangle Park, United States, [5]GlaxoSmithKline, London, United Kingdom, [6]AIDS Healthcare Foundation, New York, United States, [7]NYU Langone Medical Center, New York, United States, [8]Carolinas Healthcare System, Charlotte, United States

Background: We aimed to conduct a comprehensive assessment of hepatobiliary disorders occurring before and after prescription of regimens based on recommended core agents - dolutegravir (DTG), elvitegravir (EVG), raltegravir (RAL), or darunavir (DRV).
Methods: HIV-positive patients in the OPERA® Observational Database initiating a common core agent between 08/01/2013 and 10/31/2016 were included, with follow-up extending to 10/31/2017. Hepatobiliary disorders consisted of drug-induced liver injury (DILI), moderate liver chemistry elevations (LCE), or severe LCE (See Figure 1 for definitions). The proportion of patients with hepatobiliary disorders was calculated by core agent. History was defined as disorders occurring within 12 months of initiation. Prevalent disorders were those occurring during follow-up. Incident disorders excluded patients with any history of hepatobiliary disorders or advanced liver fibrosis (Fib-4>3.25). To account for multiple comparisons, the Sidak Correction was applied (adjusted alpha level: 0.017).
Results: Out of 21046 patients, 34% initiated DTG, 42% EVG, 7% RAL and 16% DRV. Compared to DTG users, EVG users were younger and were less likely to have comorbidities or use lipid lowering agents (Table 1). They were significantly less likely to have a history or prevalent moderate LCE, or prevalent severe LCE (Figure 1). RAL users were older than DTG users and more likely to have comorbidities or use lipid lowering agents (Table 1). They were significantly less likely to have a history of moderate and/or severe LCE, but more likely to have prevalent or incident moderate LCE during follow-up (Figure 1). DRV users were older than DTG users, less likely to have comorbidities or use lipid lowering agents (Table 1). They were significantly less likely to have a history of moderate LCE, but there was no difference in prevalent or incident elevations (Figure 1). No DILI diagnoses were recorded.
Conclusions: Despite a lower proportion of patients with a history of LCE, RAL users had a significantly higher overall LCE incidence than DTG users. DRV and EVG users similarly had lower proportions of patients with a history of LCE than DTG, but no difference in incidence of moderate or severe LCE. Channeling of comorbid patients away from EVG and towards DTG and RAL was observed.

	Dolutegravir, N=7245 (34.4%)	Elvitegravir, N=8943 (42.5%)	Raltegravir, N=1531 (7.3%)	Darunavir, N=3327 (15.8%)
Age, median years (IQR)	41 (30, 51)	37 (28, 48)*	49 (40, 55)*	43 (33, 51)*
Male, n (%)	6150 (84.9)	7720 (86.3)	1222 (79.8)*	2639 (79.3)*
African American, n (%)	2961 (40.9)	3586 (40.1)	554 (36.2)*	1575 (47.3)*
Hispanic, n (%)	1792 (24.7)	2307 (25.8)	267 (17.4)*	691 (20.8)*
HIV Viral Load <50 copies/mL, n (%)	2546 (35.1)	2820 (31.5)*	591 (38.6)*	870 (26.1)*
Any Comorbidities, n (%)	5469 (75.5)	6000 (67.1)*	1219 (79.6)*	2428 (73.0)*
Lipid Lowering Agents Use, n (%)	1054 (14.5)	838 (9.4)*	294 (19.2)*	357 (10.7)*
Moderate/Severe Liver Chemistry Elevations†, n (%)	550 (7.6)	418 (4.7)*	92 (6.0)	223 (6.7)

* p-value <0.017 for the comparison with dolutegravir; † Alanine transaminase (ALT) ≥2.5x ULN, aspartate transaminase (AST) ≥2.5x ULN, alkaline phosphatase ≥2.5x ULN, or bilirubin ≥1.6x ULN

[Table 1: Baseline Demographic and Clinical Characteristics]



[Figure 1: Proportion of Patients with History, Prevalent or Incident Hepatobiliary Disorders]

TUPEB128

Prevalence and risk factors for significant liver fibrosis evaluated by non-invasive markers in HIV-infected Thais

T. Chiraunyanann[1], W. Sretapanya[2], K. Yuenyongchaiwai[3], C. Akekawatchai[4]
[1]*Bureau of AIDS, TB and STIs, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand,* [2]*Nakhon Nayok Hospital, Nokhon Nayok, Thailand,* [3]*Faculty of Allied Health Sciences, Thammasat University, Department of Physical, Pathumthani, Thailand,* [4]*Faculty of Allied Health Sciences, Thammasat University, Department of Medical Technology, Pathumthani, Thailand*

Background: Accumulating studies indicate an increase of liver-related diseases in HIV-infected patients. Our previous study has demonstrated high prevalence of HBV and/or HCV coinfection in HIV-infected Thais mostly receiving relatively long-term suppressive anti-retroviral therapy (ART). This study aimed to examine prevalence and risks for liver fibrosis, a common pathological feature of chronic liver diseases, in the HIV-infected group.

Methods: A single-center cross-sectional study was conducted from October 2011 to June 2013 in 352 HIV-infected patients. Combination ART received by 77.2% (median duration, 25 (IQR: 1-50) months. Prevalence of hepatitis B (HBV), hepatitis C (HCV) virus coinfection and triple infection were 8.2%, 7.2% and 0.3% respectively The patients were examined for significant liver fibrosis, defined as aspartate aminotransferase to platelet ratio index (APRI) > 0.5 and fibrosis-4 (FIB-4) score >1.45. Logistic regression analysis was performed to determine risks for significant fibrosis in this studied group.

Results: A total of 352 (49% male, 51% female) patients were recruited. Median age was 39 (IQR: 33-47) years and median CD4+ cell count was 346 (IQR: 176-519) cells/ml.The rates of significant liver fibrosis assessed by APRI and FIB-4 score were 16.4% and 17.3% respectively. Univariate and multivariate analyses identified HCV coinfection as predictive factors for significant fibrosis by APRI (OR 7.3, 95% CI 2.8-19.6, *P*< 0.001) and FIB-4 score (OR 7.5, 95% CI 2.6-21.2, *P*< 0.001), together with age difference, being male, CD4+ cell count < 350 cells/ml. The analysis also indicated that treatment with a first-line regimen of lamivudine, zidovudine and nevirapine was a protective factor for liver fibrosis assessed by FIB-4 score (OR 0.3, 95% CI 0.1-0.7, *P*< 0.005).

Conclusions: The prevalence of liver fibrosis in this studied group is high. HCV coinfection is a major risk and a current standard ART may be protective for development of liver fibrosis in HIV-infected Thais.

TUPEB129

Microbiota and gut-liver axis in HIV mono-infection: A pilot study of the impact of the gut microbiome on liver disease

C. Yanavich[1], H. Perazzo[2], F. Li[1], B. Grinsztejn[2], G. Aldrovandi[1], V. Veloso[2]
[1]*University of California, Pediatrics, Los Angeles, United States,* [2]*Instituto Nacional de Infectologia Evandro Chagas - Fundação Oswaldo Cruz, Rio de Janeiro, Brazil*

Background: Emerging evidence suggests the gut microbiome plays a role in the pathogenesis of liver steatosis and fibrosis in HIV uninfected persons. Limited data exist on the relationship between liver disease and the gut microbiome in HIV infection. We aimed to characterize the gut microbiome and assess the gut-liver axis relationship in HIV-infected patients.

Methods: Rectal swabs from PROSPEC-HIV-study (NCT02542020) participants in Rio de Janeiro, Brazil were subjected to 16S rRNA gene sequencing. Sequencing data from 82 HIV mono-infected participants were stratified by liver heath status: normal (n=30), steatosis (n=30), or fibrosis (n=22). Liver fibrosis and steatosis were defined by liver stiffness measurement (LSM ≥ 8 Kpa) and Controlled Attenuation Paramenter (CAP ≥ 248 dB/m) using Fibroscan™. Participants with recent antibiotic use were excluded. Statistical analyses performed using ZINB and RF methods.

Results: Of the 82 participants, 66% were female and had median: age of 46.4 years; duration of antiretroviral therapy of 8.3 years, and BMI 27.9 Kg/m²; 16% with Type 2 diabetes were included.

Taxonomic compositions across the normal, steatosis and fibrosis groups were similar, although a significant effect was observed (r^2=0.04, p=0.003). No differences were observed in bacterial diversity, but differences in key species seen for the fibrosis and steatosis groups versus those with normal liver assessments.

After adjusting for age, gender and BMI, participants with fibrosis showed a decreased abundance of *Bacteroides stercoris*, unclassified *Faecalibacterium*, and *Parabacteroides distasonis* as well as increased *Sneathia sanguinegens*. Those with steatosis had decreased *Bacteroides dorei* and unclassified *Bifidobacterium* as well as increased *Prevotella copri, Finegoldia magna, and Ruminococcus bromii.* At the genus level, decreases in *Parabacteroides* and *Bacteroides* were observed in the fibrosis group and decreased *Akkermansia* and increased *Finegoldia* were observed in the steatosis group. Additional analyses of the differences in the predicted functional composition of bacterial communities is planned.

Conclusions: HIV mono-infected persons with liver disease possess distinct microbial profiles. Some of the discriminatory bacteria observed in this cohort are similar to those associated with NASH/NAFLD in HIV-negative populations suggesting common mechanisms. Further studies are needed to define the role of the gut microbiota in the pathogenesis of liver disease in HIV-infected persons.

Cohort Characteristics	Results
Liver health status	Total participants (n=82); Normal (n=30); Steatosis (n=30); Fibrosis (n=22)
Sex	Male 34%; Female 66%
Age	46.4 years (IQR 41-52)
Body Mass Index (BMI) (median)	27.9 Kg/m2 (IQR 25.9-30.8)
Clinical History	Hypertension 26%; Diabetes 16%; Dyslipidemia 24%
Total Duration of Antiretroviral Therapy (ART)	8.3 years (IQR 4-15)
Cumulative ART Backbone	AZT-Backbone 45%; TDF-Backbone 51%; Data not available 4%
Current ART Backbone	AZT-Backbone 70%; TDF-Backbone 24%; Data not available 6%
Nadir CD4 (median)	190.5 cells/mm3 (IQR 86-299)

[PROSPEC Microbiome Demographics]

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TUPEB130

Predictors of hepatic steatosis and fibrosis in HIV infected and un-Infected adults in the Miami Adult Studies on HIV (MASH) cohort

M.K. Baum[1], K. Sherman[2], J. Chen[3], A. Campa[1], S. Martinez[1], P. Greer[1], R. Laird[1], A. Laird[1], Q. Liu[1], C. Teeman[1], R. Ehman[3]
[1]Florida International University, Miami, United States, [2]University of Cincinnati, Cincinnati, United States, [3]Mayo Clinic, Rochester, United States

Background: Magnetic Resonance elastography (MRE) is a non-invasive, highly accurate method to assess both hepatic fibrosis and liver fat content (steatosis). Studies to date have reported contradictory results regarding the frequency of hepatic steatosis and its association with liver fibrosis in those with HIV. The objective of this study was to examine the relationship between the predictors of liver fat and association with liver fibrosis in HIV infected and un-infected adults in the MASH cohort.
Methods: Cross-sectional analyses from an observational longitudinal MASH cohort in Miami were conducted. BMI was obtained by anthropometric measurements. HIV viral load was obtained from the participants' medical chart. Hepatitis B and C were excluded. MRE was conducted on a 3T Siemens MAGNETOM Prisma MRI and liver fat was calculated from the proton density fat fraction (PDFF) of the liver MRE scans; significant steatosis was defined as fat fraction >5%. Wilcoxon Two-Sample test and regression models were used for analyses.
Results: There were 251 HIV infected (mean age 53.2 years±7.7 SD; 65% Black), and 133 HIV/HBV/HCV un-infected study participants (mean age 54.0 years±8.95 SD; 59% Black). BMI was significantly higher in the un-infected controls (mean 30.93±6.69 SD) compared with HIV infected group (mean 29.27±6.15 SD). However, liver fat was significantly associated with elevated liver stiffness only in the HIV mono-infected group (=0.068, SE=0.02, P< 0.001). BMI was significantly associated with elevated liver fat in both the HIV mono-infected, (OR=1.152 [95%CI:1.046-1.269, P=0.0042]) and the un-infected groups (OR=1.187 (95% CI: 1.073-1.314, P< 0.001)].
Conclusions: MRI-based assessment of liver fat fraction utilizing PDFF determination in a cohort of HIV infected and HIV/HBV/HCV un-infected adults shows that increased liver fat content (steatosis) in both groups was associated with higher levels of BMI as might be expected. However, elevated liver fat was associated with increased liver stiffness in only the HIV infected adults. This suggests that HIV infection and obesity might work synergistically to contribute to development of hepatic fibrosis.

TUPEB131

Elderly patients on antiretroviral therapy with dolutegravir are at increased risk for ALT elevation

P. de Leuw[1], K. Wiedmann[1], N. Filmann[2], I. Krznaric[3], P. Ingiliz[3], A. Haberl[1], G. Kann[1], G. Schüttfort[1], J. Severain[1], T. Wolf[1], C. Stephan[1]
[1]University Hospital Frankfurt, Department of Infectious Diseases, Frankfurt am Main, Germany, [2]Institute of Biostatistics and Mathematical/ Goethe University, Department of Medicine, Frankfurt am Main, Germany, [3]Center for Infectious Diseases Berlin, Berlin, Germany

Background: Liver toxicity is an important adverse event in patients on ART. Even though newer antiretroviral drugs like integrase inhibitors are generally well tolerated, ageing patients might be at higher risk for elevation of liver enzymes most possibly due to comorbidity and/or co-medication.
Methods: Pooled data from the HIV clinical cohorts at Goethe University Frankfurt and the Center for Infectious Diseases Berlin were analyzed retrospectively for liver enzyme elevations in patients, who initiated dolutegravir(DTG), elvitegravir(EVG), or raltegravir(RAL)-containing ART prior to February, 1st(Table 1). Study visits were at baseline, week 4, 12, 36 and 52. Statistics were done with non-parametrical tests (Wilcoxon-matched-pairs-test,Mann-Whitney-test,Friedman-test,Van-Elteren-test). P-values< 0.05 were considered as significant.
Results: We included 486 patients (male 408,female 78) in our analysis; 333 on DTG, 48 on EVG and 105 on RAL. Median Baseline ALT levels were 28 IU/ml(range 8-677) in the DTG group, 26 IU/ml(r:12-134) in the EVG group, and 28 IU/ml(r:8-210) in the RAL group(p>0.1). We observed a highly significant increase in ALT-levels in the DTG-group in patients aged >/= 60 years (Median change 10.5 IU/ml(r:5-228),p>0.001) between baseline and week 4. ALT-levels then declined significantly(p>0.001) consecutively and there was no difference between baseline levels and week 52(Median 31.5(8-120),p>0.1). The elevation was not associated with any liver associated comorbidity or intake of concomitant medication(p>0.1). No significant change in ALT values was observed of patients aged >/= 60 in the RAL- or EVG-group(p>0.1) during all study timepoints up to week 52. In patients aged< 60 years we did not observe any significant change in ALT-levels in the DTG, RAL or EVG arm(p>0.1). Furthermore, there was no significant difference in liver enzymes in HIV/HCV-coinfected compared to HIV-monoinfected patients (p>0.1) in any of the three treatment groups during 52 weeks of therapy.
Conclusions: In our analysis integrase inhibitors did not cause clinically significant elevation of liver enzymes. However in elderly patients aged >/= 60 years dolutegravir caused significantly more ALT-elevations at week 4 compared to elvitegravir or raltegravir. ALT normalized up to week 52 and none of the patients had to stop treatment due to liver toxicity. Clinicians should be aware of this when they start doultegravir in elderly patients.

Mean age (range) – years	51 (22-81)	Liver disease – no. (%)	
Sex – no. (%)		Hepatitis C infection	51 (10)
Male	408 (84)	NASH	25 (5)
Female	78 (16)	Liver fibrosis	10 (2)
Race – no. (%)		Liver cirrhosis	6 (1)
Caucasian	361 (75)	INI use at baseline	
Black	36 (7)	DTG	333 (69)
Asian	10 (2)	EVG/COBI	48 (10)
Latin	7 (1)	RAL	105 (21)
Other	52 (11)	NRTI backbone – no. (%)	
Missing data	0 (0)	TDF/FTC	172 (35)
Mean CD4 count, cells/µl (range; IQR)	504 (15-1075; 303-755)	TAF/FTC	5 (1)
CDC stage		ABC/3TC	156 (32)
A	131 (27)	3TC/AZT	4 (0.8)
B	242 (50)	ART use at baseline	
C	113 (23)	PI (ATV, DRV, LPV, SQV or TPV)	69 (14)
Liver disease – no. (%)		NNRTI (RPV, NVP, EFV or ETV)	18 (4)
Hepatitis B infection	9 (2)	Entry inhibitor (T20 or MVC)	15 (4)

[illegible]

[Table 1. Demographics and Baseline Characteristics]

Ageing with HIV (including polypharmacy and frailty)

TUPEB132

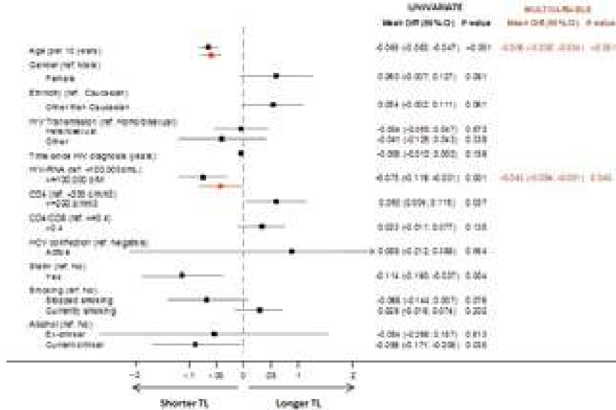
Determinants of telomere length in antiretroviral treatment naïve HIV-positive participants enrolled in NEAT 001/ANRS 143

B. Alejos[1], N. Stella-Ascariz[2], R. Montejano[2], J. Rodriguez-Centeno[2], C. Schwimmer[3], J.I. Bernardino[2], B. Rodes[2], S. Esser[4], C. Goujard[5], R. Sarmento-Castro[6], R. de Miguel[2], A. Esteban[2], C. Wallet[7], F. Raffi[8], J.R. Arribas[2], ANRS 143/NEAT 001 Study Group
[1]Institute of Health Carlos III, Centro Nacional de Epidemiologia, Madrid, Spain, [2]Hospital La Paz Institute for Health Research, Madrid, Spain, [3]INSERM, Bordeaux, France, [4]University Hospital Essen, Essen, Germany, [5]Bicêtre Hospital, Internal Medicine Unit, Le Kremlin-Bicêtre, France, [6]Centro Hospitalar do Porto, Hospital Joaquim Urbano Unit, Porto, Portugal, [7]CHU de Bordeaux, Bordeaux, France, [8]CHU de Nantes, Nantes, France

Background: .There are limited data about determinants of blood telomere length (TL) in antiretroviral treatment (ART) naïve HIV-Positive patients. Our aim is to investigate factors associated with baseline TL in participants enrolled in NEAT001/ANRS143, a randomized, open-label trial comparing ritonavir boosted darunavir (DRV/r) + raltegravir (RAL) or tenofovir disoproxil fumarate /emtricitabine (TDF/FTC) in 805 ART-naive HIV-positive adults.
Methods: For this cross-sectional study we randomly selected 201 participants who had stored samples available. We measured TL at baseline (telomere to single copy gene ratio) with monochrome quantitative multiplex PCR. Samples were tested in triplicate and those with a coefficient of variation > 0.10 were retested. We used multivariable predictive linear regression to calculate mean differences and 95% confidence intervals (CI) for the association between baseline TL and predictive factors.

Results: Baseline characteristics of the 201 participants did not differ from parent trial population: male 89%, mean age 38.7±10.6 years, Caucasian 83.6%, sexual transmission 93%, mean estimated time since HIV diagnosis 2.1±3.1 years, HIV-1 RNA load 4.7±0.6 log10 copies/mL, CD4 nadir/baseline 301±117/324±128 cells/µL and CD4/CD8 ratio 0.4±0.6. Mean blood TL at baseline was 0.738 ± 0.152. In the univariate analysis, shorter TL was associated with older age (per 10 years) (P< 0.001), HIV-1 RNA ≥100,000 copies/ml (P=0.001), CD4 < 200 cells/µL (P=0.037), statins treatment (P=0.004), and current alcohol consumption (P=0.035). There were not significant associations between TL and gender, ethnicity, HIV transmission mechanism, time since HIV diagnosis, CD4/CD8 ratio, HCV coinfection, and tobacco. In the multivariable analysis, older age (P< 0.001) and HIV-RNA ≥100,000 copies/ml (P=0.043) were independently associated with shorter TL (Figure).

Conclusions: This is the first randomized clinical trial evaluating baseline blood TL in ART-naive patients. As expected, older age was associated with shorter blood TL. The only HIV related factor independently associated with shorter blood TL was high HIV RNA level. Despite its reported association with other parameters of immunosenescence, a low CD4/CD8 ratio was not independently associated with shorter blood TL.



[Figure: Univariate and multivariable associations between baseline TL and predictive factors]

TUPEB133

NCDs burden and risk factors in a cohort of HIV+ patients >40 years old in Malawi

F. Ciccacci[1], V.T. Tolno[2], A.M. Doro Altan[3], G. Liotta[1], S. Orlando[1], S. Mancinelli[1], L. Palombi[1], M.C. Marazzi[4]

[1]*University of Rome Tor Vergata, Department of Biomedicine and Prevention, Rome, Italy,* [2]*Community of S. Egidio, DREAM Program, Blantyre, Malawi,* [3]*Community of S. Egidio, DREAM Program, Rome, Italy,* [4]*LUMSA University, Rome, Italy*

Background: HIV-infected patients have increased risk of NCDs. HIV+ patients in Africa are experiencing growing comorbidities due to increase in life expectancy and long-time ART. HIV prevalence in Malawi is one of highest in the world (10.8% in women and 6.4% in men), few data are available about NCDs epidemiology in HIV+ adult and elderly patients in Malawi.

Methods: A retrospective analysis of routine clinical and laboratory data from all HIV+ patients aged>40 years in care collected in 14 health centers run by DREAM program in Malawi was carried out. Clinical and laboratory data were performed in the period Jan 2017- Jan 2018.

Results: Files from 7071 patients (62.1% women) in ART were analyzed. Median time of ART was 98,9(64.8-118.0) months; median BMI, HB and CD4 count, were respectively: 21.63kg/m2(19.5-24.5), 13mg/dL(12-14) and 457cell/mm3(328-613). 13.0%(905/7071) patients had BMI< 18.5, elderly patients>65 years were more likely to be malnourished (OR=2.0 CI:1.54-2.59). 9.6%(677/7071) patients were diagnosed with arterial hypertension, in a logistic regression age>65 years (OR=2.5 CI:1.94-3.43) and Nadir CD4< 200 (OR=1.5 CI:1.29-1.86) were independently associated with hypertension. Only 55 patients (0.77%) were diagnosed with diabetes, 1.9% among >65years patients (OR=2.7 CI:1.25-6.22). 12.7% (897/7,071) patients had macrocyclic anemia (diagnosed as RBC< =4,000,000/mm3 and MCV>100fL); in a multivariate analysis only age>65years (OR=2.5 CI:2.00-3.35) and therapy containing AZT (OR=4.2 CI:3.60-4.94) were independently associated with macrocytic anemia. 5% (351/7,071) patients had serum creatinine>1:3mg/dL; in a logistic regression model, age>65 (OR=1.5 CI:1.03-2.43]), time of ART>5years (OR=1.6 CI:1.15-2.44]), CD4 count< 200cell/mm3 (OR=1.7 CI:1.20-2.48]) were independently associated with increased serum creatinine.

Conclusions: The present data show the burden of NCDs in aging HIV+ patients in Malawi, especially when in long-time ART. The expanding of HIV treatment programs will require special attention to such comorbidities in adult and elderly patients.

TUPEB134

Frailty is associated with HIV and female gender in Asians over 50

T.C. Do[1,2], S.J. Kerr[3], A. Avihingsanon[4], S. Suksawek[4], S. Klungklang[4], J.A. Ananworanich[4,5], P. Reiss[6,7], F. Wit[6,7]

[1]*HIV Netherlands Australia Thailand Research Collaboration (HIV-NAT), Medicine, Bangkok, Thailand,* [2]*University of Amsterdam, Medicine, Amsterdam, Netherlands,* [3]*HIV Netherlands Australia Thailand Research Collaboration, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, Bangkok, Thailand,* [4]*HIV Netherlands Australia Thailand Research Collaboration, Thai Red Cross AIDS Research Centre, Bangkok, Thailand,* [5]*U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States,* [6]*Academic Medical Center and Amsterdam Institute for Global Health and Development, Department of Global Health, Amsterdam, Netherlands,* [7]*HIV Monitoring Foundation, Amsterdam, Netherlands*

Background: To assess prevalence and factors associated with the Fried frailty phenotype (1) comparing Asians living with HIV to HIV-negative controls matched by sex, and aged 50 to 80 years.

Methods: Cross-sectional analysis of HIV-positive participants presenting for routine visits in the HIV-NAT006 cohort (clinicaltrials.gov NCT00411983) at the Thai Red Cross AIDS Research Center (TRCARC), in Bangkok's urban area. HIV-negative controls were recruited at TRCARC in the same period through fliers and word of mouth. Frailty phenotype (1) utilizes five domains: walking-speed, grip-strength, unintentional weight-loss, self-reported exhaustion and low physical activity. Scoring poorly in one or two criteria denotes pre-frailty, and in ≥3 denotes frailty (1-3). Logistic regression assessed factors associated with pre-frailty. Covariates with a univariable P< 0.15 were included in multivariable models.

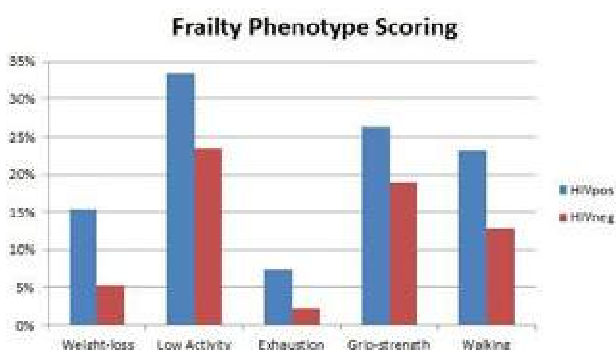
Results: A total of 324 HIV-positive participants, mean (SD) age 56.0 (5.5) years, of whom 37.0 percent women, and 131 HIV-negative controls, mean (SD) age 58.3 (5.8) years, of whom 32.6 percent women, were enrolled, all >50 years.

HIV-positive subjects were on cART for a mean (SD) duration of 15.2 (4.5) years. Comorbidity prevalence in the HIV-positive group was: hypertension 36.7%, hyperlipidemia 34.0%, diabetes 15.1%, renal dysfunction 7.1%, hepatitis B seroprevalence of 13.0%, and hepatitis C seroprevalence of 4.4%, and cardiovascular disease 2.2%. Pre-frailty (62.0% vs. 46.2%) (P≤0.005), and frailty (6.5% vs. 1.5%) were more prevalent in the HIV-positive group as was the case for each of the five domains (Figure). In multivariable analysis, factors independently associated with pre-frailty and frailty were HIV status (OR 2.04, 95%CI 1.24-3.35, P< 0.005) and female gender (OR 3.97, 95% CI 2.36-6.67, P< 0.001) (Table). In the analysis of HIV-positive subjects only, of the sociodemographic, HIV-related, and comorbidity-related covariates, only hypertension (OR 2.40, 95% CI 1.32-4.35, P< 0.004) was significantly associated with frailty.

Conclusions: In these middle-aged Asians HIV-positive status and female gender were associated with frailty. The association with hypertension in those with HIV needs further investigation. Frailty assessment and potential interventions are warranted in view of its association with poor health outcomes including hospitalization, falls and mortality.

Covariate	Unadjusted OR (95% CI)	P-value	Multivariable	Adjusted OR (95% CI)	P-value P=<0.001
HIV Pos	2.38 (1.58-3.61)	P=<0.001	HIV Pos	2.04 (1.24-3.35)	P=<0.005
Females	3.70 (2.36-5.79)	P=<0.001	Females	3.97 (2.36-6.67)	P=<0.001
Marital Status		P=<0.003	Marital Status		P=<0.92
Single	(ref)		Single	(ref)	
Partner	0.55 (0.38-0.82)		Partner	0.98 (0.62-1.53)	
Education Attainment		P=0.06			P=<0.12
Depression Screening -Positive depression screening according to the Thai Depression Inventory Tool	2.84 (0.94-8.46)	P=0.04	Depression Screening	2.33 (0.73-7.42)	P=0.15
ASCVD * 7.5% or greater- Atherosclerotic Cardiovascular Disease	0.54 (0.37-0.82)	P=003	7.5% or greater	1.01 (0.98-1.04)	P=0.47

[Unadjusted and Adjusted Analysis of factors associated with pre-frailty and frailty]



[Frailty Phenotype Scoring]

TUPEB135

Comparison of physical health conditions among older adults living with HIV and age-gender matched non-HIV older adults: Chiang Mai, Northern Thailand

W. Sitthi[1], K. Srithanaviboonchai[1,2], A. Tangmunkongvorakul[1], K. Rerkasem[1,2]
[1]Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand, [2]Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand

Background: The number of older adults living with HIV (OALHIV), defined as HIV-infected person who are 50 years old or older, has increasing rapidly worldwide due to successfulness of antiretroviral therapy programs. There has been evidenced that HIV infection may possibly result in early manifestations of clinical syndromes generally associated with advanced age. The aim of this study is to compare the socio-demographic characteristics and physical health statuses of the OALHIVs with age and gender matched non HIV-infected persons.

Methods: The study was conducted in 2016 at 12 government community hospitals located in Chiang Mai province, Northern Thailand. For each hospital, 30 OALHIVs and 30 non-HIV patients (age and gender matched with OALHIVs) who came to general outpatient departments on the days of survey were recruited. After enrollment, participants underwent a face to face interview, medical record review, measurement for blood pressure and height and weight measurement to calculate body mass index (BMI).

Results: Of 728 participants (364 OALHIVs and 364 non-HIV older adults), the OALHIVs were more likely to be single/widowed/divorced (AOR, 4.51; 95% CI, 3.10-6.55), have a household income less than 5,000 baht (143 USD) per month (AOR, 1.55; 95% CI, 1.07-2.24 have a BMI less than 18.5 kg/m2 (AOR, 3.07; 95% CI, 1.79-5.27) and have BMI 18.5-22.9 kg/m2 (AOR, 2.94; 95% CI, 2.00-4.33) rather than equal or higher than 23.0 kg/m2, have chronic kidney disease (CKD) (AOR, 3.91; 95% CI, 1.71-8.98), and have dyslipidemia (AOR, 4.37; 95% CI, 2.84-6.73) than the HIV-negative group. In contrast, OALHIVs were less likely to have cardiovascular disease (AOR, 0.31; 95 CI, 0.14-0.70).

Conclusions: The OALHIVs participants had a higher chance of living alone, having lower income, having lower BMI, and suffering from chronic health conditions including CKD and dyslipidemia than their age and gender matched non-HIV counterparts. Routine screening of major NCDs and provision of integrated NCD/HIV medical care are needed for.

TUPEB136

Beyond the 60s: Changing co-morbidities in people living with HIV aged over 60 attending clinic in 2010 and 2017

M.J. Lee[1], J. Bilinska[1], E. Wallis[1], L. Campbell[1], R. Patel[2], C. Smith[3], C. Williams[1], H. Iveson[4], R. Kulasegaram[1]
[1]Guy's and St Thomas Hospital NHS Foundation Trust, Harrison Wing, Department of HIV, London, United Kingdom, [2]St George's University London, London, United Kingdom, [3]University College London, Institute of Epidemiology and Health Care, London, United Kingdom, [4]Salisbury NHS Foundation Trust, Salisbury, United Kingdom

Background: People living with HIV (PLHIV) are increasingly living longer due to effective antiretroviral (ARV) therapy. We characterised and compared within clinic cohorts across two time points, the prevalence of co-morbidities in PLHIV aged over 60s (PLHIV60s) attending a London HIV clinic.

Methods: The cohorts included all PLHIV60s under regular follow-up in December 2010 and September 2017. Demographics, ARV history, co-morbidities, and investigation results were included.

Results: A greater proportion of the clinic population were aged over 60 in 2017 (300/3299, 9.1%) than in 2010 (126/2700, 4.7%). 85 (67.5%) patients under follow-up in 2010 remained so in 2017, 7 were lost to follow up (5.6%), 13 transferred care (10.3%), and 21 died (16.7%). Causes of death include malignancy (8/14), HIV-related complications (3/14), sepsis (2/14), and motor neurone disease (1/14). Median age, gender, ethnicity, and sexual orientation was similar in both cohorts. Age range was 60-83 in 2010 and 60-90 in 2017.

299/300 (99.7%) were on ARVs in 2017, and 119/126(94%) in 2010. Currently, 285/299 (95.3%) remain virally suppressed (< 200copies/ml). Median baseline CD4 count were similar (189 vs 222cells/μL, p=0.19). Prevalence of co-morbidities are summarised in Table 1.

Co-morbidities	2010 (n=126)		2017 (n=300)		p-value
Ischaemic heart disease	22	17.5%	28	9.3%	**0.0211**
Chronic kidney disease stage 3 or worse (CKD3+)	20	15.9%	91	30.3%	**0.0016**
Osteopaenia/osteoporosis	27	21.4%	110	36.7%	**0.0021**
Hypercholesterolaemia	65	51.6%	171	57.0%	0.3369
Diabetes Melitus (Type 1 or 2)	14	11.1%	42	14.0%	0.5299
Hypertension	-	-	132	44.0%	-
Heart Failure (Left ventricular ejection fraction <55%)	-	-	12	4.0%	-
Malignancy	-	-	50	16.7%	-
>3 of above co-morbidities	28	22.2%	92	30.7%	0.077

[Table 1]

In 2017, mean duration of TDF exposure in patients with or without CKD3+ was 65 vs 80 months (p=0.035). TDF exposure was associated with CKD3+ (OR=1.0046 per month longer, 95%CI 1.0003 - 1.0090, p=0.034), and a trend remained after adjusting for age, ethnicity, diabetes and hypertension (p=0.089).

169/300 (58.9%) had a body mass index ≥25. Of those with liver transient elastography results, 20/49(40.8%) had evidence of fatty liver (CAP>280). 29% (50/272) were on ≥ 5 concomitant drugs. 155/272 (57.0%) had at least 1 drug-drug interactions (DDI). Older age was associated with increasing concomitant drugs (r=0.13, p=0.03) and DDIs (r=0.15, p=0.01).

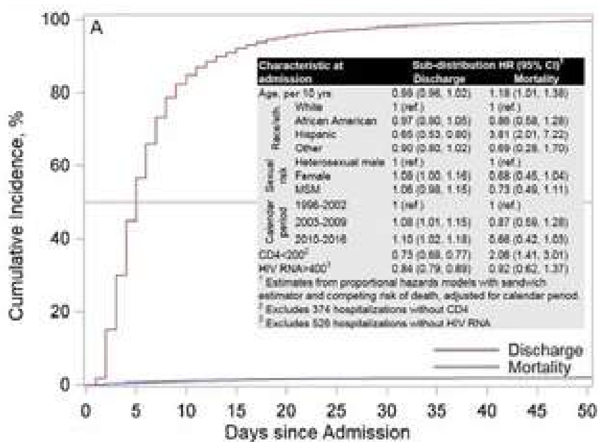
Conclusions: The proportion of PLHIV60s in our cohort has doubled over 7 years. Fatty liver disease, renal dysfunction, and osteopenia/osteoporosis are increasingly diagnosed in PLHIV60s, likely reflecting improved monitoring in line with updated national guidelines. Multiple co-morbidities, polypharmacy and DDIs were common in PLHIV60s. Reviewing ARVs regularly is essential to optimise co-morbidities and quality of life of PLHIV as life expectancies continue to improve.

TUPEB137

Hospitalization outcomes of HIV-infected patients in a Southeastern US Clinical Cohort, 1996-2016

T. Davy-Mendez, S. Napravnik, O. Zakharova, D.A. Wohl, C.E. Farel, J.J. Eron
University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

Background: Hospitalizations outcomes among HIV-infected patients are not well known. This study examined length-of-stay, mortality, and readmission among hospitalized patients in care and factors associated with worse hospitalization outcomes.
Methods: We included hospitalizations at University of North Carolina (UNC) 1996-2016 among patients enrolled in the UNC Center for AIDS Research HIV Clinical Cohort. We excluded hospitalizations taking place after loss-to-follow-up (18 months without clinical visit), but patients reentering care contributed additional hospitalizations. We examined time from admission to discharge, accounting for the competing risk of inpatient death, and estimated sub-distribution hazard ratios (sHR) comparing patient characteristics, adjusting for calendar time. For index hospitalizations (without a hospital discharge in the prior 30 days), we used log-binomial models to estimate risk ratios (RR) of a composite outcome of death or readmission within 30 days, adjusting for calendar period. Sandwich estimators and GEE, respectively, were used to account for repeat hospitalizations per patient.
Results: We included 7,302 hospitalizations among 1,953 patients, who were 31% female, 35% MSM, 63% African-American, and contributed a median of 2 (IQR 1, 4) hospitalizations and 8 years (IQR 4, 13) of follow-up.



[Figure. Time from hospital admission to discharge accounting for competing risk of death]

Median time to discharge was 5 days (IQR 3, 8), with 1.8% inpatient mortality (Figure). CD4< 200 at admission, HIV RNA>400 at admission, and Hispanic ethnicity were associated with longer hospital stays, while being hospitalized in more recent years was associated with shorter hospitalization (Figure). CD4< 200, Hispanic ethnicity, and older age were associated with increased rates of inpatient mortality, but there were no changes over time (Figure). Of 5,598 index hospitalizations, 18.8% (95% CI 17.6, 20.1) resulted in readmission within 30 days. No death occurred before readmission. Readmission risk was higher for patients of African-American race (RR 1.18; 95% CI 1.01, 1.38), with CD4< 200 (1.49; 1.30, 1.71) and HIV RNA>400 (1.19; 1.04, 1.35). There were no statistically significant changes in readmission risk over the study period.
Conclusions: In this HIV-infected patient population, hospital length-of-stay has decreased in the past 20 years, however, high readmission risks have remained similar. Uncontrolled HIV, including low CD4 and detectable HIV RNA, and minority race/ethnicity were associated with worse hospitalization outcomes.

TUPEB138

Vestibular function among Multicenter AIDS Cohort Study (MACS) and Women Interagency HIV Study (WIHS) participants

M. Plankey[1], M. Pichert[1], G. Springer[2], H. Cohen[3]
[1]*Georgetown University, Washington, United States,* [2]*John Hopkins University, Baltimore, United States,* [3]*Bayler College of Medicine, Houston, United States*

Background: We investigated vestibular function loss (VFL) among well-characterized middle-aged HIV+ and HIV- men and women in the Multicenter AIDS Study (MACS) and Women's Interagency HIV Study (WIHS) using standardized diagnostic VF testing.
Methods: 138 men of the Baltimore-DC site of the MACS (median age 54; 80 (59%) HIV+) and 102 women of the DC site of the WIHS (median age 49; 84 (82%) HIV+) underwent vestibular evoked myogenic potential (VEMP) and electronystagmography (ENG) including bi-thermic caloric (BCT) stimulation testing. A positive peripheral VF outcome was defined as an abnormal or absent BCT response; a central VF outcome was either an abnormal saccade peak velocity, saccade accuracy, or saccade latency (SAC) from the VEMP/ENG testing. Any VFL was defined as +BCT or +SAC or both. Adjusted for sex, age, viral suppression (< 20 copies/ml), ever using monotherapy, ever HAART, proportional odds regression models were run with combined data and HIV+ data only.
Results: 19% (14% HIV+) of men and 40% (32% HIV+) of women had 1 or greater BCT or SAC abnormality. After adjusting a 10-year increase in age, being male, being HIV+ was borderline statistically significantly associated with any VFL (2.30; 95% CI 0.9, 5.87, p=0.0803). For analysis limited to HIV+ participants, albeit not statistically significant, yet in the expected direction, current HAART and viral suppression (0.54, 95% CI 0.24, 1.21 p=0.132) demonstrated a decreased odds of VFL (0.83, 95% CI 0.23, 3.01 p=0.780) and increased odds with monotherapy (1.08; 95% CI (0.47, 2.53 p=0.780).
Conclusions: In this small sample of HIV+ and HIV- middle-aged men and women, we found that HIV disease *may* increase odds of peripheral and central vestibular dysfunction. As we expected, HAART use concomitant with lower HIV RNA viral load were found to be protective for VFL; given its neurotoxic side effects, monotherapy use increased the odds. Larger longitudinal studies are necessary to elucidate whether HIV has a direct deleterious effects on the vestibular system and if so, whether vestibular function worsens among adults beyond middle age where balance disorders and concomitant falls are more likely to occur.

	HIV+ Men	HIV+ Women	All HIV+	HIV- Men	HIV- Women	All HIV-
Total, n	80	84	164	58	18	76
Age, median (IQR), yrs	54.3 (50,60)	49.1 (43,57)	52.1 (46,58)	68 (63,71)	44.2 (37,54)	66 (53,70)
Ever mono, n (%)	18 (23)	36 (43)	54 (33)			
Ever HAART, n (%)	78 (98)	73 (87)	151 (92)			
CD4+ T cell count, median (IQR)	589.5 (466, 812)	565.5 (393, 758)	575 (440, 775)			
Undetectable HIV RNA, n (%)	70 (88)	61 (73)	131 (80)			
HIV RNA , median (IQR), cps/mL	10 (10, 40)	20 (20, 94)	20 (10, 54)			
HIV RNA <20 cps/mL n (%)	43 (55)	45 (54)	88 (54)			

[Characteristics of sample]

Immune reconstitution disorders / immune reconstitution inflammatory syndrome (IRIS)

TUPEB139

Treatment of immune reconstitution inflammatory syndrome with TNF-alpha inhibitors in HIV-infected patients

A.C.E. Laparra[1], N. Lerolle[2], M. Gerin[3], A. Cheret[2], N. De Castro[4], S. Gallien[5], V. Martinez[6], F. Lanternier[7], A. Bourgarit[3], C. Goujard[2]
[1]Assistance Publique des Hôpitaux de Paris, 94, Clamart, France, [2]CHU Kremlin-Bicêtre, Kremlin-Bicêtre, France, [3]Hôpital Jean Verdier, Bondy, France, [4]CHU Saint Louis, Paris, France, [5]CHU Henri-Mondor, Créteil, France, [6]CHU Pitié Salpétrière, Paris, France, [7]CHU Necker, Paris, France

Background: Immune reconstitution inflammatory syndrome (IRIS) is an exaggerated immune response against various pathogens, highly prevalent in HIV-infected patients after initiation of antiretroviral therapy. IRIS treatment relies mostly on steroids with unclear benefit in most severe cases, for which TNF-alpha inhibitors could be an alternative in steroid-resistant cases.
Methods: We retrospectively collected data from six HIV-infected patients treated with TNF-alpha inhibitors for steroid-resistant IRIS in French university hospitals between March 2013 and August 2017. Medical charts were reviewed to evaluate efficacy and safety of TNF-alpha inhibitors (TNF-I) in this setting.
Results: Median age was 38 years [36,3-44], 50% were women. One patient had cryptoccocal meningitis and 5 had microbiologically proven tuberculosis (TB) or cryptoccocosis with two cases of TB meningitis. Median CD4 count at TB or cryptoccocosis diagnosis was 76 cells/mm^3 [43-130] and median plasma HIV RNA was 5.82 log [5.05 - 6.00]. At IRIS onset, median CD4 count increase was 100 cells/mm^3 [53 - 411] and HIV RNA was 2.65 log [2,1-3,15]. Corticosteroids initial dose was 1 mg/kg/day, except for one TB patient who received high-dose methylprednisolone. TNF-alpha inhibitors were started after a median of 3.0 months [0.75-12] after IRIS diagnosis, after a median of 3 months [1,6-6,2] of corticosteroids, with a median duration of 4.5 months [2.0-11.2]. Three cases were treated with infliximab, three with with adalimumab. Five patients experienced a clinical and radiological improvement within 2 months [1-4] after initiation of TNF-I. Normalization of CRP levels occurred within a delay of 5.5 months [4.0-7.0]. All patients interrupted corticosteroids after a median of 3.0 months [0-7.7]. All neurological IRIS cases needed CSF drainage and suffered from residual neurological damages. One failure occurred after two infusions of infliximab with lymph node enlargement. No serious side effects were noticed under TNF-I during a follow-up period of 12 months [8-16]. No IRIS recurrence was seen after TNF-I cessation.
Conclusions: TNF-alpha inhibitors therapy resulted in significant improvement in severe steroid-resistant IRIS in HIV-infected patients, especially in those experiencing neurological IRIS. Although difficult to implement, further studies are needed to evaluate the potential benefits and risks of this therapy in HIV-infected patients.

Other non-communicable diseases

TUPEB140

Sleep and Circadian disruption interact with HIV, contributing to inflammation and immune activation

K. Weber[1], H. Burgess[2], J. Burke-Miller[3], L. McClellan[4], E. Daubert[4], C. Bond[4], R. Morack[4], M. Cohen[5], A. French[6]
[1]CORE Center, Chicago WIHS, Chicago, United States, [2]Rush University, Behavioral Science and Internal Medicine, Chicago, United States, [3]Hektoen Institute of Medicine, Chicago, United States, [4]Hektoen Institute of Medicine, Chicago WIHS, Chicago, United States, [5]Rush University, Medicine, Chicago, United States, [6]CORE Center/ Stroger Hospital of Cook County, Division of Infectious Diseases, Chicago, United States

Background: Sleep disturbance is highly prevalent in HIV+ individuals, depressed women, and aging populations. Poor sleep is associated with systemic inflammation and greater risk for cardiometabolic and cognitive disorders. HIV also degrades tryptophan, a precursor of melatonin that regulates the sleep/wake cycle. We sought to quantify sleep and circadian disruption and their association with markers of inflammation/ immune activation in midlife HIV+ and HIV-women.
Methods: We assessed sleep subjectively with the Pittsburgh Sleep Quality Index (PSQI), objectively using 7 days of wrist actigraphy, and collected first morning urine to assess overnight secretion of melatonin metabolite and creatinine in 92 (63 HIV+/29 HIV-) WIHS women. We measured usCRP, IL-6, sCD14 and sCD163 in plasma with commercial ELISA. We evaluated correlations between PSQI, actigraphy-derived sleep metrics (wake after sleep onset-WASO, wake bouts, total sleep, efficiency, fragmentation), circadian disruption (creatinine adjusted urinary melatonin-CAUM), and inflammatory/activation markers.
Results: Key characteristics, including mean PSQI score, did not differ significantly ($p < 0.05$) by HIV status (Table 1); 92% of HIV+ women were on HAART; 84% were aviremic; mean (sd) CD4 count =741 (369). Sleep duration < 6 hours was observed in 32% of women. PSQI score positively correlated with WASO and sleep fragmentation (r=.31, p=.004; r=.28, p=.008 respectively) and negatively with sleep efficiency (r=-.35, p=.001). Poor sleep quality was significantly correlated with lower urinary melatonin metabolite regardless of HIV status (partial r=-.22, p=.039). In HIV+ women, PSQI total score, PSQI>5 correlated with higher sCD163 (r=.30, p=.020; r=.37, p=.003; respectively) but not in HIV- women (r=-.14, p=.481; r=-.09, p=.648 respectively). In HIV+ women, PSQI score correlated with higher sCD163 even after adjusting for viral load and CAUM (partial r=.32, p=.013). In HIV+ women, CAUM and IL-6 were negatively correlated (r=-.33, p=.011) including among HIV+ aviremic women (r=-.37, p=.008). There was no relationship between CAUM and biomarkers in HIV- women.
Conclusions: Sleep and circadian disruption are highly prevalent in midlife HIV+ and HIV- women and, in HIV, are associated with higher levels of IL-6 and sCD163. Further study is warranted to determine the how sleep and circadian disruption contribute to persistent inflammation/ immune activation and associated morbidity in the context of HIV.

	Total % (n) 100% (92)	HIV +% (n) 68.5% (63)	HIV -% (n) 31.5% (29)	Chi-square or t-test	p-value
Mean (sd) Age	49.9 (9.3)	49.5 (8.5)	50.7 (10.9)	0.58	.562
Black	85.9% (79)	84.1% (53)	89.7% (26)	0.50	.479
Income <$12k/year	60.0% (54)	62.3% (38)	55.2% (16)	0.42	.519
Current Cocaine/Heroin	6.5% (6)	6.3% (4)	6.9% (2)	0.01	.921
Depression (CES-D 16 or greater)	30.4% (28)	31.7% (20)	27.6% (8)	0.16	.687
Hypertension	60.4% (55)	58.1% (36)	65.5% (19)	0.46	.498
Diabetes	27.5% (25)	29.0% (18)	24.1% (7)	0.24	.626
PSQI Total Score mean (sd)	7.0 (4.4)	6.6 (4.3)	7.7 (4.8)	1.04	.302
PSQI Score >5	58.9% (53)	52.5% (32)	72.4% (21)	3.23	.072

[Study Sample Characteristics by HIV serostatus]

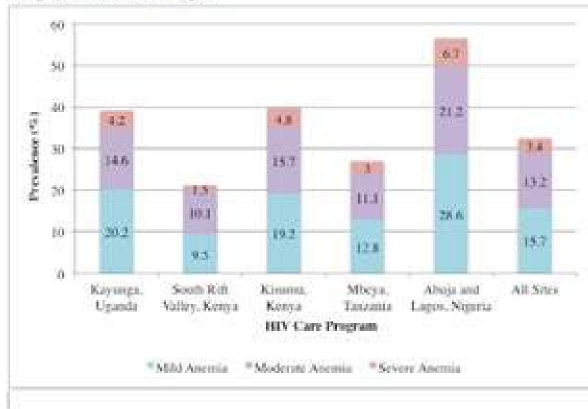
TUPEB141

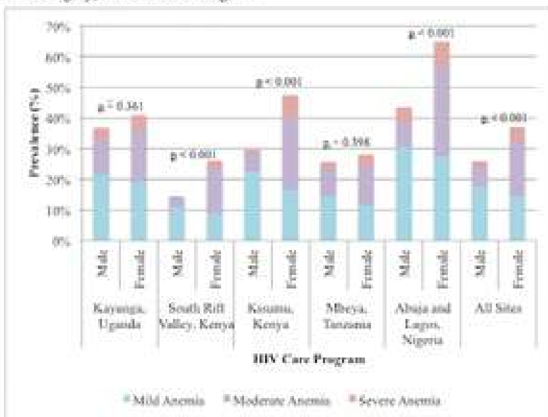
Prevalence of and factors associated with anemia among HIV-infected adults in a multi-site African cohort

A.P. Parikh[1,2], D.M. Reed[1,2], T.A. Crowell[1,2], A.L. Esber[1,2], L. Maganga[3], Y. Adamu[4], F. Kiweewa[5], J. Maswai[1,6,7], J. Owuoth[1,7,8], J.A. Ake[1], C.S. Polyak[1,2], RV329 AFRICOS Study Team
[1]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [2]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [3]Mbeya Medical Research Centre, Mbeya, Tanzania, United Republic of, [4]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Abuja, Nigeria, [5]Makerere University-Walter Reed Project, Kampala, Uganda, [6]Henry M. Jackson Foundation Medical Research International, Kericho, Kenya, [7]Kenya Medical Research Institute, Nairobi, Kenya, [8]Henry M. Jackson Foundation Medical Research International, Kisumu, Kenya

Background: Anemia is a known predictor of morbidity and mortality in HIV-infected adults, but remains poorly characterized across different countries in sub-Saharan Africa. We describe the prevalence of and factors associated with anemia among HIV-infected adults in Uganda, Kenya, Tanzania, and Nigeria.

Methods: AFRICOS is a prospective observational cohort study enrolling participants in five PEPFAR-supported HIV care programs. Sociobehavioral questionnaires and clinical assessments, including hemoglobin (Hb) measurements, were collected at enrollment. Mild anemia was defined as Hb 11-12.9 g/dL for men and 11-11.9 g/dL for women, moderate: Hb 8-10.9 g/dL, and severe as Hb < 8 g/dL. We used logistic regression to estimate adjusted odds ratios (AORs) and 95% confidence intervals (CIs) for factors associated with moderate-to-severe anemia (Hb < 11g/dL) among HIV-infected men and non-pregnant women at enrollment, controlling for age, body mass index, and renal insufficiency.





[Prevalence of Anemia among HIV-infected Adults at Enrollment]

Results: As of September 2017, 2678 HIV-infected participants were enrolled, of whom 2645 had Hb measurements and met our inclusion criteria. The prevalence of any, mild, moderate, and severe anemia varied by program, and was greatest in Nigeria (Figure 1). Moderate-to-severe anemia was observed in 439 participants, including 348 (79.3%) women. Regression analysis found that compared to Uganda, moderate-to-severe anemia was more common in Kisumu (AOR: 2.11, 95% CI: 1.44-3.09) and Nigeria (AOR: 1.99, 95% CI: 1.16-3.41), while women had greater odds of moderate-to-severe anemia than men (4.50, 4.34-6.06). HIV-related factors, including HIV viremia >50 copies/mL compared to < 50 copies/mL (1.59, 1.17-2.18), WHO stage IV compared to stage I (2.11, 1.20-3.69), and enrollment CD4 < 200 cells/mm³ (4.63, 3.28-6.52) compared to enrollment CD4 500+ cells mm³, were all significantly associated with higher odds of moderate-to-severe anemia. Conversely, being on ART (0.58, 0.42-0.81) or Cotrimoxazole (0.64, 0.43-0.95) was associated with decreased odds.

Conclusions: Anemia in this cohort of HIV-infected African adults is common, underscoring the need for HIV care models to address early screening and management of anemia. Factors associated with moderate-to-severe anemia are consistent with prior studies conducted in adult HIV-infected populations. Longitudinal research is necessary to explore the etiologies of HIV-associated anemia in an African context.

TUPEB142

Obstructive sleep apnea among HIV-infected persons in the highly active antiretroviral therapy era: A nation-wide longitudinal cohort study in Taiwan, 2000 - 2010

Y.-C. Chen[1], C.-Y. Lin[2], C.-C. Chen[3], H.-Y. Liu[4], N.-Y. Ko[5]
[1]National Cheng Kung University, Department of Nursing, College of Medicine, Tainan, Taiwan, Province of China, [2]National Cheng Kung University Hospital, Otolaryngology, Tainan, Taiwan, Province of China, [3]National Cheng Kung University, Nursing, Tainan, Taiwan, Province of China, [4]National Cheng Kung University Hospital, Tainan, Taiwan, Province of China, [5]National Cheng Kung University, Tainan, Taiwan, Province of China

Background: Obstructive sleep apnea (OSA) is a common disease in HIV patients and as an independent risk factor for all-cause mortality. Some gaps in knowledge on the effects of early detection and continuing highly active antiretroviral therapy (HAART) that are not mentioned. This study compared the incidences of OSA between patients with HIV and those without, as well as aimed to evaluate the risk factors of OSA and to determine the effect of HAART on the incidences of OSA among HIV-infected persons.

Methods: A population-based cohort design was conducted using the National Health Insurance Research Database (NHIRD) contained 13,962 HIV-positive and 738,482 HIV-negative individuals from the general populations. Incidences of OSA were defined as the new diagnosis appearing after HIV diagnosis (ICD-9: 78051, 78053, 78057 or 32723). The age- and sex-standardized incidence ratio (SIR) was calculated to estimate the relative risk of OSA. Cox proportional hazards models were applied to evaluate the risk factors of OSA, and further to access the HAART effect on incidences of OSA among HIV-infected persons.

Results: Over 11 years of follow-up, the HIV-infected persons had a 1.4-fold OSA risk compared to that of the general population (SIR: 1.4, 95% CI, 1.15-1.68). The risk factors for OSA in HIV-infected persons were higher monthly salary (adjusted hazard ratio [aHR], 2.23; 95% CI, 1.29-3.85 for ≥ 42,000 NTD per month), obesity (aHR, 4.12, 95% CI, 1.38-12.29), fatigue (aHR, 1.72, 95% CI, 1.03-2.09), hyperlipidemia (aHR 2.45, 95% CI, 1.36-4.41), and chronic obstructive pulmonary disease (aHR, 2.52, 95% CI, 1.43-4.47). HAART is a protection factor for OSA (aHR, 0.12; 95% CI, 0.07-0.19) in HIV-infected persons, particularly in those with greater than or equal to six months of HAART.

Conclusions: HIV-infected persons have an elevated risk for OSA compared to the general population. Early detection and continuing HAART over a six-month period may reduce the risk of OSA.

TUPEB143

Computed tomography quantification of emphysema in people living with HIV and uninfected controls

A. Ronit[1], T. Kristensen[2], V. Hoseth[1], D. Abou-Kassem[1], T. Kühl[3], T. Benfield[1], J. Gerstoft[1], S. Afzal[4], B.G. Nordestgaard[4,5], J.D. Lundgren[6], J. Vestbo[7], K.F. Kofoed[2,3], S.D. Nielsen[1]
[1]University Hospital Rigshospitalet, Department of Infectious Diseases, Copenhagen E, Denmark, [2]University Hospital Rigshospitalet, Department of Radiology, Copenhagen E, Denmark, [3]University Hospital Rigshospitalet, Department of Cardiology, Copenhagen E, Denmark, [4]Herlev and Gentofte Hospital, The Copenhagen General Population Study, Department of Clinical Biochemistry, Herlev, Denmark, [5]University of Copenhagen, Faculty of Health and Medical Sciences, Copenhagen, Denmark, [6]University Hospital Rigshospitalet, CHIP, Department of Infectious Diseases, Copenhagen E, Denmark, [7]University of Manchester, Division of Infection, Immunity and Respiratory Medicine, Manchester, United Kingdom

Background: People living with HIV (PLWH) may be susceptible to the development of emphysema. We assessed emphysema by computed tomography (CT) using quantitative and visual approaches in PLWH and uninfected controls.
Methods: Spirometry and chest CTs were obtained in PLWH from the Copenhagen comorbidity in HIV infection (COCOMO) Study and in uninfected controls from the Copenhagen General Population Study (CGPS) who were aged above 40 years. Emphysema was primarily quantified using low attenuation area below -950 Hounsfield units (%LAA-950), and secondarily by the 15th percentile density index (PD15) and by semi-quantitative visual scales. Breathlessness was defined by the modified medical research council scale with ≥2 signifying more breathlessness. Sputum was defined by duration of 3 months per year.vMultivariable logistic regression analyses adjusted for age, sex, ethnicity and cumulative smoking were computed to determine adjusted odds ratio (aOR) for emphysema.
Results: Of 742 PLWH, 21.2% and 4.7% had emphysema according to the %LAA-950 threshold with cut-offs at 5% and 10%, respectively. Of 470 uninfected controls, these numbers were 24.3% (p= 0.23) and 4.0% (p= 0.68). HIV was not independently associated with emphysema defined by each of the two %LAA-950 thresholds (aOR 0.96 [95%CI: 0.71-1.29]; aOR 1.25 [0.68-2.36]), by visually assessed emphysema (aOR 1.53 [95%CI: 0.85-2.83]) or by lung density determined by PD15. We found no interaction between HIV and age or HIV and cumulative smoking for the two %LAA-950 thresholds (all p-interactions>0.1). Emphysema (%LAA-950>10%) seemed to be more prevalent in PLWH with airflow limitation (FEV_1/FVC< lower limit of normal) compared to uninfected individuals with airflow limitation (17/77 vs 4/49, p= 0.07). Breathlessness (8/35 vs 1/19, p< 0.0001) and sputum production (12/35 vs 0/19, p< 0.0001) were more common in PLWH with emphysema than in uninfected controls with emphysema.
Conclusions: HIV was not independently associated with emphysema and HIV did not augment the effect of age or cigarette smoking. However, the clinical impact of emphysema was greater in PLWH, and emphysema seemed to be more prevalent in PLWH with airflow limitation than uninfected controls with airflow limitation.

	OR (95%CI) for LAA950 >5%	P-value	aOR (95%CI for LAA950 >5%	P-value	OR (95%CI) for LAA950 >10%	P-value	aOR (95%CI) for LAA950 >10%	P-value
HIV, yes vs. no	0.83 (0.64-1.11)	0.21	0.96 (0.71-1.29)	0.77	1.18 (0.67-2.12)	0.58	1.25 (0.68-2.36)	0.48
Age, per decade	1.69 (1.46-1.97)	<0.0001	1.69 (1.44-1.99)	<0.0001	1.90 (1.42-2.55)	<0.0001	1.85 (1.35-2.55)	<0.001
Pack-years of smoking, per 10 pack years	1.06 (0.99-1.14)	0.09	1.00 (0.92-1.08)	0.99	1.23 (1.09-1.39)	<0.001	1.15 (1.01-1.31)	0.03

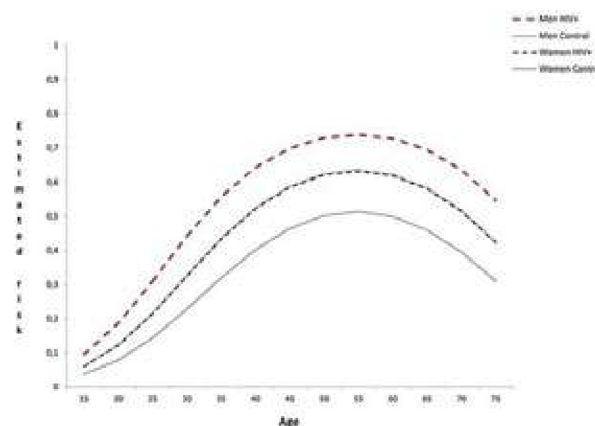
[Table 1. Logistic regression analyses to determine whether HIV is associated with emphysema according to a 5% and 10% thresholds for LAA950.]

TUPEB144

Severe periodontitis is more common in HIV-infected patients

H. Groenewegen[1], W.F.W. Bierman[2], K. Delli[1], P.U. Dijkstra[1,3], W. Nesse[1,4], A. Vissink[1], F.K.L. Spijkervet[1]
[1]University of Groningen and University Medical Center Groningen, Oral and Maxillofacial Surgery, Groningen, Netherlands, [2]University of Groningen and University Medical Center Groningen, Internal Medicine, Division of Infectious Diseases, Groningen, Netherlands, [3]University of Groningen and University Medical Center Groningen, Rehabilitation, Center of Rehabilitation, Groningen, Netherlands, [4]Wilhelmina Hospital, Oral and Maxillofacial Surgery, Assen, Netherlands

Background: Periodontitis and HIV both are associated with age related diseases because of their chronic inflammation and immune activation. Due to variation of research methodology , i.e., diverse definitions of periodontitis, differences in social and economic status and oral care awareness of included patients, the prevalence of periodontitis in HIV-infected patients is unclear. The aim of this study was to assess the prevalence of severe periodontitis in a representative population of HIV-infected patients and compare it with prevalence in controls. Additionally, presence of age-related diseases, HIV infection characteristics, oral health care characteristics and smoking status were explored as risk factors of severe periodontitis in HIV-infected patients.
Methods: In this cross-sectional controlled study, 258 outpatients with HIV infection were recruited. Periodontal status was assessed by applying the Dutch Periodontal Screening Index (DPSI). DPSI score 4, corresponding with periodontal pocket depth ≥6mm, indicates severe periodontitis. In addition, patients filled in a health and oral care assessment questionnaire. HIV characteristics (viral load, CD4+ T-cell count, CD4+/CD8+, type of cART, and CD4+ nadir) were collected from the medical charts. For comparing the periodontal status of HIV-infected patients with unaffected subjects, 539 controls were included from the same geographic area.
Results: Severe periodontitis was more prevalent in HIV-infected patients than in controls (65,5% versus 35,8%, p=0,002). HIV infection, age and gender were significant risk factors for severe periodontitis. In particular, older male HIV-infected patients ran a higher risk of having severe periodontitis (figure). Strikingly, 44,3% of HIV-infected patients did not disclose the HIV infection to their dentists as well as that independently of their DPSI score, all patients rated the importance of their dental health as very high. Clinical, HIV infection characteristics and type of cART did not predict severe periodontitis.
Conclusions: Prevalence of severe periodontitis is almost twice as high in patients with HIV infection compared to controls. Moreover, age and gender were risk factors for severe periodontitis in HIV-infected patients, while HIV characteristics were not predictors for severity of periodontitis.



[Estimated risk for severe periodontitis in HIV-infected patients and controls based on logistic regression analysis.]

TUPEB145

Prevalence of diarrhea in HIV clinical trials in the recent post-combined antiretroviral therapy (cART) era: Analysis of data from 39 clinical trials from 2008-2017 in over 20,000 patients

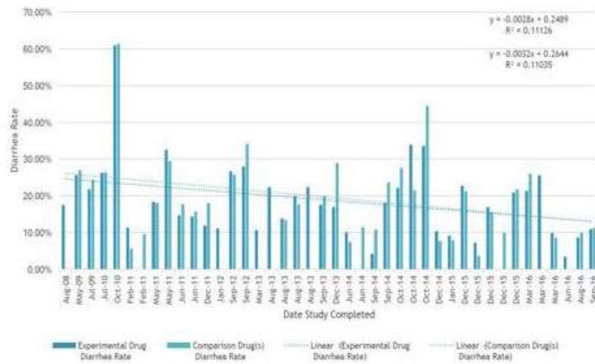
D.M. Asmuth[1], G. Blick[2], P.G. Clay[3], K. MacFarlane[4], P. Chaturvedi[4]
[1]University of California Davis Medical Center, Sacramento, CA, United States, [2]Health Care Advocates International, LLC, Stratford, CT, United States, [3]University of North Texas System College of Pharmacy, Fort Worth, TX, United States, [4]Napo Pharmaceuticals, San Francisco, CA, United States

Background: Despite the perception that gastrointestinal manifestations of HIV infection have declined over time, patients often complain of multiple loose stools per day with significant urgency, bloating, and unwanted disruptions in their quality of life when directly queried. In order to examine whether the rate of HIV-associated diarrhea has changed over time, we interrogated the publicly available NIH database of clinicaltrials.gov that reported the adverse event frequency of diarrhea from 2008-2016.

Methods: Pivotal efficacy intervention trials conducted in the US (including multinational trials) with greater than 100 participants were selected for analysis. Both comparative and switch studies that reported diarrhea as an adverse event were included.

Results: 39 trials met the inclusion criteria with 20,354 trial subjects receiving cART. 12,004 subjects received experimental therapy and 8,350 received the comparator regimen. The weighted average of the prevalence of diarrhea was 17.58% and 18.62% for those receiving experimental versus comparator regimens, respectively. The median prevalence of reported diarrhea was similar at 17.54% and 18.04%, respectively. The linear regression of diarrhea rates by date of completion of the study reveals beta coefficients of -0.0028 and -0.0032 for the experimental drugs versus the comparator regimens, respectively (see graph). These small beta coefficient values, which represent the slope of the line of rates of diarrhea over time, supports the hypothesis that the prevalence of diarrhea in pivotal clinical trials has remained nearly constant over time. The slope of the line does not change if trials with the protease inhibitors best known for increasing GI symptoms are excluded.

Conclusions: The prevalence of diarrhea in ART clinical trials has not declined significantly in the last 10 years. Diarrhea remains a significant comorbidity in HIV-positive patients, even those virally suppressed in clinical trials, with a prevalence of diarrhea of around 18%. These findings emphasize the need for more targeted epidemiologic and interventional studies to characterize the residual morbidity of gastrointestinal disease in people living with HIV as we seek to improve their quality of life and reduce this disruption in their activities of daily living.



[Diarrhea Rates by Date Study Completed]

TUPEB146

The relationship between co-morbidities, physical activity and exercise level in persons living with HIV

E. Sefcik[1], J. Perazzo[2], I. Corless[3], K. Kirksey[4], M.J. Hamilton[1], L. Davis[5], J.C. Phillips[6], C. Dawon Rose[7], R. Schnall[8], K. Adams Tufts[9], P. Chaiphibalsarisdi[10], R. Musanti[11], M. Kesterson[5], P. Orton[12], A. Kulkarni[5], A. Gilson[5], B. Cazares[1], N. DeAnda[5], A. Webel[13]
[1]Texas A&M University-Corpus Christi, College of Nursing and Health Sciences, Corpus Christi, United States, [2]University of Cincinnati, Cincinnati, United States, [3]MGH Institue of Health Professions, Boston, United States, [4]Harris Health System, Nursing Administration, Houston, United States, [5]Texas A&M University-Corpus Christi, College of Education and Human Development, Corpus Christi, United States, [6]University of Ottawa, Ottawa, Canada, [7]University of California, San Francisco, United States, [8]Columbia University, New York City, United States, [9]Old Dominion University, Norfolk, United States, [10]St. Louis College, Bangkok, Thailand, [11]Rutgers University, Newark, United States, [12]Durban University of Technology, Durban, South Africa, [13]Case Western Reserve University, Frances Payne Bolton School of Nursing, Cleveland, United States

Background: Persons living with HIV (PLHIV) develop chronic diseases, such as cardiovascular disease and cancer, earlier and more often than individuals without HIV. Physical activity can mitigate symptoms commonly experienced by PLHIV living with chronic co-morbidities, but little is known about the relationship between physical and mental co-morbidities and physical activity. We conducted a multi-site observational study to examine the relationships between physical activity, exercise level and co-morbidities.

Methods: Seven-hundred and two PLHIV completed validated, cross-sectional measures of self-reported exercise (7-day physical activity recall and Godin Leisure Time Activity Questionnaire). Co-morbid conditions were abstracted from participant´s medical charts using a standardized form. One fourth of the subjects were recruited during each season of the year from seven geographically diverse sites in the United States and Thailand. Descriptive statistics and Spearman's Rho correlation analyses examined the relationships between co-morbidities and physical activity.

Results: Participants' mean age was 50.5±11.1 years; with 61% male, majority of whom were on ART (92%) with undetectable viral load (79.5%). Seventy-one percent (n=496) were currently diagnosed with at least one of 49 co-morbid conditions. Co-morbidities were categorized as: mental health (n=166, 23.65%); cardiovascular disease (CVD) (n=231, 32.86%); pulmonary disease (n=65, 9.26%); type II diabetes (n=53, 7.55%); end stage renal disease (n=6, 0.8%); hepatic disease (n=62, 8.83%); cancer (n=31, 4.42%); and autoimmune disease (n=16, 2.28%). Total time spent on physical activity and intensity (light, moderate, or vigorous) were reported for the previous week. Mental health ($r = -.017$), CVD ($r = -.197$), pulmonary ($r = -.139$), type II diabetes ($r = -.139$), and cancer ($r = -.118$) co-morbidities were associated ($p < 0.05$) with lower reported physical activity and exercise levels. Linear regression analysis (controlling for age, gender, and body mass index) showed that co-morbidity category remained a significant predictor of exercise in at least one exercise category.

Conclusions: PLHIV with mental health, pulmonary, type II diabetes, and cancer co-morbidities reported less frequent and lower intensity exercise levels. Co-morbidities can have a negative effect on the ability of PLHIV to engage in activities of daily living, particularly physical exercise. Further research needs to investigate approaches to improve the physical activity and exercise level in PLHIV with co-morbidities.

TUPEB147

Heterogeneity in pulmonary function indices by HIV status and cumulative smoking intensity among well-controlled HIV-infected persons compared to HIV-uninfected participants in the AGEHIV cohort

S.O. Verboeket[1,2], F.W. Wit[1,2,3], G.D. Kirk[4], M.B. Drummond[5], R.P. van Steenwijk[6], R.A. van Zoest[1,2], M.F. Schim van der Loeff[7], P. Reiss[1,2,3]

[1]Academic Medical Center, Department of Internal Medicine, Amsterdam Public Health Research Institute, Amsterdam, Netherlands, [2]Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, [3]HIV Monitoring Foundation, Amsterdam, Netherlands, [4]Johns Hopkins University, Department of Epidemiology, Bloomberg School of Public Health, Baltimore, United States, [5]University of North Carolina, Division of Pulmonary and Critical Care Medicine, Chapel Hill, United States, [6]Academic Medical Center, Department of Pulmonary Medicine, Amsterdam, Netherlands, [7]Public Health Service of Amsterdam, Department of Infectious Diseases, Amsterdam, Netherlands

Background: Pulmonary function impairments are more common among people living with HIV (PLWHIV), as are the risk behaviors causing them. To understand the effects of HIV infection independent of risk behavior, pulmonary function was evaluated in the AGE_hIV cohort study, including lifestyle-comparable HIV-infected and HIV-uninfected participants aged ≥ 45 years in Amsterdam. We investigated the prevalence and determinants of obstructive lung disease (OLD) and to evaluate its determinants.

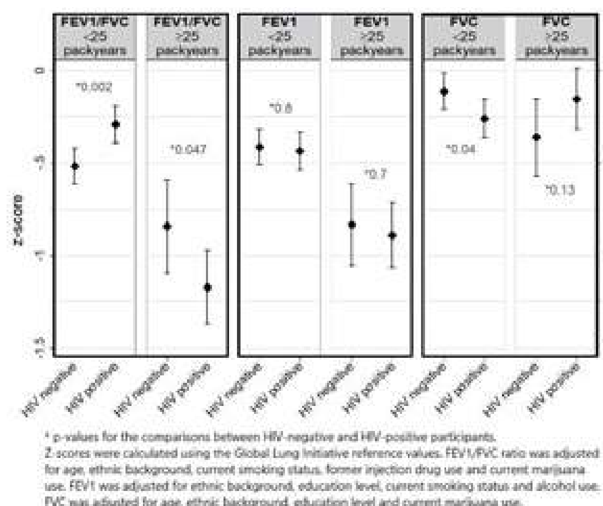
Methods: The prevalence of OLD (Forced Expiratory Volume in 1-second to Forced Vital Capacity ratio or FEV1/FVC < 70%) in 544 HIV-infected and 529 HIV-uninfected participants was determined using spirometry. Logistic regression was used to adjust for confounding variables including biometrics, demographics and risk behaviors. Additional explanatory models were constructed including HIV-related parameters and markers for chronic inflammation. Finally, determinants of z-scores of the individual spirometry indices were evaluated using linear regression.

Results: The prevalence of OLD was similar between HIV-infected and HIV-uninfected participants (23.0% and 23.4%, respectively; p=0.9). Multivariable logistic regression analysis showed a statistically significant interaction between HIV-infection and the number of pack-years (p=0.006): never-smoking HIV-infected participants were less likely to have OLD compared to never-smoking HIV-uninfected participants (9% vs. 21%, OR 0.35).

	Model 1 (a)			Model 2 (a)		
	OR	95%-CI	p-value	OR	95%-CI	p-value
HIV infection	0.88	0.65-1.17	0.4	**0.35**	**0.21-0.58**	**<0.001**
Pack-years per √(pack-years) increase (b)	x	x	x	**1.13**	**1.04-1.23**	**0.006**
Interaction: HIV infection x √(pack-years) (b)	x	x	x	**1.23**	**1.09-1.38**	**0.006**
Years since smoking cessation, per 10 years	x	x	x	1.10	0.88-1.37	0.4
Interaction: years since smoke cessation x √(pack-years) (b)	x	x	x	**0.91**	**0.85-0.98**	**0.009**
Daily marijuana use	x	x	x	2.06	0.92-4.64	0.08
Former injection drug use	x	x	x	1.87	0.84-4.19	0.13
(a) Both models are adjusted for age, height and BMI. (b) Variables were transformed to not violate the linearity assumption of the logistic regression model. Abbreviations/definitions: OR=Odds Ratio, CI=Confidence interval, pack-years=the equivalent of having smoked 1 pack of cigarettes daily during 1 year. The following variables were excluded as they were non-significant or did not influence the effect of HIV on the outcome: ethnicity, sexual orientation, employment status, current smoking status, current alcohol use.						

[Multivariable logistic regression models evaluating factors associated with the probability of OLD.]

However, the effect of pack-years on odds of OLD was stronger in the HIV-infected, so that from >25 pack-years the odds for the HIV infected were (non-significantly) higher. HIV-infection was associated with a lower FVC, but not a lower FEV1 among participants with less than 25 pack-years.



[Mean adjusted Z-scores with 95% confidence intervals of spirometry indices, by smoking history and HIV-status]

Within the latter subgroup, a history of *Pneumocystis jirovecii* pneumonia and/or AIDS, and higher plasma levels of IL-6 were independently associated with a lower FVC in the HIV-infected group.

Conclusions: Both HIV-infected and HIV-uninfected participants had a notably high prevalence of OLD. Our results suggest that among persons with limited lifetime smoking exposure, the higher FEV1/FVC ratio observed among PLWHIV compared to HIV-uninfected persons may represent prior pulmonary tissue damage with resulting lower FVC. This effect appears to be obviated with greater smoking exposure. Future studies should explore the role of chronic inflammation, prior pulmonary infections and other potential HIV-associated pathogenic mechanisms which may drive a restrictive processes in the lungs of PLWHIV.

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Other ART complications and adverse reactions

TUPEB148

Patient-reported outcomes among HIV-1-infected adults randomized to B/F/TAF versus DTG/ABC/3TC in two Phase 3 controlled clinical trials over 48 weeks

D. Wohl[1], A. Clarke[2], F. Maggiolo[3], W. Garner[4], M. Laouri[4], H. Martin[4], E. Quirk[4]

[1]University of North Carolina, Department of Medicine, Division of Infectious Diseases, Chapel Hill, United States, [2]Royal Sussex County Hospital, Brighton, United Kingdom, [3]Azienda Ospedaliera Papa Giovanni XXIII, Bergamo, Italy, [4]Gilead Sciences Inc., Foster City, United States

Background: As efficacy of triple-drug antiretroviral therapy remains high, patient wellbeing (e.g., patient-reported outcomes) has become an important differentiator among regimens. Bictegravir, a novel, unboosted integrase strand transfer inhibitor, coformulated with emtricitabine and tenofovir alafenamide (B/F/TAF), demonstrated high efficacy and was well tolerated through week (W) 48, with no resistance in two phase 3 studies of treatment-naïve adults. We aimed to characterize change in symptoms of adult patients with HIV-1-infection after initiating or switching to B/F/TAF versus ABC/DTG/3TC.

Methods: Treatment-naïve adults were randomized (1:1) to receive blinded treatment with B/F/TAF or ABC/DTG/3TC (study 1489). Virologically suppressed adults were randomized (1:1) to switch to B/F/TAF or continue ABC/DTG/3TC in blinded fashion (study 1844). Across studies, HIV Symptoms Distress Module (HIV-SI) was administered at baseline (BL), W4, W12, and W48. Responses were dichotomized as bothersome/not. Treatment differences were assessed using logistic regression models adjusted for BL HIV-SI count, age, sex, BL Veterans Aging Cohort Study Index, medical history of serious mental illness, BL Short Form [SF]-36

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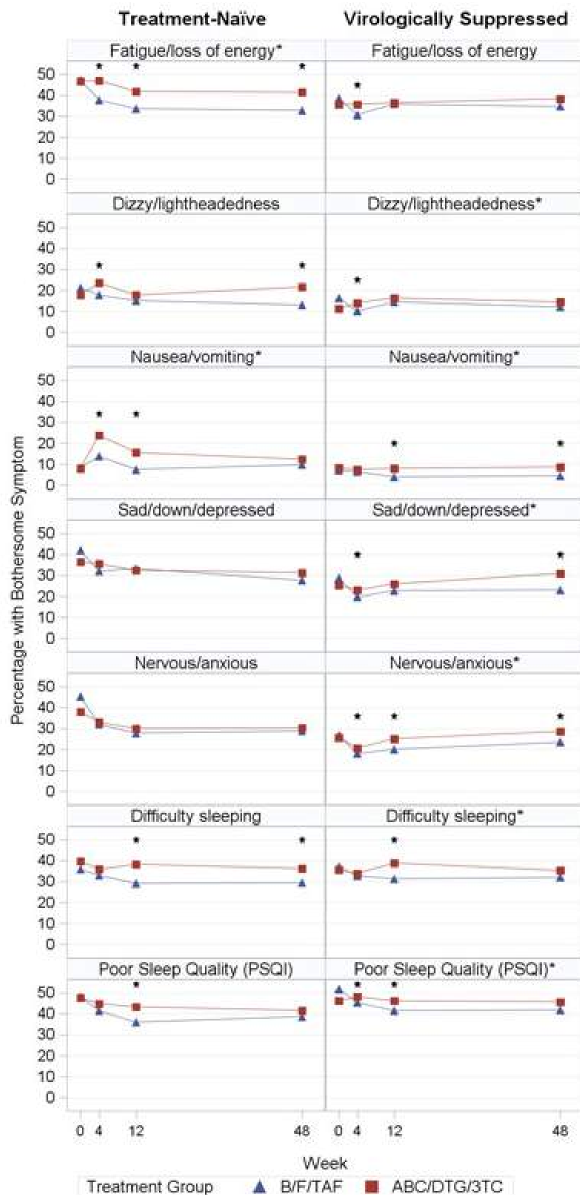
Physical Component Summary [PCS], BL SF-36 Mental Component Summary [MCS], and years since HIV diagnosis (study 1844 only). Longitudinal modeling of bothersome symptoms was conducted using generalized, mixed model including treatment, time, time-by-treatment, and additional covariates. Pittsburgh Sleep Quality Index (PSQI) was administered with same frequency as HIV-SI, and total score was dichotomized as good/poor sleep quality. Similar models to HIV-SI were applied using BL sleep quality and BL SF-36 MCS as covariates.

	Treatment-naïve adults (study 1489)				Virologically suppressed adults (study 1844)			
Bothersome Symptom	Week 4	Week 12	Week 48	Longitudinal Model	Week 4	Week 12	Week 48	Longitudinal Model
Fatigue/loss of energy	X	X	X	X	X			
Dizzy/ lightheadedness	X		X		X			X
Nausea/vomiting	X	X		X		X	X	X
Sad/down/ depressed					X		X	X
Nervous/anxious					X	X	X	X
Difficulty sleeping		X	X			X		X
Poor sleep quality (PSQI)		X			X	X		X

X = statistically significant favoring the B/F/TAF group Statistical significance was assessed using p<0.05 Note: Only symptoms where at least two or more timepoints showed significance in either study were included. No symptom favored ABC/DTG/3TC at two or more timepoints for either study

[Comparison of patient-reported outcomes (B/F/TAF vs ABC/DTG/3TC) from adjusted logistic regression analyses and longitudinal analyses]



[Prevalence of bothersome symptoms over time by treatment group]

Results: Bothersome symptoms were reported by fewer participants on B/F/TAF than ABC/DTG/3TC in both studies (figure). For treatment-naïve adults, fatigue/loss of energy, nausea/vomiting, dizzy/lightheadedness, and difficulty sleeping significantly favored B/F/TAF at ≥2 timepoints (table). Fatigue and nausea were significantly less common for B/F/TAF in longitudinal models. For virologically suppressed participants, nausea/vomiting, sad/down/depressed, nervous/anxious, and poor sleep quality (from the PSQI) significantly favored B/F/TAF at ≥2 timepoints and in longitudinal models. No symptom favored ABC/DTG/3TC at ≥2 timepoints in either study.

Conclusions: Results suggest that patient-reported wellbeing may be better with B/F/TAF compared to ABC/DTG/3TC. B/F/TAF was associated with significantly lower prevalence of multiple bothersome symptoms across gastrointestinal disorders, neuropsychiatric events, and sleep. No symptoms favored ABC/DTG/3TC.

TUPEB149

Failure of antiretroviral therapy (ART) in adults in Australia is mainly due to ART toxicity

K.J. Siefried[1], L. Mao[2], S. Riches[1], S. Kerr[1], J. Rule[3,4], J. McAllister[1], J. de Wit[2,5], A. Carr[1], The PAART Study Investigators

[1]St Vincent's Centre for Applied Medical Research, Immunology and Infectious Diseases, Sydney, Australia, [2]University of New South Wales, Centre for Social Research in Health, Sydney, Australia, [3]University of New South Wales, School of Public Health and Community Medicine, Sydney, Australia, [4]National Association of People with HIV Australia, Sydney, Australia, [5]Utrecht University, Utrecht, Netherlands

Background: Lifelong antiretroviral therapy (ART) is recommended for all patients. Reasons for ART failure in virologically-suppressed patients are poorly understood.

Methods: We recruited 522 adults living with HIV on stable ART for ≥3 months with undetectable viral load into a nationwide cohort between September 2014 and November 2015. ART failure was defined by ART switch (for toxicity or interactions), virological failure, progression to AIDS, death, or loss to follow-up. Factors associated with ART failure through Month 12 were determined using Cox proportional hazards regression.

Results: 115 episodes of ART failure occurred in 102 participants (19.5%), primarily for toxicity requiring an ART switch (n=64, 12.3%); mostly nephrotoxicity (n=21, 4.0%), central nervous system symptoms (n=14, 2.7%), side effects (e.g. nausea/vomiting) (n=16, 3.1%), hepatotoxicity (n=8, 1.5%), and metabolic toxicity (n=6, 1.1%). Other reasons for ART failure were: virological failure (n=26, 5.0%); drug interactions (n=13, 2.5%); death (n=3, 0.6%); AIDS (n=2, 0.4%); loss to follow-up (n=2, 0.4%); and difficulty taking ART (n=1, 0.2%). The median time to the first failure event was 187 days (IQR 105-282).

Conclusions: Despite near universal ART availability and government-subsidised healthcare, nearly 20% of our sample experienced ART failure over 12 months, primarily for toxicity. Virological failure was less common.

TUPEB150

Hospitalisations over a year follow-up in a cohort of adults living with HIV with sustained viral suppression in Australia

K.J. Siefried[1], L. Mao[2], J. Rule[3,4], J. de Wit[2,5], A. Carr[1], The PAART study investigators

[1]St Vincent's Centre for Applied Medical Research, Immunology and Infectious Diseases, Sydney, Australia, [2]University of New South Wales, Centre for Social Research in Health, Sydney, Australia, [3]University of New South Wales, School of Public Health and Community Medicine, Sydney, Australia, [4]National Association of People with HIV Australia, Sydney, Australia, [5]Utrecht University, Utrecht, Netherlands

Background: Patients successfully treated with antiretroviral therapy (ART) for HIV develop few AIDS-defining events, are successfully aging and living longer. It has been proposed a "fourth 90" be added to the HIV treatment cascade, comprising quality of life outcomes. The aim of this longitudinal analysis is to understand the reasons and risks for hospi-

talisation as one potential component of the "fourth 90" in an Australian cohort, in part of a wider effort to incorporate the "fourth 90" into the HIV treatment cascade.

Methods: We recruited adults living with HIV on stable ART into a national cohort at 17 sites. A 90-item survey recorded demographics, physical health, life stressors, social supports, HIV disclosure, stigma/discrimination, healthcare access, treatment adherence and side effects, health/treatment perceptions, and financial/employment status. Neurocognitive, clinical and virological data were collected. Hospitalisations over 12 months were recorded. Baseline variables that were bivariately associated with hospitalisation (p< 0.05) in the following year of follow-up were included in a Cox proportional hazards regression model.

Results: Of 522 adults, 94.5% were male, mean age 50.8 years, mean HIV duration 12 years, median ART duration 11.0 years (IQR 1.2-6.8), and median duration HIV RNA < 50 copies/mL 3.3 years (IQR 1.2-6.8). Over 12 months, 94 (18.0%) participants had 143 hospitalisations, 1 hospitalisation resulted in death. Hospitalisations were for various non-AIDS reasons including serious non-AIDS events (SNAEs) (see Table). No participant was hospitalised with AIDS in the first 12 months of follow-up. Twenty-eight baseline variables bivariately associated (p< 0.05) with hospitalisation over the following 12 months, including being on a protease inhibitor. However, the only variable significant in multivariable Cox regression was having started ART to prevent HIV disease progression (adjusted hazards ratio 0.6 [95% confidence interval 0.4-0.9] p=0.029).

Conclusions: In this population of adults with suppressed HIV, hospitalisations were common over 12 months, most commonly for procedures (minor or diagnostic) or SNAEs. Preventable reasons for hospitalisation included accidents, renal issues and infection. Hospitalisations were largely not predictable, the only significant variable being starting ART to prevent HIV disease progression, potentially a surrogate for early HIV disease.

Reason for hospitalisation	Episodes, n (%)
Procedure - minor or diagnostic	25 (17.5)
Serious Non-AIDS Event (SNAE)	14 (9.8)
Accident / assault	13 (9.1)
Renal (stone, calculus, tumour, UTI)	11 (7.7)
Neurological	11 (7.7)
Infection	11 (7.7)
Cardiac (non-SNAE)	8 (5.6)
Other (various)	50 (34.9)
Total	143 (100)

[Table. Reasons for hospitalisation]

TUPEB151

Elevations of serum creatine kinase among HIV-positive individuals receiving dolutegravir-based therapy versus non-integrase inhibitor-based therapy

G.-J. Chen[1], H.-Y. Sun[1], A. Cheng[1], K.-Y. Lin[2], S.-P. Yang[3], W.-C. Liu[1], P.-Y. Wu[3], C.-C. Hong[1], S.-C. Chang[1]

[1]National Taiwan University Hospital and National Taiwan University College of Medicine, Department of Internal Medicine, Taiepi, Taiwan, Province of China, [2]National Taiwan University Hospital Jin-Shan Branch, Department of Medicine, New Taipei City, Taiwan, Province of China, [3]National Taiwan University Hospital, Center of Infection Control, Taipei, Taiwan, Province of China

Background: Integrase strand transfer inhibitor (InSTI) is an increasingly used antiretroviral agent in both initial and salvage therapy across different local and international guidelines. Reports from randomized clinical trials and real-life cohort study have suggested that the first-generation InSTI, raltegravir, might be associated with an increased risk of creatine kinase (CK) elevation and skeletal muscle toxicity. However, real-life data systematically evaluating the risk of CK elevation among HIV-positive patients receiving dolutegravir (DTG)-containing antiretroviral therapy are scarce.

Methods: HIV-positive patients who sought medical attention at the National Taiwan University Hospital between January 2017 and January 2018 were included in this study. Patients were prospectively interviewed to inquire into their practices of weight training and alcohol consumption. Laboratory tests including liver function, renal function, creatine kinase, plasma HIV RNA load and CD4 cell counts were tested every 3-6 months in accordance with the national HIV treatment guidelines. The incidence of elevation of serum CK and rhabdomyolysis (defined as >10-fold of the upper limit of normal) was estimated among patients who received DTG-containing antiretroviral therapy versus patients who received non-InSTI based therapy.

Results: 1335 HIV-positive patients with a median age of 37.9 years and 96.6% being male were included in this study: 339 patients who received DTG-containing antiretroviral therapy provided 651 laboratory results of CK measurements while 996 who received non-InSTI-based antiretroviral therapy contributed 1544 laboratory results of CK measurements. Among patients receiving DTG-containing therapy, the rate of CK elevation was 15.8% (103/651), which was similar to the 13.7% (211/1544) among those receiving non-InSTI based therapy (difference, 2.1%; 95% CI, -1.1-5.6%). The rate of rhabdomyolysis was also similar between both groups (1.1% versus 0.7%; difference, 0.4%; 95% CI, -0.5-1.6%). The risk of CK elevation increased with patient's self-reported intensity of weight training (≤0.5 versus >0.5 hours/day), but was not associated with the use of DTG-containing antiretroviral therapy. All episodes of elevated CK or rhabdomyolysis in either group of patients were self-limited during the study period and no treatment was required.

Conclusions: In this single-center prospective cohort study, DTG-containing antiretroviral therapy was not associated with an increased risk of asymptomatic CK elevation or rhabdomyolysis.

Natural history, morbidity patterns and survival

TUPEC152

Risk factors associated with AIDS-related mortality among people living with HIV: A national observational cohort study between 2005- 2017 in Papua New Guinea

S. Miyano[1,2], P. Boas[3], N. Dala[3], G. Anup[1]

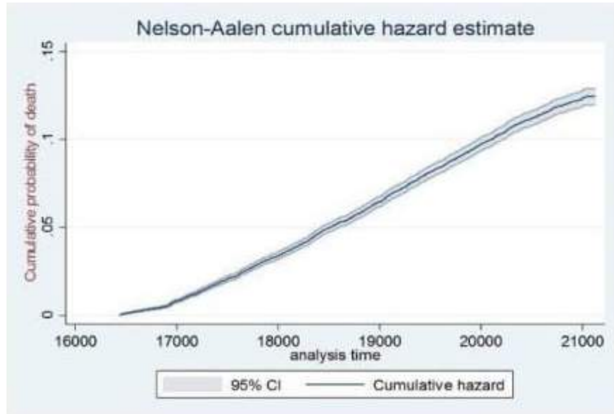
[1]World Health Organization, HIV/STI/Hepatitis Programme, Port Moresby, Papua New Guinea, [2]National Center for Global Health and Medicine, Tokyo, Japan, [3]National Department of Health, HIV/STI Programme, Port Moresby, Papua New Guinea

Background: Papua New Guinea (PNG) shows the highest HIV prevalence among the 22 Pacific Island countries (0.89%), and over 95% of HIV cases in the Pacific are reported from PNG. However, there has been no assessment on mortality among people living with HIV (PLHIV) by using the national database. This study aimed to estimate mortality among PLHIV, and explore risk factors associated with AIDS-related mortality in PNG.

Methods: The National HIV Patient Cohort Database (HPDB) was used to analyse the data of PLHIV from 2005 to 2017 coming to clinics focusing on socio-demographics, registration year, WHO clinical stage, CD4 cell count, TB status, hepatitis B virus (HBV) infection, sexual risk behaviours, and treatment outcomes. Nelson-Aalen Cumulative Hazard Estimates were used to overall estimated probability of death, and risk factors associated with mortality were explored by Cox's proportional hazard model.

Results: Over twelve years, 31,997 PHLIV were followed up for 64,526 patient-years (male 40.2%, female 59.7%, transgender 0.1%). At the first visit, the mean age was 35.5 years, the mean CD4 cell count was 236.2 cells/mm^3, and TB and HBV co-infection was respectively found in 11.6% and 12.9% among those screened. Overall mortality was 4.84 per 100 person-years while it has been drastically decreasing from 160 in 2005 to 0.54 in 2017. PLHIV, who were in lower CD4 cell count (adjusted HR; 1.89, 95% CI 1.62- 2.15, *p*< 0.001), TB co-infection (adjusted HR; 1.4, 95% CI 1.54- 2.12, *p*< 0.001), older age group (adjusted HR; 1.20, 95% CI 1.12- 1.33, *p*< 0.001), and poor WHO clinical stage (adjusted HR; 1.10, 95% CI 1.02- 1.15, *p*< 0.001), showed significantly higher mortality while gender, sexual risk behaviours and HBV co-infection did not show any significance.

Conclusions: This is the first longitudinal cohort analysis reviewing AIDS-related death and its risk factors in PNG. The mortality has been successfully decreased year by year since 2005. However, traditional types of factors associated with AIDS-related mortality are still remaining. From a programmatic point of view, it is crucial to re-emphasize the importance of doing the "basics" such as earlier diagnosis and treatment of HIV infection, and proper management of HIV-associated TB.



[Nelson- Aalen cumulative hazard estimates]

TUPEC153

Exploring declines in mortality after ART initiation: Evidence from seven sub-Saharan African population-based studies between 2005 and 2014

E. Slaymaker[1], K. Risher[2], G. Reniers[2], D. Obor[3], M. Urassa[4], A.J. Herbst[5], V. Hosegood[6], R. Newton[7,8], T. Lutalo[9], A. Crampin[10,11], S. Gregson[12,13], M. Marston[2], K. Tomlin[2], B. Zaba[2]
[1]London School of Hygiene & Tropical Medicine, Population Health, West Byfleet, United Kingdom, [2]London School of Hygiene & Tropical Medicine, Population Health, London, United Kingdom, [3]CDC/KEMRI, Kisumu, Kenya, [4]National Institute for Medical Research, Mwanza, Tanzania, United Republic of, [5]Africa Health Research Institute, Durban, South Africa, [6]University of Southampton, Southampton, United Kingdom, [7]University of York, York, Uganda, [8]MRC/UVRI and LSHTM Uganda Research Unit, Entebbe, Uganda, [9]Rakai Health Sciences Project, Entebbe, Uganda, [10]Malawi Epidemiology and Intervention Research Unit, Lilongwe, Malawi, [11]London School of Hygiene & Tropical Medicine, Infectious Disease Epidemiology, London, United Kingdom, [12]Imperial College, London, United Kingdom, [13]Biomedical Research and Training Institute, Harare, Zimbabwe

Background: We used community demographic data with information on HIV status, diagnosis and treatment from studies that comprise the Network for Analysing Longitudinal, Population-based HIV/AIDS data on Africa (ALPHA) to estimate mortality among people who had started ART by duration of infection, measures of morbidity and clinic attendance.

Methods: We used data on adults aged 15-59 from Kenya (Kisumu), Malawi (Karonga), South Africa (uMkhanyakude), Tanzania (Kisesa), Uganda (Masaka and Rakai) and Zimbabwe (Manicaland).

We estimated population-based mortality rates by time since ART initiation for people who initiated treatment whilst resident in one of the study areas, based on self-report in surveys or clinic data linked to individual-level demographic surveillance system (DSS) data. Deaths were observed in the DSS. Data on clinic visits, ART prescriptions and refill dates were used to describe timeliness of clinic attendance (on ART and on time for last refill; on ART but late for last refill; not on ART).

We fitted piecewise exponential models for men and women with time since initiation split into < 6 months, 6-11 months, 12-23 months, 24-35 months and >36 months. Time-varying covariates included age, calendar year, clinical stage, timeliness of clinic attendance, and for a subset of observed sero-convertors, duration of infection. Other covariates were sex, CD4 count at initiation and study.

Results: ART initiation was observed for 2,811 men and 7,153 women. 405 men and 519 women died (mean exposure 2.7 person-years).

Between 2005 and 2014, the mortality among people who had initiated ART fell (Table 1). This decline were seen at all times following ART initiation, in all studies and at all ages.

In three studies, we could adjust for CD4 at initiation and (time-varying) timeliness of clinic attendance and clinical stage. For men, the effect of calendar year was stronger after adjustment (HR 0.82 (p=0.001) versus 0.85 (p=0.002)).

Conclusions: Mortality among adults post-ART initiation declined substantially between 2005 and 2014. These declines are not immediately explained by more timely presentation or better attendance for treatment. There was rapid expansion and decentralisation of services in these resource-poor rural settings in this period. Treatment may have improved and contributed to improved survival.

	MEN Adjusted HR	95% CI	p-value	WOMEN Adjusted HR	95% CI	p-value
Time since initiation						
<6 months	3.80	2.70 - 5.34	<0.0001	4.27	3.12 - 5.85	<0.0001
6-11 months	1.25	0.83 - 1.89	0.2810	1.61	1.12 - 2.32	0.0102
12-23 months	1.37	0.95 - 1.98	0.0950	1.20	0.85 - 1.71	0.3003
24-35 months	1			1		
36+ months	0.72	0.47 - 1.09	0.1227	1.07	0.75 - 1.53	0.7183
Calendar year continuous	0.90	0.85 - 0.94	<0.0001	0.87	0.83 - 0.91	<0.0001
Age group						
15-24	1.00			1.00		
25-34	1.24	0.72 - 2.12	0.4322	1.02	0.74 - 1.40	0.9230
35-44	1.36	0.80 - 2.32	0.2523	1.12	0.80 - 1.55	0.5119
45+	1.57	0.90 - 2.74	0.1094	1.31	0.90 - 1.90	0.1573
Site						
Karonga	1.00			1.00		
Kisesa	1.51	0.55 - 4.17	0.4258	0.92	0.33 - 2.52	0.8665
Kisumu	1.02	0.69 - 1.50	0.9223	0.57	0.39 - 0.85	0.0062
Manicaland	0.59	0.23 - 1.47	0.2566	0.67	0.35 - 1.29	0.2318
Masaka	0.45	0.23 - 0.89	0.0219	0.86	0.51 - 1.43	0.5529
Rakai	0.70	0.46 - 1.08	0.1039	0.50	0.33 - 0.77	0.0017
uMkhanyakude	1.31	0.98 - 1.76	0.0687	1.25	0.95 - 1.65	0.1082

[Table 1: Mortality hazard ratios from piecewise exponential survival models, 15-49 year olds 2005-14.]

TUPEC154

Time-dependent effect of HCV coinfection in overall and cause-specific mortality in HIV-positive individuals

B. Alejos[1], J. del Amo[1], J. Berenguer[2], M. Riera[3], M. Garcia[4], V. Asensi[5], O. Bisbal[6], R. Muga[7], J. Gonzalez[8], I. Jarrin[1], CoRIS cohort Study Group
[1]Instituto de Salud Carlos III, Centro Nacional de Epidemiología, Madrid, Spain, [2]Hospital Gregorio Marañon, Madrid, Spain, [3]Hospital Son Espases, Palma de Mallorca, Spain, [4]Hospital de Navarra, Pamplona, Spain, [5]Hospital Central de Asturias, Oviedo, Spain, [6]Hospital Doce de Octubre, Madrid, Spain, [7]Hospital Germans Trials i Pujol, Badalona, Spain, [8]Hospital La Paz, Madrid, Spain

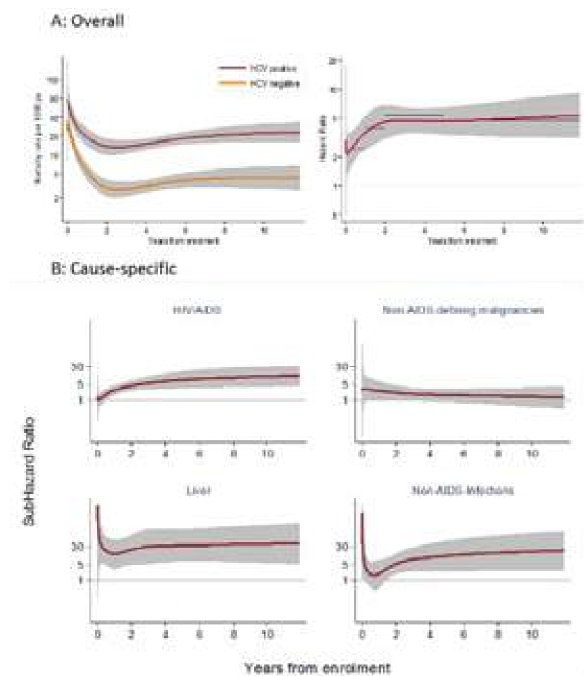
Background: Coinfection by hepatitis C virus (HCV) is one of the most common comorbidities in HIV-positive individuals. We aimed to study time-dependent effects for HCV coinfection in overall and cause-specific mortality in HIV-positive individuals in the cohort of the Spanish Network of HIV Research (CoRIS).

Methods: We fitted extended Flexible Parametrical Models (FPM) to estimate time-dependent (sub) hazard Ratios (sHR) for HCV coinfection in overall and cause-specific mortality. Cox regression including interaction with follow-up time interval was also performed. FPM were similarly applied to estimate time-varying excess mortality compared to Spanish general population. Cause-specific groups were created based on a simplified algorithm adapted from the CoDe coding system: HIV/AIDS, Liver-related, Non-AIDS-malignancies and Non-AIDS-infections. We only considered participants who had at least one HCV test result (anti-HCV antibody or HCV RNA) during follow-up. Participants were followed-up from enrolment to death or loss to follow-up, whatever arose first.

Results: In 10,406 patients there were 357 deaths; 37% were HIV/AIDS, 15% Non-AIDS malignancies, 12% liver-related and 8% Non-AIDS-infections related. Figure A shows overall mortality rates (MR) and hazard ratio (HR) for HCV coinfection using FPM (red line) and categorizing

follow-up time (black line). Overall mortality rates among both mono and coinfected subjects decrease over time only up to 2.5 years after enrolment. The significant effect of HCV coinfection on overall mortality increases up to the second year after enrolment and remains stable during the rest of follow-up. Further, the analysis using FPM better describes the time depend effect of HCV coinfection. For cause-specific mortality time-dependent effects of HCV coinfection were just observed for HIV/AIDS and Non-AIDS-infections (Figure B). Liver mortality was constantly higher during all the follow-up among HCV coinfected subjects and no differences were detected for Non-AIDS-malignancies. Similar patterns were observed when modelling excess mortality (data not shown).

Conclusions: HCV-coinfection is associated with increased all-cause, HIV/AIDS, liver and Non-AIDS infections related mortality among HIV-positive patients. Differential effect of HCV coinfection over time was found for overall, HIV/AIDS and Non-AIDS-infections mortality. FPM offer a clinically interpretable and easy to implement alternative to better describe the time-dependent effect of HCV coinfection.



[Mortality Rates (MR) and effect of HCV coinfection on overall and cause-specific mortality]

TUPEC155

Antiretroviral treatment scheme complexity predicts AIDS mortality in in Mexico: A longitudinal study from 2012 to 2016

G. La Hera Fuentes[1], M. Valenzuela-Lara[2], P. Uribe-Zúñiga[2], C. Magis-Rodríguez[2], J.E. Hernández-Avila[3], A. Quezada-Sanchez[3], E. Morales Carmona[3], L.I. Espín Arellano[3], S. Bautista-Arredondo[3,4]
[1]National Institute of Public Heath in Mexico, Cuernavaca, Bolivia, [2]National Center for the Prevention and Control of HIV and AIDS (CENSIDA), Mexico City, Mexico, [3]National Institute of Public Health, Cuernavaca, Mexico, [4]School of Public Health, UC Berkeley, Berkeley, United States

Background: Worldwide, only 43% of people under antiretroviral treatment (ART) are virally suppressed. Despite multiple efforts to design and evaluate behavioral and technological interventions to increase adherence, results are disappointing: most interventions have relatively small and short effects. Simple and effective alternatives to improve adherence among HIV/AIDS patients are still needed. In this study, we analyze the impact of two dimensions of treatment scheme complexity - dosage and number of pills - on the survival rates of Mexican patients.

Methods: A survival analysis was conducted with data from the Antiretroviral Administration, Logistics and Surveillance System on 40,377 adult patients under treatment from 2012-2016. We examined time-to-failure (death) including time-varying treatment variables, such as CD4 counts and age. Using two Multivariate Cox proportional hazard models we explored the effect of ART scheme complexity and other clinical and socio-demographic characteristics on mortality. We applied Kaplan-Meier techniques for descriptive analysis and log-rank test to compare survival curves.

Results: Mean age of entry was 34 years old, with 81% male. The average follow-up time was 26 months, with 9.6% death cases. The mean failure-time was 7.9 months. Patients under two-pills regimens were 40% more likely to die than those under one pill schemes (HR=1.4); similarly, patients with three or more pills regimens were 30% more likely to die, with a HR of 1.3. The number of prescriptions per day increased mortality risk by 30% (HR=1.3) per additional dosage per day. Both Multivariate Cox analyses showed that males were at higher risk of death (HR=1.1) compared with females, and older patients (30-49 years, HR=1.3; >50, HR=1.8) compared to younger patients (< 30). Primary level clinics showed higher mortality than secondary hospitals (HR=1.4).

Conclusions: Simpler treatment regimens with fewer number of pills and one prescription per day contribute to the survival of the patients. Our study contributes to the literature on interventions to increase adherence and survival of HIV/AIDS patients. In addition to other factors that contribute to loss-to-follow-up, simplification of treatment seems to be a clear, simple alternative to improve their chances to benefit from ART.

TUPEC156

CD4/CD8 ratio normalization and its determinants in long-term virologically suppressed HIV-infected Thais

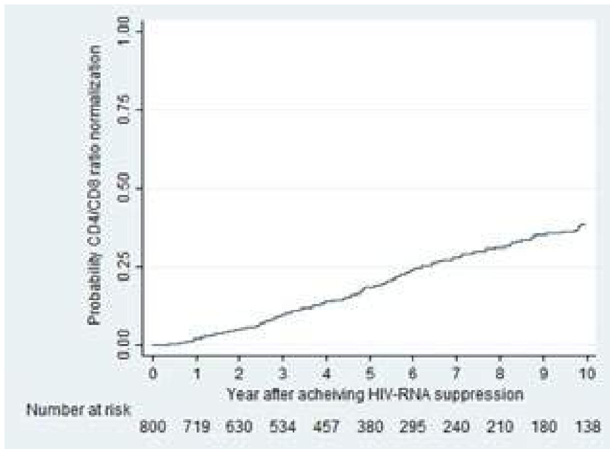
W.M. Han[1], T. Apornpong[1], S.J. Kerr[1,2], S. Gatechompol[1], A. Hiransuthikul[1], T. Do[1], S. Ubolyam[1], A. Avihingsanon[1,3], K. Ruxrungtham[1,4], on behalf of HIV-NAT 006 team
[1]HIV-NAT, The Thai Red Cross AIDS Research Center, Bangkok, Thailand, [2]Kirby Institute, University of New South Wales, Sydney, Australia, [3]Chulalongkorn University, Division of Allergy and Immunology, Bangkok, Thailand, [4]Chualongkorn University, Research and Innovation, Bangkok, Thailand

Background: Immune restoration is often incomplete after ART in HIV patients, both quantitatively and qualitatively. We studied the incidence and probability of CD4/CD8 normalization in an adult Thai HIV cohort and explored factors associated with the normalization.

Methods: We analyzed data from HIV-infected Thai adults between 1996 to 2017 in the HIV-NAT 006 prospective long-term cohort in Bangkok, Thailand. Normalization was defined as CD4/CD8 ratio more than or equal 1 of two consecutive visits, and normalization probability was calculated using the Kaplan-Meier method. Multivariate Cox regression was used to evaluate demographic, disease and treatment characteristics associated with CD4/CD8 ratio normalization.

Results: A total of 1067 ART-naïve patients with baseline CD4/CD8 ratio of < 0.8 and started combination ART, and later had sustained viral suppression (HIV RNA viral load below detection limits according to the method used: ≤500 copies/mL from year 1996 to 1999 and ≤50 copies/mL thereafter) were enrolled. The median baseline CD4 count and HIV-RNA viral load level were 227 (interquartile range [IQR], 128 - 321) cells/mm³ and 4.8 (IQR, 4.4 - 5.2) $\log_{10}$ copies/mL, respectively. Participants were virologically suppressed for a median of 6.1 (IQR: 3 - 10.8) years. The incidence rate of normalization was 4.38 (95% confidence interval [CI]: 3.81-5.04) per 100 person-years, with probabilities of CD4/CD8 normalization at 2, 5 and 10 years after viral suppression of 5.1%, 18.6% and 39.1%, respectively (Figure 1). In multivariate analysis, the factors associated with normalization were female sex (hazard ratio[HR]: 2.13, 95% CI: 1.6 - 2.9, p< 0.001) and baseline CD4 counts >350 cells/mm³ (HR: 3.77, 95% CI: 2.5 - 5.8, p< 0.001). No association of normalization was found with CDC staging, antiretroviral regimen or viral co-infections such as hepatitis B and hepatitis C.

Conclusions: Our findings show that complete immune recovery is uncommon in an Asian setting, with only approximately 20% and 40% of participants achieving CD4/CD8 ratio normalization, after 5 and 10 years of with viral suppression, respectively. Earlier ART initiation may have increased the ratio sooner.



[Figure 1: Kaplan-Meier curve showing probability of CD4/CD8 ratio normalization with a median of 6.15 years of viral suppression]

Epidemiology of HIV in the general population

TUPEC157

Universal test and treat: Loss to follow-up among patients initiated on antiretroviral therapy in South Africa under evidence-based guidelines

K. Hirasen[1], C.J. Hendrickson[1], T. Sineke[1], M.P. Fox[1,2,3], I. Mokhele[1], D. Onoya[1]
[1]Health Economics and Epidemiology Research Office, Department of Internal Medicine, School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, [2]Boston University School of Public Health, Department of Global Health, Boston, United States, [3]Boston University School of Public Health, Department of Epidemiology, Boston, United States

Background: In an effort to reach national targets, in September 2016 South Africa implemented the World Health Organization's (WHO) recommendation for Universal Test and Treat (UTT), expanding first-line ART to all HIV positive patients irrespective of traditionally used clinical indicators/thresholds such as WHO staging or CD4 cell counts. To evaluate the impact of this policy change we compare loss to follow-up (LTFU) among HIV positive, ART naïve, patients initiating first-line ART pre- and post-UTT roll-out within a large public-sector HIV clinical cohort in Johannesburg, South Africa.

Methods: We conducted an analysis of HIV positive adult patients who initiated standard first-line triple combination ART within the Right to Care (RTC) Clinical Cohort in South Africa. We compare two non-pregnant, tuberculosis-free groups: 1) those who initiated treatment pre-UTT (01/10/2015-28/02/2016); and 2) those who initiated treatment post-UTT (01/10/2016-28/02/2017). Our outcome was LTFU by 6 months post-ART initiation defined as being >3 months late for the last scheduled visit with no subsequent visit. We used Cox proportional hazards models to evaluate the relationship between pre-UTT vs. post-UTT ART initiation and LTFU using adjusted hazard ratios (aHR). Baseline characteristics which resulted in a ≥±10% change in the primary exposure effect were included in the adjusted model.

Results: We included 2662 patients in our analysis (1154 initiated pre-UTT, 1508 post-UTT). Patient characteristics at ART initiation were similar between groups, apart from a higher proportion of post-UTT patients with CD4 cell counts >500 copies/mm^3 (23.1 vs. 0.3% pre-UTT). By 6 months post-ART initiation a higher proportion of patients who initiated under UTT guidelines were LTFU (11.4 vs. 8.0% pre-UTT). This translated into a 72% increase in LTFU (aHR 1.72; 95%CI: 1.28-2.31) (Table). Additionally, younger patients were 60% more likely to be LTFU (18-29 vs. 30-44 years; aHR 1.60; 95%CI: 1.17-2.19).

Conclusions: In this study patients starting ART under UTT guidelines were almost twice as likely to be LTFU by 6 months post-initiation compared with initiates under previous guidelines. While expanded guidelines may result in greater numbers of patients on ART, this policy change may also promote intermittent health seeking behaviour, potentially among patients not yet ready for life-long therapy.

Variable	n (%)	*LTFU by 6 months (n=264/2662)	
		ˆCrude HR (95% CI)	ˆAdjusted HR (95% CI)
‡UTT status			
Pre-UTT	92/1154 (8.0%)	1.00	1.00
UTT	172/1508 (11.4%)	1.51 (1.17-1.95)	1.72 (1.28-2.31)
Sex			
Female	165/1578 (10.5%)	1.00	1.00
Male	99/1084 (9.1%)	0.89 (0.69-1.14)	0.90 (0.68-1.20)
Age at initiation (years)			
18-29	80/579 (13.8%)	1.58 (1.19-2.09)	1.60 (1.17-2.19)
30-44	126/1447 (8.7%)	1.00	1.00
44-59	46/551 (8.4%)	0.95 (0.67-1.33)	1.17 (0.81-1.67)
≥60	12/85 (14.1%)	1.75 (0.97-3.16)	1.58 (0.80-3.13)
CD4 cell count at initiation (cells/mm^3)			
0-200	92/906 (10.2%)	1.00	1.00
201-350	61/524 (11.6%)	1.10 (0.80-1.52)	1.07 (0.77-1.48)
351-500	40/376 (10.6%)	0.99 (0.68-1.44)	0.93 (0.63-1.35)
>500	27/283 (9.5%)	0.90 (0.59-1.39)	0.67 (0.43-1.06)
§Anaemia at initiation			
None	58/598 (9.7%)	1.00	-
Mild	79/733 (10.8%)	1.15 (0.82-1.61)	-
Moderate	37/344 (10.8%)	1.18 (0.78-1.79)	-
Severe	12/136 (8.8%)	1.01 (0.54-1.87)	-
ǁBMI at initiation (kg/m^2)			
<18.5	28/256 (10.9%)	1.13 (0.75-1.71)	-
18.5-24.9	118/1143 (10.3%)	1.00	-
25-29.9	48/488 (9.8%)	0.93 (0.67-1.31)	-
≥30	37/352 (10.5%)	1.01 (0.70-1.46)	-
¶WHO stage at initiation			
I & II	238/2408 (9.9%)	1.00	1.00
III & IV	26/254 (10.2%)	1.10 (0.73-1.64)	1.03 (0.65-1.62)

**LTFU (Loss to follow-up); ˆHR (Hazard ratio); ‡UTT (Universal test and treat); ǁBMI (Body Mass Index); ¶WHO (World Health Organization)*

§Anaemia was defined per sex for males as 1) no anaemia ($Hb \geq 13$ g/dL), 2) mild anaemia ($10 < Hb < 13$ g/dL), 3) moderate anaemia ($8 \leq Hb \leq 10$ g/dL) and 4) severe anaemia ($Hb < 8$ g/dL); and for females as 1) no anaemia ($Hb \geq 12$ g/dL), 2) mild anaemia ($10 < Hb < 12$ g/dL), 3) moderate anaemia ($8 \leq Hb \leq 10$ g/dL) and 4) severe anaemia ($Hb < 8$ g/dL)

[Table. Unadjusted and adjusted estimates of the relation between pre-UTT initiation and post-UTT initiation on LTFU]

TUPEC158

Assessing the clinical significance of persistent low level viremia on subsequent virologic failure

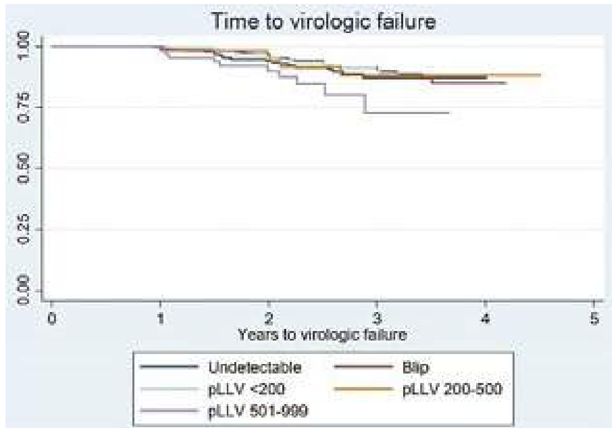
A. Esber[1,2], C. Polyak[1,2], F. Kiweewa[3], J. Maswai[1,4,5], J. Owuoth[1,5,6], L. Maganga[7], Y. Adamu[8], J. Ake[1], T. Crowell[1,2]
[1]U.S. Military HIV Research Program, Silver Spring, United States, [2]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [3]Makerere University, Walter Reed Project, Kampala, Uganda, [4]Henry M. Jackson Foundation Medical Research International, Kericho, Kenya, [5]Kenya Medical Research Institute, Nairobi, Kenya, [6]Henry M. Jackson Foundation Medical Research International, Kisumu, Kenya, [7]Mbeya Medical Research Centre, Mbeya, Tanzania, United Republic of, [8]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Abuja, Nigeria

Background: WHO guidelines identify HIV RNA less than 1000 copies/ml as the goal of antiretroviral therapy (ART). However, the clinical implications of viremia below this threshold are unclear in the African context. Our objective was to assess associations of persistent low level viremia (pLLV) and transient viral blips with risk of subsequent virologic failure.

Methods: The African Cohort Study enrolls HIV-infected participants in Uganda, Kenya, Tanzania, and Nigeria. Clinical assessments are performed every six months. PLLV was defined as HIV RNA < 1000 copies /mL on ≥ 2 consecutive assessments, a blip as a single detectable HIV RNA < 1000 copies/mL with subsequent return to undetectable, and virologic failure as any HIV RNA ≥1000 copies/mL. Kaplan-Meier estimation was used to evaluate time to failure. We used Cox proportional hazards to estimate hazard ratios (HRs) for five levels of HIV RNA: undetectable, blip < 1000 copies/ml, pLLV < 200 copies/ml, pLLV 200-500 copies/ml, and pLLV 501-999 copies/ml. If participants fell into multiple pLLV categories they were classified into the greater HIV RNA category.

Results: We included 1,687 participants in our analysis with a median follow-up time of 2.02 years (IQR 1.5-2.7 years). There were 533 participants with undetectable HIV RNA, 567 with blips, 455 with pLLV < 200 copies/ml, 63 with pLLV 200-500 copies/ml, and 69 with pLLV 501-999 copies/ml. During follow-up, 108 (6%) participants experienced virologic failure. Participants with HIV RNA 501-999 copies/ml had a statistically

significantly lower survival curve. In the Cox model, the hazard rate of virologic failure for participants with pLLV between 501-999 copies/ml was 2.68 times (95% CI: 1.31, 5.49) the rate of failure of participants with pLLV < 200 copies/ml. There were no significant differences in risk of virologic failure comparing lower levels of pLLV or blips to those with undetectable HIV RNA.
Conclusions: Our findings suggest that participants with persistent HIV RNA 501-999 copies/mL are at significantly increased risk of virologic failure. Further investigation is needed to better characterize factors contributing to the increased risk of failure among participants with pLLV and consideration may need to be given to lowering the HIV RNA target for successful ART.



[Time to Virologic failure]

TUPEC159
HIV positivity by age among VMMC clients in 14 countries and comparison to PHIA results

D.H. Watts[1], C. Cooney[1], J.S. Cavanaugh[1], N. Kothegal[2], H. Patel[2], V. Kiggundu[3], A.G. Thomas[4], N. Parks[3], C. Toledo[2]
[1]U.S. Department of State, Office of the Global AIDS Coordinator, Washington, United States, [2]Centers for Disease Control and Prevention, US DHHS, Division of Global HIV and TB, Atlanta, United States, [3]U.S. Agency for International Development, Office of HIV/AIDS, Washington, United States, [4]U.S. Department of Defense, DoD HIV/AIDS Prevention Program, Defense Health Agency, San Diego, United States

Background: Voluntary medical male circumcision (VMMC) is an important HIV prevention modality, conferring a long-term 60% reduction in HIV acquisition risk for men. VMMC programs include HIV education and offer testing. Starting in 2017, PEPFAR incorporated age-disaggregated reporting of HIV testing results in VMMC programs. These results could potentially provide insight on HIV prevalence in the general male population. We evaluated the results by age across countries to assess testing yield and to compare to published data from Population-based HIV Impact Assessments (PHIA) surveys completed between 2016-2017 where available.
Methods: Data regarding status among those testing at VMMC sites (positive, negative, unknown) and positivity rate by age bands were analyzed globally and within each country. For countries, where age disaggregated data from the PHIA surveys have been published, prevalences were compared by inspection to evaluate comparability.
Results: HIV status among all clients testing at VMMC sites in 2017 was negative in 3,002,941 (91.5%), positive in 24,101 (0.7%), and unknown in 256,159 (7.8%). Age disaggregated data were available for 68% of VMMC clients tested for HIV. Results by age band are shown in the table. The rate of positivity increases with age. PHIA confidence intervals did not include positivity rates in VMMC settings except in those under age 20 in Tanzania and Uganda and under age 15 in Zambia.
Conclusions: Despite low positivity in those below age 15, testing detects an important population of children living with HIV in some countries; age-diaggregated results allow countries to tailor testing strategies by age. All VMMC programs should have a mechanism to link those testing positive to treatment. HIV seroprevalence is lower among VMMC clients than population-based rates, suggesting potential prior testing or other self-selection factors among those seeking VMMC. These selection biases make VMMC testing not indicative of population rates of HIV.

Organization unit / Data	HIV+/total 10-14	HIV+/total 15-19	HIV+/total 20-24	HIV+/total 25-49	HIV+/total 50+
Global	0.4%	0.3%	0.7%	3.0%	4.3%
Botswana	0.0%	1.3%	0.9%	5.0%	11.1%
Ethiopia	0.0%	0.0%	0.1%	0.1%	0.0%
Kenya	0.1%	0.1%	0.1%	0.8%	1.0%
Lesotho*	0.4% (3.1%, CI 1.7-4.4)	0.4% (2.0%, CI 1.5-3.0)	1.6% (4.0% CI 2.7-5.3)	8.7% (range 12.9-48.9%, CI 10.2-53.9)	6.7% (range 33.3-50.7%, CI 27.6-45.3)
Malawi*	0.5% (2.0%, CI 0.6-3.3)	0.4% (0.9%, CI 0.4-1.4)	0.4% (2.3% CI 1.3-3.3)	3.0% (range 4.7-22.1% CI 3.3-28.3)	4.9% (range 10.6-17.5%, CI 6.5-22.1)
Mozambique	0.3%	0.4%	1.6%	9.3%	20.4%
Namibia	0.0%	0.3%	0.7%	3.0%	3.3%
Rwanda	0.0%	0.0%	0.2%	1.1%	0.7%
South Africa	0.0%	0.0%	1.0%	6.4%	4.9%
Swaziland*	1.4% (4.7%, CI 2.9-6.5)	1.7% (3.9%, CI 2.5-5.4)	2.4% (4.2% CI 2.5-6.0)	9.8% (range 13.3-40.0%, CI 10.2-50.1)	9.3% (range 14.9-47.8%, CI 10.9-50.3)
Tanzania*	0.1% (0.3%, CI 0.1-0.6)	0.1% (0.4%, CI 0.05-0.7)	0.3% (0.9% CI 0.4-1.5)	0.8% (range 2.3-6.4% CI 1.2-10.5)	1.6% (range 3.6-8.0%, CI 1.7-11.4 age 50-64)
Uganda*	0.1% (0.3%, CI 0-0.5)	0.3% (0.5% CI 0.2-0.7)	0.6% (1.3% CI 0.7-1.9)	1.9% (range 3.7-14.0%, CI 2.7-18.3)	3.4% (range 5.3-8.7%, CI 3.2-12.4)
Zambia*	0.9% (0.7%, CI 0.2-1.2)	0.6% (1.6% CI 1.0-2.2)	0.6% (2.0% CI 1.2-2.8)	1.5% (range 5.8-23.0%, CI 4.6-27.1)	3.4% (range 16.3-22.9%, CI 12.6-27.2)
Zimbabwe*	0.0% (2.2%, CI 0.2-4.3)	0.0% (3.2% CI 2.3-4.2)	0.0% (2.7% CI 1.9-3.6)	1.5% (range 6.6-28.1%, CI 5.9-32.3)	2.8% (range 16.5-28.9%, CI 12.1-33.0)

* Numbers in ( ) are PHIA results including prevalence and 95% confidence intervals of prevalence. Where a range is shown, the CI's are for the lower and upper prevalence results. http://phia.icap.columbia.edu/resources/

[Table. Positive HIV results/total tested by age band and (age-disaggregated PHIA prevalence with confidence intervals of prevalence]

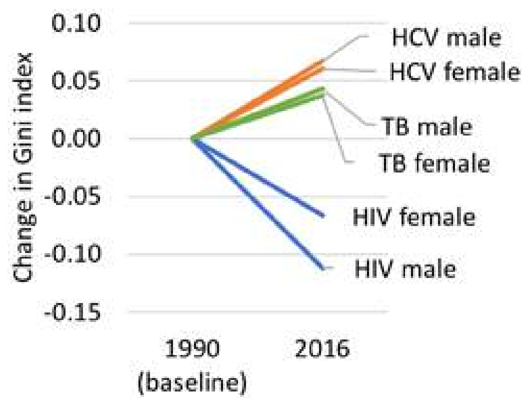
TUPEC160
Inequality in global HIV, TB, and hepatitis C burden from 1990 to 2016

D. Gotham[1], P. von Philipsborn[2], F. Steinbeis[3], J. Sim[4]
[1]Independent, Boston, United States, [2]LMU University of Munich, Pettenkofer School of Public Health, Munich, Germany, [3]Charité - Universitätsmedizin Berlin, Medizinische Klinik mit Schwerpunkt Infektiologie und Pneumologie, Berlin, Germany, [4]Imperial College London, London, United Kingdom

Background: The Gini Index (GI) and Theil Index (TI) are metrics commonly used in economics to measure inequality in the distribution of resources such as income or wealth. A GI of 0 represents perfect equality, and 1 - perfect inequality (100% burden in a single country). The TI can be 'decomposed' to show the proportion of inequality contributed by between-region versus within-region inequality. We applied these measures to the global burden of HIV, tuberculosis (TB), and hepatitis C (HCV).
Methods: Age-standardised country-level prevalence, incidence, and disability-adjusted life years lost (DALYs) rates were extracted from the Global Burden of Disease study. We calculated population-weighted GI and TI values for 1990 and 2016 in Stata/MP (version 14.0). Theil indices were decomposed at the level of 7 world regions (high-income countries; Latin America and the Caribbean (LAC); North Africa and the Middle East (MENA); sub-Saharan Africa; South Asia; Southeast Asia, East Asia and Oceania; Europe, Eastern Europe, and Central Asia (EECA)).
Results: Results are shown in the Table and Figure. Sensitivity analysis using all-age instead of age-standardized data did not substantially affect the findings.

	Gini value in 2016 (change 1990-2016)			% of inequality contributed by between-region differences	
Disease	Prevalence	Incidence	DALYs	1990	2016
HIV	0.78 (-0.09)	0.72 (-0.15)	0.77 (-0.09)	55%	55%
HCV	0.36 (+0.03)	0.37 (0.00)	0.50 (+0.06)	45%	55%
TB	0.27 (+0.03)	0.43 (+0.02)	0.59 (+0.04)	66%	58%

[Table. Changes in Gini index between 1990 and 2016, and changes in proportion of inequality contributed by between-region differences.]



[Changes in Gini index value by disease and sex, 1990-2016.]

Conclusions: Global inter-country inequality in the burden of HIV, HCV, and TB, as measured by the Gini index, is of similar magnitude as global inter-country income inequality (reported as 0.63 by Hellebrandt et al, SSRN Electron J. 2015). Global inequality was substantially higher for HIV than TB or HCV, but decreased since 1990 , while global inequality increased for HCV and TB. The decrease in inequality for HIV began after 2003. The decrease in HIV inequality was substantially greater for men than women. In all years, inequality in TB was greater in terms of disability and life years lost than it is in terms of prevalence. For all three diseases in 1990 and 2016, approximately half of relative inequality was contributed by differences in burden within individual world regions, and half by differences between regions (between-region component increased for HCV, decreased for TB, and did not change for HIV). Among regions, the highest inequality for HIV was seen between countries in LAC, for TB in MENA, and for HCV in EECA.

TUPEC161

High rates of female sterilization could impact HIV prevalence in high burden areas in India - couple-centered intervention strategies may help in consolidation of prevention gains

R. Brahme[1], S. Sonavale[1], R. Joshi[2], S. Venkatesh[3], C. Kadu[1], R. Yadav[1], N. Dulhani[1], A. Lokhande[1], Y. Raj[3], P. Kumar[3], P. Deoraj[4], S. Acharya[5], S. Godbole[1]
[1]National AIDS Research Institute, Pune, India, [2]PHD Student at National AIDS Research Institute, Pune, India, [3]National AIDS Control Organization, N Delhi, India, [4]Maharashtra AIDS Control Society, Mumbai, India, [5]Mumbai District AIDS Control Organization, Mumbai, India

Background: Maharashtra, a high HIV-burden Indian state has shown a steady decline in HIV prevalence among antenatal women since 2003, as evidenced by data from HIV Sentinel Surveillance (HSS) although there is a geographic variation across the state. HSS in India is a systematically conducted cross-sectional surveillance, at fixed sites among specific population subgroups, at regular intervals. We explored time-series data from HSS to understand other district-level factors as potential drivers of the epidemic.
Methods: Data from 5 rounds of HSS (2005-15) among ANC attendees in Maharashtra across 67 consistent sites in 35 districts were analysed. We used univariate and multivariate regression and multi-level modelling with district and state-level characteristics such as demographics, reproductive history and HIV knowledge from National Family Health Survey-3 (NFHS- 3) to predict HIV prevalence.
Results: Across 5 rounds of HSS (2005-15), being 'older' (AOR: 1.07, 95%C.I-1.050, 1.094, p< 0.001), 'Illiterate' (AOR: 1.56, 95%C.I:1.33-1.83, p=0.023), 'spouse in transport-related occupation' (AOR 1.693, 95%C.I.:1.41-2.00, p-< 0.001) and 'urban residence' (AOR: 1.151, 95%C.I.: 1.007-1.314, p=0.038,) increased the likelihood of HIV positivity. District-level properties like 'sex-ratio at birth' (= - 0.003, p=< 0.001), 'percent women sterilized' (=0.032, p=< 0.001), 'percent women accessing ANC-services' (=0.020, p=< 0.001) were significantly associated with HIV. Increase in F/M ratio by 1/ 1000 (AOR: 0.996, 95%CI: 0.994-0.997, p< 0.001) decreased the odds of being HIV-infected by 0.4%. Increase in 'female sterilization rate' (AOR: 1.034, 95%CI: 1.020-1.047, p < 0.001) and 'percent women accessing ANC-services' (AOR: 1.013, 95%CI: 1.002-1.024, p< 0.01) increased odds of HIV infection by 3% and 1% respectively.
Conclusions: Illiteracy and having a spouse in transport-related occupations, continue to remain the risk factors for acquiring HIV infection among women otherwise at low HIV-risk in Maharashtra. We identified several district level factors which are not normally in the framework of HIV-prevention programs, like 'sex ratio' and 'female sterilization' as significantly associated with HIV prevalence. Couples wherein women are sterilized, are less likely to use condoms, as demonstrated in Africa. Focus on 'couple-centered' interventions could help consolidate HIV prevention gains. Additionally convergence between RCH and HIV programs would be important in the Indian context to achieve HIV elimination goals.

TUPEC162

HIV prevalence in Argentina: 5 years of follow-up (2013-2017)

N. Haag[1], M. Pedrola[2,3], M. Laurido[2]
[1]AHF Argentina, HIV Testing and Prevention, Buenos Aires, Argentina, [2]AHF Argentina, Buenos Aires, Argentina, [3]AHF Latin America, Buenos Aires, Argentina

Background: According to the UNAIDS report of 2016, adult HIV prevalence in Argentina is 0.4% and remain stable in last dedade. This information comes from the estimation of HIV cases reported to the Ministry of Health in relation to the total country population. Therefore a study of 5 consecutive years on the HIV prevalence in general population was carried out.
Methods: Between January 2, 2013 and December 30, 2017, HIV antibody determinations through a previously validated rapid test (Alere Determine™ HIV-1/2) were performed in individuals from different provinces of Argentina, which together represent more than 60% of the total country population. Testing was carried out in public places, where people voluntarily approached to be tested. Counselling was given to all individuals and for positive cases established the appropriate referral. The information was collected in an Ad Hoc database, and descriptive statistics, T-test, Chi2, Fisher exact or Mid P tests were used as appropriate.
Results: Determinations were made in 118078 individuals. Age range: 18 months to over 49 years, but 99% were older than 15 years. Gender distribution: women 54.1%, men 45.2%, transgender 0.7%. There were 1035 HIV positive results. Prevalence: 0.88% (95%CI: 0.82-0.93). It was the first HIV test for 58.1%, and prevalence in subjects tested for the first time was higher than in those previously tested (0.93% vs. 0.79%, p= 0.006). Although the prevalence was significantly higher in men than in women (1.19% versus 0.56%, p < 0.001), the highest level was observed in transgender (4.86%, p < 0.001). Regarding annual prevalences, they remained stable between 2013 and 2016 (1.00%, 1.08%, 0.99%, and 0.91%, respectively), and dropped significantly in 2017 (0.67%, p < 0.05).
Conclusions: This was the largest study on HIV prevalence ever made in our country. Prevalence observed in the general population was twice as high as that reported for the adult population of Argentina by UNAIDS from 2013 to 2016, and remained higher although dropped significantly in 2017. This large-scale study shows that it is necessary to update the estimates of the population living with HIV for Argentina.

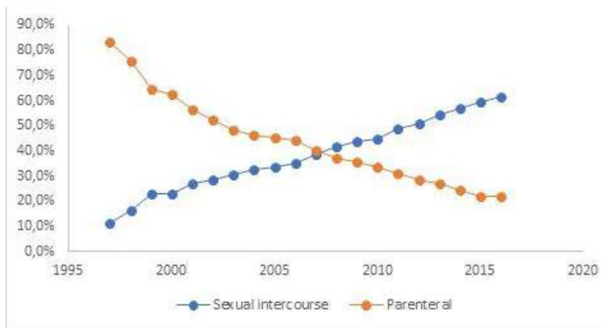
TUPEC163

The main ways of HIV transmission in Ukraine

O. Bidovanets, L. Hetman, O. Andreeva
Public Health Center of the Ministry of Health of Ukraine, Kyiv, Ukraine

Background: The study of HIV transmission gives an insight to the impact of the disease prevalence on the populace. Until recently Ukraine was considered to be the country with the HIV-transmission caused by the parenteral infusion, in particular by injection drug use. We aimed at investigating the peculiarities of the main ways of HIV transmission among the Ukrainian population over the period of 1997-2017 years.

Methods: We analyzed annual reporting forms N Reporting Form No. 2-HIV/AIDS „Report on Persons with Conditions and Diseases Caused by the Human Immunodeficiency Virus (HIV) Virus in 20__ Years" (annual), approved by the Order of the Ministry of Health of Ukraine as of March 5, 2013, No. 180, over the period of 20 years (1997 - 2017).
Results: The analysis of annual reports showed that from 1997 to 2008, the main route of HIV transmission among the Ukrainian population was parenteral (mainly with the injection drug use), and since 2008, the prevalence of HIV among injection drug users has been decreasing with the simultaneous growth of HIV-infection transmitted through sexual intercourse. In particular, there was an increased in the HIV infection incidence among men who had sex with men (MSM). This was found to be 50 cases in 2005, and 277 in 2014. As a rule, representatives of this group concealed their sexual orientation, especially in rural areas. A significant role is played by a group of MSM who are bisexual and may be a kind of „bridge" between MSM and heterosexual relationships. Due to decentralization there is a possibility of cooperation with the population of remote places in the region, which will allow to identify groups of potentially possible HIV-infected people.
Conclusions: Among the population of Ukraine, sexual intercourse is fast becoming the major factor causing the prevalence of HIV infection. It is therefore necessary to develop an algorithm for identifying potentially HIV-infected people, in particular among the rural population and MSM.



[The main methods of HIV transmission in Ukraine]

TUPEC164

National and sub-national HIV/AIDS-related mortality in Iran from 1990 to 2015: A modified approach to estimation

B. Moazen[1,2], NASBOD Collaborators
[1]*Heidelberg University, Public Health, Heidelberg, Germany,*
[2]*Non-Communicable Diseases Research Center, EMRI, Tehran University of Medical Sciences, Tehran, Iran, Islamic Republic of*

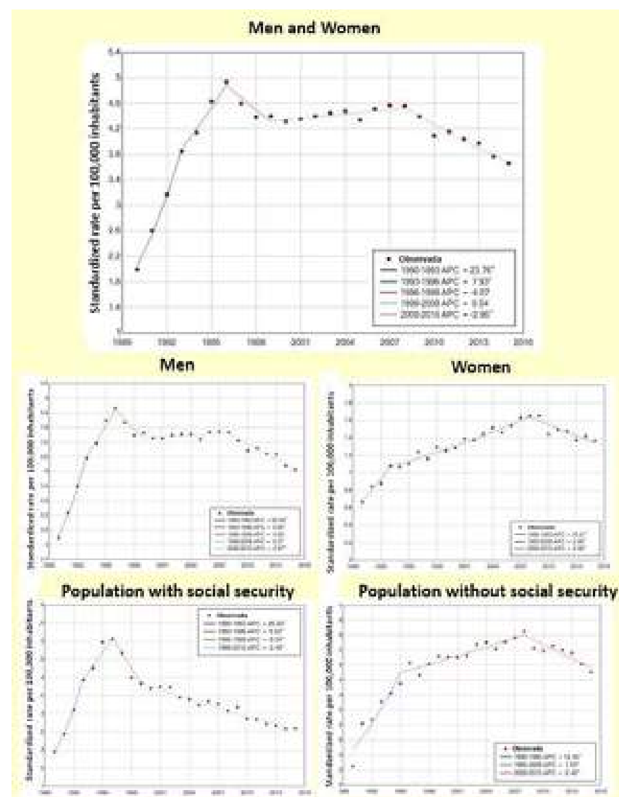
Background: Surveillance of HIV/AIDS mortality is crucial to evaluate a country's response to the disease and progress towards the goals set forth by the global community such as the sustainable development goals (SDGs) and the United Nations Programme on HIV/AIDS (UNAIDS) 90-90-90. This report from National and Sub-National Burden of Diseases, Injuries, and Risk Factors study 2015 (NASBOD 2015) provides estimates of mortality due to HIV/AIDS in Iran from 1990 to 2015.
Methods: Data from the death registration system of Iranian Ministry of Health and Medical Education, and the records of Tehran and Esfahan cemeteries were used as the main sources of data in NASBOD study. Death registration incompleteness and misclassification were addressed using demographical and statistical methods. Trends of mortality due to HIV/AIDS at national and sub-national levels were estimated applying multiple statistical models.
Results: According to our estimation, a total of 474 men (95% uncertainty interval [UI]: 175-1,332) and 256 women (95% UI: 36-1,871) died due to HIV/AIDS in 2015, which accounted for 0.22% and 0.17% of all deaths in men and women in Iran, respectively. After reaching its peak in 1995, overall deaths due to HIV/AIDS in both sexes have steadily declined. Excluding one age group (+65 years), HIV death rates were remarkably higher among men than women in the year 2015. Despite the decreasing rate, the number of deaths due to HIV/AIDS among women nearly tripled over the years studied. At sub-national level, the highest and the lowest annual percent change were found at 10.97% and -1.36% for women, and 4.04% and 3.47% for men, respectively.
Conclusions: The findings of our study (474) were remarkably lower than UNAIDS (4,000) but higher than GBD (339) estimates in 2015. The increasing number of deaths due to HIV/AIDS among Iranian women is a cause for concern, and highlights the need for urgent gender-oriented interventions to address the issue. In order to reach international goals. evidence-based interventions are needed to prevent infection and promote early diagnosis of HIV/AIDS, provide access to treatment, and ensure treatment adherence especially among the most at-risk populations in Iran.

TUPEC165

A twenty-six trend analysis of HIV/AIDS mortality in Mexico between 1990 and 2015

E. Bravo-García[1], H. Ortiz-Pérez[2]
[1]*Censida, Mexico, Mexico,* [2]*UAM Xochimilco, Departamento de Atención a la Salud, Mexico, Mexico*

Background: Mexico assumed as public policy to guarantee free and universal access to HAART in 2003. However, the next years, the AIDS mortality did not decrease as expected. Actually, The aim of the study was to analyze the magnitude, distribution, and trends of HIV/AIDS mortality in Mexico.
Methods: Official vital statistics on mortality from *CONAPO*, and population estimates from *INEGI*, were used to calculate AIDS mortality standardized rates. HIV/AIDS mortality trends were analyzed by *JointPoint regression model.*



[HIV/AIDS Mortality in Mexico, by sex and social security access, from 1990 to 2015]

Results: The evolution of general mortality due to HIV / AIDS shows 5 trends: from 1990 to 1993 it registered its maximum growth with an Annual Percent Change (APC = 23.8); between 1993 and 1996 it continued to grow, although with less intensity (APC = 7.9).Between the years 1999 and 2008, the mortality trend remained unchanged; and as of 2008 mortality has registered a significant downward trend until 2015 (APC = -3.0)

From 2010 to 2015, HIV/AIDS mortality in men was almost five times higher than in women (6.6 vs. 1.4 per 100,000, respectively). Because more than 80% of deaths correspond to men, their trends are similar to general mortality. In women they are different: there were two ascending trends (1990-1993, APC = 16.21 and 1993-2008, APC = 2.88). But between 2008 and 2015 it already has a downward trend (APC = -2.86)
Mortality among people lacking social security was almost double that registered in people with social security (5.0 vs 2.7 per 100,000). In both cases, the last trend is downward in both cases and the rate of reduction is almost the same (APC = 2.5 and 2.4, respectively).
Conclusions: Although the recent trend of HIV/AIDS mortality is downward, it disproportionately affects women, and people who do not have social security. It is necessary to focus actions of prevention and integral attention in both groups. If it is not possible to increase the descending APC among women and people without social security, it will be difficult to continue decreasing the HIV/AIDS mortality in Mexico.

TUPEC166

Alcohol consumption and its associations with other substance use and HIV infection in Rakai, Uganda

J. Wagman[1], D. Nabukalu[2], J. Kagaayi[2], D.S. Kigozi[2], R. Ssekubugu[2], F. Nalugoda[2], G. Kigozi[2]
[1]University of California San Diego, La Jolla, United States, [2]Rakai Health Sciences Program, Kalisizo, Uganda

Background: Associations between alcohol consumption and HIV risk are well established. Little is known, however about this relationship in Uganda. Less is known about other substance use and its co-occurrence with alcohol consumption. This study estimated the prevalence of alcohol and other substance use, and associations between alcohol and HIV infection in Rakai, Uganda.
Methods: We analyzed cross-sectional data from men and women (15-49 years) participating in the Rakai Community Cohort Study (2016-2017), an ongoing HIV surveillance cohort. The main dependent variable was past 12 month alcohol use (yes/no). Independent variables were past 12 month use of other drugs, including marijuana, amphetamines, aero fuels, mayirungi, heroin (yes/no) and HIV status (positive/negative). Logistic regression estimated associations between alcohol use, drug use and HIV infection. Adjusted models controlled for demographics (sex, age, education, occupation, marital status, socioeconomic status), community type (fishing/general community), and past year sexual risk behaviors (number of sex partners, consistent condom use).
Results: Of 18,700 participants, 54% were women, 84% were Christian, 66% had a primary school education or less, 45% consumed alcohol, 3% used other drugs, and 19% were people living with HIV (PLHIV). Alcohol use was less likely in women vs. men (aOR = 0.65, 95% CI: 0.61 - 0.71, p < 0.01), residents in general vs. fishing communities (aOR = 0.86, 95% CI: 0.78 - 0.95, p < 0.02), and non-drug users vs. drug users (aOR=0.38, 95% CI: 0.30 - 0.48, p < 0.01). Alcohol use was more likely in participants with 2+ sex partners (aOR = 3.44, 95% CI: 3.00 - 3.93, p < 0.01) and PLHIV (aOR = 1.12, 95% CI; 1.03 -1.22, p=0.01).
Conclusions: Alcohol use is common in Rakai, particularly in men and in fishing villages. Irrespective of sex and community type, the odds of alcohol use were higher among PLHIV and people with multiple sex partners, implying need to integrate alcohol reduction approaches into HIV prevention and treatment programs. Although other drug use is uncommon, it is linked to higher odds of alcohol use. Further research is warranted to better understand the epidemiology of poly-drug use in Rakai and Uganda.

Epidemiology of HIV in MSM

TUPEC167

Sexual behavior and STI-related correlates of depressive symptoms among a population of MSM in Senegal

M. Holtzman[1], D. Diouf[2], S. Ketende[3], C. Lyons[1], B. Liestman[3], K. Coly[3], C. Ndour[4], S. Mboup[4], K. Diop[4], C. Toure-Kane[4], N. Leye-Diouf[4], A. Cheng[5], S. Baral[3], G. Turpin[3], F. Drame[2]
[1]Johns Hopkins University, Epidemiology, Baltimore, United States, [2]Enda Sante, Dakar, Senegal, [3]Johns Hopkins University, Baltimore, United States, [4]Institut de Recherche en Santé, de Surveillance Epidemiologique et de Formation, Dakar, Senegal, [5]USAID, Washington, United States

Background: Mental health has been recognized as a determinant of HIV and STI risks through increased exposure as well as limited uptake of HIV prevention and treatment services. Mental health has been seen as particularly relevant determinant of HIV and STI-risks among MSM, who face high burdens of social stigma, a risk factor for depression. These analyses examine sexual behavior and STI-related correlates of depressive symptoms among MSM in Senegal.
Methods: This study utilized baseline data from the HIV Prevention 2.0(HP2) study, which enrolled 724 adult MSM in three cities in Senegal including Dakar, Thies, and Mbour using respondent-driven sampling(RDS) with a structured survey instrument and depressive symptoms assessed by the patient health questionnaire-9 (PHQ-9). Severity of depressive symptoms were measured with a PHQ-9 cut off of 10 or greater, used clinically to screen for moderate-to-severe depression. Logistic regression analyses applied RDS weights to account for purposive sampling.
Results: Approximately 58% had PHQ-9 scores of 5 or higher and 25% (181/724) 10 or greater. PHQ-9 of 10 or greater was associated with condom use by partner type. Participants reporting regular partners only in their last 1 - 3 anal sex acts and who used a condom in these encounters had 6.7 times the odds of endorsing a PHQ-9 over 10 compared to participants reporting casual partners only and inconsistent condom use with these partners (p <.05). Consistent condom use with varied partners carried an OR of 3.9 comparing those reporting casual partners only and inconsistent condom use (p <.05). Any STI symptoms in the past 12 months was associated with PHQ-9 scores of 10 and higher (OR= 2.25, p<.05).
Conclusions: Taken together, these results demonstrate that depressive symptoms constitute a serious burden among MSM in Senegal, supporting the need for mental health services. Encouragingly, these data suggest multiple opportunities to address mental health in STI visits or other outreach services. Holistic approaches to health necessitates effective integration of mental health interventions into broader health services and may potentiate the impact of HIV prevention and treatment services if implemented at scale in Senegal.

TUPEC168

Association between HPV persistence and HIV in young men who have sex with men: Interim findings from the P18 cohort study

F. Kapadia[1,2], P. Halkitis[3,4], D. Ompad[1,5], C. Quinlan[6], R. Greene[7]
[1]New York University, College of Global Public Health, Department of Epidemiology, New York, United States, [2]New York University, School of Medicine, Department of Population Health, New York, United States, [3]Rutgers University, Department of Biostatistics, East Brunswick, United States, [4]Rutgers University, Department of Social and Behavioral Health Sciences, East Brunswick, United States, [5]ew York University Rory Meyers College of Nursing, Center for Drug Use and HIV Research, New York, United States, [6]New York University, Center for Health, Identity, Behavior and Prevention Studies, New York, United States, [7]New York University School of Medicine, Bellevue Adult Primary Care Center, New York, United States

Background: HPV persistence, or the detection of similar HPV types two or more times over a given time period, is an important risk factor for HPV disease progression. Prior studies suggest that HPV persistence

was more common among HIV seropositive women than seronegative women. However, few studies have examined this association in younger men who have sex with men (YMSM), who bear a disproportionately higher burden of both HPV and HIV infections.

Methods: Participants (n=209) who completed visits at 6-month intervals as part of the on-going P18 prospective cohort study took part in site- (anal and oral) and type- (high risk, low risk, and vaccine preventable) specific HPV testing via nucleic acid hybridization assay. Associations between HPV incidence, persistence and clearance, overall as well as by type, and HIV serostatus were examined.

Results: In this sample of n=209 YMSM (mean age=23.8 years, 38.8% Hispanic/Latino, 26.3% Black, 16.7% White, 18.2% Asian/Pacific Islander or other race/ethnicity), HPV incidence, persistence and clearance was identified in 22.0%, 40.2% and 9.5% of the sample. The remaining 28.2% of YMSM were HPV negative across visits. HPV persistence was associated with anal sex partners (P< 0.05). Among individuals with persistent HPV infection, 51% of YMSM were identified as high-risk types and 42.7% as vaccine-preventable types. Finally, in multivariable regression models adjusted for age and race/ethnicity, compared to YMSM who remained HPV negative across visits, HIV seroprevalence was associated with persistent HPV infection (aOR=32.1, 95% CI 3.8, 270.5) and persistent infection with high-risk HPV types (aOR=7.03, 95% CI 2.07,23.92).

Conclusions: These findings provide evidence for strong associations between HPV persistence, particularly persistence of high-risk HPV types, and HIV infection in YMSM. In YMSM, the development of HPV associated neoplasia has been shown to begin at earlier ages and HPV persistence may contribute to development of anal cancer. Given, the strong associations between HPV persistence and HIV seropositive status in this sample of young men, efforts to promote syndromic surveillance as well as anogential screening via digital rectal exam and cytology, especially for HIV seropositive men with high-risk HPV are warranted.

TUPEC169

HIV transmission clustering among gay men in Nigeria: A genetic distance clustering analysis using a social network model

Y. Li[1], H. Omari[2], N. Ndembi[3], S. Tovanabutra[4,5], T.A. Crowell[4,5], G. Kijak[4,5], R. Nowak[2], C. Gaydos[6], S. Baral[7], E. Volz[8], J. Ake[3], H. Liu[1], S. Adebajo[9], M. Charurat[2]

[1]University of Maryland at College Park, Epidemiology & Biostatistics, College Park, United States, [2]University of Maryland School of Medicine, Institute of Human Virology, Baltimore, United States, [3]Institute of Human Virology Nigeria, Abuja, Nigeria, [4]Walter Reed Army Institute of Research, U.S. Military HIV Research Program, Silver Spring, United States, [5]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [6]Johns Hopkins University School of Medicine, Baltimore, United States, [7]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [8]Imperial College, Infectious Disease Epidemiology, London, United Kingdom, [9]Population Council, Abuja, Nigeria

Background: HIV transmission among men who have sex with men (MSM) in sub-Saharan Africa continues unabated at alarmingly high rates. To inform prevention efforts, we sought to uncover and characterize HIV transmission events among Nigerian MSM using genetic-clustering methods.

Methods: We analyzed RT-pol sequences from 348 HIV-infected individuals enrolled in the TRUST/RV368 study, a cohort of MSM in Abuja and Lagos, Nigeria, recruited using respondent-driven sampling between 2013 and 2015. Pairwise genetic distances were determined between sampled individuals and transmission clusters were defined among individuals whose sequences had a genetic distance of ≤1.5%. A latent space model including paired characteristics was used to analyze factors associated with HIV transmission clusters.

Results: Among 348 sequenced individuals, a total of 140(40.2%) individuals were found to be the members of HIV transmission clusters. With 42 identified transmission clusters, 29 (69.0%) of them were paired. The largest transmission cluster consisted of 16 individuals. Compared two individuals with different characteristics, two individuals were more likely to be in the same transmission cluster if they have the same ART status (OR=5.26; 95% CI: 4.75 - 5.73), sharing the same sexual identity (OR = 1.33; 95%CI: 1.30 - 1.36), and having greater age differences (OR=1.16; 95% CI: 1.01-1.29 per one-year age difference). In an additional analysis, compared to two individuals having different ART status (treated and untreated), untreated and newly diagnosed pairs were more likely to be in the same transmission cluster (OR= 8.99; 95% CI: 5.77-15.02). Individual factors associated with increased clustering including being employed (OR= 1.85, 95% CI: 1.49-2.25 compared to unemployed) and having viral load >1,000 copies/mL (OR = 7.10, 95% CI: 1.21-59.95).

Conclusions: There is a high level of genetically-clustered HIV transmission among MSM in Nigeria. Paired characteristics are important factors to include in transmission cluster analysis. Our social network models further underscore the importance of universal ART for MSM as part of prevention strategies to interdict forward HIV transmission.

TUPEC170

Using syndemics theory to investigate HIV sexual risk affecting gay and bisexual Hispanics/Latinos in Philadelphia, PA: Findings from the National HIV Behavioral Surveillance, 2008-2014

O. Martinez[1], K. Brady[2], E.C. Levine[3], K. Page[4], S. Grieb[4], J. Shinefeld[5], M. Cecilia Zea[6], A. Martinez-Donate[7], W. Davis[8]

[1]Temple University, School of Social Work, College of Public Health, Philadelphia, United States, [2]Philadelphia Department of Public Health, Philadelphia, United States, [3]Temple University, Philadelphia, United States, [4]Johns Hopkins University, Baltimore, United States, [5]Philadelphia Department of Health, Philadelphia, United States, [6]George Washington University, Washington, DC, United States, [7]Drexel University, Philadelphia, United States, [8]John Hopkins University, Baltimore, United States

Background: Gay and bisexual Latino men continue to be disproportionately impacted by HIV/AIDS. Identifying factors associated with sexual risk is imperative for developing effective prevention strategies.

Methods: Working with data from the National HIV Behavioral Surveillance, we explored the impact of syndemic factors - heavy drinking, sex work, and homophobic discrimination - on sexual HIV risk behaviors including total male partners and (main and casual) condomless anal intercourse among gay and bisexual Latinos (N=464). Analyses took two forms: a syndemic approach, using the cumulative number of factors as a predictor; and a non-syndemic approach, incorporating factors as unique predictors. Simultaneously, we convened the Mid-Atlantic Latino Center for AIDS Research Consortium to develop recommendations for prevention interventions.

Results: Seventy percent of participants were from Puerto Rico, and a majority self-identified as Black (52%). Eighty-eight percent of participants had at least a high school education. In multivariable syndemic analyses, participants with 2+ factors reported significantly more male partners (b=3.96) and CAI casual partners (b=4.73) than those with none. In non-syndemic models, homophobic discrimination (b=2.44) and sex work (b=3.82) were significantly associated with total male partners. Heavy drinking was associated with casual UAI partners (b=1.71). Group members determined that multi-faceted, tailored interventions encompassing individual and cumulative risk are urgently needed to effectively address HIV in this population.

Conclusions: Multiple psychosocial conditions inform sexual risk among gay and bisexual Latinos, and such conditions may sometimes interact to exacerbate risk. HIV prevention programs, building from community-based approaches, should recognize and address multiple syndemic factors concurrently.

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HIV risk behavior outcomes associated with access to resources embedded in MSM and heterosexual social capital networks among MSM in greater Tokyo

A. Rolander
University of Melbourne, Sociology, Melbourne, Australia

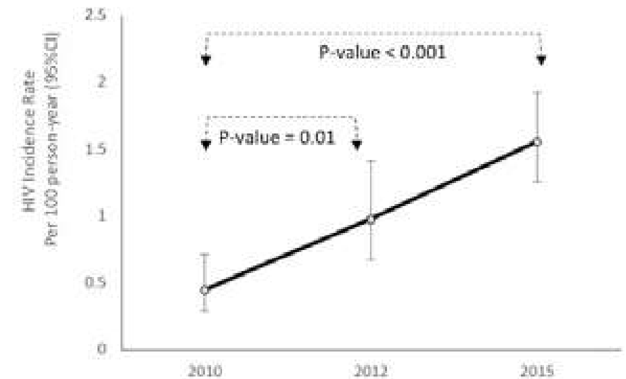
Background: Social capital (SC) is an important determinant of HIV risk in modern society characterized by human connection. Previous studies have suggested that social capital is positively associated with reduced HIV risk, however, few have investigated if associations vary between men-who-have-sex-with-men (MSM) and heterosexual alters (possessors of actual resources embedded in social capital networks) and HIV risk outcomes. Using cross-sectional data from an online MSM survey in Greater Tokyo, we investigated whether social capital is associated with reduced HIV risk behaviors, defined as condom use with regular and non-regular male and female partners, self-efficacy, and HIV-testing, independent of socioeconomic status. A total of 1657 subjects participated in the study.
Methods: To measure social capital, we used eighteen questions assessing the respondents' ability to access both physical and mental-support resources embedded in social networks. Potential confounders included eight demographic and structural antecedent factors. Respondents were grouped into three levels of social capital. High SC respondents were defined as 1.0 standard deviation (SD) above the overall mean, low SC respondents as one SD below the overall mean, and medium SC respondents in-between; thus 20% to 30% of respondents were grouped into the high and low SC categories.
Results: Multivariate models revealed that lifetime HIV testing was significantly associated with high MSM SC [odds ratio (OR), 3.16; 95% CI, 2.09-4.79], university education (OR, 1.44; 95% CI, 1.07-1.92) and age (OR, 1.04 95% CI, 1.02-1.05). Non-regular male partner condom usage was significantly associated with high heterosexual SC (OR, 2.03; 95% CI, 1.15 - 3.59), and residing outside Tokyo (OR, 1.69; 95% CI, 1.01-2.82). Regular male partner condom usage was significantly associated with university education (OR, 1.49; 95% CI, 1.14-1.95), and significantly negatively associated with High MSM SC (OR, 0.62 95% CI, 0.42-0.91). Female partner condom usage was significantly associated with heterosexual SC (OR, 1.09; 95% CI, 1.00-1.17).
Conclusions: In order to close the HIV-risk gap for greater Tokyo MSM, policy interventions should focus more specifically on deprived socio-demographic groups, such as those who have less educational attainment and exposure to sex-education and not blindly promote social capital without considering potential negative outcomes.

TUPEC172

Trend in HIV incidence and prevalence in men who have sex with men in Georgia, 2010 to 2015

A. Noori[1], N. Shengelia[2], I. Chikovani[2], A. Mirzazadeh[3,4]
[1]*McMaster University, Department of Health Research Methods, Evidence, and Impact (HEI), Ontario, Canada,* [2]*Curatio International Foundation, Tbilisi, Georgia,* [3]*Institute of Global Health Sciences, University of California, San Francisco (UCSF), Department of Epidemiology & Biostatistics, San Francisco, United States,* [4]*HIV/STI Surveillance Research Center, and WHO Collaborating Center for HIV Surveillance, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran, Islamic Republic of*

Background: To measure the impact of HIV prevention and care programs, it is crucial looking at both HIV incidence and prevalence estimates and trend over time. We estimated the HIV incidence and prevalence and assessed the trend using data from three cross-sectional surveys of men who have sex with men (MSM) in Georgia.
Methods: Using respondent-driven sampling strategy, eligible MSM (a 18 years or older man with oral or anal sex with another man in past 12 months) were recruited in Tbilisi and Batumi in 2010, 2012 and 2015 into a behavioral survey and HIV testing. To estimate the HIV incidence, we divided the number MSM tested positive for HIV to the time at risk. We calculated the time at risk as years since age at first anal intercourse to the age at last HIV-negative test or the age at first HIV-positive test, accounted for the interval censorship. We assessed the trend in HIV prevalence by Chi2 test for trend. For HIV incidence rate, we used Kaplan Meier method and compared the rates in three survey rounds by log-rank test.
Results: The HIV prevalence significantly increased (p-value for trend < 0.001) form 7.0% in 2010 to 13.0% in 2012 and 20.7% in 2015. Likewise, the HIV incidence rate (Figure 1) significantly increased form 0.45 per 100 person-years in 2010 to 0.98 per 100 person-years in 2012 (p-value for trend =0.01) and 1.56 per 100 person-years in 2015 (p-value for trend < 0.001). In survey 2015, young MSM (4.48 per 100 person-years, p-value< 0.001), single MSM (1.79, p-value 0.003) and less educated MSM (1.90, p-value 0.009) had a higher HIV incidence.
Conclusions: Our findings suggest the continuous transmission of HIV among men who have sex in two major cities in Georgia and the need for scaling up the coverage and accessibility of combination prevention packages including rapid HIV diagnosis and response.



[Figure 1 - Trend in HIV incidence rate per 100 person-years among men who have sex with men in Georgia, 2010 to 2015]

TUPEC173

Migration and risk among gay, bisexual and other men who have sex with men in New York City (NYC)

J.E. Egan[1,2], V. Nandi[3], V. Frye[4], R. Stall[1,2], B.A. Koblin[5]
[1]*University of Pittsburgh, Graduate School of Public Health, Social and Behavioral Health Sciences, Pittsburgh, United States,* [2]*University of Pittsburgh, Center for LGBT Health Research, Pittsburgh, United States,* [3]*New York Blood Center, Data Analytic Services Laboratory, New York, United States,* [4]*The City University of New York, School of Medicine, New York, United States,* [5]*New York Blood Center, New York, United States*

Background: Migration may be an important contextually driven moment of heightened risk for MSM. Introduction into new socio-sexual networks with unfamiliar expectations in a new city may impact a newly migrated man's ability to negotiate risk in the same way he may at home. Using data from the NYCM2M study, this paper aims to understand of geo-temporal HIV risk associated with migration to a gay-centric urban center. We hypothesized that recent migrants would experience a heightened period of HIV risk and substance and that this increased risk would translate into HIV seroconversion.
Methods: M2MNYC is a cross-sectional study designed to identify neighborhood-level characteristics within the urban environment that influence sexual risk behaviors, substance use and mental health among MSM living in NYC. Between 2010 and 2012, using modified venue-based time-space sampling, men were recruited through face-to-face outreach and mobile apps. A total of 1,493 men completed the cross-sectional ACASI survey. Logistic regression and a Cox proportional hazards multivariable regression were used for analysis. The hazard ratio takes into account not if an individual is HIV-positive or negative, but how much time passed before seroconversion after migration. We focused on seroconversion within the first 10 years of migration to NYC.
Results: The sample included 738 recent (within the past 10 years) NYC migrants. In multivariable analyses, compared to those who had lived in NYC for 6-10 years, living in NYC for >1 year was not significantly associated with increased risk, being in NYC from 2-5 years was associated with an increase in general unprotected sex (aOR=1.89, CI=1.22,2.88) and

heavy drinking (aOR=1.92, CI=1.06,3.50). Compared to White men, Black men had a cox proportional hazard of 5.17 (p< 0.001) and Latino men had a hazard ratio of 3.03 (p=0.01) for post-migration HIV seroconversion.
Conclusions: These findings support research suggesting that migration, space, and place likely play a significant role in exposure to risk and increased risk behaviors. Most striking are our findings that suggest that migration to NYC may pose far greater risk of seroconversion for Black and Latino MSM. This paper raises important questions to consider as we enter the next generation of bio-behavioral HIV prevention.

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A lesser-known epidemic: HIV and STI prevalence among key populations in Angola

W.M. Miller[1], M.E. Herce[2,3], J.K. Edwards[4], J.M. Cardao[5], M.L. Furtado[6], G. Cristino[7], A.M. Diaz[7], S.S. Weir[1,4]
[1]University of North Carollina at Chapel Hill, Carolina Population Center, Chapel Hill, United States, [2]University of North Carolina at Chapel Hill, UNC Institute for Global Health & Infectious Diseases, Department of Medicine, Chapel Hill, United States, [3]UNC Project-Malawi, Lilongwe, Malawi, [4]University of North Carolina at Chapel Hill, Department of Epidemiology, Chapel Hill, United States, [5]USAID Angola, Luanda, Angola, [6]Instituto Nacional de Luta Contra a SIDA (INLS), Luanda, Angola, [7]LINKAGES Project, Luanda, Angola

Background: A dearth of research exists on the HIV epidemic among key populations in Angola and no prior studies have measured the prevalence of other sexually transmitted infections (STIs). This study aimed to measure the prevalence of HIV and STIs among key populations in Angola.
Methods: The University of North Carolina at Chapel Hill, under the USAID/PEPFAR-supported and FHI 360-led LINKAGES project, conducted a biobehavioral survey in five provinces of Angola between October 2016 and June 2017. Priorities of Local AIDS Control Efforts (PLACE), a venue-based sampling strategy, was used to recruit participants from social venues for a cross-sectional behavioral survey. Based on the behavioral questionnaire, participants were categorized as female sex workers (FSW), men who have sex with men (MSM), or transgender women (TGW). Biomarkers included rapid HIV; syphilis and hepatitis B testing; and collection of urine and anal and vaginal swabs for gonorrhea, chlamydia, and trichomoniasis lab-based testing. Individuals were assigned weights based on the probability of recruitment at a venue.
Results: In total, 1,876 FSW, 1,016 MSM and 89 TGW were recruited. The prevalence of HIV was 8% among FSW, 2% among MSM, and 9% among TGW. The prevalence of other STIs ranged from 3-15% among FSW, 2-14% among MSM and 0-13% among TGW (Table 1). Among MSM, a urethral STI (9% prevalence) and an anal STI (7%) were similarly common but only 12% of MSM with a urethral STI also had an anal STI and 14% of men with an anal STI also had a urethral STI. Among TGW there were no participants with both a urethral and an anal STI.
Conclusions: High prevalence of HIV and other STIs among FSW, MSM, and TGW in Angola is evidence that integrated diagnosis and treatment services are needed for these populations. The HIV prevalence was higher among TGW than MSM. The lower than anticipated percentage of multisite infections with an anal and urethral STI indicates that MSM and TGW practice seemingly exclusive insertive *or* receptive anal sex, which could help orient HIV prevention programs given the higher risk of HIV acquisition through receptive sex.

	HIV (n/N) %	Syphilis (n/N) %	Gonorrhea (n/N) %	Chlamydia (n/N) %	Trichomoniasis (n/N) %	Hepatitis B (n/N) %
FSW	(146/1876) 7.8	(50/1867) 2.7	(167/1474) 11.3	(164/1474) 11.1	(208/1425) 14.6	(130/1866) 7.0
MSM	(19/1016) 1.9	(16/1009) 1.6	(51/922) 5.5	(71/922) 7.7	(4/243) 1.8	(136/1009) 13.5
TGW	(8/89) 8.8	(0/88) 0.3	(4/74) 6.0	(10/74) 13.4	(2/35) 5.0	(6/88) 6.8

[HIV, syphilis, gonorrhea, chlamydia, trichomoniasis, and hepatitis B prevalence among FSW, MSM and TGW, 5 provinces of Angola, 2017]

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Characterizing resilience and viral load among midlife and older gay, bisexual, and other men who have sex with men

J.E. Egan[1,2], M.R. Friedman[2,3], S.A. Haberlen[4], M. Plankey[5], L.A. Teplin[6], S. Shoptaw[7], D.E. Siconolfi[8], R. Stall[1,2]
[1]University of Pittsburgh, Graduate School of Public Health, Behavioral and Community Health Sciences, Pittsburgh, United States, [2]University of Pittsburgh, Center for LGBT Health Research, Pittsburgh, United States, [3]University of Pittsburgh, Graduate School of Public Health, Infectious Diseases and Microbiology, Pittsburgh, United States, [4]Johns Hopkins University, Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States, [5]Georgetown University Medical Center, Department of Medicine, Division of Infectious Diseases, Washington, United States, [6]Feinberg School of Medicine, Departments of Psychiatry and Behavioral Sciences and Medicine: Infectious Diseases, Chicago, United States, [7]David Geffen School of Medicine at UCLA, Department of Family Medicine, Los Angeles, United States, [8]Rand Corporation, Pittsburgh, United States

Background: How psychosocial resilience impacts the health of middle-aged and aging men who have sex with men (MOMSM) living with HIV is undiscovered. The aim of this study was to characterize resilience among MOMSM and investigate its association with detectable viral load.
Methods: 1,143 seropositive and seronegative MOMSM in the Multicenter AIDS Cohort Study (MACS) completed the 14-item global resilience scale (RS-14) in 2016-2017 as part of a 4-year study of resilience and healthy aging. Scores from the RS-14 were calculated and categorized into: high (scores 82-89) or moderate/low (scores 14-81) resilience. Multivariable logistic regression was used to estimate the odds of high resilience adjusting for age, race, education, depression symptoms, and HIV status. Among the HIV+ men, a multivariable model estimated the relationship between resilience and detectable viral load.
Results: Characteristics of the sample include: mean age=61.9, SD=8.7; 31.2% racial minority; 20.4% depressed (CESD>=16); 46.6% HIV+ among whom 17.5% had a detectable viral load (≥20 copies/mL, Roche Taqman). Overall 64.1% of participants reported having high, 13.3% moderate, and 22.6% low resilience. Black race (compared to white, aOR=2.34, CI=1.49, 3.65) and older age (aOR=1.02, CI=1.00,1.05) were positively associated with high resilience. Having depression symptoms (aOR=0.17, CI=0.12,0.25), and only high school (aOR=0.55, CI=.33, 0.92) or college aOR=0.70, CI=0.50, 0.98) compared to postgraduate education were less likely to indicate high resilience. There were no statistically significant differences in resilience level by HIV status. Men with high resilience were less likely to have detectable viral load (aOR=0.47, CI=0.25,0.90, see Table). Black men had greater odds of having a detectable viral load compared to white men (aOR=2.88, CI=1.51,5.49).
Conclusions: MOMSM with high resilience had half the odds of having detectable viral load, independent of sociodemographic co-factors and depression symptoms. Given that 1 in 3 men in the sample did not meet the criteria for high resilience, future research will investigate risk and protective factors associated with high resilience, to inform multi-level interventions to strengthen resilience and improve HIV outcomes including viral suppression.

	aOR	95% CI
Black Race (Ref: White)	**2.88**	**1.51,5.49**
Other Race	1.83	0.77,4.39
High School (Ref: Post Graduate)	2.20	0.93, 65.22
College	1.51	0.74,3.07
Age	0.99	0.95,1.03
Depression Symptoms	0.90	0.47,1.76
High Resilience (Ref: Low)	**0.47**	**0.25,0.90**
Moderate Resilience	0.64	0.26,1.59

[Resilience and Detectable Viral Load, MACS Healthy Aging Study]

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High HIV and other STI prevalence among transgender, gay, bisexual and other men who have sex with men (MSM) in Nairobi, Kenya

J. Kimani[1,2], R. Kabuti[1], E. Irungu[1], P. Muthoga[1], A. Mugambi[1], C. Nyamweya[1], P. Weatherburn[3], E. Fearon[3], A. Bourne[4], A.D. Smith[5], TRANSFORM

[1]Partners for Health and Development, Nairobi, Kenya, [2]University of Manitoba, Department of Medical Microbiology and Infectious Diseases, Winnipeg, Canada, [3]London School of Hygiene and Tropical Medicine, Department of Public Health, London, United Kingdom, [4]La Trobe University, Australian Research Centre in Sex, Health & Society, Melbourne, Australia, [5]University of Oxford, Nuffield Department of Population Health, Oxford, United Kingdom

Background: Gay, bisexual and other men who have sex with men are a key target population for HIV prevention and control in Kenya. Whilst male sex workers are the focus of ongoing research in Nairobi, HIV/STI prevalence has not been assessed among the broader MSM population since 2010. This study set out to assess prevalence of HIV and other STIs representative of all MSM in Nairobi.

Methods: Respondent-driven sampling (RDS) was employed to recruit 618 MSM. Eligibility criteria were age 18+, male gender (birth or currently), Nairobi residence and reporting of consensual oral or anal intercourse with a male partner in the last year. Consenting participants undertook a computer-assisted survey including current experience of anogenital STI symptoms (urethral or rectal pain, discharge or ulceration). Participants tested for HIV [Determine®, First Response® & Xpert® HIV-Qual, syphilis [RPR/TPHA], hepatitis B and C [HBsAg and HCV ELISA], urine and rectal chlamydia (CT) and gonorrhoea (GC [Xpert® CTNG]). Associations with prevalent HIV were assessed using multivariate logistic regression. Frequency and association measures were adjusted for RDS sampling using the RDS-II method.

Results: Only three participants declined rectal swabs, one completed HIV testing only, and one declined all investigations. HIV prevalence was 26.4%[22.6-30.6] including 0.5%[0.2-1.5] detected solely by 4th generation testing. Prevalent HIV was independently associated with age, lower education, Kenyan birth, transgender identity and exclusive sex with men in the past 3 months (table). Prevalence of syphilis was 0.8%[0.3-1.9]; hepatitis B 4.4%[3.4-6.9]; hepatitis C 0.5%[0.2-1.5]. 6.4%[4.5-9.0] of participants reported current symptoms consistent with urethritis. Prevalence of urethral GC and CT were 4.4%[2.9-6.7] and 7.3%[5.2-10.3] respectively. 8.6%[6.3-11.6] of participants reported symptoms consistent with proctitis. The prevalence of rectal GC and CT were 13.3%[10.4-16.8] and 8.7%[6.7-11.2] respectively. Overall, only 17.7%[9.2-31.2] with urethral CT/NG and 17.8%[10.7-28.0] rectal CT/NG were symptomatic.

		HIV positive		HIV association				
				Crude		Adjusted		
		N	%: RDS	OR	p	aOR	CI	p
Age	Per year		-	1.09	<0.001	1.12	1.07-1.16	<0.001
Education	Primary	42/111	37.9					
	Secondary	94/329	24.2	0.71	0.028	0.69	0.49-0.98	0.036
	Higher	49/170	23.3					
Birthplace	Kenya	165/483	29.3	2.67	0.002	3.06	1.57-5.97	0.001
	Elsewhere	18/123	13.4	ref		ref		
Sexual identity	Gay / Homosexual	140/447	27.3	ref		-		
	Bisexual	37/106	21.7	0.74	0.242	-		
	Other	6/18	25.0	1.45	0.519	-		
Gender identity	Cisgender male	151/523	24.4	ref		ref		
	Transgender female	29/77	39.3	2.00	0.018	2.20	1.21-3.97	0.009
	Other	6/17	31.8	1.44	0.571	1.20	0.26-5.48	0.809
Female partners (3m)	Yes	45/174	22.5	0.75	0.220	0.48	0.28-0.82	0.008
	No	141/443	28.0	ref		ref		
Transactional sex with men (3m)	Yes	107/297	31.1	1.51	0.050	-		
	No	78/315	23.0	ref		-		

[Associations with prevalent HIV infection: MSM in Nairobi, Kenya (2017)]

Conclusions: HIV prevalence among MSM remains considerably higher than among other men in Nairobi, whilst the prevalence of syphilis and hepatitis C are relatively low. Chlamydia and gonorrhoea infections, particularly rectal, are common and frequently asymptomatic. Increasing the capacity of MSM-friendly and community-based providers to offer CT/NG screening should be prioritised.

TUPEC177

Increasing prevalence rate among MSM in Brazil: Results of a comparison of 2009 and 2016 national survey

L. Kerr[1], M. Guimarães[2], C. Kendall[3,4], R.S. Mota[5], I. Dourado[6], M.A. Veras[7], A.M.d. Brito[8], A.K. Pontes[9], E.M. Hamann[10], A.F. Leal[11], D. Knauth[11], R.H.M. Macena[12], A.R.C. Motta-Castro[13,14], L.N.C. Lima[15], L.C.d. Oliveira[16,17], M.D.S. Cavalcante[18], A.C. Camillo[19], R.C. Moreira[20], X.P.D. Bermudez[10], L. Brigido[21]

[1]Universidade Federal do Ceará, Departamento de Saúde Comunitária, Fortaleza, Brazil, [2]Universidade Federal de Minas Gerais, Departamento de Medicina Preventiva e Social, Belo Horizonte, Brazil, [3]Universidade Federal do Ceara, Departamento de Saúde Comunitária, Fortaleza, Brazil, [4]Tulane School of Public Health and Tropical Medicine, Department of Global Community Health and Behavioral Sciences, New Orleans, United States, [5]Universidade Federal do Ceará, Departamento de Estatistica e Matemática Aplicada, Fortaleza, Brazil, [6]Universidade Federal da Bahia, Instituto de Saúde Coletiva, Salvador, Brazil, [7]Faculdade de Ciências Médicas da Santa Casa de São Paulo, Departamento de Saúde Coletiva, São Paulo, Brazil, [8]FIOCRUZ, Centro de Pesquisa Aggeu Magalhães, Recife, Brazil, [9]Universidade Federal do Rio de Janeiro, Instituto de Psicologia, Rio de Janeiro, Brazil, [10]Universidade de Brasília, Departamento de Saúde Coletiva, Brasília, Brazil, [11]Universidade Federal do Rio Grande do Sul, Departamento de Medicina Preventiva e Social, Porto Alegre, Brazil, [12]Centro de Ciências da Saúde, Departamento de Fisioterapia, Fortaleza, Brazil, [13]Universidade Federal do Mato Grosso do Sul, Centro de Ciências Biológicas e da Saúde, Campo Grande, Brazil, [14]FIOCRUZ, Unidade Mato Grosso do Sul, Campo Grande, Brazil, [15]Instituto Evandro Chagas, Divisão de Hanseníase, Ananindeua, Brazil, [16]Centro Universitário Autônomo do Brasil, Fisioterapia, Curitiba, Brazil, [17]Secretaria Municipal de Saúde de Araucária, Unidade de Pronto Atendimento, Araucária, Brazil, [18]Secretaria de Saúde do Estado do Ceará, Hospital Cesar Cals, Fortaleza, Brazil, [19]Fundação Alfredo da Matta, Hanseníase, Manaus, Brazil, [20]Instituto Adolfo Lutz, Laboratório de Hepatites, São Paulo, Brazil, [21]Instituto Adolfo Lutz, Centro de Virologia, São Paulo, Brazil

Background: The HIV epidemic among men who have sex with men (MSM) appears to be increasing in many countries. Brazil completed a second national Biological Behavioral Surveillance Survey among MSM in 12 cities in 2016, overlapping with 9 cities from the 2009 survey. The objective of this paper is to closely compare the results of HIV prevalence in the cities where the survey was repeated.

Methods: The surveys, using Respondent Driven Sampling (RDS), were conducted in 10 cities in 2009, and 12 cities in 2016, with 9 conducted in the same cities in both surveys. We recruited 3,333 MSM in 2009 and 2,992 in 2016. MSM were considered positive if: 1) they tested positive in the survey; or 2) not testing in the survey, they reported testing positive and were taking ART. RDS-Analyst and Gile's estimator were used for weighting and calculation of HIV prevalence for both surveys. Using the complex analysis functions in STATA™ v14 data were merged by year with each city as a stratum. Poisson regression was used to compare HIV prevalence by year adjusting for age, race, socioeconomic status, and an interaction term between age and year.

Results: HIV prevalence increased from 12.1% (10.0 - 14.5), in 2009, to 18.4% (15.4 - 21.7), in 2016. The prevalence ratio (PR) among MSM ≥25 yrs. in 2009 (19.8%; 15.3 - 24.2) compared to 2016 (19.9%; 16.0 - 23.8) did not change (PR=1.0; 0.7 - 1.3). The PR among MSM < 25, however, increased 140% (PR=2.4; 1.4 - 4.0) jumping from 4.0% (2.6 - 5.4) to 9.4% (5.8 - 13.1). Only age and the interaction term were significant.

Conclusions: HIV prevalence increased substantially among younger MSM. Although the HIV prevalence among older MSM did not change from 2009 to 2016, it is extremely high compared to the general population. We hypothesize that the use of social networking applications to find partners, the medicalization of AIDS prevention, and a sharp political movement to the right, including ending many programs targeted to

sexual minorities, such as comprehensive sex education, were among the reasons for this increase among youth and maintenance among older MSM.

	HIV Prevalence (2016)			HIV Prevalence (2009)			Prevalence Ratio (PR)	
Age	n/N	%	95%CI	n/N	%	95%CI	PR	95%CI
<25 yrs.	138/1799	9.4	5.8 - 13.1	94/1683	4.0	2.6 - 5.4	2.4	1.4 - 4.0
≥25 yrs.	258/1163	19.8	15.3 - 24.2	258/1625	19.9	16.0 - 23.8	1.0	0.7 - 1.3

[HIV prevalence in the 9 cities by age and year of study and prevalence ratio (PR) for year by age and PR for age by year of study]

TUPEC178

Why local terms are important: Different behavior and risk profiles of common local variants of men who have sex with men in Myanmar

S.T. Thein, Y.K. Aung, K. Gustafson
Population Services International/Myanmar, Yangon, Myanmar

Background: Worldwide, men who have sex with men (MSM) are one of the priority populations for HIV prevention and care interventions. In Myanmar, there are several local terms for variants of MSM. The most well-known version comprises three variants, named "Apwint", "Apone", and "Tha-Nge". This assessment explored the behavior and HIV-risk among these three variants.
Methods: This assessment was conducted among MSM in Myitkyina, a township in Northern Myanmar, in December 2016. Respondent-driven sampling, a coupon-based chain referral method, was used to recruit hard-to-reach MSM for HIV risk behavior and service utilization assessment. A total of 176 MSM were interviewed, including 50 Apwint, 42 Apone, and 84 Tha-Nge. RDS Analyst 0.57 was used for the analysis.
Results: The profiles were distinctly different among the three variants of MSM. Apwint dressed like women (88%), and identified themselves as women (94.7%), whereas Tha-Nge dressed like men (100%) and identified themselves as men (98.4%). Apone mostly dressed like men (80%) yet 43% identified themselves as women. Average number of sexual partners within last month varied from 7 (Apwint), 3 (Apone), to 1.5 (Tha-Nge). Usual sexual position was receptive for 98% of Apwint, and 63.9% of Apone, but insertive for 94% of Tha-Nge. Consistent condom use was reported among only 30.2% (Apwint), 38.7% (Apone), and 47.9% (Tha-Nge). Exposure to services was highest among Apwint (93.7%), moderate among Apone (62.4%), and lowest among Tha-Nge (51.1%). Recalls on HIV testing within past 12 months followed same pattern: 91.8% (Apwint), 74.0% (Apone), and 69.7% (Tha-Nge). Reported HIV positive rates were also highest among Apwint (30.7%), followed by Apone (15.6%), and Tha-Nge (10.9%).
Conclusions: This assessment showed distinctly different behavior and risk profiles among the three local variants of MSM in Myanmar. The findings highlighted the importance of local terminology in differentiating the high-risk subgroups among HIV priority populations, and potential need for novel targeting strategies and interventions.

TUPEC179

Innovative strategies through peer segmentation to reach men who have sex with men (MSM) in Ghana

S.E. Owusu
Maritime Life Precious Foundation, Programs, Takoradi, Ghana

Background: Ghana faces challenges in identifying HIV positive persons among Men who have Sex with Men (MSM). There are different segments of MSM who engage in risky sexual behaviors but are often not reached by HIV programs. Reaching different typologies of MSM require using innovative approaches through segmentation to identify high risk and closeted MSM who are HIV positive.
Description: Multiple innovative strategies through MSM segmentation were introduced in 4 districts in May 2017. Peer educators were trained to segment their peers into different networks based on their risk behaviors and link them for targeted testing services. These subgroups include MSM PLHIV and their sexual partners, MSM sex workers, bisexuals, 'high class' MSM (e.g. Lawyers, politicians, etc) and MSM drug users.
Peer Educators and Nurses used peer-driven, innovative and cross-cutting community initiatives such as sexual network testing (SNT), PLHIV partner testing (PPT) and door to door testing approaches to reach different high-risk MSM positives in different networks.
SNT used the sexual network of high risk MSM to link their sex partners within the last six months for HIV Testing Services (HTS).
PPT targeted MSM PLHIV who had been initiated on ART to introduce their recent MSM partners to a targeted HTS outreach session.
Door-to-Door testing: Nurses visited the rooms or any convenient place of hard-to-reach MSM and provided HTS.
Lessons learned: HIV positive yield among MSM increased across the 4 districts after the introduction of innovative strategies through effective segmentation of MSM. Between January and April 2017, 228 MSM were tested; 7 MSM (HIV+ yield of 3.0%) were diagnosed positive across the 4 districts. After the introduction of the interventions of MSM segmentation between May and August 2017, 241 MSM were tested and 38 were diagnosed HIV positive (15.8% yield) across the 4 districts.
Conclusions/Next steps:
• Innovative and targeted approaches to HTS through effective segmentation of MSM is an effective and efficient way of reaching out to closeted MSM and should be extended to other districts in the country.
• We will explore which of the innovative approaches is more efficient at attaining greater HIV+ yield among the subgroups.

TUPEC180

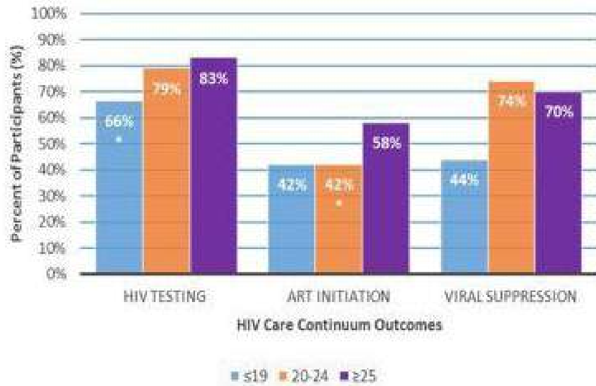
HIV treatment and prevention needs assessment: Comparison between younger and older men who have sex with men in Nigeria

H.O. Ramadhani[1], N. Sam-Agudu[1,2,3], U. Ononaku[3], W. Anom[3], C. Gaydos[4], N. Ndembi[3], S. Baral[5], S. Adebajo[6], T.A. Crowell[7,8], M. Charurat[1]
[1]Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, [2]University of Maryland School of Medicine, Department of Pediatrics, Baltimore, United States, [3]Institute of Human Virology, Abuja, Nigeria, [4]Johns Hopkins Medical Institute, Baltimore, United States, [5]Johns Hopkins Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States, [6]Population Council, Abuja, Nigeria, [7]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [8]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States

Background: Men who have sex men (MSM) frequently experience depression, behaviorally related stigma and discrimination but are often unable to access supportive services to manage these challenges. These challenges disproportionally impact young MSM and may influence HIV prevention and treatment needs as well as health-seeking behavior. Here we compare health-seeking behavior, HIV prevention practices and HIV care continuum outcomes among younger and older MSM in Nigeria.
Methods: The TRUST/RV368 cohort employed respondent-driven-sampling (RDS) to recruit MSM into HIV/STI prevention and treatment services in Abuja and Lagos, Nigeria. Participants completed standardized questionnaire that captured information including health-seeking behavior, exposure to HIV prevention education and participation in HIV prevention meetings in the previous 12 months. Participants were tested for HIV and, if positive, offered antiretroviral therapy (ART) with HIV RNA monitoring every 3 (Abuja) or 6 (Lagos) months. Participants were categorized into age groups, (≤19, 20-24, and ≥25) years. Logistic regression models were used for age comparison and exposure to HIV education, HIV prevention meetings and health seeking behavior and chi-square test for HIV care continuum outcomes.
Results: Between March 2013 and December 2017, total of 2090 MSM were recruited and 1227 (58.7%) were younger than 25 years. Overall, decreased odds of exposure to HIV education was associated with younger age, < 19 vs. ≥ 25 years, (Odds ratio, OR =0.5; 95% CI, 0.4 - 0.6) and 20 - 24 vs. ≥ 25 years, (OR =0.7; 95% CI, 0.6 - 0.8). Among the HIV negative, younger MSM < 19 vs. ≥ 25 years, (OR =2.6; 95% CI, 1.5 - 4.5) have higher odds of reporting avoiding seeking health care and decreased odds of participating in HIV prevention meetings (OR =0.6; 95% CI, 0.4 - 1.0).

Furthermore, among participants unaware of HIV status at enrollment, HIV testing and ART initiation was significantly lower for younger MSM compared to older MSM (figure 1)

Conclusions: Our finding underscores that younger MSM lag behind older MSM in many aspects of HIV treatment and prevention. Interventions to improve HIV prevention and treatment specific to young MSM such as treatment support are essential in order to improve health and prevent new infections.



[Figure 1. HIV Care continuum outcomes]

TUPEC181

Quality of life and associated factors among men who have sex with men in a metropolis in Brazil

J. Costa, H. Coelho, M. Silveira, P. Bonolo, M.D.G. Ceccato,
ECOART Study Group
Federal University of Minas Gerais, Belo Horizonte, Brazil

Background: The HIV epidemic in Brazil has been rising mainly within younger men who have sex with men (MSM). The prevalence of HIV in this population is 19.8%, yet studies regarding this risk group are still lacking. We aimed to assess the quality of life (QoL) and its influencing factors within MSM.

Methods: We conducted a baseline evaluation of a cohort of 426 patients from three referral centers in HIV care in Belo Horizonte, Brazil. We obtained sociodemographic, clinical and behavioral data through face-to-face interviews using the WHOQOLHIV-bref instrument to assess QoL. Factors associated with overall HRQoL were evaluated using multilevel linear regression.

Results: The majority of eligible patients (92.6%) participated in the survey. Respondents were 82.6% male with a mean age of 34.5±10.9 years. The main risk/exposure group for HIV infection was MSM (51.7%), followed by heterosexual woman (27.7%). Compared to other risk groups, a higher proportion of MSM was younger (70.1% aged below 33 yo), not married (87.2%) had no children (93.4%), belonged to upper/upper middle class (46,7%), were employed (71.1%) and had 13+ years of education (50.7%). They showed a lower proportion of signs and symptoms of depression (16.1%), co-morbidities (11.8%) and AIDS-defining symptoms (12.8%). The vast majority of them (90.5%) were able to fully comprehend the orientations regarding their pharmacological treatment (p< 0.05 for all comparisons).

This data translates into average values of WHOQoLHIV-bref domains of 16.0±2.8 for physical, 16.0±2.5 for psychological, 16.0±2.4 for independence, 16.0±2.7 for social, 15.0±2.4 for environment and 15.0±3.3 for spirituality. Except for the spirituality domain, MSM showed higher QoL domain scores than those of other risk groups (p< 0.05).

Controlled for the healthcare facility, factors independently associated with lower QoL among MSM were: the presence of signs and symptoms of depression [OR = -2.41 (IC95% -3.30; -0.33)] and anxiety [OR=-2.6 (-2.47; -0.34)] as well as the presence of other co-morbidities [OR=-2.76 (-3.16; -0.53)].

Conclusions: MSM showed high levels of HRQoL. The results highlight the need to enhance strategies in screening for symptoms of anxiety/depression and co-morbidities, as well as the need to provide psychological support to increase HRQoL of MSM living with HIV/AIDS.

TUPEC182

Prevalence of HIV and other sexually transmitted infections and their association with sexual behavior and substance use among 1351 MSM in Lebanon

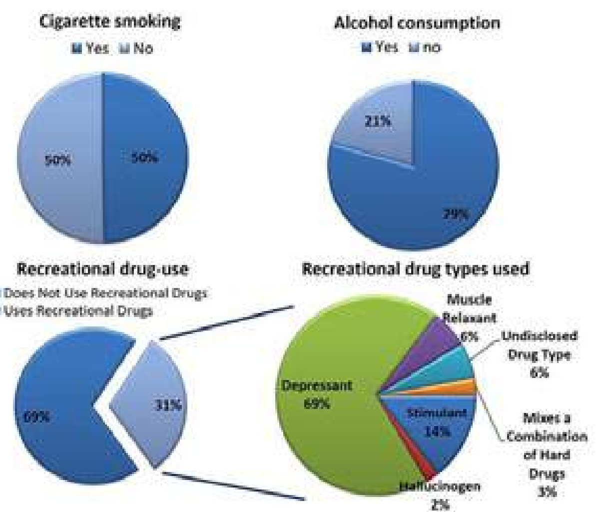
A. Assi[1,2], S. Abu Zaki[2], N. Kinge[2], D. Abou Abbas[2], J. Naous[2], A. Ghanem[1,2], R. Aaraj[2], R. Maher[2], Z. Bakouny[1], G. Azzi[2], R. Tomb[1]
[1]Faculty of Medicine, University of Saint-Joseph, Beirut, Lebanon, [2]Marsa Sexual Health Center, Beirut, Lebanon

Background: Men who sex with men (MSM) in Lebanon are subject to stigma and criminalization (Jimenez 2013) and do not have access to basic sexual health services including PrePrep. Substance-use behaviors among youth in Lebanon are becoming prevalent (Ghandour 2014) and studies in other countries attest to associations between substance-use and sexual risky behaviors among MSM (Zellner 2015). No data exists in Lebanon and the MENA region that evaluates rates of sexually transmitted infections (STIs) along with sexual practices and substance-use among MSM. The aim was to assess rate of HIV and other STIs and common risky practices, including substance-use behaviors, among MSM in Lebanon.

Methods: An anonymous questionnaire was administered by trained sexual health educators to 1351 MSM who presented consecutively to a sexual health clinic in Lebanon between 2015 and 2017. Collected sexual health indicators were: demographics, substance-use, sexual practices and risky exposures. STI status was collected through rapid testing and/or medical consultation. Determinants of condom-use and substance-use behaviors were assessed using regression models.

Results: Rates of STIs were: HIV = 5.4%, Syphilis = 2.7%, HBV = 0.2%, HCV = 0.7%, symptoms indicative of HPV = 44.5% and Gonorrhea / Chlamydia = 20.8%. Only 26% received sexual health education from reliable sources (educational or healthcare systems). Recreational drug use behavior was reported by 31%. Rates of other substances were collected in Figure 1. The majority (81%) reported having multiple partners in the past 3 months and 45% reported inconsistent condom-use with casual partners. Condom-use behavior was associated (p< 0.001) with source of sexual health education (adj.OR: 1.67) and level of education (adj.OR: 2.12). Recreational drug use was associated (p< 0.001) with smoking (adj. OR: 4.25), having multiple partners (adj.OR: 4.14), and being a university student (adj.OR: 2.08).

Conclusions: This study is the first in Lebanon and MENA region to include a large sample of MSM to assess STI status, substance-use behavior and other risky behaviors. The results reflect an urgent need for: 1) accurate sexual health and harm reduction education, including awareness campaigns, that are accessible to everyone and especially key populations; 2) introducing PreP to the MSM community in order to contain the HIV epidemic; 3)relevant governmental policies to advocate for acceptance and protection of sexual diversity.



[Substance use of 1351 MSM in Lebanon: cigarette smoking, alcohol consumption, recreational drug use in addition to the reported types of drugs]

TUPEC183

Human immunodeficiency virus (HIV) and the association of male circumcision with HIV, and history of Viral and non-viral sexually transmitted infections in Rwandan men who have sex with men

J.D.A. Sinayobye[1,2], A. Adedimeji[3], V. Patel[4], H.Y. Kim[5], Q. Shi[5], G. Murenzi[1], P. Mugenzi[1], P.E. Castle[3], L. Mutesa[6], B. Kateera[6], J. Palefsky[7], K. Anastos[4]
[1]Rwanda Military Hospital, KIgali, Rwanda, [2]COTREC REGIONAL LTD, Kigali, Rwanda, [3]Albert Einstein College of Medicine, Epidemiology and Population Health, Bronx, United States, [4]Albert Einstein College of Medicine, General Internal Medicine, Bronx, United States, [5]New York Medical College, Valhalla, United States, [6]University of Rwanda, Kigali, Rwanda, [7]University of California, San Francisco, United States

Background: Male circumcision (MC) protects against HIV acquisition and other sexually transmitted infections (STIs) in heterosexual men. However, results from numerous studies of MC on risk for STI in HIV-infected men who have sex with men (MSM) remain inconclusive. There are few studies MSM in Africa and Rwanda. We therefore examined the associations of male circumcision with HIV infection, and self-reported history of viral and non-viral STIs in Rwandan MSM.
Methods: 322 self-identified MSM in Kigali, Rwanda completed a 45-minute questionnaire, including prior history of STI, using audio-computer assisted survey interview (ACASI). Respondents were tested for HIV. Data were analyzed using SAS. Alpha ≤ 0.05 was considered to be statistically significant.
Results: Participants were 90 % aged 18-36 years, 90.7 % were single, 59% had low income (< $25/month) and most were circumcised (72%). HIV prevalence was 13.6% in the study population and 5.8% when we excluded 27 participants deliberately recruited with HIV infection. Fewer HIV-positive MSM were circumcised (43% vs.76%) and were less likely to report viral STIs (29.5% vs. 11.9%) and non-viral STIs (45% vs. 19%) than HIV-uninfected MSM. In multivariate stepwise logistic regression, MC was inversely associated with HIV infection (adjusted OR (aOR) 0.30; 95 % CI [0.15 - 0.65]). Age 25-35 years (aOR 3.5; 95% CI [1.3 - 8.9]) and ≥ 36 years (aOR 22.7; 95% CI [7.3-70.4]) versus age < =24 years were respectively associated with increased likelihood of having HIV infection. MC (aOR 0.25; 95 % CI [0.13-0.48]) was associated with lower risk of viral STDs whereas a previous report of sex with a man at least 10 years older (aOR 2.8; 95%CI [1.42-5.79]) was associated with higher risk of viral STIs. Male circumcision (aOR 0.99; 95%CI [0.5-1.9]), marital status and sex with a man ≥10 years older were not associated with non-viral STIs.
Conclusions: We found a higher HIV prevalence (5.7%) in Rwandan MSM than in general population of men (4.4%) living in Kigali, and that MC was associated with significantly reduced risk of HIV and other viral STIs, but not of non-viral STIs.

TUPEC184

HSV-2 and HSV-1/2 coinfection are associated with HIV among young sexual minority men: Findings from the P18 cohort

D. Ompad[1,2,3], F. Kapadia[1,2,3], R. Greene[3,4,5], P. Halkitis[3,6,7]
[1]New York University College of Global Public Health, Department of Epidemiology, New York, United States, [2]New York University Rory Meyers College of Nursing, Center for Drug Use and HIV Research, New York, United States, [3]New York University College of Global Public Health, Center for Health, Identity, Behavior, and Prevention Studies, New York, United States, [4]New York University School of Medicine, New York, United States, [5]Bellevue Hospital, Adult Primary Care Center, New York, United States, [6]Rutgers University School of Public Health, New Brunswick and Newark, United States, [7]Rutgers University RWJ School of Medicine, New Brunswick, United States

Background: There is a strong and consistent relationship between HIV and herpes simplex virus (HSV)-2. Disparities in HIV may be attributable, in part, to HSV-2. Less understood, however, is the relationship between HSV-1 and HIV, which is of interest given the higher prevalence of HSV-1 vs. HSV-2 as well as virological and pathological similarities between HSV-1 and HSV-2.
Methods: P18 is an ongoing prospective cohort study of young sexual minority men (YSMM) in New York City. At each semi-annual visit, men complete risk assessment surveys and undergo HIV testing. Beginning in October 2015, serologic testing for HSV-1 and HSV-2 was conducted among 484 YSMM.
Results: The mean age of the sample is 23.7 years (range 22-25). Most were male- (92.1%) and gay-identified (83.8%); 33.3% were Hispanic/Latino, 29.8% were black, 26.2% were white, 10.7% were Asian or another race. HIV prevalence was 7.9%. Prevalence of any HSV was 68%; 48.4% had HSV-1 only, 7.9% had HSV-2 only, and 11.8% were co-infected with HSV-1 and HSV-2. Of the 38 HIV+ men, 94.7% were co-infected with at least one HSV-type; 29.0% had HSV-1 only, 21.1% had HSV-2 only, and 44.7% were co-infected with HSV-1 and HSV-2. Blacks were significantly more likely to have HSV-1 and HSV-2 as compared to Whites. Only 5.8% of those testing positive for HSV-1 or -2 reported painful sores on their penis or genitals. Almost 58% had been ever tested for herpes; 57.0% of those with HSV-1 and 63.3% of those with HSV-2 had never been tested. In a multivariate logistic regression model, HSV-2 and HSV1/2 coinfection were associated with increased odds for HIV after controlling from race/ethnicity (HSV-2 AOR=15.6, 95% CI=3.1, 78.2 and HSV-1/2 AOR=26.2, 95% CI=5.7, 120.4) as compared to no HSV.
Conclusions: These cross-sectional data suggest that HSV-2 and HSV-1/2 coinfection are associated with HIV infection; HSV-1/2 coinfection demonstrates a larger AOR than HSV-2 alone. Moreover, there are racial disparities in HSV-1 and HSV-2 prevalence. HSV may lead to HIV especially since it often goes undiagnosed and can be asymptomatic. Prospective studies are needed to determine whether both HSV-1 and HSV-2 increase risk for HIV acquisition.

TUPEC185

Risk factors for HIV infection among young MSM in Chiang Mai, Thailand

Q. Kaewpoowat[1,2], S. Chariyalertsak[1], P. Saokhieo[1], R. Khampan[1], R. Songsupa[1], T. Supindham[1]
[1]Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand, [2]Faculty of Medicine, Chiang Mai University, Department of Medicine, Chiang Mai, Thailand

Background: Young men who have sex with men (YMSM) are one of the high-risk populations for contracting and transmitting HIV. Understanding their sexual practices and risk factors is crucial for planning further prevention program.
Methods: The data was obtained from the clients who sought for HIV testing and consented for this observational study at PIMAN center, a HIV voluntary counseling and testing unit for MSM in Chiang Mai, Thailand. Demographic data, sexual behaviors, substance use, and attitude toward HIV were collected by computer assisted self-interview (CASI). HIV rapid testing was performed on site.
Results: During January 2013 - December 2017, 1368 clients requested HIV testing at PIMAN center. Of those, 864 (63%) were YMSM (age 16-24, median age = 21 years). Majority (75%) were university/college students. Self-reported gender were gay (60%), transgender women (22%), bisexual (13%) and heterosexual (4%). Median sexual debut age was 17 year-old. Median number of partners in past 6 months was 6. The rate of regular condom use and lubricant use was 30% and 51% respectively. Active alcohol consumption (85%) and smoking (27%) were common among participants, but illicit drug use was only found in 6%. Trading money, gifts or valuables with sex were reported in 10% of the population. Forty-six percent sought sexual partners online and 87% of those eventually engaged in sexual activities. Majority (60%) perceived their HIV risk as "no to low-risk". One third (30%) reported knowing friends or relatives living with HIV and 52% answered that they felt comfortable having meals, working and taking care of people living with HIV infection. Eighty clients (9%) were tested positive for HIV. Receptive anal intercourse, current/previous illicit drugs use, seeking sexual partners on the internet, having sex ≥ 3 times/week and self-perception of "moderate to high-risk" for HIV infection are independently associated with HIV positive on multivariate analysis.
Conclusions: HIV prevalence among young MSM remains high. More efforts should be made to improve HIV attitude and preventive practices among this population. Online media has the potential to access the high-risk sub-group.

Characteristics	Total N= 864 (%)	HIV positive n=80 (%)	Univariate Analysis OR (95% CI)	P-value	Multivariate Analysis OR (95% CI)	P-value
Gender Role						
Insertive only	183 (21)	7 (9)	1			
Receptive only or Both	678 (79)	72 (91)	2.96 (1.35 - 6.61)	0.007	2.33 (1.02 - 5.35)	0.044
Illicit drug use						
Never	795 (92)	68 (85)	1			
Still using/ Ever used	49 (6)	10 (12)	2.74 (1.31 - 5.73)	0.007	2.65 (1.19 - 5.90)	0.017
Total sexual partners in past 6 months						
0 - 5	560 (65)	42 (52)	1			
> 5	219 (25)	37 (46)	2.38 (1.48 - 3.85)	<0.001	1.10 (0.62 - 1.93)	0.749
Frequency of sexual activities						
Once per month or less	421 (49)	25 (32)	1			
1-2 times/ week	304 (35)	35 (44)	2.06 (1.21 - 3.52)	0.008	1.70 (0.96 - 3.01)	0.067
≥ 3 times/week	137 (16)	19 (24)	2.55 (1.36 - 4.79)	0.004	2.06 (1.05 - 4.06)	0.036
Seeking for sexual partners online in past 12 months						
Never	468 (54)	25 (31)	1			
Ever	394 (46)	57 (71)	2.84 (1.73 - 4.62)	<0.001	2.30 (1.31 - 4.05)	0.004
Self-perception about HIV risk						
No to low risk	520 (60)	30 (37)	1			
Moderate to High risk	334 (39)	47 (59)	2.67 (1.65 - 4.33)	<0.001	1.81 (1.09 - 3.03)	0.023

[1]Some participants elected not to answer some of these questions, resulting in missing data

[Table 1. Factors associated with HIV acquisition among young men who have sex with men]

TUPEC186

What is happening to condom use? A longitudinal sexual event-level analysis of anal intercourse by partner HIV status concordance among men who have sex with men in Vancouver, Canada

N.J. Lachowsky[1,2], L. Wang[1], N. Bacani[1], H.L. Armstrong[1,3], G. Olarewaju[1], R. Crosby[4], E.A. Roth[2], R.S. Hogg[1,5], D.M. Moore[1,3], Momentum Health Study
[1]British Columbia Centre for Excellence in HIV/AIDS, Division of Epidemiology & Population Health, Vancouver, Canada, [2]University of Victoria, Victoria, Canada, [3]University of British Columbia, Faculty of Medicine, Vancouver, Canada, [4]University of Kentucky, Lexington, United States, [5]Simon Fraser University, Burnaby, Canada

Background: Condoms are a mainstay of HIV prevention among men who have sex with men (MSM). Promotion of Treatment as Prevention in British Columbia has been followed by the campaign "Undetectable = Untransmissible" (U=U). We evaluated trends in condom-use during anal intercourse among HIV-positive and HIV-negative MSM disaggregated by partner HIV status concordance in Vancouver, Canada.
Methods: Prospective data were collected from 09/2014-02/2017 from sexually-active Vancouver MSM, recruited using respondent-driven sampling (RDS). Participants completed assessments every six months, providing event-level data on their last sexual encounter with their five most recent partners. We used four-level mixed effects models (RDS recruitment chain; participant; visit; event) to evaluate temporal trends (6-month calendar periods) among four outcomes: condomless receptive anal intercourse (RAI), condom-protected RAI, condomless insertive anal intercourse (IAI), and condom-protected IAI. Analyses were conducted overall and stratified by participant self-reported HIV status for different partner HIV status concordances: seroconcordant, serodiscordant, and unknown status. Odds ratio (OR) and 95% confidence intervals (95%CI) are shown.
Results: 481 participants completed 1303 visits reporting on 3786 sexual events (29.7% from self-reported HIV-positive MSM). Of note, HIV-negative MSM reported PrEP use in only 3.0% of events. There were no significant trends in condomless RAI overall (mean=26.3%), by participant HIV status, or by partner concordance (all *P*>0.05). There was an overall decrease in seroconcordant condom-protected RAI (20% to 14.7%; OR=0.87, 95%CI:0.77-0.99) driven by a significant decrease among HIV-negative MSM (24.0% to 18.3%, OR=0.88, 95%CI:0.77-0.99). There were significant increases in condomless IAI with seroconcordant (29.6% to 34.9%, OR=1.10, 95%CI:1.00-1.22) and unknown status partners (9.1% to 20.9%, OR=1.22, 95%CI:1.02-1.45). There was a decrease in seroconcordant condom-protected IAI among HIV-positive participants (3.3% to 0.0%, OR=0.57, 95%CI:0.37-0.88).
Conclusions: No significant trends in condom-use during serodiscordant anal intercourse highlights no risk compensation based upon Treatment as Prevention or U=U principles. Further, levels of condomless RAI were stable. However, condom-protected sex decreased between seroconcordant partners, perhaps indirectly reflecting reduced perceived HIV risk, increased confidence of assumed HIV concordance, or both; this has important implications for STI transmission. Finally, increases in condomless IAI with unknown status partners may reflect shifting expectations of HIV status disclosure and perceived risk.

TUPEC187

Changing demographic among Latino MSM diagnosed with HIV in Florida, 2006-2015: Implications for primary and secondary HIV prevention

D.M. Sheehan[1,2], E. Cyrus[2], K.P. Fennie[1], L.M. Maddox[3], E.C. Spencer[3], M.J. Trepka[1]
[1]Florida International University, Department of Epidemiology, Miami, United States, [2]Center for Research on US Latino HIV/AIDS and Drug Abuse, Miami, United States, [3]Florida Department of Health, HIV/AIDS Section, Bureau of Communicable Diseases, Tallahassee, United States

Background: From 2011-2015, HIV diagnoses in the United States (U.S.) decreased among most groups, but increased 14% among Latino men who have sex with men (MSM). To help understand these trends and guide HIV prevention strategies, the study's objective was to compare longitudinally country of birth and age among newly diagnosed Latino MSM in Florida.
Methods: We used records from Latinos who met Centers for Disease Control and Prevention HIV case definition over a 10-year period (2006-2015) and were reported to the Florida Department of Health HIV/AIDS surveillance system. The following birth countries/regions categories were examined: Central America, Cuba, Mexico, Puerto Rico, South America, U.S.-mainland, and other. The following age categories were examined: 0-12, 13-24, 25-49, ≥50. SAS 9.4 was used to compare trends in country of birth and age by year using a two-sided Cochran-Armitage Trend Test.
Results: Of 12,084 new diagnoses among Latinos, 7,654 (63.3%) were among MSM. The proportion of diagnoses attributable to MSM increased from 52.1% in 2006 to 72.8% in 2015 (p-value < .0001). Additionally, compared to the decreasing trend in the proportion of new MSM diagnoses born in U.S.-mainland (31.8% to 27.1%), the proportion born in Cuba (20.1 to 30.2%; p-value < .0001) and South America (13.6% to 16.6%; p-value .0005) increased significantly. The proportion born in Central America decreased at a significantly faster rate than the proportion born in U.S.-mainland (9.5% to 3.7%; p-value < .0001). Further, the increasing proportion of MSM aged 13-24 (12.0% to 23.8%; p-value < .0001) and ≥50 (8.2% to 11.2%; p-value 0.0112) was significantly different than the decreasing trend of MSM aged 25-49 (79.8% to 65.0%).
Conclusions: Over the past 10 years, the Latino MSM population newly diagnosed with HIV has changed significantly with respect to birth country and age. In Florida, the state with the 2nd highest HIV rate in the U.S. excluding District of Columbia, HIV prevention strategies should consider targeting Cuban and South American immigrants and young and older Latinos to address the increasing trend in HIV diagnoses among Latino MSM. Similar analyses may be performed across U.S. states to inform national strategies.

TUPEC188

Prevalence and correlates of group sex participation alongside other risky sexual practices among men who have sex with men in Malawi

L. Kapanda[1], V. Jumbe[2], G. Trapence[3], C. Izugbara[4], A. Muula[1]
[1]University of Malawi - College of Medicine - School of Public Health and Family Medicine, Department of Public Health, Blantyre, Malawi, [2]University of Malawi - College of Medicine - School of Public Health and Family Medicine, Health Systems and Policy, Blantyre, Malawi, [3]Centre for Development of People (CEDEP), Lilongwe, Malawi, [4]Africa Population and Health Research Centre (APHRC), Nairobi, Kenya

Background: HIV prevalence among Malawian adult men is estimated at 6.4% compared to 18.2% among men who have sex with men (MSM). Little is known about prevalence of group sex events (GSEs) participation among Malawian MSM. We assessed GSEs participation alongside other risky sexual practices and characterized these experiences to inform HIV and other STIs prevention among MSM.
Methods: Between May and November 2016, we recruited MSM through Respondent Driven Sampling (RDS) in a cross-sectional study done in Lilongwe. We enquired from MSM about participation in group sex and other sexual practices that increase HIV and other STIs acquisition and transmission.

Results: Of 455 responders, 94 (21% RDS weighted) participated in GSEs in the prior year. Almost half (48%) of GSE attendees had single marital status with a woman, 30% were bisexuals. Almost 23% reported either condomless anal sex (CAS) or non-lubricant use with at least one of their partners (insertive: 37%; receptive: 28% and both 35%). In bivariate analysis, single MSM were less likely to participate in group sex (Odds Ratio (OR) 0.23 CI: 0.11 - 0.48) compared to those married to a female. Participants were 2.4 times likely to participate in GSEs under alcohol influence (OR 2.4 (CI: 1.04 - 5.7). In multivariable regression analysis, MSM aged 30-34 were almost three and half times likely to participate in GSEs (Adjusted Odds Ratio (AOR) 3.4, CI: 1.01 - 12.1) compared to 18 - 24 age group. Men participating in GSEs were almost four times to have felt STI symptoms past 12 months (OR 3.9, CI: 1.5 - 10.3), had low risk HIV perception (OR 0.34 CI: 0.14 - 0.86) compared to non GSE attendees.
Conclusions: We established prevalence of group sex participation alongside other sexual behaviours such as bisexual interactions, CAS, non-lubricant use and GSEs participation under alcohol influence. These sexual practices coupled with low perception towards HIV, pose significant risk for HIV, STIs acquisition and transmission within the group sex setting. Our findings demonstrate the importance of focusing on risky sexual behaviors that occur among MSM partnerships and offer opportunity to develop risk reduction interventions specific to GSEs participation among Malawian MSM.

TUPEC189

HIV prevalence and incidence among men who have sex with men attending community-based HIV testing and counseling clinics in metropolitan Manila, 2012-2017

C. Lagman[1], J.D. Rosadiño[1], R. Ditangco[2], R. Paktaghan[1], L.V. Le[3], Y.R. Lo[3], F. van Griensven[4]
[1]*LoveYourself Foundation, Manila, Philippines,* [2]*Research Institute for Tropical Medicine, Manila, Philippines,* [3]*World Health Organization, Manila, Philippines,* [4]*Thai Red Cross AIDS Research Center and UCSF Department of Epidemiology and Biostatistics, Bangkok, Thailand*

Background: Little is known about HIV prevalence and incidence among men who have sex with men (MSM) in the Philippines. This information is essential to understand the HIV epidemic and to inform and implement targeted behavioral and biomedical interventions in this population.
Methods: LoveYourself Foundation (LYS) operates 2 community-based clinics providing HIV/STI testing, counseling and treatment services for MSM and transgender in metropolitan Manila, the Philippines. Testing is provided free-of charge. Blood specimens are collected by phlebotomy and evaluated for the presence of HIV infection using 3rd Gen EIA rapid testing. Men testing HIV infected are referred instantly for publicly funded antiretroviral treatment available at the clinic. Condoms, lubricants and risk behavior counseling are provided at every visit. Here we report the HIV prevalence among first-time testers and HIV incidence among those returning for retesting (testing HIV uninfected previously) from 2012 to 2017.
Results: LYS clinics experienced a strong increase in new HIV testers, from 1,379 in 2012 to 11,290 in 2017. Overall HIV prevalence during this period was 15.7%, highest in 2012, 23.0%, and lowest in 2017, 13.2% (table). HIV prevalence during the observation period inclined with age: from 8.7% in 15-to-21-year olds, 14.4% in those 22-to-25 years to 18.6% in men 26 years and older. While the number of HIV seroconversions among re-testers increased from one in 2012 to 246 in 2017, HIV incidence density in the retest population remained approximately the same, ~4.0 per 100-person years (PY) (discounting 2012 due to small numbers) (table). HIV incidence density was inversely associated with age: 5.8 in 15-to-21-year olds, 4.8 in those 22-to-25 and 3.8 per 100 PY in those of 26 years and older.
Conclusions: HIV prevalence and incidence are high among MSM attending HIV testing and counseling services in community-based clinics in Metropolitan Manila, the Philippines. HIV incidence was highest among the youngest MSM. Increased behavioral and biomedical interventions, including HIV pre-exposure prophylaxis, in MSM are urgently necessary.

	Newly tested	HIV infected	HIV prevalence	PY of follow-up re-testers	Newly HIV infected	HIV incidence density/100 PY
Year	N	n	% (95% CI)	N	n	n/N (95%CI)
2012	1379	317	23.0 (20.8-25.3)	46.5	1	2.1 (0.3-15.3)
2013	4544	813	17.9 (16.8-19.0)	400.5	20	4.9 (3.2-7.7)
2014	4372	811	18.6 (17.4-19.7)	1078.5	68	6.3 (4.9-7.9)
2015	7686	1144	14.9 (14.1-15.7)	2236.4	93	4.2 (3.3-5.1)
2016	8054	1278	15.9 (15.1-16.7)	3760.7	167	4.4 (3.8-5.2)
2017	11290	1489	13.2 (12.6-13.8)	6212.3	246	4.0 (3.4-4.5)
Total	27325	5852	15.7 (15.3-16.1)	13734.8	595	4.3 (3.9-4.7)

[HIV prevalence and incidence among men who have sex with men attending Love Yourself Clinics, Metro Manila, 2012-2017]

TUPEC190

HIV epidemics in migrants from Latin America & Caribbean in Europe are driven by MSM

J. Del Amo[1], I. Jarrín[1], V. Hernando[1], B. Alejos[1], A. Pharris[2], T. Noori[2]
[1]*Institute of Health Carlos III, National Center for Epiemiology, Madrid, Spain,* [2]*European Centre for Diseases Prevention and Control, Stockholm, Sweden*

Background: We aim to quantify the contribution of migrants from subregions with distinct HIV epidemics within Latin America & the Caribbean (LAC) to HIV reports in the European Union/European Economic Area (EU/EEA), describe trends by transmission category and estimate median CD4 count at diagnosis overtime.
Methods: HIV reports to the European Surveillance System (TESSy) from 30 EU/EEA countries from 2004 till 2015 pooled in December 2016 were analysed. To minimize artificial declines due to reporting delay, 2015 was excluded when appropriate. Cases from LAC were divided into Andean (AA), Caribbean (Cb), Central (CA), South-America (SA) UN sub-regions. Differences in CD4 counts at HIV diagnosis over time for each sub-region were modelled using multivariate median regression analyses adjusting for transmission category, age and sex.
Results: Of 375,743 cases reported in 2004-2015, 19,928 (5%) were from LAC; of which, 31% from unknown LAC sub-region, 27% from Cb, 24% from SA, 9% from AA and 9% from CA. More than half (53%) were in men who have sex with men (MSM) varying from 84% of reported cases originating from SA to 46% of cases originating from Cb. Absolute (+679) and relative (+167%) increases in the number of HIV diagnoses in MSM from LAC were reported from 2004 to 2014. Absolute (-215) and relative (-27%) declines in heterosexually transmitted cases from LAC were reported from 2010 to 2014. Median CD4 counts in 2004 were 275, 370, 376, 303 and 301 cells/mm^3 for CA, AA, SA, Cb and unknown LAC region. Compared to values in 2004, for all sub-regions, median CD4 counts did not show statistically significant increases overtime but were higher in women, MSM and people under 30 years of age (data not shown for age) in multivariable analyses (table).
Conclusions: The current HIV epidemic in migrants from LAC in the EU/EEA is driven by on-going transmission among MSM, (which most likely takes place post-migration) largely from South and Andean-America, who consistently show higher CD4 counts at diagnosis. Heterosexually transmitted cases, largely from Central-America and the Caribbean are decreasing. Increased testing and combination preventive interventions, such as pre-exposure prophylaxis are needed in migrant MSM.

	Median differences in CD4 cell counts (95% CI) in HIV positive migrants from LAC			
	Andean America	South America	Central America	Caribbean
Year				
2004	Ref.	Ref.	Ref.	Ref.
2005	-17(-154,120)	-20(-100,60)	34(-71,138)	2(-80,83)
2006	34(-99,168)	-34(-110,42)	14(-94,121)	28(-36,92)
2007	7(-133,147)	-48(-120,24)	38(-62,138)	16(-47,79)
2008	-46(-168,76)	-48(-117,21)	84(-10,177)	34(-24,92)
2009	25(-96,146)	-24(-93,45)	73(-19,164)	-3(-60,54)
2010	-2(-117,213)	6(-59,71)	40(-130,51)	-8(-64,48)
2011	-7(-121,107)	-7(-71,57)	-40(-130,51)	42(-15,99)
2012	-1(-115,113)	-16,(-81,49)	48(-40,136)	24(-33,80)
2013	27(-86,140)	13(-81,49)	-15(-110,80)	32(-25,90)
2014	29(-83,141)	53(-11,117)	43(-47,134)	14(-45,73)
2015	33(-79,145)	42(-23,107)	15(-81,111)	34(-28,96)
Sex				
Male	Ref.	Ref.	Ref.	Ref.
Women	67(-0.5,134)	46(-0.1,92)	80(31,129)	36(8,63)
Transmission				
Hetero	Ref.	Ref.	Ref.	Ref.
MSM	154(98,210)	109(68, 150)	156(109,202)	97(68,126)

[Multivariable median regression analyses: all estimates are mutually adjusted for]

TUPEC191

Bisexuality among men who have sex with men and transgender women in sub-Saharan Africa: Findings from the HPTN 75 study

K. Ondeng'e[1], C. Mbeda[1], A. Ogendo[1], V. Akelo[1], X. Guo[2], W. Chege[3], E. Hamilton[4], J. Lucas[4], T. Sandfort[5]
[1]Centre for Global Health Research, Kenya Medical Research Institute, HIV Research Branch, Kisumu, Kenya, [2]Vaccines and Infectious Disease Division, Fred Hutchinson, Seattle, United States, [3]Prevention Sciences Program, Division of AIDS, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, United States, [4]Science Facilitation Dept., FHI 360, Durham, United States, [5]HIV Center for Clinical and Behavioural Studies, New York State Psychiatric Institute and Columbia University, New York, United States

Background: Studies in sub-Saharan Africa (SSA) among men who have sex with men and transgender women (MSM&TW) have primarily focused on the epidemiology of HIV infection. However, little is known about important behavioral variations within this population, despite the critical role it plays in the ongoing general epidemic. We set out to identify personal, interpersonal and contextual characteristics of MSM&TW in SSA, who engage in sex with both men and women versus those who only have sex with men.
Methods: Four sites (Kisumu, Kenya; Blantyre, Malawi; Cape Town and Soweto, South Africa) enrolled a total of 401 adult MSM&TW. Psychosocial and behavioral data were collected using a structured questionnaire. Participants who had sex with both men and women (PSMW) were compared with those who only had sex with men (PSMO). For this analysis, data from the enrollment visit were available for 387 participants. For all reported differences: P<.05.
Results: Overall, 21.7% (84/387) of the MSM&TW reported having had sex with both men and women in the preceding three months. PSMW were more likely to be married (17.9% vs. 4.0 %) have children (46.4% versus 15.5%), identify as bisexual (64.3% versus 30.0%), and less likely to identify as female or transgender (9.6% versus 23.3%). Compared to PSMO, PSMW were on average older (26.0 versus 23.8 years) and more likely to be from Blantyre (43.3%) and less likely from Cape Town and Soweto (7.5% and 7.1%). PSMO had on average more lifetime sexual partners but few sexual partners in the previous three months than PSMW (7.3 versus 5.3 and 1.8 versus 2.3, respectively). Furthermore, PSMW were more likely to prefer to be the insertive partner in anal sex (75.0% versus 33.3%) respectively. Finally, PSMW were less likely to test HIV positive (10.7% versus 19.8%).
Conclusions: Our findings demonstrate that there is a substantial proportion of sub-Saharan African MSM&TW who recently have engaged in sex with both men and women. We also found significant differences in sexual behavior and risk factors that may place these populations at risk for HIV infection. In-depth understanding of their practices presents an opportunity for developing targeted public health interventions.

TUPEC192

Transactional sex among men who have sex with men participating in the CohMSM prospective cohort study in West Africa

C.H. Kounta[1,2], L. Sagaon-Teyssier[1,2], P.-J. Coulaud[1,2], M. Mora[1,2], G. Maradan[1,2], M. Bourrelly[1,2], A.A. Keita[3], S.-A.B. Yoro[4], C. Anoma[4], C. Coulibaly[5], E.T.T. Dah[5,6], S. Agbomadji[7], E. Mensah[7], A. Bernier[8], C. Couderc[9], B.D. Keita[3], B. Spire[1,10], C. Laurent[9], the CohMSM Study Group
[1]Aix Marseille Univ, INSERM, IRD, SESSTIM, Sciences Economiques & Sociales de la Santé & Traitement de l'Information Médicale, Marseille, France, [2]ORS PACA, Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur, Marseille, France, [3]ARCAD Sida, Bamako, Mali, [4]Espace Confiance, Abidjan, Cote D'Ivoire, [5]Association Africaine Solidarité, Ouagadougou, Burkina Faso, [6]Centre Muraz, Bobo Dioulasso, Burkina Faso, [7]Espoir Vie Togo, Lomé, Togo, [8]Coalition Internationale Sida, Pantin, France, [9]IRD, INSERM, Univ Montpellier, TransVIHMI, Montpellier, France, [10]RS PACA, Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur, Marseille, France

Background: Men who have sex with men (MSM) are at much greater risk of HIV infection, especially in sub-Saharan Africa, where little is known about their involvement in transactional sex (TS). We aimed to characterize MSM reporting TS (MSM-TS) and to identify factors associated with TS in that population in West Africa.
Methods: We used data from the prospective cohort study CohMSM conducted in Burkina Faso, Côte d'Ivoire, Mali and Togo. We focused on MSM recruited between 06/2015 and 06/2017 by a team of trained peer educators. Participants completed scheduled study visits at 6 months and 12 months, which included a medical examination, HIV screening, counselling and a face-to-face interview. At each visit, participants provided information on their sociodemographic and economic characteristics, sexual behaviours, HIV risk-reduction strategies, alcohol and drug use, and on stigmatization. Three stigmatization sub-scores (experienced, perceived, internalized) were constructed according to the algorithm of Ha and al. 2013. A mixed-effects logistic regression was used for data analysis.
Results: Of the 608 participants recruited at baseline, 528 and 447, respectively, had a follow-up visit at 6 and 12 months. During a total of 1583 study visits, 413 TS events were reported, with 36.8% of participants reporting no TS, 12.5% regular TS and 50.7% occasional TS. MSM-TS were younger, 69.7% of MSM-TS had an educational level < high-school diploma and 83.6% were unmarried. The following factors were associated with a greater likelihood of TS: unstable housing (aOR[95%CI]:1.950[1.2-3.3]), searching for male sexual partners on the internet during the previous month (aOR[95%CI]:1.394[1.1-1.8]), group sex with men (aOR[95%CI]:2.523[1.7-3.6]), and reporting - for the previous 6 months - multiple male sexual partners (aOR[95%CI]:2.197[1.6-3.0]), unprotected receptive anal sex (aOR[95%CI]:1.338[1.0-1.8]), alcohol consumption (aOR[95%CI]:1.452[1.1-1.9]), drug use (aOR[95%CI]:2.029[1.4-3.0]), and sexual violence by male partners (aOR[95%CI]:2.120[1.3-3.5]), after adjusting for country of study, younger age, an educational level < high-school diploma, satisfaction with current sex life and experiencing stigmatization.
Conclusions: A large proportion of MSM in the CohMSM study who engaged in TS had high-risk HIV-infection exposure practices and were characterized by socioeconomic difficulties. Existing targeted prevention interventions should be strengthened to improve HIV prevention efforts in this subpopulation.

TUPEC193

Factors associated with discrimination based on sexual orientation among MSM in 12 Brazilian cities

L. Magno[1], I. Dourado[2], F. Alves[1], M.A. Veras[3], L.A. V. da Silva[4], M. Drew Crosland Guimarães[5], A. Fachel Leal[6], D. Knauth[6], A.M. de Brito[7], C. Kendall[8], L. Kerr[9], The Brazilian MSM Group
[1]Bahia State University, Department of Life Sciences, Salvador, Brazil, [2]Federal University of Bahia, Health Collective Institute, Salvador, Brazil, [3]Santa Casa of São Paulo State, School of Medicine, São Paulo, Brazil, [4]Federal University of Bahia, Institute of Humanities, Arts & Sciences Professor Milton Santos, Salvador, Brazil, [5]Federal University of Minas Gerais, Department of Preventive and Social Medicine, Belo Horizonte, Brazil, [6]Federal University of Rio Grande do Sul, Department of Social Medicine, Porto Alegre, Brazil, [7]Fiocruz Foundation, Aggeu Magalhães Institute, Recife, Brazil, [8]Tulane University, Global Community Health and Behavioral Sciences, New Orleans, United States, [9]Federal University of Ceará, Department of Community Health, Fortaleza, Brazil

Background: Discrimination based on sexual orientation (DBSO) may influence vulnerability to HIV through increased exposure to risky sexual behaviors and poor health seeking. We aim to estimate factors associated with high levels of DBSO among men who have sex with men (MSM) in Brazil.

Methods: We conducted a cross-sectional study using respondent driven sampling in 12 Brazilian cities in 2016 among 4,176 MSM. Latent Class Analysis (LCA) was used to characterize DBSO among MSM based on 12 variables in the survey and to link levels of DBSO to risky sex practices. For each city individuals were weighted using RDSAnalyst; combined 12-city data was weighted using each city as a stratum. Logistic regression was used to measure factors associated with high DBSO. Odds ratios (OR) with 95% CI were estimated.

Results: Most MSM were younger than 25 years old (58.3%), single (85.3%), with 12+ years of education (70.4%), and self-identified as black (62.8%). DBSO was classified into three LCA classes: class 1 (n=208) denominated "high DBSO" were MSM reporting high proportions (above 70%) for all of the 12 variables; class 2 (n=1,141) "average DBSO" and class 3 (n=1,562) „low DBSO" was applied to MSM reporting lower proportions for all 12 variables. There was a positive association between sexual violence (OR: 3.16, 95% CI: 1.36-7.34), physical violence (OR: 7.42, 95% CI: 3.07-17.96), family disapproval of sexual orientation (OR: 3.38, 95% CI: 1.11-10.24), suicidal ideation (OR: 4.41, 95% CI: 1.93-10.04), binge drinking (OR: 6.65, 95% CI: 1.35-32.61), and unprotected anal sex with stable partners (OR: 3.54, 95% CI: 1.42-8.82) among those with "high DBSO", as compared to "low DBSO". Reporting a religious affiliation (OR: 0.37; 95% CI: 0.14-0.97) was negatively associated with "high DBSO" as compared to "low DBSO".

Conclusions: Several aspects of Brazilian male gender identity may contribute to the high levels of DBSO reported by MSM in Brazil, including "machismo", misogyny, and patriarchy. These characteristics can increase exposure of MSM to violence, alcohol consumption, suicidal ideas, stigma, and discrimination, all known risk factors for HIV infection. Anti-discrimination and gender diversity policies are urgently needed to address DBSO routinely faced by MSM.

TUPEC194

Recent decreases in unsuppressed viral load among HIV-positive men who have sex with men in Vancouver, Canada from 2012-2017

H.L. Armstrong[1,2], J. Gitelman[3], Z. Cui[1], N. Bacani[1], P. Sereda[1], N.J. Lachowsky[1,4], K.G. Card[1,5], H. Fisher Raymond[6], J. Montaner[1,2], R.S. Hogg[1,5], E.A. Roth[4], M. Hull[1,2], T. Howard[7], D.M. Moore[1,2]
[1]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada, [2]University of British Columbia, Medicine, Vancouver, Canada, [3]McGill University, Montreal, Canada, [4]University of Victoria, Victoria, Canada, [5]Simon Fraser University, Burnaby, Canada, [6]Rutgers University, New Brunswick, United States, [7]Momentum Health Study Community Advisory Board, Vancouver, Canada

Background: The majority of people diagnosed with HIV in Canada are men who have sex with men (MSM). Since 2010, British Columbia has implemented Treatment as Prevention (TasP) as policy. We examined trends in virologic suppression and determinants of significant viremia among a cohort of HIV-positive MSM in Vancouver over a five-year period.

Methods: Using respondent-driven sampling, male-identified participants ≥16 years old living in Metro Vancouver and reporting sex with another man in the past 6 months were recruited into the Momentum Health Study between 02/2012-02/2015. Study visits occurred every 6 months, up to 02/2017, and included a computer-assisted self-interview and clinical CD4 and viral load (VL) testing. We also linked participant data with the BC HIV Drug Treatment Program to obtain drug dispensing and VL data. We conducted a trend analysis of VL suppression using univariable generalized estimating equation (GEE) multi-level modelling (RDS chain: participant: visit) with calendar time as the independent variable. Univariable and multivariable GEE identified factors associated with episodes of VL ≥200 copies/mL.

Results: Of 774 participants, 223 were HIV-positive at baseline and 11 were diagnosed during follow-up; 2 had incomplete data and were excluded from this analysis (n=232). We observed a significant trend towards reduced levels of unsuppressed VL (>200 copies/mL) from 22% of individuals (07/2012-12/2012) to 12% (07/2016-12/2016) (OR:0.87; 95%CI:0.83-0.92 for each 6-month period; *p*< 0.0001 for trend). 175 HIV-positive MSM had ≥1 follow-up visit (total visits=1271; median follow-up=3.5 years). Median age was 47 years (Q1,Q3:39,52); most identified as gay (85.7%) and white (80.6%). Factors associated with episodes of VL ≥200 copies/mL included younger age, substance use (i.e., ecstasy and crystal methamphetamine), seeking sex online, and lower HIV treatment optimism. MSM who reported condomless anal sex with an HIV-negative partner were less likely to have periods of unsuppressed VL (Table 1).

Conclusions: During a period when TasP policy was actively promoted, we observed a significant trend towards reduced community VL among HIV-positive MSM in Vancouver. In order to maximize rates of VL suppression, continued efforts should promote antiretroviral therapy to younger MSM, those who seek sex online, and those who use substances.

	Adjusted Odds Ratio	95% Confidence Interval		p value
Age (period based; per year older)	0.97	0.95	0.999	0.040
HAART Optimism Scale (per one unit increase)	0.93	0.89	0.96	0.000
Ethnicity White(reference)	1.00			
Asian/Latino/Other	0.61	0.30	1.25	0.178
Aboriginal	2.31	0.85	6.23	0.099
Ecstasy Use (past 6 months)	1.72	1.15	2.57	0.009
Crystal Methamphetamine Use (past 6 months)	1.81	1.25	2.61	0.002
Condomless Anal Sex with HIV-negative Partner (past 6 months)	0.67	0.46	0.97	0.036
Seeking Sex Online (past 6 months)	1.54	1.06	2.24	0.025

[Table 1: Multivariable factors associated with episodes of VL ≥200 copies/mL over time among HIV-positive MSM; 2012 - 2017 (n=175)]

TUPEC195

Factors associated with unprotected receptive anal sex among MSM in Brazil: A national RDS study

M.D. Crosland Guimaraes[1], G. Machado Rocha[2], A.M. de Brito[3], I. Dourado[4], M.A. Veras[5], L. Magno[6], C. Kendall[7,8], L. Kerr[8], The Brazilian MSM Group
[1]Federal University of Minas Gerais, Belo Horizonte, Brazil, [2]Federal University of São João Del-Rei, Divinópolis, Brazil, [3]Aggeu Magalhães Institute - FIOCRUZ, Recife, Brazil, [4]Collective Health Institute, Federal University of Bahia, Salvador, Brazil, [5]Santa Casa Faculty of Medical Sciences, São Paulo, Brazil, [6]State University of Bahia, Department of Life Sciences, Salvador, Brazil, [7]Tulane School of Public Health and Tropical Medicine, Center for Global Health Equity, New Orleans, United States, [8]Federal University of Ceará, Department of Community Health, Fortaleza, Brazil

Background: Unprotected receptive anal intercourse (URAI) is the riskiest sexual behavior for HIV infection among men who have sex with men (MSM). The incidence of HIV among younger MSM is increasing in many countries. The aim of this study was to estimate the prevalence and factors associated with URAI among MSM in Brazil, stratified by age.

Methods: Cross-sectional study of 4,175 MSM recruited from 12 Brazilian cities by respondent driven sampling in 2016. Participants were interviewed and the associations of behavioral, sociodemographic, and health service related variables with URAI were assessed by age groups (18-24 or 25+ years old). Odds ratios with 95% confidence intervals were obtained using multiple logistic regression. For each city, individuals were weighted using RDS Analyst®. Combined data was analyzed by SAS® complex survey procedure using each city as a stratum.
Results: There was a higher proportion of MSM 18-24 years old (58.3%) in the sample. Among these younger MSM, there were higher proportions of single (90.3%), white (34.8%), 12+ years of education (75.2%) and higher socioeconomic status (46.0%), as compared to those 25+ years old (78.4%, 28.2%, 63.5%, 34.3%, respectively) (p< 0.01). The prevalence of URAI was also higher among younger MSM (41.9% vs 29.7%) (p< 0.01). Multivariate analysis indicated that perception of risk, sexual identity, self-rated health status, and exchanging sex for money were associated with URAI among younger MSM only. History of sexual violence, sex with younger partners, having six or more partners and unprotected sexual debut were associated with URAI among older MSM only (Table 1). Marital status, having stable partner in the past six month, and reporting sex with men only were associated with URAI in both groups. None of the health service related variables assessed (e.g. access to STI testing, condoms, lubricants or counseling) were associated with URAI.

Variables	Adjusted Odds Ratios (95% Confidence Intervals)	
	18-24 years old (n=2503)	25+ years old (n=1626)
Moderate/High self-perceived risk of HIV infection:	1.75 (1.09-2.82)	
Regular/Poor self-rated health status:	1.86 (1.17-2.96)	
Sel-reported Gay/Homosexual sexual identity:	2.75 (1.63-4.63)	
Exchanged sex for money in the past six month:	1.93 (1.17-3.19)	
Lifetime history of sexual violence:		2.07 (1.14-3.75)
Predominant age of sexual partners (5+ years younger):		2.39(1.30-4.42)
Six or more sexual partners in the past six months:		2.72 (1.36-5.42)
First sexual intercourse was unprotected:		2.04 (1.18-3.52)

[Table 1. Multivariate analysis of URAI among MSM in Brazil (shown variables which differed by age groups).]

Conclusions: MSM remain disproportionately affected by HIV in Brazil. The high proportion of URAI is of public health concern. Despite access to free condoms and lubricants, preventive efforts may not be reaching MSM effectively. Age specific and sensible intervention approaches, including stigma, discrimination, and perception of risk must be considered.

Epidemiology of HIV in infants, children and adolescents

TUPEC196

Virologic outcomes of perinatally infected adolescents in the period of early adolescence in South Africa (10-15 years)

P. Nyakato[1], M. Schomaker[1], N. Sipambo[2], K. Technau[3], G. Fatti[4], H. Rabie[5], F. Tanser[6], B. Eley[7], J. Euvrard[1,8], R. Wood[9], P. Tsondai[1], M.-A. Davies[1]
[1]Centre for Infectious Disease Epidemiology and Research, School of Public Health and Family Medicine, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa, [2]Harriet Shezi Children's Clinic, Chris Hani Baragwanath Academic Hospital, Johannesburg, South Africa, [3]Rahima Moosa Mother and Child Hospital and Department of Paediatrics & Child Health, University of Witwatersrand, Department of Paediatrics & Child Health, Johannesburg, South Africa, [4]Keth'impilo, Durban, South Africa, [5]Tygerberg Academic Hospital, University of Stellenbosch, Department of Paediatrics and Child Health, Stellenbosch, South Africa, [6]Africa Centre for Health and Population Studies, University of KwaZulu-Natal, Somkhele, Durban, South Africa, [7]Red Cross War Memorial Children's Hospital and Department of Paediatrics and Child Health, University of Cape Town, Department of Paediatrics and Child Health, Cape Town, South Africa, [8]Khayelitsha ART Programme and Médecins Sans Frontières, Khayelitsha, Cape Town, South Africa, [9]Gugulethu HIV Programme and Desmond Tutu HIV Centre, Cape Town, South Africa

Background: HIV infected adolescents are at higher risk of poor treatment outcomes compared to adults or children both due to their developmental stage and because the transition from paediatric to adult/adolescent care can be very challenging with impacts on adherence and retention. We sought to describe the virologic outcomes of adolescents that started antiretroviral therapy (ART) before the age of 10 years.
Methods: We included all adolescents aged 10-15 years who initiated ART before age 10 years (as a proxy for being perinatally infected) from 2004-2015 in 9 IeDEA-SA collaborative cohorts, and had at least 1 viral load (VL) measurement after the age of 10 years. We defined viral non-suppression as any viral load ≥400 copies/ml. Mixed effects logistic regression models were used to explore the association between current age and viral non-suppression adjusting for patient characteristics and time on ART as potential confounders.
Results: The median age at ART start among 4,827 adolescent children (49% female) who started ART before the age of 10 years was 7.2 years (Interquartile range (IQR): 6.0, 8.4). At age 10 years, 25% of these adolescents had VL ≥400 copies/ml. The overall probability of virologic non-suppression by age 15 years was 18% (95% Confidence Interval [CI]: 16%, 21%). The probability of non-suppression increased with increasing age on treatment (adjusted Odds Ratio [aOR]: 1.14 per year increase in age; 95% CI:1.02, 1.29) and was higher in those who started ART in more recent years (compared to reference period of 2004-2007 aOR: 1.90 95% CI 1.32, 2.73; for years 2008-2010 and aOR 6.56 ; 95%CI: 4.05, 10.65 for years 2011-2015).
Conclusions: As perinatally infected children progress into adolescence, the likelihood of poor virologic outcomes increases with age on treatment. It is a concern that children that initiated ART in the later years after 2010 are also at a higher risk of virologic failure.

VL≥400	Crude Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Age in years	1.21 (1.16, 1.26)	1.14 (1.02, 1.29)
Duration on art by age 10	1.12 (1.08, 1.17)	1.07 (0.95, 1.21)
Female (ref Male)	0.89 (0.72, 1.09)	0.85 (0.62, 1.16)
Immunnally suppressed at baseline as defined by CDC	9.65 (7.58, 12.27)	10.28 (7.11, 14.86)
Year of Starting ART: 2008-2010 vs 2004-2007	2.20 (1.76, 2.75)	1.90 (1.32, 2.73)
Year of Starting ART: 2011-2015 vs 2004-2007	4.99 (3.81, 6.54)	6.56 (4.05, 10.65)
WHO stage 3/4 vs 1/2	1.01 (.077, 1.33)	1.05 (0.75, 1.48)
"Third" drug in regimen: NVP vs EFV	1.05 (0.34, 3.25)	2.34 (0.50, 10.84)
"Third" drug in regimen: PI vs EFV	0.63 (0.37, 1.08)	0.22 (0.10, 0.46)

[Factors associated with virologic non-suppression among perinatally HIV infected adolescents during early adolescence (10-15 years)]

TUPEC197

High HIV prevalence among adolescent girls and young women participating in a community-based HIV testing services program in Western Kenya

H.-H.M. Truong[1], R. Fatch[1], D. Ogindo[2], M.A. Guzé[3], E. Wandera[2], E. Akama[2], F. Otieno[2], D. Bushman[3], E.A. Bukusi[2], P. Oyaro[4], C.R. Cohen[3]
[1]University of California, Medicine, San Francisco, United States, [2]Kenya Medical Research Institute, Kisumu, Kenya, [3]University of California, Obstetrics, Gynecology & Reproductive Sciences, San Francisco, United States, [4]RCTP-FACES NGO, Kisumu, Kenya

Background: Adolescents (15-19 years old) and young people (20-24 years old) are priority populations for HIV prevention efforts globally. Adolescent girls and young women comprise 20% of new infections worldwide and 25% of new infections in sub-Saharan Africa. In Homa Bay County, Kenya, HIV prevalence is 6.7% among youth (15-24 years old), and this age group represents 22% of persons living with HIV. We assessed HIV prevalence among youth participating in a community-based HIV testing services (HTS) program.

Methods: The FACES Hybrid HTS program, which entailed community mapping, household census, multi-disease community health campaigns (CHCs) and home-based HTS, was piloted in Homa Bay County from July through September 2016. Same-day ART initiation was offered to persons newly-diagnosed at the CHCs. Demographic factors associated with HIV status were assessed using multivariable logistic regression. Multiple imputation via chained equations was used to impute missing values. Multivariable models used the imputed dataset and were adjusted for sex, age, education, marital status, sexual history and alcohol use.

Results: A total of 2,705 youth were reached, of whom 1,506 (56%) were female and 1,575 (58%) were adolescents. HIV prevalence was 5.7% overall. Of the 153 HIV-positive youth, 123 (80%) were previously-diagnosed and 30 (20%) were newly-diagnosed. HIV prevalence was 3.4% among adolescent girls, 15.3% among young women, 1.7% among adolescent boys and 1.4% among young men. Prevalence of newly-diagnosed HIV cases was 0.7% among adolescent girls, 2.5% among young women, 0.7% among adolescent boys and 0.5% among young men. HIV-positive status among youth was associated with female sex (aOR=4.38; p< 0.01) and ages 20-24 years (aOR=2.42; p< 0.01). Of the 25 youth who were newly-diagnosed at the CHCs, 56% initiated ART the same day as part of the campaign.

Conclusions: HIV prevalence was high among adolescent girls and young women participating in the Hybrid HTS program. These data highlight the importance of expanding the reach of HIV testing and prevention services for these priority populations. Community-based HTS may be an effective approach for reaching a broader base of adolescents and young people in order to reduce the number of new infections and improve linkage of HIV-positive youth to treatment.

TUPEC198

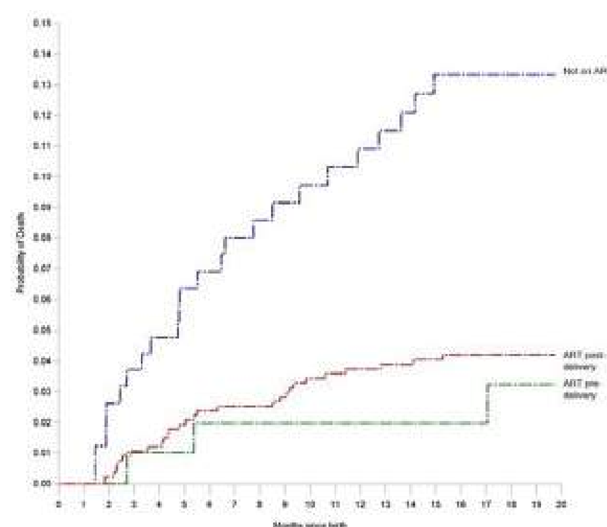
Timing of maternal ART and mortality risk in HIV-exposed uninfected infants: Findings from a prospective cohort of a nationally representative sample of mother-infant pairs from Zimbabwe 2013-2014

M.R. Patel[1], A. Mushavi[2], S. Balachandra[3], G. Shambira[4], J. Nyakura[4], O. Mugurungi[2], B. Tippett Barr[3], P.H. Kilmarx[1,3], T.-H. Dinh[1]
[1]U.S. Centers for Disease Control and Prevention, Center for Global Health, Division of Global HIV/TB, Atlanta, United States, [2]Ministry of Health & Child Care of Zimbabwe, AIDS & TB Department, Harare, Zimbabwe, [3]U.S. Centers for Disease Control and Prevention, Center for Global Health, Division of Global HIV/TB, Harare, Zimbabwe, [4]University of Zimbabwe, Department of Community Health, Harare, Zimbabwe

Background: It is well-established that maternal antiretroviral therapy (ART) could eliminate mother-to-child HIV transmission (MTCT); however, evidence on mortality among HIV-exposed uninfected infants (HEUI) is limited. We examined mortality among HEUI overall and by maternal ART timing and explored potential causes of death (COD).

Methods: We analyzed data from a prospective cohort of a nationally representative sample of mother-infant pairs in Zimbabwe recruited from (n=151) immunization clinics from February-August 2013, enrolled at 4-12 weeks age, and followed every 3 months until incident HIV-infection, death, or 18 months. We estimated cumulative mortality probability and hazard ratios (HR) with 95% confidence intervals (CI) for HEUI using Kaplan-Meir curves and Cox regression, respectively; unadjusted for complex survey design.

Results: Of 1188 HIV-exposed infants (HEI), 73 (6.1%) contracted HIV. The remaining 1115 HEUI infants had a median enrollment age of 6.6 weeks (interquartile range [IQR]: 6.0-8.9 weeks) and were 48.6% female. Overall, 54 (4.8%) HEUI infants died at a median of 5.5 months (IQR: 3.6-9.8 months). The most common symptoms preceding death were diarrhea (22% [n=12]), difficulty breathing (14.8% [n=8]), not eating (16.7% [n=9]), fever (9.3% [n=5]), and cough (7.4% [n=4]). Most mothers of HEUI were on ART pre-conception (36.4%) or during pregnancy (29.3%); 9.6% post-delivery and 24.7% never. Due to non-significant difference, we combined ART pre-conception and during pregnancy, as ART pre-delivery. Mortality was higher among HEUI with mothers never on ART (8.7%) compared with mothers on ART pre- and post-delivery (2.8% and 3.7%, respectively). Compared to HEUI with mothers never on ART, cumulative mortality at 20-months age was lower among HEUI with mothers on ART pre-delivery (HR=0.31, 95% CI: 0.18-0.56) and with mothers on ART post-delivery (HR=0.23, 95% CI: 0.67-0.76); the difference between HEUI with mothers on ART pre- and post-delivery was non-significant (Figure).



[Figure. Cumulative Mortality of HIV-exposed uninfected infants by maternal ART timing]

Conclusions: The mortality risk was significantly lower among infants born to HIV-infected mothers starting ART pre-delivery, emphasizing the importantance of early maternal ART initiation. Pneumonia- and gastro-intestinal infection-like symptoms were commonly reported as potential COD, suggesting that besides routine early infant diagnosis efforts, targeting early HIV diagnosis and care for HEI with potential opportunistic infections could prevent early mortality in this population.

TUPEC199

Achieving the second 90: Linking adolescents living with HIV to treatment in rural Malawi in the era of Test and Treat

E. Wetzel[1], K. Simon[1,2], T. Beyene[1,2], R. Turetsky[1], A. Kabwinja[1], W. Kammera[1], B. Chavula[1], C. Chikoti[1], H. Chibowa[3], J. Mhango[1], P. Kazembe[1,2], S. Ahmed[1,2], M. Kim[1,2]
[1]Baylor College of Medicine Children's Foundation, Lilongwe, Malawi, [2]Baylor College of Medicine International Pediatric AIDS Initiative, Houston, United States, [3]Ministry of Health, Lilongwe, Malawi

Background: In 2016, Malawi transitioned to "Test and Treat," a policy where all people living with HIV (PLHIV) are treated with lifelong antiretroviral therapy (ART) regardless of clinical or immunological status.

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This policy has associated concerns for linkage to ART, with particular concern for adolescents living with HIV (ALHIV, 10-19y). There are unique challenges linking ALHIV to ART due to developmental changes, increased fear of stigma and rejection, or lack of social support. We examined linkage to treatment amongst ALHIV compared to other ages in the era of test and treat in rural Malawi.

Methods: A retrospective analysis of routinely collected Baylor-Tingathe program data of ART naïve patients from the Ministry of Health (MoH) ART referral registers was conducted at 14 health centers in Mangochi District from October to December 2017. Demographic data of treatment naïve patients who were registered in the ART referral register to ease linkage to treatment were assessed. Chi-square test compared the proportion of patients who linked to treatment in the adolescent age group (10-19y) compared to other ages.

Results: Overall, 846 patients (65% female) were included in the analysis, 59 (7%) of whom were ALHIV. After one month of registration in the ART referral register, 709 (84%) were initiated on ART, 104 (12%) had unknown linkage status, 32 (4%) refused ART, and 1 (< 1%) died. Compared to other age groups, ALHIV had the lowest linkage to ART (81%) (Table 1). Linkage was highest among children < 10y at 92% (55/60). ALHIV had poorer linkage compared to all other ages, although not statistically significant (81% vs 84%, p=0.59).

Age at Registration (Years)	Total Registered	Started ART within one month	Percent Linkage to ART
<10	60	55	92%
10-19	59	48	81%
20-24	138	116	84%
25-49	507	422	83%
50+	82	68	83%
Total	846	709	84%

[Table 1. Patients recorded in the ART referral register and those who started ART within one month at 14 sites in Mangochi Oct - Dec 2017]

Conclusions: ALHIV age 10-19y had the lowest linkage to ART compared to other age groups. This suggests that ALHIV may be particularly vulnerable to poor linkage in the era of test and treat. Understanding potential demographic differences in linkage to treatment is imperative in implementing appropriate and targeted strategies to achieve the second 90.

TUPEC200

Survival of children living with AIDS in Brazil - Cohort BIAIDS - Brazil

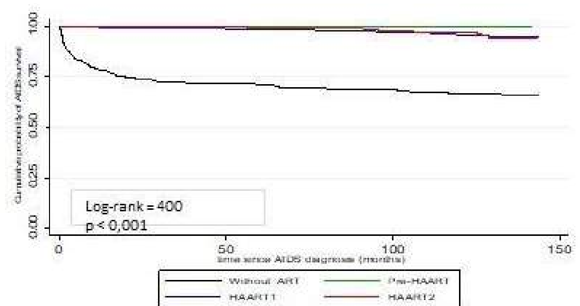
C.S.B. Domingues[1], M.V. Tancredi[1], I.A. Guibu[2], E.A. Waldman[3], F.A. Pires[4], M.A. Gutierrez[4], A.S. Benzaken[5], G.F.M. Pereira[5]
[1]STD/AIDS Reference Center, Sao Paulo State Program of STD/AIDS, Department of Health, Sao Paulo, Brazil, [2]Santa Casa de Sao Paulo School of Medicine, Sao Paulo, Brazil, [3]School of Public Health of University of Sao Paulo, Epidemiology, Sao Paulo, Brazil, [4]Heart Institute, School of Medicine of University of Sao Paulo, Sao Paulo, Brazil, [5]Brazilian Ministry of Health, Department of Surveillance, Prevention and Control of STIs, HIV/AIDS and Viral Hepatitis, Brasilia, Brazil

Background: Brazil was the first middle-income country to offer universal access to AIDS treatment since 1996 and has developed a national plan to eliminate mother-to-child transmission of HIV (MTCT). This study aimed to estimate the survival of children living with AIDS (CLWA) under 13 years of age and to investigate predictors of death with a basic AIDS cause in Brazil among 2003-2007, followed up until 2014.

Methods: Retrospective cohort. Data from the Brazilian Integrated Base of AIDS Cohort (BIAIDS-BRAZIL Cohort) was obtained from a probabilistic record linkage methodology applied to databases of the Ministry of Health: Information System of Notification Diseases (SINAN-AIDS), Control of Laboratory Tests (Siscel)/Logistic Control System of Medicines (Siclom) and Mortality Information System. Kaplan-Meier method, Cox model and estimates of the hazard ratios (HR), with 95% confidence intervals (CI=95%) were used for survival analysis. The main variable was the antiretroviral therapy (ART). To identify factors associated with the outcomes of interest, sociodemographic characteristics, clinical, therapeutic and laboratory evolution were analyzed. The values for each age range were set as altered TCD4+ count: under 1 year < 1,500 cells/mm³; 1-5 years < 1000 cells/mm³ and 6-12 years < 500 cells/mm³.

Results: During the period of 2003-2007, 2,569 CLWA were reported, with 280 deaths, predominance of MTCT in 99% of the cases. All children had detectable viral load, 80% of them >1,000 copies. The probability of surviving 144 months was 65% for those who did not use ART, 100% for those with Pre-HAART (27 children), 95% with HAART1 and 95% with HAART2. They were associated with AIDS death independent of other exposures: non-use of ART (HR=2.4;95%CI1.7-3.6); to have had TCD4+ in the normal diagnosis for age (HR=0.3;95%CI0.2-0.5).

Conclusions: The probability of survival was increased once and a half times, from 65% to 95% in 144 months, due to the introduction of more powerful therapeutic regimens adopted in the country. They were associated with survival time, as an independent prognostic factor: use of HAART and TCD4+ at the time of diagnosis. The success of the Brazilian policy has had a great impact in the reduction of mortality and increasing survival of the CLWA.



Note:
PRE-HAART = Nucleosidic Reverse Transcriptase Inhibitors
HAART1 = Non-Nucleosidic Reverse Transcriptase Inhibitors / Protease Inhibitors
HAART2 = Schemes containing at least one THIRD LINE ART

[Cumulative probability of survival in children with AIDS by treatment regim, Brazil, 2003 - 2007]

TUPEC201

Special cases in the diagnosis of HIV-1 perinatally infected children younger than 18-month-old from Argentina

M.D. Golemba[1], D. Mecikovsky[2], M. Ortíz de Zárate[3], G. Silva[4], P.C. Aulicino[1], M. Pineda[1], M. Taicz[2], V. Rossi[3], R. Bologna[2], A.M. Mangano[1]
[1]Laboratorio de Biología Celular y Retrovirus, Hospital de Pediatría 'Juan P. Garrahan' CONICET, CABA, Argentina, [2]Servicio de Epidemiologia e Infectologia, Hospital de Pediatría 'Juan P. Garrahan', CABA, Argentina, [3]Hospital Materno Infantil Ramón Sarda, CABA, Argentina, [4]Laboratorio de Alta Complejidad de Misiones. Parque de la Salud. Ministerio de Salud Publica, Misiones, Argentina

Background: Prompt identification of HIV infection in children is important to allow early initiation of antiretroviral therapy (ART). However, there are some "special cases", with discordant results between their samples, making HIV-1diagnosis difficult and delaying the ART initiation.
The aim of this work was to analyze the „special cases" among the HIV-1 positive children diagnosed in a five-year period in Argentina.

Methods: A total of 39 HIV-1 infected children younger than 18-month-old by vertical transmission (without breastfeeding) were diagnosed at Retrovirus Laboratory (2013-2017) from different public referral centers: Pediatric Garrahan Hospital, Buenos Aires (GH), Sarda Maternity, Buenos Aires (SM) and Misiones Province (MP).
HIV-1 diagnostic was carried out by PCR-DNA and/or viral load-RNA (pVL) with at least two independent positive samples from each patient, as suggested by the National-Guidelines.

Results: Twenty two out of 39 children had a „late" positive diagnosis (>60 days of life), and the majority came from GH and MP. On the contrary, most of the patients (8/10) from the maternity SM were diagnosed at early stages (< 60 days of life).
Among the eight „special cases" identified, four had a first sample before the first month of life with negative result (Group A, Table 1), whereas the other four had pVL < 1000 copies/mL (Group B, Table 1). Surprisingly in

the absence of antepartum or intrapartum ARV prophylaxis, one patient had negative result in the first sample at 22 days-old and the other one had < 1000 copies/mL at 28 days-old.

Patients, Group A	1st Sample (day)	2nd Sample (day)	3th Sample (day)	Mother under ART	Intrapartum ARV prophylaxis	Neonatal ARV prophylaxis
5783	Negative (22)	Positive (120)	Positive (176)	No	No	No
6200	Negative (0)	Positive (35)	Positive (42)	Yes	Yes	Yes
6184	Negative (8)	Negative (36)	Positive (120)	Yes	Yes	Yes
6331	Negative (3)	Negative (35)	Positive (77)	Yes	Yes	Yes
Patients, Group B	**pVL 1st Sample (day)**	**pVL 2nd Sample (day)**	**pVL 3th Sample (day)**	**Mother under ART**	**Intrapartum ARV prophylaxis**	**Neonatal ARV prophylaxis**
5696	<65 copies/ml (2)	ND copies/ml (28)	45708 copies/ml (268)	No	No	No
6115	<229 copies/ml (62)	190 copies/ml (67)	1010 copies/ml (89)	Yes	Yes	Yes
5791	<794 copies/ml (3)	76 copies/ml (12)	4898 copies/ml (17)	No	No	Yes
6466	<240 copies/ml (10)	218776 copies/ml (22)	Positive DNA-PCR (43)	Yes	Yes	Yes

['Special Cases' with first sample with DNA HIV-1 and/or pVL negative (Group A) and with low pVL (<1000 copies/ml) (Group B)]

Conclusions: Despite the great effort to early diagnosis of HIV-1 perinatal infection in Argentina, there is still several cases of late diagnosis, mainly because children are lately referred for testing in referral laboratories. It is important to mention that during early diagnosis some samples can test negative by PCR-DNA and/or pVL or very low copies/mL (below the limit of 5,000 copies/mL suggested by the International-Guidelines). These cases are important diagnostic challenges in the daily routine highlighting the need of interdisciplinary work and close follow up of HIV-1 exposed children.

TUPEC202

Mapping and population size estimates of street children in six cities with extrapolation to national level in Iran

M. Vameghi[1], P. Roshanfekr[1], D. Ali[2], S. Madani[2], M. Noroozi[2], W. McFarland[3], A. Mirzazadeh[3,4]

[1]University of Social Welfare and Rehabilitation Sciences, Social Welfare Management Research Center, Tehran, Iran, Islamic Republic of, [2]University of Social Welfare and Rehabilitation Sciences, Tehran, Iran, Islamic Republic of, [3]Institute for Global Health Sciences, University of California, Department of Epidemiology and Biostatistics, San Francisco, United States, [4]HIV/STI Surveillance Research Center, and WHO Collaborating Center for HIV Surveillance, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran, Islamic Republic of

Background: Iran national HIV strategic plan 2015-2020 has included street children as one of the key population at high-risk for HIV. Knowing the population size of street children is critical for advocacy and planning for this vulnerable population. We adapted and applied four different methods, to locate and estimate the population size of street children in six major cities in Iran.

Methods: Our population size estimation methods included direct and indirect count of street children, wisdom of crowds and unique object multiplier in a rapid assessment and response study. From March to May 2017, by interview with (114 city-level, 223 local-level and 933 street children) key informants and field observations, we located 464 public venues accommodated frequently by street children in Tehran, Mashhad, Karaj, Kermanshah, Zahedan and Bandar Abbas. After estimating the count by each method, we calculated the median and interquartile range (IQR) of the four estimates in each city. Using the total number of street children estimated for all six cities, we calculated the rate of street children per 10000 total population and used this rate to estimate the total number of street children in Iran in 2018.

Results: Recruited street children were 13.8 (SD 2.3) years old, 9.8% girl, %53.9 born in Afghanistan or had Afghani nationality, and %11.9 have never attended school. The median (IQR) size estimations ranged from 234 (IQR 181, 404) in Kermanshah to 2090 (IQR 1803, 2965) in Tehran. The median number of street children using all methods combined in all six cities was 5317 (IQR 4123, 7315). This corresponds to the rate of 16.4 (IQR 12.7, 22.5) per 10000 children aged 5-19 years old, or 3.2 (2.5, 4.4) per 10,000 total populations. Applying the median (IQR) rate to the total population of Iran in 2018 (81142994 person), the total number for street children in Iran is estimated at about 26000 (IQR 20286, 35703) children.

Conclusions: The number of street children is considerable in Iran across many cities and venues, majority from immigrant population. Our estimations can be used to advocate and planning for services that improve health and reduce vulnerability of street children in Iran.

TUPEC203

HIV status awareness among mothers and their under-5 children in Malawi: Results from a population HIV survey

N. Conan[1], M. Chihana[1], C.P. Paye[2], A. Chijuwa[3], R. Ortuno[4], E. Goemaere[5], H. Huerga[2], D. Maman[2]

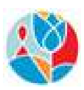
[1]Epicentre, Cape Town, South Africa, [2]Epicentre, Paris, France, [3]Ministry of Health, Nsanje, Malawi, [4]Medecins sans Frontieres, Blantyre, Malawi, [5]Southern Africa Medical Unit, Cape Town, South Africa

Background: Mothers' awareness of their own HIV status is the first step for HIV diagnosis in children. We assessed the HIV status awareness of mothers of HIV-positive under-five children in Nsanje, Malawi.

Methods: A cross-sectional population survey was implemented between September and December 2016. Children below five years whose mothers were HIV-positive or with an unknown HIV status were recruited. A multistage cluster sampling was used to select 2,443 households. Informed consent was requested from parents or legal guardians. Child HIV status was assessed using a rapid HIV antibody test algorithm or Deoxy-ribonucleic Acid (DNA) PCR, depending on the age of the child. A standardised questionnaire was administered to the mother or legal guardian.

Results: Of the 1,568 under-five children listed during the survey, 236 (52.1% girls) were included. The median age was 24.0 months [IQR: 12-36]. Overall 149/236 (63.1%) children had been tested for HIV prior to the survey. Of them, 94/149 (63.1%) had been tested previously at least 2 times and 85/149 (57.0%) were tested in the previous 12 months. However, 20/149 (13.4%) had never received the test result. Out of the 227 children tested during the survey, 17 (1.1%, 95%CI: 0.7- 1.8) were HIV-positive. The mothers of 8/17 (47.1%) were not aware of the HIV status of their child and among them, 4 (50.0%) mothers were not aware of their own HIV status. The median age of the children not aware of their HIV-positivity was 2.5 months [IQR: 1-3.5]. Two of the 8 children unaware of their HIV status had been previously tested for HIV, one at 4 months using DNA PCR and another at 17 months using rapid test.

Conclusions: In Nsanje, despite the low HIV prevalence among under-five children, a high proportion of HIV-positive children was not diagnosed and almost half of the mothers were not aware of their child HIV-positive status. This was partly due to undiagnosed HIV among mothers. High proportion of previously tested children who did not receive their test result is a concern. Programs should strengthen strategies for HIV testing among mothers and children.



TUPEC204

TB-HIV program monitoring in PEPFAR-supported countries: Screening, prevention, and treatment results for children and adults, October 1, 2016 - September 30, 2017

K. O'Connor[1], V. Ryan[2], R. Golin[2], C. Nichols[2], G. Anyalechi[1], H. Kirking[1], M. Patel[1]
[1]Centers for Disease Control, Division of Global HIV and TB, Atlanta, United States, [2]USAID, Office of HIV/AIDS, Washington, United States

Background: Worldwide, an estimated 52,000 children living with HIV died from TB in 2016. Timely and accurate diagnosis and linkage to treatment or prevention for both diseases can reduce pediatric morbidity and mortality, and is an integral part of the President's Emergency Plan for AIDS Relief (PEPFAR). We analyzed TB/HIV clinical service data for children (< 15 years) and adults (≥15 years) reported by PEPFAR-supported country and regional programs from October 1, 2016 - September 30, 2017.

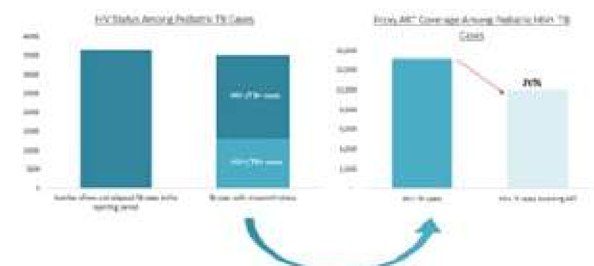
Methods: We analyzed age-disaggregated program data from TB clinics on patients with a documented HIV status and antiretroviral therapy (ART) coverage, and data from ART clinics on patients routinely screened for TB, initiated on and completed TB preventive therapy (TPT). We assessed the completeness of age-disaggregated data and computed descriptive statistics with the complete data. Proxy ART coverage is comparing the number of ART patients to HIV-positive patients.

Results: Thirty-two PEPFAR programs reported on ≥1 TB/HIV clinical indicator. Fifteen programs (47%) reported complete age disaggregates for HIV status and ART status among TB clinic patients. Twelve programs (38%) reported completed age disaggregates for ART patients screened for TB and 11 programs (34%) reported complete age disaggregates for ART patients initiated on and completing TPT.

	Reported on TB/HIV Indicator in FY17	Had complete age disaggregated data on indicators for HIV and ART status of TB patients	Had complete age disaggregated data on ART patients screened for TB	Had complete age disaggregated data for all PEPFAR-supported patients on ART	Had compelete age disaggregated data on TB treatment for ART patients
Botswana	X		X		
Cameroon	X	X	X	X	
Cote d´Ivoire	X	X		X	
Ethiopia	X			X	
Kenya	X	X		X	X
Lesotho	X		X	X	X
Mozambique	X			X	X
South Africa	X	X		X	
Zimbabwe	X	X	X	X	

[Sample Complete Age-Disaggregated Data across TB/HIV data, October 1, 2016 - September 30, 2017]

Out of 35,035 children diagnosed with TB attending TB clinics, 96% had documented HIV status; similar to adults (96%). Of these children, 13,219 (38%) were HIV-positive (CLHIV); 61% were known HIV-positive and 39% were newly diagnosed HIV-positive. Within TB clinics, only 76% of CLHIV were linked to ART; lower than adults (90%). Out of 174,214 children on ART attending HIV clinics, 72% were screened for TB; similar to adults (71%). A total of 42,559 children on ART were initiated on TPT, of whom 25,745 (60%) completed TPT; similar to adults (62%).



[HIV Status among Pediatric TB Cases and Proxy ART Coverage of HIV+ TB Cases, October 1, 2016 - September 30, 2017]

Conclusions: Less than 50% of PEPFAR-supported programs reported complete age-disaggregated data on TB/HIV clinical service data; improved reporting is needed to better understand programmatic challenges and opportunities among children. There is still a critical need for additional HIV testing and ART initiation among eligible TB patients. There is also need for improved TB screening, and TPT completion among ART patients.

TUPEC205

Efficacy of intensive adherence counselling in reversing virologic failure in adolescents on long-term ART in Uganda

J. Sproule[1], J. Byawaka[2], J. Birungi[2], R.S.A. Mazzola[1], M. Nanfuka[2], D. Moore[1,3], M. Etukoit[2]
[1]University of British Columbia, Vancouver, Canada, [2]The AIDS Support Organization, Kampala, Uganda, [3]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada

Background: Current WHO guidelines recommend viral load (VL) testing to monitor antiretroviral therapy (ART) efficacy, and intensive adherence counselling (IAC) for those who have elevated VL. Consequently, many patients who have been on long-term ART will be diagnosed with virologic failure after long periods of viremia. We evaluated the effectiveness of IAC in reversing virologic failure among adolescents who have been on long-term ART in Uganda, a population with unique challenges to adherence.

Methods: We conducted an analysis of data collected at 6 sites of The AIDS Support Organization (TASO). We selected patients aged 10-18 who had been on ART for ≥4 years, had not had a previous VL test and had a measured VL ≥1000 copies/mL between January 2014 and June 2016. Data was recorded in the TASO clinical database with adherence measured by pill counts. Patients were informed of their VL and underwent monthly IAC sessions for at least three months, followed by repeat VL testing. We conducted bivariate and multivariate logistic regression analyses to examine factors associated with reversal of virologic failure.

Results: A total of 185 adolescents (52.4% female) with a mean age of 13.7 years (SD = 2.4) met the inclusion criteria. Participants had been on ART for a mean of 4.5 years (SD = 2.70). Thirty-eight percent had VL between 1000 and 10,000 copies/mL and 62% had VLs ≥10,000 copies/mL.

Overall, 41 (22%) of patients had a VL< 1000 copies/mL on repeat testing. Reversal of virologic failure varied by TASO site, from 46.2% Masindi to 5.6% in Entebbe (p=0.004).

Only 26.2% of patients had ≥95% adherence after the third IAC session. Compared to those with ≥95% adherence, adolescents with < 85% adherence were less likely to reverse virologic failure (OR=0.11, 95%CI (0.027-0.414). Notably, there was no difference in reversal of virologic failure associated with the level of viremia.

Conclusions: Only 22.2% of adolescents who had been on ART for ≥4 years were able to reverse virologic failure following IAC. Given that only a minority of patients achieved >95% adherence, programmatic changes may be needed to improve adolescent outcomes.

Epidemiology of HIV in other key vulnerable populations (e.g. PWID, women, TGW, sex-workers, prison populations, older groups)

TUPEC206

Forty percent reduction in HIV prevalence among randomly sampled female sex workers in Mombasa, Kenya following intensive prevention programmes

G. Manguro[1], C. Gichuki[1], F. Ampt[2], M. Temmerman[3], M. Chersich[4], S. Luchters[2], P. Gichangi[1], WHISPER/SHOUT Clinical Trial Group
[1]International Center for Reproductive Health Kenya, Mombasa, Kenya, [2]Burnett Institute, Melbourne, Australia, [3]Aga Khan University Hospital, Nairobi, Kenya, [4]University of Witwatersrand, Johannesburg, Kenya

Background: An estimated 30% of female sex workers (FSW) in Kenya are HIV-infected compared to 7% of general-population women. In a 2012 survey in Mombasa, HIV prevalence among FSWs was 20%. Since then, multiple interventions, centering on peer educators, sex worker clinics and research programmes have targeted FSWs in Mombasa. These have raised HIV awareness and reduced high-risk behaviours, but it is not known if these have translated into declines in HIV transmission.
Methods: We recruited 882 FSWs from 93 sex work venues in Mombasa, Kenya between September 2016 and May 2017. First stage sampling involved random proportionate to size selection of 102 sex work venues (clusters), using a sampling frame of 760 previously enumerated venues. At the second stage, 10 FSWs were consecutively selected from each venue. Eligible women were 16-34 years, not pregnant and active sex workers in the last 6 months. Prevalence estimates were weighted to account for differences in probabilities of recruitment. Multivariate logistic regression models identified correlates of HIV infection.
Results: Mean age of participants was 25.4 years. As many as 41.6% had no education or completed only primary-level. Median duration of sex work was 4 years (inter-quartile range (IQR)=2-6). The majority did not live with a partner (68%), though 57% reported having a boyfriend. Median number of clients within the past seven days was 4 (IQR=3-6). Overall, weighted HIV prevalence was 11.8% (95% confidence interval (95%CI)=9.5-14.7), and varied with age and level of education. Odds of HIV infection was 15.1 fold higher in women aged 30-34 years than those 16-20 (95%CI adjusted odds ratio=5.6-40.3). Conversely, women with tertiary education had 80% lower odds of HIV than those with no or primary education (adjusted odds ratio=0.20, 95%CI=0.59-0.71).
Conclusions: HIV prevalence among FWSs in Mombasa in 2016/2017 was 41% lower than previous estimates. It is plausible that this decline is due to the multiple, peer-led interventions in the area. While reductions are pleasing, HIV infection levels remain unacceptably high. Considering the central role FSWs play in sustaining population-level infections, continued or further strengthening of these programs is required.

TUPEC207

Intimate partner violence is a key predictor of HIV risk among Black heterosexual women in Baltimore, MD, USA

A.N. Cimino[1], G. Yi[1], J. Campbell[1], K.K. Gundersen[2], J.K. Stockman[2]
[1]Johns Hopkins University, School of Nursing, Baltimore, United States, [2]University of California, San Diego, Global Public Health, Division of Infectious Diseases and Global Public Health, San Diego, United States

Background: Black women are the largest group of US heterosexuals newly infected with HIV, and have the highest rates of HIV mortality. Childhood and adulthood violence were separately identified as direct and indirect risk factors for HIV, and Black women disproportionally experience both types of violence. This study examines the relationship between abuse groups (no lifetime abuse, childhood abuse only, adult intimate partner violence [IPV] only, and childhood abuse and adult IPV) and HIV risk among Black women who had a male sex partner in the past year.
Methods: Black women (N=707) were recruited from STD clinics in Baltimore, MD, USA, a city with the highest HIV prevalence among US women. Using an audio computer self-interview technique, participants provided demographic information, past-year sexual risk behaviors, and lifetime abuse history (being punched, slammed against wall, beat-up, controlled, afraid, strangled, threatened/used a weapon, forced/threatened to have sex by partner/ex-partner, and/or experiencing childhood abuse [physical and/or sexual]). HIV risk was a composite of a male partner who: used injection and/or non-injections drugs, has sex with other men, has concurrent female sex partners, was incarcerated, has a STD, or tested positive for HIV. Analyses included descriptives, correlations, and linear regression.
Results: Over half (50.6% n=358) experienced lifetime abuse: 12.6% (n=45) experienced childhood physical and/or sexual abuse only, 35.5% (n=127) experienced adult IPV only, and 52% (n=186) experienced both childhood abuse and adult IPV. Experiencing abuse significantly predicted HIV risk, $F(703)=30.67, p< .01$, with the adult IPV only category being statistically significant, ($B=1.56$, SE $B=.33$; $t=4.68, p< .01$) in reference to the no abuse category. Among women experiencing adult IPV only, there were significant correlations between HIV risk and use of force or threats to have sex (r=.21), threatened with or used a weapon (r=.22), physical violence (r=.22) and strangulation (r=.21); whereas controlling (r=.28), afraid (r=.21), forced sex (r=1.6), weapon use (r=.15) and choking to unconsciousness (r=2.8) were significant for the childhood abuse and adult IPV group.
Conclusions: IPV is a key factor in HIV risk among Black women. Integrated IPV and HIV prevention programs should be widely implemented, especially in regions with high prevalence of these intersecting epidemics.

TUPEC208

The 2014 HIV care cascade and virologic response over time among transgender people in a large multi-site Canadian cohort

A. Rich[1,2], P. Sereda[1], M. Ye[1], J. Zhu[1], A. Scheim[3], C. Cooper[4], S. Walmsley[5], M. Klein[6], S. Sanche[7], D. Kelly[8], S. Rourke[9], N. Machouf[10], R. Hogg[1,11], on behalf of the Canadian Observational Cohort Collaboration
[1]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada, [2]University of British Columbia, Vancouver, Canada, [3]University of California San Diego, San Diego, United States, [4]University of Ottawa, Ottawa, Canada, [5]University Health Network, Toronto, Canada, [6]McGill University, Montreal, Canada, [7]University of Saskatchewan, Saskatoon, Canada, [8]Memorial University of Newfoundland, St. John's, Canada, [9]University of Toronto, Toronto, Canada, [10]Clinique de Médicine Urbaine du Quartier Latin, Montreal, Canada, [11]Simon Fraser University, Burnaby, Canada

Background: Transgender (trans) people are a key HIV priority population. The current study is one of the first to characterize the HIV clinical care cascade and viral response over time for trans people in Canada. This study hypothesized that trans people would be less well engaged at each step of the HIV care cascade than non-trans people and have poorer virologic response over time.
Methods: The Canadian HIV Observational Cohort (CANOC) provided data for this study; participants were HIV diagnosed patients who had initiated antiretroviral treatment (ART) since 2000. Trans people were matched with non-trans comparison groups using a 1 trans person: 1 non-trans man: 1 non-trans woman scheme. Chi-square tests assessed differences in bivariable relationships and penalized likelihood Cox proportional hazards models examined the relationship between gender and time to virologic outcomes, adjusted for HIV-related clinical characteristics.
Results: Of the total trans sample (n=43), 91% were from British Columbia and 9% were from Ontario. 21% were White, 2% Black, 26% Indigenous, and 51% were of other or unknown race/ethnicity. In 2014, trans people (n=19 with full year follow up) were well engaged in care and on ART, though largely unsuppressed. The proportion of trans and non-trans people was similar at each cascade step (Table 1), with no significant differences between the groups. In multivariable models of virologic outcomes over time, there were no significant differences between trans and non-trans groups, though non-trans women had significantly slower time to initial viral suppression than non-trans men (HR 0.24, 95% CI: 0.10, 0.56).

Conclusions: Counter to hypotheses, there were no significant differences between trans and non-trans groups in the cascade nor viral suppression and rebound over time. In this initial study, such low suppression levels for all groups is likely related to skew to early ART initiation era in the matched sample. Improved gender ascertainment in clinical cohorts is needed to facilitate further research with larger sample sizes and better characterize HIV clinical care and virologic outcomes for this priority population.

	Care Cascade Step		
	Retained in care, N (%)	On ART, N (%)	Virologically suppressed, N (%)
Gender			
Non-trans man	17 (89.47)	19 (100.00)	3 (15.79)
Non-trans woman	16 (84.21)	19 (100.00)	3 (15.79)
Trans person	18 (94.74)	19 (100.00)	5 (26.32)

[HIV Clinical Care Cascade by gender, 2014 (n=57)]

TUPEC209

Patterns of HIV risk and viremia among people who inject drugs in a community-based cohort in Baltimore, Maryland

B.L. Genberg[1], D. Celentano[1,2], J. Astemborski[1], G. Kirk[1,2], S. Mehta[1]
[1]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [2]Johns Hopkins University School of Medicine, Infectious Disease, Baltimore, United States

Background: Although HIV incidence among people who inject drugs (PWID) in the US has declined substantially over the past decade, there is potential for increases among a new generation using prescription opioids without experience with safe injection practices or harm reduction. In an urban setting with both a historical heroin epidemic and an emerging group of users, we characterized phenotypes of drug use and the associations with prospective injection-related risk and HIV viremia in a long-standing cohort of PWID in Baltimore, Maryland, USA.

Methods: We included data on recent (prior six months) injection and non-injection use of heroin, crack/cocaine, speedball, marijuana, alcohol and prescription opioids, tranquilizers or sedatives (acquired from non-physician source), among PWID in the ALIVE (AIDS Linked to the IntraVenous Experience) cohort between 2014-2017 to define baseline drug use phenotypes using latent class analysis. Logistic regression analysis with generalized estimating equations was used to prospectively examine associations between phenotypes and HIV risk.

Results: Among 1,381 PWID, 32% were female, 81% African-American, 30% HIV-positive, and the median age was 53 years. Five phenotypes emerged:
1) None/Alcohol-only (43%),
2) Crack/cocaine-predominant (24%),
3) Heroin-predominant (18%),
4) Prescription drug-predominant (7%), and
5) Poly-substance use (8%).
Younger, White, HIV- and HCV-negative PWID were more likely to be in groups 3, 4, and 5, in which higher frequency of injection and use of a greater number of substances was reported (Table 1).

Phenotype	N	Median number (interquartile range) of substances used (past 6 months)	Recent (past 6 months) injection drug use (%)	Needle exchange (past 6 months) (%)	Adjusted odds ratios (95% CI) for sharing
1: None/Alcohol-only	678	0 (0-1)	4	44	--
2: Crack/cocaine	256	2 (2-3)	41	48	1.00
3: Heroin	251	3 (2-4)	100	42	1.08 (0.61-1.90)
4: Prescription drugs	83	5 (4-6)	58	29	2.53 (1.23-5.23)
5: Poly-substance	108	7 (6-8)	100	45	2.48 (1.25-4.91)

[Table 1: Drug use phenotypes in the ALIVE cohort (2014-2017) and adjusted odds ratios and 95% confidence intervals for sharing injection equipment]

Among PWID actively injecting, those in the prescription drug group were less likely than all others to use needle exchange. The prescription drug and poly-substance groups had more than a two-fold increased risk of sharing, compared to the crack/cocaine group, adjusting for age, sex, race and HIV-status (Table 1). Among HIV-positive PWID, the prescription drug group was more likely to have detectable viral load (adjusted odds ratio=2.13, 95% CI: 1.19-3.83) compared to the crack/cocaine group.

Conclusions: In this urban setting, HIV-positive PWID using prescription drugs represented the highest risk of HIV transmission due to detectable viremia and decreased safe injection practices. Increased efforts are required to bolster antiretroviral treatment and adherence in this group. Harm reduction interventions should target PWID using prescription drugs and multiple substances.

TUPEC210

HIV among female sex workers in Amsterdam, a tale of one city and one specialised health centre (P&G292)

A.E. van Dijk[1], T. Heijman[2], M. van Rooijen[2], M. Kroone[2], E. Marra[2], E. Freriks[2], A.A. Hogewoning[2,3], M.F. Schim van der Loeff[2,4]
[1]Public Health Service Amsterdam, Infectious Diseases, Prositution and Health Centre, Amsterdam, Netherlands, [2]Public Health Service Amsterdam, Department of Infectious Diseases, Amsterdam, Netherlands, [3]Department of Dermatology, Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands, [4]Amsterdam Infection and Immunity Institute (AI&I), Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands

Background: Worldwide, female sex workers (FSW) are at high risk for HIV and other sexually transmitted infections (STI). In 2000 the Netherlands legalized sex work to increase safer and healthier work conditions. In 2008, a specialized care facility for sex workers (SW), the Prostitution & Health Centre (P&G292), was established in Amsterdam aiming to provide sexual healthcare and social support for sex workers. P&G292 is funded by the city of Amsterdam and located in the city centre. Annually around 3,500 FSW are reached by P&G292, which is estimated to be half of the Amsterdam FSW population. We aimed to assess STI and HIV positivity rates among FSW seeking care at P&G292.

Methods: P&G292 offers free consultations for FSW at the clinic and at their workplace; FSW may also attend the regular STI clinic. FSW are tested for STIs and HIV at each consultation. We assessed HIV prevalence and incidence among FSW in the period 2011-16.

Results: From 2011 through 2016, 3,212 women had 9,457 STI consultations. The majority had a non-Dutch ethnicity (72%). FSW reported a median of 300 sexual partners in the preceding 6 months (IQR 100-500). In 8,603 (91%) of the consultations women reported consistent condom use with all their clients during vaginal sex. The positivity rate for bacterial STIs was 9% (848/9,457). 20/2,426 women (0.8%) reported they had ever injected drugs; seven (0.3%) reported recent drug injecting (last 6 months).
The prevalence of HIV among FSW was 0.5%: eight women (0.3%) self-reported to be HIV infected at their first consultation and seven women (0.2%) were newly diagnosed with HIV at their first consultation. 2/1621 women (0.1%) were diagnosed with HIV during a subsequent consultation. Fifteen women (0.5%) declined to be tested for HIV.

Conclusions: Among FSW in Amsterdam, condom use with clients was very high, bacterial STI positivity rate was relatively low and injecting drugs uncommon. Dutch prostitution laws differ from those in many other countries. The legal nature of prostitution contributes to easy access of FSW to health and social services. These factors help explain the low HIV prevalence of 0.5% among FSW.

TUPEC211

HIV among male sex workers in Amsterdam, a tale of one city and one specialised health centre (P&G292)

A. van Dijk[1], T. Heijman[1], M. van Rooijen[1], S. van der Kolk[1], E. Marra[1], E. Freriks[1], M. Kroone[1], A. Hogewoning[1,2], M.F. Schim van der Loeff[1,3]
[1]Department of Infectious Diseases, Public Health Service Amsterdam, Amsterdam, Netherlands, [2]Department of Dermatology, Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands, [3]Amsterdam Infection and Immunity Institute (AI&I), Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands

Background: Worldwide, male sex workers (MSW) are at high risk for HIV and other sexually transmitted infections (STI). In 2000 the Netherlands legalized sex work to increase safer and healthier work conditions. In 2008, a specialized care facility for sex workers (SW), the Prostitution & Health Centre (P&G292), was established in Amsterdam with the aim to provide sexual healthcare and social support for SW. P&G292 is funded by the city of Amsterdam and located in the city centre. Even though sex work is permitted, most MSW work at unlicensed (illegal) venues. We aimed to assess STI and HIV positivity rates among MSW seeking care at P&G292.

Methods: P&G292 offers free consultations for MSW at the clinic and at their place of work; MSW may also attend the regular STI clinic. MSW are tested for STIs and HIV at each consultation. We assessed HIV and STI prevalence and incidence among MSW in the period 2011-16.

Results: From 2011 through 2016, 688 MSW had 1,561 STI consultations. The majority had a non-Dutch ethnicity (71%). MSW reported a median of 50 sexual partners in the preceding 6 months (IQR 15-150). Of the MSW who reported anal sex with clients 84% reported consistent condom use. The positivity rate for bacterial STIs was 21% (327/1,561). 25/417 men (6%) reported they had ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to be HIV infected at their first consultation and 26 men (4.3%) were newly diagnosed with HIV at their first consultation. Two men (1.0%) were diagnosed with HIV during a subsequent consultation. Four men (0.7%) declined to be tested for HIV.

Conclusions: Although most MSW report consistent condom use during anal sex with their clients, bacterial STI positivity and HIV prevalence were high. In addition, injecting drugs was not uncommon among MSW. Dutch prostitution laws differ from those in many other countries. The legal nature of prostitution contributes to easy access of MSW to health and social services. The easy assess to healthcare for MSW also enables surveillance of STI and HIV trends among MSW.

TUPEC212

HIV testing and treatment cascade among key populations in Mozambique

W.M. Miller[1], J.L. Manuel[2], F. Mbofana[3], M.E. Herce[4,5], J.K. Edwards[6], F. Rocuts[7], S.S. Weir[1,6]
[1]University of North Carolina at Chapel Hill, Carolina Population Center, Chapel Hill, United States, [2]Centro de Investigação Operacional da Beira (CIOB), Beira, Mozambique, [3]Conselho Nacional do Combate ao HIV e SIDA (CNCS), Maputo, Mozambique, [4]University of North Carolina at Chapel Hill, UNC Institute for Global Health & Infectious Diseases, Department of Medicine, Chapel Hill, United States, [5]UNC Project-Malawi, Lilongwe, Malawi, [6]University of North Carolina at Chapel Hill, Department of Epidemiology, Chapel Hill, United States, [7]FHI 360, Maputo, Mozambique

Background: The prevalence of HIV in Mozambique is 10.1% among adult men and 15.4% among women from the general population. Given the lack of available data, we aimed to measure the HIV testing and treatment cascade among key populations in Mozambique.

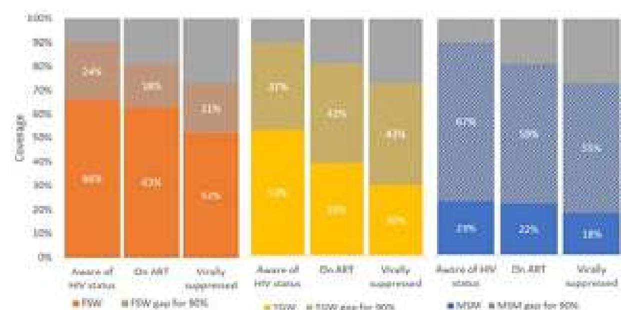
Methods: The University of North Carolina at Chapel Hill, under the USAID/PEPFAR-supported and FHI 360-led LINKAGES project, conducted a biobehavioral survey in five provinces of Mozambique between June and September 2017. Priorities of Local AIDS Control Efforts (PLACE), a venue-based sampling strategy, was used to recruit participants from social venues for a cross-sectional behavioral survey. Based on the behavioral questionnaire, participants were categorized as female sex workers (FSW), men who have sex with men (MSM), or transgender women (TGW). HIV infection was assessed using two rapid tests and HIV viral load from dried blood spots using Abbott M2000. Individuals were assigned weights based on the probability of recruitment. Populations size estimates were calculated from venue informant interviews conducted during venue mapping and adjusted based on participants' venue-frequenting behavior. Participants with a suppressed viral load were assumed to be aware of their infection and on ART.

Results: We recruited 1,194 FSW, 118 TGW, and 517 MSM. HIV prevalence was 19% among FSW, 12% among TGW, and 10% among MSM. 13,000 FSW, 1,310 TGW and 11,500 MSM were estimated of which 2,500 FSW, 160 TGW, and 1,160 MSM were estimated to have HIV. Among HIV-positive participants, 66% of FSW, 53% of TGW, and 23% of MSM already knew they were HIV positive; 63% of FSW, 39% of TGW, and 22% of MSM with HIV reported to be on ART; and 52% of FSW, 30% of TGW, and 18% of MSM with HIV were virally suppressed.

Conclusions: Large gaps exist to reach the 90-90-90 goals among key populations in Mozambique. FSW were most likely and MSM were least likely to know their status. Most people already aware of their serostatus were on treatment and virally suppressed indicating that the Mozambican health system is successful at starting people on treatment. However, TGW were least likely to be on ART, a sign of difficulty in accessing care.

	Population size estimate	HIV prevalence	Estimate of people with HIV	Percent already aware of serostatus*	Percent on ART*	Percent virally suppressed*
FSW (n=1,194)	13,100	19%	2,500	66%	63%	52%
Transgender women (n= 118)	1,310	12%	160	53%	39%	30%
MSM (n=517)	11,500	10%	1,160	23%	22%	18%
* Among all people with HIV						

[Population size estimates, HIV prevalence, and the HIV testing and treatment cascade among FSWs, MSM, and TGW, in five provinces of Mozambique, 2017]



[HIV testing and treatment cascade for MSM, FSWs, and TGW, percentages of all people with HIV, Mozambique, 2017]

TUPEC213

Characterizing the role of sexual violence in potentiating HIV risks among transgender women in sub-Saharan Africa

T. Poteat[1], B. Ackerman[2], D. Diouf[3], N. Ceesay[4], T. Mothopeng[5], K.-Z. Odette[6], S. Kouanda[7], A. Simplice[8], A. Kouame[9], Z. Mnisi[10], G. Trapence[11], L.L.A. van der Merwe[12], V. Jumbe[13], H.G. Ouedraogo[14], S. Baral[2]

[1]Johns Hopkins School of Public Health, Epidemiology, Baltimore, United States, [2]Johns Hopkins School of Public Health, Baltimore, United States, [3]Enda Sante, Dakar, Senegal, [4]UNAIDS, Mbabane, Swaziland, [5]People's Matrix Association, Maseru, Lesotho, [6]Programme d'Appui au Monde Associatif et Communautaire, Ouagadougou, Burkina Faso, [7]Institut de Recherche en Sciences de la Sante, Ouagadougou, Burkina Faso, [8]ONG Arc-en-Ciel, Lome, Togo, [9]Ministère de la Sante et de l'Hygiène Publique, Abidjan, Cote D'Ivoire, [10]Ministry of Health, Mbabane, Swaziland, [11]Centre for the Development of People, Lilongwe, Malawi, [12]Social Health and Empowerment, East London, South Africa, [13]Malawi College of Medicine, Blantyre, Malawi, [14]Institut Africain de Sante´ Publique, Ouagadougou, Burkina Faso

Background: In 2018, the specific HIV prevention and treatment needs of transgender women remain understudied across sub-Saharan Africa. However, transgender women are known to be disproportionately impacted by HIV, even compared to cisgender men who have sex with men (cis-MSM) in analyses across the continent. Moving forward with effective responses necessitates studying specific determinants of HIV-related risks among transgender women.

Methods: To characterize correlates of HIV infection, we analyzed data from 937 transgender women who completed a cross-sectional, structured questionnaire and rapid HIV testing and as part of a larger study focused on cis-MSM. Study participants were accrued using respondent-driven sampling in Burkina Faso, Togo, Côte d'Ivoire, Senegal, The Gambia, Malawi, Lesotho, and Swaziland. Descriptive statistics, bivariate analyses, and stepwise mixed effects multiple logistic regression modeling, with a random effect for study site, identified the best-fitting multivariable model. The final model included age, depression symptoms in the prior 2 weeks, number of male anal sex partners in the prior 12 months, ever being raped, ever being physically attacked, and ever being arrested.

Results: Depression symptoms, physical violence, and rape were commonly reported by transgender women in this study. Pooled HIV prevalence was 25% [95%CI: 23%, 28%]. In bivariate analyses, HIV-infection was positively correlated with increasing age, depression symptoms, history of a sexually transmitted infection, higher number of anal sex partners, experiencing physical violence (being attacked), sexual violence (being raped) or state violence (being arrested because of perceived sexual or gender identity). In the final multivariable model, only being raped (OR 1.12 [95%CI:1.03, 1.24]) and increasing age (OR 1.02 [95%CI: 1.01 1.02]) remained statistically significant (p< 0.05, Table 1).

Conclusions: Determinants of HIV infection across Sub-Saharan Africa are as complex as anywhere else around the globe. Here, sexual violence emerged as a key HIV-related risk determinant among transgender women across sub-Saharan Africa. While further study of risks will support increased specificity of interventions, there is already enough information to act to ensure that the specific HIV prevention and treatment needs of transgender women are addressed in the region.

Variable	Prevalence, n/N (%)	Bivariate Analysis OR (95% CI)	p-value	Final Multivariable Model adjusted OR (95% CI)	p-value
Age (years)	Mean: 24 Range: 18-56	1.10 (1.07, 1.13)	<0.01	1.02 (1.01, 1.02)	<0.01
Number of anal sex partners (n=276)	Median: 3 Interquartile Range: 2-5	1.05 (1.01, 1.08)	0.02	1.00 (0.99, 1.01)	0.06
Raped	257/932 (28%)	2.2 (1.63, 3.06)	<0.01	1.13 (1.03, 1.24)	0.01
Depression symptoms	535/934 (57%)	2.01 (1.47, 2.76)	<0.05	1.05 (0.98, 1.13)	0.16
Beaten Up	311/936 (33%)	1.47 (1.08, 1.99)	0.02	1.03 (0.95, 1.12)	0.43
Arrested	72/910 (8%)	1.76 (1.06, 2.58)	0.03	0.95 (0.85, 1.09)	0.44

[Table 1. Multivariable Logistic Regression Model for Correlates of HIV Infection in Transgender Women]

TUPEC214

Village community mobilization is associated with reduced HIV incidence in young South African women participating in the HPTN 068 study cohort

S.A. Lippman[1,2], A.M. Leddy[1], T. Neilands[1], J. Ahern[3], C. MacPhail[4], D. Peacock[5], C.W. Kabudula[2], A. Selin[6], E. Piwowar-Manning[7], K. Kahn[2,8], A. Pettifor[2,6]

[1]University of California, Center for AIDS Prevention Studies, Department of Medicine, San Francisco, United States, [2]University of the Witwatersrand, MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), Faculty of Health Sciences, School of Public Health, Johannesburg, South Africa, [3]University of California, Department of Epidemiology, School of Public Health, Berkeley, United States, [4]University of Wollongong, School of Health and Society, Wollongong, Australia, [5]Sonke Gender Justice, Cape Town, South Africa, [6]University of North Carolina at Chapel Hill, Department of Epidemiology, Gillings School of Global Public Health, Chapel Hill, United States, [7]Johns Hopkins University, Department of Pathology, School of Medicine, Baltimore, United States, [8]Umeå University, Division of Epidemiology and Global Health, Department of Public Health and Clinical Medicine, Umeå, Sweden

Background: Adolescent girls and Young women (AGYW) in South Africa bear a disproportionate burden of HIV. Community mobilization (CM), defined as community members taking collective action to achieve a common goal, has been found to be associated with increased HIV testing and condom use and has been called a 'critical enabler' for addressing the HIV epidemic. However, limited research has explored whether CM, or living in a mobilized community, is associated with HIV incidence among AGYW.

Methods: We conducted a longitudinal analysis among 2,533 AGYW (ages 13-21) enrolled in the HPTN 068 cohort in the Agincourt Health and Demographic Surveillance System, South Africa. This analysis includes all participants who lived in 28 villages where we also conducted cross-sectional, population-based surveys among 18-35 year old residents in 2012 and 2014. HPTN 068 participants completed up to five annual visits, receiving an HIV test at each visit (2011-2016). Household-level data were collected from the parent/guardian of each AGYW and census data is collected annually. Mean village-level CM scores were created using a validated CM measure composed of seven components (community social cohesion, social control, collective consciousness, shared concerns, organizations and networks, leadership, and collective action). We used pooled generalized estimating equations with a Poisson distribution to estimate the risk ratios (RR) of incident HIV infection, adjusting for the village-level clustering and key covariates.

Results: There were 177 incident infections over the follow-up period. For every standard deviation increase in village-level CM there was a 14% reduction in HIV incidence (RR: 0.86, 95% CI: 0.74, 0.99, p< 0.05) after adjusting for age, time enrolled in the 068 cohort, education, household assets, and a collated measure of community characteristics (mean community education, proportion of community in highest SES quintile, proportion permanent residents).

Conclusions: These results support that living in a mobilized community, where communities work collectively and organize to address community welfare, can reduce AGYW's risk of HIV acquisition. Community mobilization efforts may be an important component in HIV prevention programs for AGYW.

Characteristics	Unadjusted RR (95% CI)	Adjusted aRR (95% CI)
Age at baseline	1.21 (1.11, 1.31)***	1.18 (1.11, 1.26)***
Time in study (2nd follow-up)	1.27 (0.74, 2.18)	1.08 (0.61, 1.93)
Time in study (3rd follow-up)	1.68 (0.95, 2.96)	1.55 (0.93, 2.57)
Time in study (4th follow-up)	4.17 (2.87, 6.05)***	2.98 (2.01, 4.41)***
Enrolled in school or graduated high school	0.23 (0.14, 0.38)***	0.52 (0.33, 0.82)**
Household assets	1.02 (1.00, 1.05)*	1.01 (0.98, 1.03)
Community mobilization	**0.79 (0.67, 0.92)****	**0.86 (0.74, 0.99)***
Community characteristics	1.12 (1.03, 1.22)**	1.08 (0.99, 1.17)
*** p<.05; ** p<.01; ***p<0.001***		

[Unadjusted and Adjusted Risk Ratios (RR) of incident HIV among young women enrolled in HPTN 068 (N=2,533)]

TUPEC215

Global assessment of the availability of condoms and conjugal visits in prisons: Preliminary results of a global prison survey commissioned by UNODC

R. Bosworth[1,2,3], E. Salah[4], R. Lehtovuori[5], S.A. Kinner[6,7], F.L. Altice[8], M. Farrell[3], B. Moazen[9,10], K. Dolan[2,3]
[1]University of New South Wales, School of Public Health and Community Medicine, Randwick, Australia, [2]University of New South Wales, Program of International Research and Training (PIRT), Randwick, Australia, [3]University of New South Wales, National Drug and Alcohol Research Centre, Randwick, Australia, [4]United Nations Office on Drugs and Crime, Adviser. Prisons and HIV, Vienna, Austria, [5]United Nations Office on Drugs and Crime, Adviser Monitoring & Evaluation and Focal Point HIV/AIDS, Vienna, Austria, [6]Centre for Adolescent Health, Murdoch Childrens Research Institute, Melbourne, Australia, [7]Melbourne School of Population and Global Health, University of Melbourne, Melbourne, Australia, [8]Yale University, School of Medicine, Yale, United States, [9]Non-Communicable Diseases Research Center, Endocrinology and Metabolism Population Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, Islamic Republic of, [10]University of Heidelberg, Institute of Public Health, Heidelberg, Germany

Background: Condoms are an effective way to reduce the risk of contracting sexually transmitted infections (STIs) such as HIV, hepatitis B and syphilis. Most prisoners are males aged 20-35 years, a period of heightened sexual activity. Unsafe sex occurs in prison between prisoners and between prisoners and staff. Reports of STI cases in prison confirm sex occurs. We aim to assess the availability of condoms and conjugal visits in prisons globally, identifying regions where urgent scale up of condom provision is required.
Methods: In 2017, a global prison survey commissioned by UNODC was disseminated to 197 countries, inviting prison authorities to participate. Data were collected on the availability of the 15 interventions in the UN Comprehensive Package, including condoms, and HIV prevalence/incidence among prisoners.
Results: Of the 35 responses, 27 countries reported on condom availability and conjugal visits spanning six UNAIDS regions (excluding Latin America & the Caribbean). Condoms were available for prisoners and staff in twelve and 3 countries respectively. Fourteen countries did not provide condoms, however, 3 reported distribution upon release. Conjugal visits were permitted in ten out of 27 countries. Of the thirteen countries that did not provide conjugal visitations, nine also did not provide condoms. Both condoms and conjugal visits were reported in six countries. According to survey respondents, prison sex was *'untolerated'* and *'taboo'* with condom distribution at staff discretion. Needing to *'understand provision within the country's political context'* was also reported and recognised as one of the barriers for provision.
Conclusions: Although the survey response rate is low, results show condom availability and conjugal visits are uncommon for these prison systems. When access to preventative health care is obstructed, human rights and public health are compromised. Therefore, we support condom provision as recommended in the UN Comprehensive Package of 15 key interventions to prevent HIV and other infections. Barriers to prison condom provision include; social attitudes towards homosexuality and political opinion. Current prison harm reduction responses must be increased to protect priority populations. Identifying gaps in services may inform policies, supporting countries to develop evidence-based responses, such as condom programs.

TUPEC216

Building bridges, not walls: Prevalence and correlates of injecting with United States residents among people who inject drugs in Tijuana, Mexico

R. Garfein[1], A. Borquez[2], L. Liu[3], D. Abramovitz[1], L. Beletsky[1,4], D. Werb[1], S. Metha[5], G. Rangel[6], P. González-Zúñiga[1], S. Strathdee[1]
[1]University of California San Diego, Infectious Diseases and Global Public Health, La Jolla, United States, [2]University of California San Diego, Infectious Diseases and Global Public Health, San Diego, United States, [3]University of California San Diego, Family Planning and Public Health, La Jolla, United States, [4]Northwestern University, School of Law and Bouvé College of Health Sciences, Boston, United States, [5]University of California San Diego, Medicine, La Jolla, United States, [6]Comisión de Salud Fronteriza México-Estados Unidos, Tijuana, Mexico

Background: In Tijuana, Mexico, HIV prevalence among PWID is 3.4% versus 9.8% in bordering San Diego (U.S.). Characterizing PWID living in Tijuana who inject with PWID visiting from the U.S. is important to prevent cross-border transmission.
Methods: We analyzed baseline data from participants enrolled in 2011-2012 in a cohort study of PWID who live in Tijuana. We calculated prevalence of injecting with PWID from the U.S. while in Mexico and used logistic regression to identify independent correlates of this practice.
Results: Of 730 participants (mean age = 37.4 years; 62% male; 93% born in Mexico; 60% Spanish-only speakers), 132 (18.5%) had injected during the past six months in Mexico with a PWID visiting from the U.S. In multivariable analysis, injecting with PWID from the U.S. was independently associated with higher income (odds ratio [OR]: 2.1, p< 0.01), speaking English and Spanish (OR=1.9, p< 0.001), younger age at first injection (OR=0.97 per yr, p=0.053), receptive syringe sharing in the past 6 months (OR=3.1, p< 0.001) and exchanging sex for money/commodities in the past 6 months among men (OR=2.6, p< 0.01) but not women (OR=0.92, p=0.82). PWID from the U.S. were described as friends (63%), acquaintances (26%), strangers (7%) or sex trade clients (5%). Most reported lending their syringe (67%) or borrowing others' (62%) and sharing cookers/cottons (70%) when injecting with PWID from the U.S.
Conclusions: Nearly one-fifth of PWID in Tijuana reported injecting with PWID from the U.S.; these PWID had a higher risk profile than other Tijuana PWID, which could facilitate cross-border transmission of HIV and HCV. Our findings call into question the U.S. federal government's proposal to reinforce border walls to prevent drug use and disease transmission, given that many U.S. drug users travel to Tijuana of their own volition. This also highlights the need for strengthening HIV and HCV prevention services on both sides of the border.

TUPEC217

The paradox of migration: Assessing protective and risk factors among transgender women in Lima, Peru

K. Moriarty[1,2], E. Segura[1], W. Gonzalez[3], A. Perez-Brumer[4], J. Lake[1,5], R. Cabello[1,3], J. Clark[1]
[1]University of California, South American Program in HIV Prevention Research (SAPHIR), Los Angeles, United States, [2]Brown University Alpert Medical School, Providence, United States, [3]Asociación Civil Via Libre, Lima, Peru, [4]Columbia University, Mailman School of Public Health, New York, United States, [5]University of Texas, Houston McGovern Medical School, Houston, United States

Background: Paralleling global trends, HIV and rectal STIs continue to disproportionately burden transgender women (TGW) in Peru. While migration by TGW to urban centers is common to improve discrimination and economic opportunities, there are few studies assessing the health risks associated with migration. Addressing this gap, we explored the association of HIV and STI risk factors and migration among TGW in Lima, Peru.
Methods: In 2017, 126 TGW participated in a study assessing the relationship between rectal STIs and HIV prevention. Eligibility was limited to HIV-uninfected or serostatus-unknown TGW reporting recent condomless receptive anal intercourse (cRAI). Participants were tested for rectal GC/CT using GenProbe Aptima TMA (Hologic) and screened for HIV and syphilis. Participants completed a bio-behavioral survey on demograph-

ics, sexual behaviors, recent partnerships, and other HIV/STI risk factors. Participants born outside of Lima who lived in Lima at the time of the survey were considered migrants. We explored associations between migration and number of cRAI partners, patterns of drug and alcohol use during sex, problem drinking (AUDIT score), and prevalence of rectal GC/CT, syphilis, and HIV.
Results: Among 125 TGW (median age 29), 29.6% were diagnosed with rectal GC/CT and 12.9% with HIV. 37.6% were migrants. 63.2% of the sample reported transactional sex and 89.5% reported cRAI, in the past 30 days. Migration status was associated with younger age (p=0.01), increased prevalence of rectal GC/CT diagnosis (p=0.04), and increased frequency of anonymous sexual partners (p=0.02). Yet, TGW migrants were less likely to report substance use during sex (p=0.03) or to report alcohol abuse (p=0.05). There was no difference between migrant and non-migrant TGW in total number of recent sexual partners, number of cRAI partners, engagement in sex work or HIV infection.
Conclusions: Further attention is needed to understand differences among TGW that contribute to their HIV/STI vulnerability. Migration emerges as a paradoxical status associated with increased prevalence of rectal GC/CT, but lower alcohol and substance use during sex. Additional research is needed to explore the intersection of migration patterns with sexual networks (e.g, sex work) associated with vulnerability to HIV and STIs.

TUPEC218

Deconstructing the relationship between non-fatal opioid overdose and HIV/HCV risks among PWID in Kazakhstan

L. Gilbert[1], T. Hunt[1], S. Primbetova[2], A. Terlikbayeva[2], M. Chang[3], T. McCrimmon[1], P. Marotta[1], E. Wu[4], N. El-Bassel[1]
[1]Columbia University School of Social Work, Global Health Research Center of Central Asia, New York, United States, [2]Global Health Research Center of Central Asia, Almaty, Kazakhstan, [3]Columbia University School of Social Work, Social Intervention Group, New York, United States, [4]Columbia University School of Social Work, New York, United States

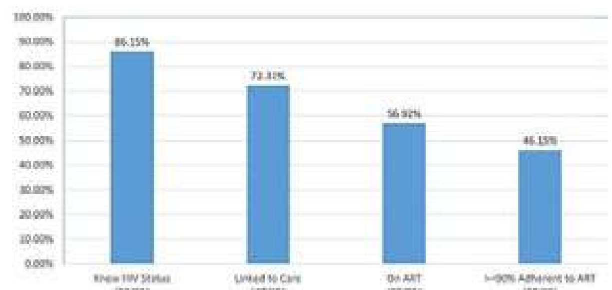
Background: Although opioid overdose is the leading cause of death among people who inject drugs (PWID) in Kazakhstan there remains little research on how opioid overdose may share syndemic risk factors for HIV and HCV among PWID in Kazakhstan or Central Asia. This study aims to examine the relationships between non-fatal opioid overdose and HIV/HCV risks among PWID in Almaty, Kazakhstan.
Methods: We used baseline data from a couple-based HIV study for PWID and their sexual partners, restricting the sample to 580 participants who reported ever injecting drugs. We hypothesized that experiencing opioid overdose in the prior six months would be significantly associated with biological indicators for HIV and HCV and drug and sexual-related risk behaviors after adjusting for age, gender, ethnicity, marital status, education, homelessness and food insecurity. We employed multiple regression analysis with shared couple-level random effects to account for the dyadic structure of the data.
Results: Of the sample, 60% (n=278) identified as male. About one-fifth (20.5%, n=119) reported experiencing a non-fatal overdose in the past 6 months (See Table 1 for socio-demographic characteristics associated with non-fatal overdose). Non-fatal overdose was not significantly associated with biologically confirmed HIV. However, non-fatal overdose quadrupled the likelihood of testing positive for HCV (AOR=4.08, CI=1.32, 12.64). Multiple regression models further supported study hypotheses by identifying significant relationships between non-fatal overdose and any unsafe injection (AOR=1.82, CI=1.01, 3.25); number of people sharing needles (AIRR= 1.73, CI=1.37, 2.19), number of condomless vaginal sex acts (AIRR=1.26, CI=1.11, 1.34), having had vaginal sex under the influence of drugs or alcohol (AOR=2.21, CI=1.06, 4.59) and any condomless anal sex (AOR=5.47, CI=1.28, 23.41).
Conclusions: This study found non-fatal overdose is associated with both sexual and drug-related HIV risk behaviors and HCV. The extremely high rate of recent opioid overdose combined with its association with HCV and multiple behavioral risks for HIV underscore the urgent need to integrate opioid overdose prevention with HIV prevention and treatment as a public health priority to prevent the substantial loss of lives to overdose while achieving 90-90-90 goals among PWID in Kazakhstan.

TUPEC219

Burden of HIV among young transgender women: Factors associated with HIV infection and HIV treatment engagement

H. Jin[1], A. Restar[2], K. Biello[2], L. Kuhns[3], S. Reisner[4], R. Garafalo[5], M. Mimiaga[2]
[1]Brown University School of Public Health, Epidemiology, Providence, United States, [2]Brown University School of Public Health, Providence, United States, [3]Northwestern University Feinberg School of Medicine, Chicago, United States, [4]Boston Children's Hospital and Harvard Medical School, Boston, United States, [5]Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, United States

Background: Young transgender women (YTW) are disproportionately affected by HIV, however, little is known about the factors associated with HIV infection and HIV treatment engagement. In this study, we examined correlates of HIV infection and the steps of the HIV treatment cascade, specifically, being aware of their HIV infection, being linked to care, being on ART, and being at least 90% adherent to ART.
Methods: We analyzed the baseline data of Project Lifeskills, a randomized control trial of sexually active young transgender women, which tested participants for HIV and collected self-reported data on HIV treatment engagement. We conducted multivariable logistic regressions to evaluate correlates of HIV infection and the steps of the HIV treatment cascade.
Results: 24.7% of the sample of YTW were HIV infected. Among HIV infected YTW, 86.2% were aware of their HIV status, 72.3% were linked to care, 56.9% were on ART, and 46.2% were at least 90% adherent to ART. HIV infected YTW who avoided healthcare due to cost in the past 12 months had lower odds of being linked to care (OR=0.23, 95% CI 0.06, 0.92) compared to those who did not avoid healthcare, and HIV infected YTW who do not have a primary care provider had lower odds of being on ART (OR=0.08, 95% CI 0.01, 0.48) and being adherent to ART (OR=0.04, 95% CI < 0.01, 0.66) compared to HIV infected YTW who do have a primary care provider.
Conclusions: We observed suboptimal HIV treatment engagement among this sample and our findings highlight the relationship between access to health care and HIV treatment engagement. Our results suggest that improving linkage and retention in care by addressing financial barriers and improving access to primary care providers could significantly improve health outcomes of YTW as well as reduce forward transmission of HIV.



[HIV Treatment Cascade: Engagement in HIV Care by HIV+ Young Transgender Women (n=65)]

TUPEC220

Uncovering a new at-risk group for HIV infection in Ukraine among adults aged 50 and older

I. Zaviriukha[1], O. Zeziulin[1], T. Kiriazova[1], S. Shenoi[2], F. Altice[2], J. Rozanova[2]
[1]Ukrainian Institute on Public Health Policy, Kyiv, Ukraine, [2]Yale University, Department of Medicine, Section of Infectious Diseases, New Haven, United States

Background: The number of newly registered HIV infections among people older than 50 in Ukraine has been increasing over the last six years: from 1198 in 2011 to 1761 in 2016. Data demonstrates that those

≥50 years constitute the only group where HIV incidence has significantly increased (from 8% to 12% between 2014 - 2016). This study qualitatively explored HIV care providers' perspectives on what facilitates and hinders linking to care of people living with HIV who are older than 50 (PLWH50+).

Methods: We purposively sampled and anonymously interviewed 12 HIV care providers (Infectious Disease physicians and psychologists) in 6 regions of Ukraine. Data were coded using Dedoose qualitative data management software and inductively analyzed for themes using grounded theory.

Results: We found four main themes in providers' accounts. First, older patients newly diagnosed with HIV were perceived by providers as more socially excluded, stigmatized and vulnerable than younger patients, requiring additional efforts to engage in HIV services. Second, providers thought PLWH50+ were largely ignorant regarding HIV, although many newly diagnosed older patients were infected 5-10 years ago according to their medical history and CD4 level. Third, a challenge unique to newly HIV diagnosed individuals ≥50 years was poly-pharmacy. Fourth, providers believed that PLWH50+ got HIV infection predominantly through unprotected heterosexual intercourse (including sex with injection drug users). Providers didn't perceive their clients as MSMs, as clients didn't disclose it.

Conclusions: Our results address the paucity of data in the literature about access to HIV care among older adults in global settings, synergy between HIV stigma and ageing, and continued exclusion of older adults from medical and policy agendas related to sexual health. While Ukrainian Ministry of Health HIV prevention programs prioritize youth, findings suggest that there is awareness among HIV care providers' about increasing role of older adults in HIV epidemic and the need for development of new clinical HIV care and HIV prevention guidelines focused on this group. These guidelines need to pay particular attention to the problem of late case detection and delayed linkage to care.

TUPEC221

HIV prevalence and incidence in adolescent girls and young women in Lesotho: Results from the LePHIA survey 2016-2017

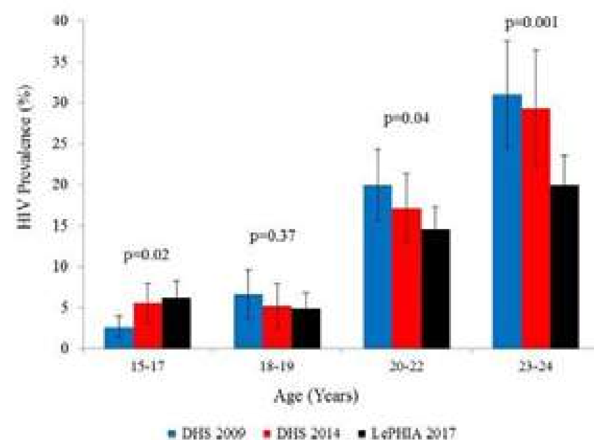
A. Low[1], K. Thin[2], S. Davia[3], J. Mantell[4], M. Koto[2], S. McCracken[5], P. Ramphalla[3], L. Maile[2], N. Ahmed[1], N. Fida[6], A. Schwitters[3], K. Frederix[7]
[1]*ICAP at Columbia University, New York, United States,* [2]*Ministry of Health, Maseru, Lesotho,* [3]*CDC, Maseru, Lesotho,* [4]*Columbia University, New York, United States,* [5]*CDC, Atlanta, United States,* [6]*USAID, Pretoria, South Africa,* [7]*ICAP at Columbia University, Maseru, Lesotho*

Background: Adolescent girls and young women (AGYW, ages 15-24) currently account for 74% of new HIV infections in Southern Africa. A Population-based HIV Impact Assessment conducted in Lesotho (LePHIA) in 2016-2017 provides recent data on prevalence and the first assessment of national HIV incidence in AGYW.

Methods: LePHIA used a two-stage sampling design to select a nationally representative sample of adults. Individuals completed an interview and HIV testing. Incidence was measured using HIV-1 LAg avidity paired with viral load data. The association between demographic and behavioral variables and HIV prevalence and incidence was assessed using logistic regression, incorporating survey weights. A time trend in prevalence and indicators of risk was estimated using weighted data from the Demographic Health Surveys (DHS) in 2009 and 2014.

Results: Of 2708 eligible AGYW, 2358 (87%) were interviewed and tested for HIV. Weighted HIV prevalence was 11.1% (95% CI:9.7-12.5%) overall, 5.7% in 15-19 year olds (64/1156; 95% CI:4.1-7.2%) and 16.7% in 20-24 year olds (209/1202; 95% CI:14.4-19.0%). This translates into an estimated 5862 HIV-positive 15-19 year olds and 16707 20-24 year olds. Annualized incidence was high at 1.8% (95% CI:0.8-2.8%), particularly in urban areas (2.3%, 95% CI:0.7-3.9%). Since 2009, there has been a decrease in prevalence (13.6% to 11.1%), although there was an increase in 15-17 year olds (p_{trend}=0.02, Figure 1), possibly due to increased survival after vertical infection. Compared to 2009, there has been a two-fold increase in odds of secondary/tertiary education (Odds Ratio [OR] 2.21; 95%CI:1.90-2.56), and a 41% reduction in the odds of sexual debut before 15 years (OR 0.59, 95%CI:0.44-.79). However, there has been a significant decline in HIV knowledge (OR 0.72, 95%CI:0.60-0.86). Correlates of prevalent infection include an HIV-positive partner (adjusted OR (aOR) 11.72, 95%CI:6.07-22.62, Table 1), anal sex history (aOR 3.08, 95%CI:1.11-8.57), and having lived outside Lesotho for >1month in past year (aOR 1.82, 95%CI:1.01-3.31). For the 642 AGYW living with parents, maternal education was strongly protective, even after adjusting for household wealth.

Conclusions: HIV prevalence is declining in AGYW, but incidence remains high. Indicators of risk are improving, aside from HIV knowledge, which conveys risk for future acquisition.



[Figure 1. Weighted prevalence in adolescent girls and young women in Lesotho, 2009-2017]

Characteristic	Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)	p-values (determined by logistic regression)
Rural residence	0.61 (0.46-0.80)	0.60 (0.40-0.90)	0.01
Never left Lesotho Away for >1 month in lifetime Away for >1 month in past year	1 1.23 (0.76-2.00) 2.54 (1.56-4.14)	1 1.36 (0.68-2.72) 1.82 (1.01-3.31)	0.37 0.05
Education None Primary Secondary Tertiary/ Above Secondary	1 0.41 (0.13-1.32) 0.28 (0.09-0.88) 0.20 (0.06-0.67)	1 0.29 (0.06-1.36) 0.22 (0.05-1.01) 0.09 (0.02-0.42)	0.11 0.05 0.04
Number of lifetime sexual partners One 2 to 3 ≥4	1 2.16 (1.51-3.10) 3.93 (2.43-6.36)	1 1.84 (1.21-2.78) 2.44 (1.45-4.08)	0.006 0.002
Ever had anal sex	3.17 (1.29-7.78)	3.08 (1.11-8.57)	0.03
HIV status of sexual partners in the past 12 months All HIV-negative partners Any HIV-positive partners Any partner with unknown status	1 13.30 (7.89-22.43) 1.11 (0.77-1.61)	1 11.72 (6.07-22.62) 1.29 (0.86-1.93)	<0.001 0.21
Marital status Single Married or living with partner Divorced, separated or widowed	1 2.35 (1.79-3.09) 5.43 (3.07-9.61)	1 1.09 (0.62-1.93) 1.56 (0.68-3.56)	0.75 0.28
Maternal education None Primary Secondary Tertiary/ Above secondary	1 0.65 (0.18-2.43) 0.33 (0.08-1.42) 0.14 (0.02-1.00)	1 0.16 (0.03-0.88) 0.06 (0.01-0.50) 0.03 (0.01-0.62)	0.04 0.01 0.03
Highest wealth quintile	0.81 (0.36-1.83)	0.24 (0.05-1.33)	0.10

[Table 1. Correlates of HIV infection in young women and girls in Lesotho 2017]

TUPEC222

Caregiver depression and child neuropsychological outcomes in an observational study carried out in four sub-Saharan countries

I. Familiar[1], M. Chernoff[2], H. Ruisenor-Escudero[3], B. Laughton[4], C. Joyce[5], L. Fairlie[6], M. Bwakura-Dangarembizi[7], P. Kamthunzi[8], L. Barlow[9], P. Jean-Philippe[10], B. Zimmer[11], K. McCarthy[12], M. Boivin[1]
[1]Michigan State University, East Lansing, United States, [2]Harvard University, FXB Center for Health and Human Rights, Boston, United States, [3]Michigan State University, Psychiatry, East Lansing, United States, [4]Stellenbosch University, Cape Town, South Africa, [5]University of Witwatersrand, Johannesburg, South Africa, [6]Wits RHI Shandukani Clinic, Johannesburg, South Africa, [7]University of Zimbabwe, Harare, Zimbabwe, [8]University of North Carolina - Lilongwe Clinical Research Institute, Lilongwe, Malawi, [9]Makerere University-Johns Hopkins University, Kampala, Uganda, [10]NIH/NIAID, Rockville, United States, [11]IMPAACT Data Management Center, Amherst, United States, [12]FHI 360, Durham, United States

Background: Depression symptoms in caregivers may influence their young children's behavior and cognitive development. Few research studies have focused on Sub-Saharan countries where high prevalence of pediatric HIV may impact child neuropsychological development and caregiver mental health.
Methods: We investigated cross-sectional associations between caregivers' depressive symptoms and child neuropsychological outcomes in P1104s, a multi-center study in sub-Saharan Africa sponsored by the International Maternal Pediatric Adolescent AIDS Clinical Trials (IMPAACT) Network. 611 children between 5-11 years (246 HIV+, 183 HIV exposed, uninfected, and 182 HIV unexposed, uninfected) completed assessments at 6 research sites: South Africa (3), Malawi, Uganda and Zimbabwe. Children were assessed with the BOT-2 total score, the KABC-II mental processing index (MPI) and the TOVA. Caregivers responded to the HSCL-25 depression subscale and evaluated their child with the BRIEF and UNICEF Multiple Indicators Cluster Survey-4 (MICS) Questionnaire for Children. Associations were evaluated with Pearson correlations and with unadjusted and adjusted (for study design, caregiver and child characteristics) linear regression using generalized estimating equations (GEE).
Results: Children's mean age was 7.2 years (SD= 1.4) and 290 (47%) were boys. Most caregivers (68%) were HIV+ and 36% had HSCL-25 score above 1.75. Caregiver depression scores were comparable across groups. Of HIV+ children, 96% had suppressed viral load. In adjusted GEE models, caregivers with high (>1.75 mean score) levels of depression reported higher BRIEF scores (e.g. more executive function problems) by an average 5 to 7 points (p< .001) and almost 3 point lower average MICS development scores (p=0.01; e.g. less development for age). BOT-2 and TOVA scores showed no significant associations with caregiver depression (Table). Exploratory regression models with interactions between caregiver depression and child HIV status showed a trend; adjusted KABC MPI mean scores decreased with increasing levels of caregiver depression in HIV+ children (adjusted p=0.12).

Outcome	Low depressive symptoms (0-1.75)	High depressive symptoms (>1.75)	P-value
KABC Mental processing index	79.2 (77.4,80.9)	78.7 (76.7,80.6)	0.58
BOT-2: Total score	51.8 (50.3,53.3)	51.2 (49.7,52.8)	0.41
BRIEF Behavior Regulation Index	48.9 (46.7,51.1)	56.0 (53.6,58.5)	<0.001
BRIEF Metacognition Index	49.6 (47.0,52.2)	55.3 (52.4,58.1)	<0.001
BRIEF Global Executive Composite	49.2 (46.7,51.6)	55.9 (53.1,58.7)	<0.001
TOVA ADHD	0.01 (-0.53,0.54)	0.08 (-0.48,0.65)	0.76
TOVA D-prime standard score	87.5 (85.2,89.8)	87.0 (84.5,89.6)	0.70
MICS Disability (%)	4.0 (2.2,5.8)	5.6 (3.6,7.5)	0.03
MICS Development (%)	73.8 (71.4,76.1)	70.9 (68.3,73.5)	0.01

[Adjusted baseline predicted means (95% confidence interval) from GEE models for neuropsychological outcomes among school-age children by caregiver dep]

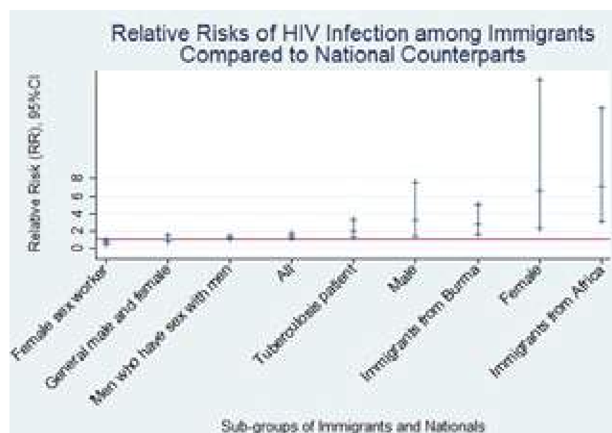
Conclusions: High depressive symptomatology in caregivers was a significant predictor of child behavioral problems and poorer development. Cognitive performance was not associated with symptomatology. Results suggest that depressive symptoms can affect the socioemotional development of children. Considering the mental health of the caregiver should be part of integral neuropsychological evaluations and care in the context of HIV disease.

TUPEC223

Global burden of HIV among Immigrants: A systematic review

X. Wang[1], A. Wirtz[2], C. Beyrer[2]
[1]Chinese Center for Disease Control and Prevention, National Center for AIDS/STD Control and Prevention, Beijing, China, [2]Johns Hopkins Bloomberg School of Public Health, Center for Public Health and Human Rights, Baltimore, United States

Background: Immigrants are vulnerable to HIV due to multiple social and structural factors. Limited HIV research suggests immigration is a risk factor for HIV acquisition and is often associated with increased stigma and reduced access to HIV prevention and care. With increasing globalization, it is imperative to assess the burden of HIV among immigrants to inform responses in HIV prevention and care. We conducted a systematic review and meta-analysis of the global HIV epidemiology among international immigrants.
Methods: Immigrants were defined as non-nationals (foreign born migrants) regardless of citizenship status, including documented migrants legally travelling to or staying in host countries, undocumented migrants legally travelling to but out-stayed in host countries, and illegal migrants illegally travelling to host countries. A systematic review of articles published between 2011 through 2016 and indexed in Pubmed and Embase was conducted to identify information on HIV prevalence, incidence, and prevention and intervention services among immigrants. UNAIDS' website was also searched to identify relevant data in country reports. Extracted data were pooled and analyzed to produce country and regional level estimates. All meta-analysis utilized random effect models due to heterogeneity across studies and locations.
Results: A total of 10,934 articles were identified and 133 were retained for data analysis. HIV prevalence among all immigrants was estimated to be 3% (95% CI: 0.03-0.04), though with significant heterogeneity across countries. Prevalence was especially high among immigrant female sex workers (20%, 95% CI: 0.18-0.23) and tuberculosis patients (17%, 95% CI: 0.07-0.31). Only one study conducted in Denmark reported HIV incidence (2.37%) among African born immigrants, underscoring high post-migration acquisition. Meta-analyses estimated that the burden of HIV is 1.4 times higher among immigrants than nationals globally (RR=1.41, 95% CI 1.14-1.74), especially for immigrants from Africa (RR=7.13, 95%CI 3.16-16.09) and for female immigrants (RR=6.64, 95% CI: 2.28-19.34) compared to nationals. Access to HIV care, treatment and other interventions were reported among a limited number of articles.



[Relative Risks of HIV Infection among Immigrants Compared to National Counterparts]

Conclusions: There is a heightened burden of HIV among immigrants compared to nationals. Coupled with data from other studies that highlight post-migration HIV acquisition, this study suggests that HIV prevention and care services are urgently needed for immigrants.

TUPEC224

Sex work stigma and its effects on healthcare: Data from a large RDS study among FSW in Brazil

I. Dourado[1], M. Drew Crosland Guimarães[2], G. Nogueira Damacena[3], L. Magno[4], P.R. Borges de Souza Júnior[3], C. Landmann Szwarcwald[3], The Brazilian FSW Group
[1]*Federal University of Bahia, Health Collective Institute, Salvador, Brazil,* [2]*Federal University of Minas Gerais, Department of Preventive and Social Medicine, Belo Horizonte, Brazil,* [3]*Oswaldo Cruz Foundation, Institute of Scientific Communication and Information on Public Health, Rio de Janeiro, Brazil,* [4]*Bahia State University, Department of Life Sciences, Salvador, Brazil*

Background: Based on the hypothesis that stigma within health services may be detrimental to health seeking attitudes, this study investigates non-disclosure among female sex workers (FSW) in Brazil and its impact on the utilization of healthcare services.
Methods: Cross-sectional RDS study carried out in 12 Brazilian cities to identify practices related to HIV infection among FSW. Study variables were categorized into four groups to represent social rights, human right violations, health service access and utilization, stigma and discrimination. To investigate the effects of non-disclosure of FSW status on preventive healthcare, we used multivariate logistic regressions for different outcomes: HIV testing in the past year; Pap smear exam in the past two years; awareness of PEP; and PEP use after a risky sexual behavior.
Results: Among 4245 recruited FSW, a high percentage received free condoms (82%) but only 24.4% were counseled on STI. Most FSW used non-specialized public healthcare routinely (62.6%), but less than 40% were tested for HIV in the last 12 months and only 51.5% had a Pap smear exam in the last two years. Among FSW engaged in risky behavior (49.6%), only 8.3% used PEP. Regarding sexual work exploitation, approximately 15% were required to give part of their earnings to owners of workplace establishments and 38% started sex work under 18 years old. Six percent were required to present HIV test results periodically, which is illegal in Brazil. While 21.3% reported having been discriminated in health services, only 24.3% always disclosed their FSW status. Multivariate logistic models indicated significant effects of non-disclosure on the four healthcare outcomes, with lower odds of using preventive health services among women who not always revealed the FSW status to healthcare staff, even after controlling for age, educational level, NGO affiliation, and type of healthcare routinely used.
Conclusions: Our results indicate that sex work stigmatization within health services may be one of the main barriers to STI control and HIV combination prevention among FSW. It is essential to combat stigmatization and discrimination against FSW in health services to guarantee the appropriate uptake of preventive methods available in the public health system in Brazil.

TUPEC225

Gender-affirming genital surgery associated with reduced HIV sexual risk among transgender women: A respondent driven-sampling survey

A. Scheim[1,2], G. Bauer[2]
[1]*University of California San Diego, Division of Infectious Diseases and Global Public Health, La Jolla, United States,* [2]*Western University, Epidemiology and Biostatistics, London, Canada*

Background: Transgender women are a key population disproportionately impacted by HIV globally. Social and medical gender affirmation are theorized to promote health behaviors and health care access among transgender women. Few studies have assessed relationships between gender affirmation and HIV risk, particularly for gender-affirming surgeries, which remain inaccessible in most settings. Drawing on data from Ontario, Canada, where gender-affirming surgeries were publicly funded from the 1970s until 1998, and again from 2008-present, we examined associations between social and medical gender affirmation and HIV-related sexual risk behavior.
Methods: Data were collected through a multi-mode respondent-driven sampling (RDS) study of transgender Ontarians (n=433) in 2009-2010. These analyses were limited to transgender women who had ever had sex (n=171) and weighted using RDS II weights. As half of transgender women were sexually inactive, polytomous logistic regression models estimated odds of past-year high-risk sexual behavior, or reporting sexual inactivity (separately), with low-risk sexual activity as the referent. Condomless vaginal/anal sex outside of a seroconcordant, monogamous relationship was classified as high-risk.
Results: Of sexually-experienced transgender women, 20.9% (95% CI: 11.7, 30.2) reported past-year high-risk sexual behavior. About half (53.3%; 95% CI: 40.8, 65.8) were living full-time in their identified gender, 59.6% (95% CI: 47.0, 72.1) were using feminizing hormones, and 14.8% (95% CI: 6.9, 22.8) had undergone genital surgery. After adjustment for demographics including socio-economic status, genital surgery was associated with lower sexual risk (adjusted odds ratio= 0.08; 95% CI: 0.02, 0.46). This association was robust to sensitivity analysis with a different definition of sexual risk. Genital surgery was also associated with lower odds of sexual inactivity. Neither social gender affirmation nor hormone therapy were associated with sexual risk.
Conclusions: Transgender women in Ontario who had completed gender-affirming genital surgery were at lower HIV risk. Moreover, they were less likely to be sexually abstinent. These results indicate that access to gender affirmation surgeries may enhance transgender women's sexual health, including but not limited to HIV/STI prevention. Longitudinal studies of surgical outcomes should evaluate impacts on sexual risk, and efforts should be made to enhance access to genital surgeries for transgender women who require them.

TUPEC226

Sex work among female workers at the Kokoyo artisanal gold mining site in Mali - results from the ANRS-12339 Sanu Gundo cross-sectional study

C.H. Kounta[1,2], L. Sagaon-Teyssier[1,2], H. Balique[1], M. Mora[1,2], M. Bourrelly[1,2], F. Diallo[3], N. Kalampalikis[4], M. Suzan-Monti[1,2], B.D. Keita[3], B. Spire[1,2], The Sanu Gundo Study Group
[1]*Aix Marseille Univ, INSERM, IRD, SESSTIM, Sciences Economiques & Sociales de la Santé & Traitement de l'Information Médicale, Marseille, France,* [2]*ORS PACA, Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur, Marseille, France,* [3]*ARCAD Sida, Bamako, Mali,* [4]*University Lyon 2, Institute of Psychology, Social Psychology Research Group (EA 4163), Bron, France*

Background: Female sex workers (FSW) in mining sites are considered to be at very high risk of HIV infection due to risky sexual behaviours associated with migratory work patterns. We aimed to characterize FSW and identify factors associated with their sex work (SW) at the Kokoyo mining site in Mali.
Methods: We used data for FSW and female workers not involved in SW (FNSW) from the ANRS-12339 Sanu Gundo cross-sectional study, conducted in 2015 at the mine by ARCAD-SIDA, a Malian non-governmental organization. People attending prevention activities organized by ARCAD-SIDA (including medical check-ups, HIV testing) were invited to participate in the study's quantitative and qualitative surveys (focus groups). A probit logistic regression was used for data analysis and marginal effects (M-E) were computed to show how predicted probabilities change when the dichotomous explanatory variable changes from 0 to 1.
Results: Of the 101 women recruited, 26.7% reported having SW as their main activity. With respect to FSW 44.4% were unmarried, 44.4 % were uneducated and 55.6% came from other countries. FSW were younger than FNSW. M-E from the multivariate analysis showed that the probability of SW as a main activity decreased by 1% per 1-year age increase (p=0.020). SW was significantly more likely to be reported by single, divorced or widowed women with a probability of 25.4% (p=0.007). FSW were significantly more likely to be non-Malian [36.3% probability (p=0.003)], more likely to have a secondary activity [77% probability (p=0.002)], more likely to work fewer than 56h/week [40.2% probability (p=0.001)] and more likely to have a good health status [12.1% probability (p=0.016)]. In addition, an awareness of STI, a higher consumption of psychoactive products and unprotected receptive anal sex during the previous 6 months were significantly more associated with SW [50.2% (p=0.006), 45.6% (p=0.003) and 7.4% (p=0.016) probability, respectively]. Qualitative findings confirm that poverty and boyfriends' refusal to use condoms remain key barriers to consistent condom use among FSW.

Conclusions: FSW participating in the Sanu Gundo study inconsistently use condoms because of economic and relationship-based factors, and because of drugs and alcohol consumption. Existing targeted prevention interventions should be strengthened in mining sites in Mali.

TUPEC227

Disparities in viral suppression and non-adherence to antiretroviral medicines among women living with HIV infection, 2011 - 2016

A. Geter[1], M.Y. Sutton[1], C. Armon[2], K. Buchacz[1]
[1]Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention, Atlanta, United States, [2]Cerner Corporation, Kansas City, United States

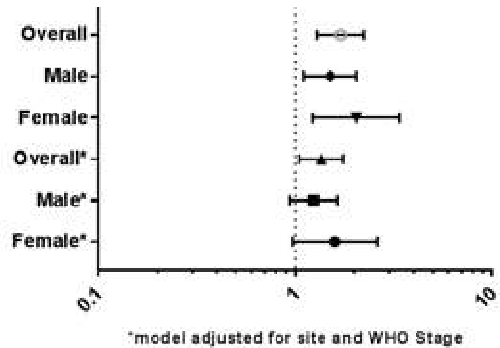
Background: In the United States (US), women accounted for 19% of HIV diagnoses (2016). Black/African American (black) and Hispanic women/Latinas (Latinas) were disproportionately affected; they comprised 61% of women diagnosed with HIV infection. Adherence to antiretroviral therapy (ART) enables HIV viral suppression (VS); a national goal is to have 80% of HIV-infected persons reach VS by 2020. We examined correlates of non-adherence and VS among women to inform HIV care interventions for women.
Methods: We used clinical chart abstraction and audio computer-assisted self-interview (ACASI) data from the HIV Outpatient Study (HOPS), a cohort of adults receiving HIV care at nine US sites. We limited analyses to women aged ≥ 18 years with ≥ 1 HOPS visit, ≥ 1 viral load (VL) test and ≥1 ACASI between 2011 and 2016. We defined non-adherence as missing at least one ART dose in the past three days and VS as VL < 50 copies/mL. Generalized estimating equations were used to assess factors associated with non-adherence and non-VS.
Results: Among 426 women (median age=46 years), 263 (61.7%) were black, 101 (23.7%) were white, 62 (14.6%) were Latina. At last measurement, non-adherence was more prevalent among black women (28.1%) compared with Latinas (21.0%) and white women (12.9%), (p=0.005). VS was less prevalent among black women (63.1%) compared with Latinas (72.6%) and whites (78.2%), (p=0.01). In multivariable analyses, non-adherence was more likely among black women (adjusted prevalence ratio [aPR]=1.86; 95% Confidence Interval [CI]=1.19-2.91) compared with all other; women age ≤ 49 years (aPR=2.72; CI=1.44-5.15) versus older; and women with CD4 < 350 cells/mm³ (aPR=1.56; CI=1.02-2.38) versus ≥ 350 cells/mm³. Non-VS was associated with non-adherence (aPR=2.33; CI=1.51-3.59), age ≤ 29 years (aPR=2.26; CI=1.01-5.02) versus ≥ 50 years, public insurance payers (aPR=2.06; CI=1.19-3.58) compared with private or none, and CD4 < 350 cells/mm³ (aPR=5.18; CI=3.46-7.76) versus ≥ 350 cells/mm³.
Conclusions: Racial/ethnic disparities in VS and adherence persisted among HIV-infected women. Interventions targeting improvement in ART adherence and VS among younger, black, and publically-insured women are warranted.

TUPEC228

Association between serodiscordance status and ART use in the African Cohort Study

D. Reed[1,2], A. Esber[1,2], T.A. Crowell[1,2], C. Polyak[1,2], A. Parikh[1,2], F. Kiweewa[3], J. Maswai[1,4,5], J. Owuoth[1,4,6], L. Maganga[7], Y. Adamu[8], J. Ake[1], African Cohort Study (AFRICOS)
[1]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [2]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [3]Makerere University-Walter Reed Project, Kampala, Uganda, [4]Kenya Medical Research Institute, Nairobi, Kenya, [5]Henry M. Jackson Foundation Research International, Kericho, Kenya, [6]Henry M. Jackson Foundation Medical Research International, Kisumu, Kenya, [7]Mbeya Medical Research Centre, Mbeya, Tanzania, United Republic of, [8]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Abuja, Nigeria

Background: HIV-infected partners of serodiscordant relationships may experience psychological stress that could interfere with antiretroviral therapy (ART) use, or may have increased motivation to prevent transmission. Conversely, seroconcordant relationships are associated with increased social support that may impact ART use. We assessed the association between serodiscordance status and ART use.
Methods: The African Cohort Study (AFRICOS) prospectively enrolls HIV-infected and -uninfected individuals at 12 PEPFAR-supported sites across Uganda, Kenya, Tanzania, and Nigeria. HIV serology, clinical assessments, and sociobehavioral questionnaires are collected. We analyzed enrollment visits of the first HIV-infected individuals (index) within two kinds of sexual dyads, serodiscordant or seroconcordant relationships. Participants were considered a member of a sexual dyad if both partners reported each other as a partner within the study. Dyads were categorized as serodiscordant if only one partner was serologically confirmed HIV-infected. Seroconcordant dyads were defined as having both partners serologically confirmed HIV-infected. Pearson's chi-squared and Fisher's exact tests were used to compare characteristics of indexes between the types of dyads. Poisson regression models with robust error variance were used to estimate the overall and gender-specific prevalence ratio (PR) of ART use while controlling for confounders that changed the prevalence ratio by at least 10%.
Results: As of September 2017, there were 284 sexual dyads; 223 indexes from serodiscordant dyads and 61 indexes from seroconcordant dyads. The majority of the indexes were aged 25-34 years (50.2%), female (53.4%), and married (96.5%). Serodiscordant indexes were more likely to disclose their status to partners than were seroconcordant indexes (96.4% vs. 82.0%, p< 0.001). Additionally, 47.5% of seroconcordant indexes used ART compared to 80.6% of serodiscordant indexes (p< 0.001). After adjusting for site and WHO stage, there was a 36% increased prevalence (95% CI: 1.1-1.8; Figure 1) of ART use among serodiscordant indexes compared to seroconcordant indexes. There were no significant trends by gender.
Conclusions: The prevalence of ART use is greater among serodiscordant indexes. This may be driven by treatment as prevention, and continuing to emphasize ART use in this population is key. Additional emphasis on ART use in seroconcordant partners is necessary even if transmission is not of immediate concern.



[Figure 1. Overall and Gender-specific Adjusted and Unadjusted Prevalence Ratios and 95% CI]

TUPEC229

The need to improve HIV care for migrant populations in Botswana: Addressing the unknowns

D. Escudero[1], T. Marukutira[2,3], A. McCormick[1], S. George[1]
[1]Harvard T.H. Chan School of Public Health, Boston, United States, [2]Burnet Institute, Melbourne, Australia, [3]Monash University, Melbourne, Australia

Background: Botswana has among the highest level of HIV viral suppression in the world, yet maintains HIV incidence >1% per year. Immigrant status has been found elsewhere to correspond to greater risk of infection, and poorer treatment outcomes. Although Botswana provides free antiretroviral therapy (ART) for all HIV-infected citizens, non-citizens are ineligible. Identifying testing/treatment gaps for its large immigrant population may help Botswana achieve greater viral suppression, and reduced transmission.
Methods: We reviewed published scientific/demographic literature to identify potential empirical gaps needed to address the following questions:

- How many non-citizen immigrants reside in Botswana?
- What is the burden of HIV in this immigrant population?
- What proportion of immigrants living with HIV (ILHIV) are on ART?
- Do ILHIV have poorer treatment retention or enrollment compared to citizens?

Results: The United Nations (UN) estimates that 160,000 non-citizens resided in Botswana in 2015, about a 50% increase from census data in 2011. Despite anecdotal accounts of Zimbabweans comprising the largest portion of the immigrant population, estimates were difficult to confirm; the UN estimates 32,000 Zimbabwean nationals were present in 2015, but other estimates reached 100,000. The UN estimates 82,000 non-citizen residents originate from the HIV-endemic countries of South Africa, Zambia and Zimbabwe, suggesting high HIV risk. Data from 30 small communities in Botswana suggest that non-citizens may have similar HIV prevalence as citizens (0.20 vs. 0.22, respectively), however, ILHIV in these communities had a greatly increased risk of undiagnosed infection (63% vs. 16%) and only 29% were enrolled on ART, compared to 71% of citizens. There only exists evidence of sparse HIV testing/treatment services available outside the government's national program; in fact, one study found a majority of Zimbabwean migrants were "afraid" to access HIV testing. Despite early studies suggesting that travel/migration was a significant barrier to HIV testing and a cause of missing ART doses, no data were found contrasting treatment outcomes or adherence in citizens vs. non-citizens.

Conclusions: Although some data suggest significant barriers to HIV testing/treatment for non-citizens in Botswana, comprehensive and nationally-representative data have yet to be collected. Substantial research is needed to inform potential expansions in migrant testing/treatment coverage.

TUPEC230

Prevalence and risk factors for unsuppressed viral load among HIV positive female sex workers on antiretroviral therapy in Kampala, Uganda

G. Namale[1], O. Kamacooko[1], D. Bagiire[1], Y. Mayanja[1], A. Abaasa[1], W. Kilembe[2], M. Price[3,4], R. Newton[1,5], J. Seeley[1,6]
[1]MRC/UVRI Uganda Research Unit, Kampala, Uganda, [2]Rwanda Zambia HIV Research Group-Emory University, Zambia Emory HIV Research Project, Lusaka, Zambia, [3]University of California at San Francisco, San Francisco, United States, [4]International AIDS Vaccine Initiative, New York, United States, [5]University of York, York, United Kingdom, [6]London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: There is limited information on viral suppression in key populations on antiretroviral therapy in Sub-Saharan Africa. We aimed to assess prevalence and risk factors for unsuppressed viral load (VL) among HIV positive Female sex workers (FSW) on antiretroviral therapy (ART) in Kampala, Uganda.

Methods: We conducted a cross-sectional study between January 2015 and December 2016, using routinely collected data at Good Health for Women Project clinic (GHWP). Plasma samples collected from FSW at least 18 years old on ART were tested for HIV viral load (VL) at the Central Public Health Laboratories (CPHL) in Uganda. Unsuppressed VL was defined as ≥ 1000 copies of viral RNA/mL plasma. Socio-demographic, sexual behaviour, clinical and VL data were extracted from clinic records. We used logistic regression to identify factors independently associated with unsuppressed VL.

Results: Four hundred and thirty two HIV positive FSW on ART were included in the analysis; mean age was 32.5 years (SD=6.5). Of these, 38 (9%) had unsuppressed VL. In the adjusted analysis, unsuppressed VL was independently associated with participant age [young age (18-24)] adjusted odds ratio (aOR) = 5.3 (95% CI: 1.6-17.9), reported ART adherence status [non-adherence] aOR = 2.6 (95% CI: 1.2-5.8) and CD4+ T-cell counts [less than 350 cells/mm³] aOR= 3.1 (95% CI: 1.4-7.0).

Conclusions: Unsuppressed VL at this clinic was relatively low compared to other studies in key populations. Young age, non-adherence and low CD4+ T-cell counts increased the odds of unsuppressed VL. We recommend persistent intensive adherence counselling among FSW with unsuppressed VL for improving adherence to ART. Interventions targeting young FSW to improve viral suppression should be considered in Uganda.

TUPEC231

Factors associated with self-reported utilization of sexual and reproductive health services among Roma women in Macedonia

S. Atanasova[1], B. Pavlovski[2], M. Windle[1], J. Friscik[2], D. Penaloza[1], O. Olawore[1], C. Lyons[1], M. Holtzman[1], S. Baral[1]
[1]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [2]Association for Emancipation, Solidarity and Equality of Women, Skopje, Macedonia, The Former Yugoslav Republic of

Background: The support from Global Fund to Fight AIDS, Tuberculosis and Malaria in Macedonia has phased out at the end of 2017 and the sustainability of the programs is under discussion as Macedonia is transitioning towards governmental funding of these programs. As a result, there is a need to ensure continuous provision of interventions that engage marginalized communities in the health system. Roma population in Macedonia is a highly marginalized community living in poverty with limited access to health services. This study aims to determine factors associated with attendance at preventative gynecological examinations among Roma women in five municipalities in Macedonia.

Methods: Roma women aged 18 or older were included in a standardized cross-sectional study conducted in Macedonia on five different locations, Shuto Orizari municipality and Topaana neighborhood in Chair municipality in Skopje, Delcevo, Vinica and Pehcevo during 2017. We conducted bivariate and multivariate logistic regression to assess the correlates with the attendance at preventative gynecological examinations for all municipalities combined.

Results: : Fifty-six percent (501/891) of the participants had not received a preventative gynecological examination within 3 years. Factors associated with attending preventative gynecological examinations were being married, wedlock or other than being single, divorced and widow (adjusted odds ratio [aOR] = 1.85 95% CI: 1.02-3.35), being currently pregnant or have given birth in the last five years (adjusted odds ratio [aOR] = 2.28 95% CI: 1.29-4.02) and receiving an invitation letter from the gynecologist to attend an examination (adjusted odds ratio [aOR] = 2.05 95% CI: 1.18-3.55).

Conclusions: These results show that there is a need for improving the access to sexual and reproductive health services among Roma women who are not living in partnerships and for women who are not pregnant or have given birth. Furthermore, there is a need to strengthen the implementation of measures that are effective in engaging Roma women in utilizing sexual and reproductive health services.

Variable	Bivariate Analysis OR	95% CI	p	Multivariable Analysis aOR	95% CI	p
Age						
18-24 years old	1			1		
25-34 years old	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35-44 years old	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45+ years old	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Marital Status						
Single/Divorced/Separated/Widow	1			1		
Wedlock/Married/Other	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Literacy						
No	1			1		
Yes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Education						
No education	1			1		
Primary education	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Secondary education	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tertiary education	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Employment						
[illegible]	1			1		
Employed (full/part time)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Retired	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						
Under minimal wage	1			1		
Minimal wage and above	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] stigma in healthcare setting						
Never	1			1		
Ever	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mental Health						
Minimal depression	1			1		
Mild/Moderate depression	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] depression	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Given birth in the last 5 years						
No	1			1		
Yes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Invitation letter from the gynecologist in the last 5 years						
No	1			1		
Yes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[Table 1: Factors associated with attendance at gynecologist for preventative checkup in the last three years among Roma women in five municipalities in Macedonia (n=1002)]

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TUPEC232

Correlates of HIV infection among transgender women and men who have sex with men in Peru: Implications for targeted HIV prevention strategies

E. Cyrus
Florida International University, Center for Research on US Latino HIV/AIDS and Drug Abuse, Miami, United States

Background: Men who have sex with men (MSM) and transgender women (TGW) in Peru bear a disproportionate burden of HIV infection. We examined correlates of HIV and sexual risk behaviors among MSM and TGW in Peru, and compared characteristics between the two groups.
Methods: We conducted comparative analyses of HIV/STI prevalence, self-reported sexual risk behavior, alcohol and drug use and demographic characteristics between HIV-infected and uninfected participants, and between MSM and TGW.
Results: Between June and October 2011, 5,148 high-risk MSM were recruited using convenience sampling in five Peruvian cities to participate in a cross-sectional bio-behavioral survey. HIV prevalence among TGW was two-fold greater than among MSM (14.9% vs. 7.0%, p< 0.001) and HIV-infected participants compared to their HIV-uninfected counterparts were significantly (p< 0.001) more likely to be commercial sex worker (CSW; 40.2% vs. 32.9%) and have more mean sexual partners (15.8 vs. 10.3). TGW were also significantly (p< 0.001) more likely than MSM to be CSW, have an alcohol use disorder (69.1% vs. 62.1%) have a higher mean number of sexual partners (36.0 vs. 6.7), and unprotected sex events in the past X months (6.7 vs. 3.2).
Conclusions: Both MSM and TGW in Peru engage in high-risk sexual behaviors, placing them at increased risk for HIV/STI transmission. TGW, however, are more likely to be infected and have even higher risks. Risk behaviors for both groups include commercial sex-work, multiple partners and unprotected sex. Prevention efforts in Peru should continue to target these groups for primary HIV prevention and TGW may require more targeted efforts.This may change after you do the multivariate model.

TUPEC233

Perceived undertreated pain is associated with overdose among older HIV-positive people who inject drugs in Vancouver, Canada

P. Voon[1], T. Kerr[1], N. Fairbairn[1], E. Nosova[1], R. Barrios[2], E. Wood[1], M.-J. Milloy[1]
[1]BC Centre on Substance Use, Vancouver, Canada, [2]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada

Background: Pain is common and often inadequately managed among people living with HIV (PLWHA), as has been highlighted in recent clinical practice guidelines for managing chronic pain among PLWHA. Given increasing concerns regarding opioid overdose trends and comorbidities related to aging populations of PLWHA, we sought to explore the impact of perceived undertreated pain on non-fatal overdose among age subgroups of PLWHA who inject drugs.
Methods: Bivariable and multivariable generalized estimating equations (GEE) were used to evaluate the impact of perceived undertreated pain on non-fatal overdose among HIV-seropositive people who reported ever injecting drugs in the AIDS Care Cohort to Evaluate exposure to Survival Services (ACCESS) prospective cohort study in Vancouver, Canada, from June 2014 to May 2016. Participants were considered to have perceived undertreated pain if they reported feeling the need to take more of, or a stronger type of, pain medication than they had been prescribed, based on sub-questions of the Brief Pain Inventory.
Results: In total, 556 participants were eligible for this analysis, of who 359 (64.6%) were male. The median age was 49 years (interquartile range: 43-54 years). In total, 113 overdoses were observed over the study period from 93 (16.7%) unique individuals. Perceived undertreated pain was significantly associated with overdose in bivariable analyses (Odds Ratio [OR]: 2.05, 95% Confidence Interval [CI]: 1.32-3.16) and in a multivariable analysis adjusted for confounding variables (Adjusted Odds Ratio [AOR]: 2.24, 95% CI: 1.40-3.59). In the multivariable analysis, perceived undertreated pain remained independently associated with overdose, while drug use variables (e.g., daily heroin injection) did not. Within age strata, perceived undertreated pain was independently associated with overdose in the oldest stratum aged 50-60 (AOR: 3.73, 95% CI: 1.75-7.94), but not in younger strata aged 30-40 (AOR: 2.51, 95% CI: 0.49-12.86) or 40-50 (AOR: 1.87, 95% CI: 0.86-4.06).
Conclusions: The positive independent association between perceived undertreated pain and overdose in this study highlights the potential role of pain management in mitigating overdose among PLWHA who inject drugs—particularly older subpopulations. These findings also suggest that perceived undertreated pain may be a more significant predictor of overdose than drug use patterns alone.

Sample	Odds Ratio (OR)	
	Unadjusted OR (95% CI)	Adjusted OR* (95% CI)
Full sample		
Perceived undertreated pain† (yes vs. no)	2.05 (1.32 – 3.16)	2.24 (1.40 – 3.59)
Age (per year increase)	0.96 (0.94 – 0.98)	0.97 (0.94 – 0.99)
Gender (male vs. female)	1.62 (0.98 – 2.67)	1.95 (1.15 – 3.33)
Highest education completed (≥ vs. < high school)	1.03 (0.67 – 1.60)	
Ethnicity (Caucasian vs. other)	0.83 (0.54 – 1.27)	
Homeless† (yes vs. no)	2.54 (1.55 – 4.15)	1.46 (0.81 – 2.62)
Injected in public† (yes vs. no)	4.07 (2.68 – 6.18)	2.48 (1.50 – 4.11)
Required help injecting† (yes vs. no)	2.56 (1.62 – 4.04)	1.52 (0.90 – 2.57)
Binge drug use† (yes vs. no)	2.48 (1.66 – 3.69)	1.73 (1.14 – 2.62)
Mental illness† (yes vs. no)	2.43 (1.20 – 4.92)	2.54 (1.15 – 5.61)
Methadone maintenance treatment† (yes vs. no)	0.95 (0.62 – 1.45)	
Heroin injection† (≥ vs. < daily)	2.99 (1.86 – 4.82)	1.58 (0.93 – 2.69)
Cocaine injection† (≥ vs. < daily)	1.46 (0.67 – 3.18)	
Methamphetamine injection† (≥ vs. < daily)	2.19 (1.20 – 3.98)	0.95 (0.51 – 1.78)
Alcohol use† (≥ vs. < daily)	1.38 (0.69 – 2.79)	
Prescription opioid injection† (≥ vs. < daily)	1.77 (0.71 – 4.41)	
Prescription opioid non-injection† (≥ vs. < daily)	2.04 (0.73 – 5.67)	
Effect of perceived undertreated pain on overdose, within age strata‡		
Age 30 to 39	2.39 (0.75 – 7.68)	2.51 (0.49 – 12.86)
Age 40 to 49	1.90 (0.94 – 3.84)	1.87 (0.86 – 4.06)
Age 50 to 59	3.41 (1.67 – 6.96)	3.73 (1.75 – 7.94)

* Multivariable model built using covariates significant at p<0.1 in bivariable analysis. Identical fixed covariates (i.e., age, gender, education, homelessness, public injecting, requiring help injecting, binge drug use, mental illness, heroin injection, methamphetamine injection) were used for the full sample multivariable models and those within age strata.
† Denotes activities/events in the six months prior to the participant's interview.
‡ Sample size and mean average past-week pain severity (using 0-10 Brief Pain Inventory scale) for each age strata: Age 30 to 39: n = 235, mean pain = 2.705; Age 40 to 49: n = 638, mean pain = 3.31; Age 50 to 59: n = 748, mean pain = 3.87.

[Table 1. Bivariable and multivariable generalized estimating equations (GEE) examining perceived undertreated pain and non-fatal overdose among HIV-positive people who inject drugs (n=556)]

Risk factors for acquisition, infectivity and transmission of HIV

TUPEC234

Latent profiles of behavioral and sexual risk for HIV-negative and positive young African American men who have sex with men: Implication for HIV prevention and pre-exposure prophylaxis

W. Vincent[1], J. Peterson[2], D. Huebner[1], J. Tan[1], G. Rebchook[1], E. Storholm[3], L. Pollack[1], S. Kegeles[1]
[1]University of California, San Francisco, San Francisco, United States, [2]Georgia State University, Atlanta, United States, [3]RAND Corporation, Los Angeles, United States

Background: Young African American men who have sex with men (YAAMSM) have high HIV risk, but are less likely than other groups to be prescribe pre-exposure prophylaxis if they are HIV-negative and less likely to be retained in care or virally suppressed if they are HIV-positive. Thus, in order to inform HIV prevention and intervention efforts, the present study identified profiles of HIV-related behavioral risks and protective factors and whether these profiles could be distinguished by socioeconomic risk factors and HIV status.
Methods: YAAMSM (*N*=1,808) in two Texas cities completed a survey of sociodemographic characteristics, HIV status, HIV-related behavioral risk and protective factors (i.e.., condom self-efficacy, negative condom

attitudes, being in difficult sexual situation, being in a difficult relationship situation, HIV treatment optimism, perceived HIV stigma) factors. Latent profile analysis was used to identify profiles of behavioral risk and protective factors and whether these profiles could be predicted by HIV status when adjusting for socioeconomic characteristics.
Results: YAAMSM characterized by profile 1 (*n*=1,263) had relatively high scores on condom self-efficacy (i.e., feeling a sense of agency and skill at using condoms in a sexual situation), which is linked to reduced HIV risk, compared to YAAMSM characterized by profile 2 (see Table). In contrast, YAAMSM characterized by profile 2 (*n*=545) had higher scores on all behavioral factors linked to increased HIV risk (i.e., negative condom attitudes, being in difficult sexual situation, being in a difficult relationship situation) (see Table). HIV-positive YAAMSM had greater odds of having a higher risk profile and lower self-efficacy than HIV-negative YAAMSM (*OR*=2.13, $p < 0.0005$).
Conclusions: In this large sample of YAAMSM, men could be distinguished by two profiles of HIV-related behavioral protective and risk factors: one characterized by a relatively high degree of condom self-efficacy and the other characterized by greater HIV-related behavioral risk (e.g., negative condom attitudes, being in difficult sexual relationships). HIV-positive men, who tended to be characterized by the higher risk profile, may require support regarding contextual risk factors (e.g., difficult sexual relationships) and greater efforts to achieve viral suppression given that these men may tend toward negative condom attitudes.

Variable	Overall Item Mean (SD)	First Class: Mean (SE)	Second Class: Mean (SE)
Condom self-efficacy	16.53 (4.20)	18.46 (0.10)	12.14 (0.28)
Negative condom attitudes	5.87 (3.23)	4.40 (0.08)	9.20 (0.20)
Being in difficult sexual situations	20.17 (9.09)	15.92 (0.25)	29.79 (0.49)
Being in a difficult sexual relationship	9.56 (4.44)	8.20 (0.15)	12.65 (0.21)
HIV treatment optimism	7.84 (3.30)	7.00 (0.09)	9.75 (0.17)
Perceived HIV stigma	29.82 (12.44)	28.21 (0.37)	33.41 (0.52)

[Overall Item Means (and Standard Deviations) and Estimated Means (and Standard Errors) for a Two-Class Solution of HIV-Related Behavioral Risk and Pro]

TUPEC235

The young, the old and the risky: HIV risk factors by age among voluntary medical male circumcision clients in Zambia 2017

O. Chituwo[1], L. Aladesanmi[2], J.Z. Hines[3], M. Lukobo-Durrell[4], M.A. Habel[3], S.M. Davis[3], C. Toledo[3], C. Laube[4]
[1]*Centers for Disease Control and Prevention, Lusaka, Zambia,* [2]*Jhpiego, Lusaka, Zambia,* [3]*Centers for Disease Control and Prevention, Atlanta, United States,* [4]*Jhpiego, Baltimore, United States*

Background: Circumcising men with the highest baseline HIV infection risk achieves the greatest absolute risk reduction from male circumcision. In practice, voluntary male medical circumcision (VMMC) programs have relied on age as a proxy for risk. However, previous studies have not reported risk factors according to VMMC client age. We investigated the association between age and self-reported HIV risk factors among clients in a VMMC program led by the Zambia Ministry of Health and Jhpiego.
Methods: In May 2017, a VMMC program began asking clients aged ≥15 years about several HIV risk factors to better inform counseling during preoperative evaluation. Clients were asked about recent (≤6 month) sex with an HIV-positive partner; multiple concurrent sex partners; sex in exchange for money; treatment for sexually transmitted infections (STIs); sex after drinking alcohol; and illicit drug use. We report on client responses from the first five months of implementation (May-September 2017), comparing risks among clients in five age bands (15-19 years, 20-24 years, 25-29 years, 30-39 years, and ≥40 years) using the chi-square or fisher exact test with a significance level of $p < 0.05$. Data were analyzed only for clients with complete data.
Results: Among 2,846 interviewed VMMC clients during May-September, 2,318 (81.4%) had complete data. Of these, 380 (16.4%) clients reported at least 1 HIV risk factor in the past 6 months, and 153 (6.6%) reported ≥2. The proportion of clients reporting any, ≥2, or any of the six individual risk factors varied by age group ($p < 0.05$), with all but drug use increasing with age (Table).
Conclusions: A substantial minority of clients in a Zambian VMMC program reported recent risk factors for HIV infection, and the likelihood of reporting a risk increased with age. These findings suggest that targeting men aged ≥20 years for VMMC reaches men at higher risk for HIV infection, and demand creation efforts designed to mobilize these men are warranted. VMMC programs that collect risk information should use it to guide demand creation activities (e.g., mobilizing men at shebeens, STI clinics) and to tailor counseling messages for clients.

Age group	HIV+ sex partner, n (%)*	Multiple concurrent sex partners, n (%)*	Traded sex for money or gifts, n (%)*	Treatment for STIs, n (%)*	Sex after drinking alcohol, n (%)*	Illicit drug use, n (%)*	Any risk factor, n (%)*	≥2 risk factors, n (%)*
15-19 years (n=1,094)	2 (0.2)	50 (4.6)	14 (1.3)	7 (0.6)	25 (2.3)	27 (2.5)	92 (8.4)	22 (2.0)
20-24 years (n=675)	8 (1.2)	71 (10.5)	16 (2.4)	19 (2.8)	53 (7.9)	25 (3.7)	119 (17.6)	49 (7.3)
25-29 years (n=314)	7 (2.2)	45 (14.3)	10 (3.2)	23 (7.3)	43 (13.7)	22 (7.0)	90 (28.7)	40 (12.7)
30-39 years (n=186)	8 (4.3)	38 (20.4)	12 (6.5)	24 (12.9)	23 (12.4)	3 (1.6)	56 (30.1)	29 (15.6)
≥40 years (n=49)	4 (8.2)	14 (28.6)	5 (10.2)	9 (18.4)	14 (28.6)	0 (0.0)	23 (46.9)	13 (26.5)
All ages, (n=2,318)	29 (1.3)	218 (9.4)	57 (2.5)	82 (3.5)	158 (6.8)	77 (3.3)	380 (16.4)	153 (6.6)
*p-value <0.05								

[Self-reported HIV risk factors in the past 6 months among VMMC clients in Zambia, May-September 2017]

TUPEC236

Factors associated with mother-child HIV transmission in Uruguay: The importance of goals 90-90-90 in the elimination strategy

S. Cabrera[1,2], A. Visconti[1], M. Guirado[2], D. Pérez[1], A. Bálsamo[1], J. Quian[1]
[1]*Ministry of Health, Montevideo, Uruguay,* [2]*Cátedra de Enfermedades Infecciosas, Facultad de Medicina, Montevideo, Uruguay*

Background: There are approximately 130 children per year who are born exposed to HIV-infected women in Uruguay. Although measures to prevent mother-to-child transmission (PMTCT) of HIV have been implemented years ago, it has not yet been possible to achieve sustained elimination of MTCT. An analysis of the national cohort of children exposed to HIV in Uruguay was conducted to evaluate the variables associated with MTCT.
Methods: A cross-sectional study of live births HIV exposed between 2012 and 2016 in Uruguay.
Results: A total of 610 pregnancies resulted in 622 live births exposed to HIV. The overall MTCT rate was 2.7%: 5.3% in 2012, 1.6% in 2013, 3% in 2014, 1.8% in 2015, 1.6% in 2016. The women's average age was 28 ± 7 years, CD4 count 508 ± 311 cells/µl. The median gestacional age and interquartile range of the first pregnancy control was 12 (8-17) weeks, of HIV diagnosis was 17 (11-24) weeks in women without previous diagnosis and, of the start of HAART was 20 (14-27) weeks. The percentage of women with diagnosis of HIV prior to pregnancy and the HAART coverage was 60% and 48%, respectively. An improvement in these indicators was verified from 46.3% to 65.4% and from 27% to 67% between 2012 and 2016, respectively. (figure)
At 18-month follow-up, the MTCT rate was 0% in women with HAART prior to conception or initiating it before 14 weeks, 1% among who started HAART between 14 and 27 weeks, 3.8% among who started at gestational age greater than 27 weeks, and 19% among who did not receive HAART. The factors associated with MTCT in the univariate analysis were: poorly controlled pregnancy, HIV diagnosis late during pregnancy, seroconversion during pregnancy, do not receive any prophylaxis or start HAART late, breastfeeding, virological suppression, newborn without chemoprophylaxis. (table) There were no variables independently associated in the multivariate analysis.

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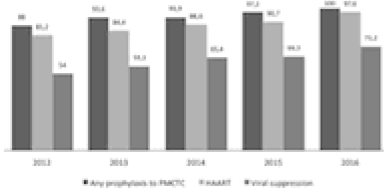
Conclusions: The diagnosis of HIV and HAART coverage prior to pregnancy are the main factors in the PMTCT of HIV; so the achievement of 90-90-90 goals in HIV-infected women would make it possible to achieve the goal of eliminating perinatal HIV transmission.

Variables	OR (CI 95%)	p value
Poor controled pregnancy (< 5 controls)	4.03 (1.11-14.68)	0.045
HIV diagnosis before pregnancy	0.20 (0.07-0.61)	0.002
HIV diagnosis in pregnancy > 28 weeks	20.74 (7.41-58.00)	< .0001
Acute infection during pregnancy	17.21 (4.43-66.94)	0.007
No HAART in pregnancy	4.97 (1.95-12.68)	< .0001
HAART started > 28 weeks	14.37 (4.18-49.33)	< .0001
Suppressed viral load	0.15 (0.05-0.46)	< .0001
No chemoprophylaxis for the newborn	9.01 (2.42-33.96)	0.02
Breastfeeding	11.64 (3.26-41.59)	0.014

[Factors asociated with mother-to-child HIV transmission, univariate analysis]



[Continuous of care in HIV-infected pregnant women in Uruguay, 2012-2016]

TUPEC237

Vulnerabilities to HIV infection among adolescent girls and young women in Selected States in Nigeria

E. Udoh[1], O. Arije[1], K. Ijadunola[1], S. Afolabi[1], J. Arasiola[1], G. Omorige[2], O. Tomori[2], O. Ukeme-Edet[2], A. Onayade[1]
[1]Institute of Public Health, College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria, [2]Society for Family Health, Global Fund HIV, Abuja, Nigeria

Background: Young women and adolescent girls in particular, account for a disproportionate number of new HIV infections among young people living with HIV. This study identified factors associated with adolescent girls and young women´s vulnerability to HIV infection in Nigeria.
Methods: This was a cross-sectional study conducted among adolescent girls and young women aged 15-24 years in four selected states in Nigeria (Akwa-Ibom, FCT, Kaduna and Oyo). Information on socio-demographic characteristics, risky sexual behaviours and practices, attitudes and perceptions on HIV, STI experience, gender-based violence and related socio-cultural experiences were elicited from 4320 respondents. A total of 14 vulnerabilities factors to HIV were identified in this study and a modified Delphi technique conducted with twenty members of the National Prevention Technical Working Group was used to assign weights between 0 and 1 to each. Cronbach´s alpha coefficient for the 14 factors was 0.55. Composite score for each respondent was calculated and scores above the median score were considered as high vulnerability to acquiring HIV.
Results: Proportion of respondents aged 15-19 years old was 53.1% and majority were never-married. Nearly half of respondents (48.4%) had high vulnerability to HIV infection. High vulnerability was significantly greater (63.4%) amongst respondents aged 20-24 years compared with those aged 15-19 years (35.0%). The greatest proportion of high vulnerability was seen among respondents with no formal education (79.0%), separated/divorced/widowed (88.4%), married/co-habiting (79.0%) and those who had low self-esteem (52.7%). Lower proportion of high vulnerability was seen among those who had never taken an HIV test compared with those that had (43.2% vs. 56.6%) and those who did not have correct knowledge of HIV prevention (40.4% vs. 51.8%) compared with those who did. These findings were statistically significant (p< 0.001 in all cases).

Conclusions: Sociodemographic characteristics of young women are important determinants of vulnerability to HIV. Also knowledge of HIV alone may not always reflect vulnerability to HIV. Interventions targeted to reduce vulnerability to HIV among young women must address behavioural and social-demographic risk factors.

TUPEC238

Comorbidities and antiretroviral therapy treatment failure synergies: A case-control study in low resource settings - Kadoma, Zimbabwe 2017

S. Tapesana[1], D. Chirundu[2], G. Shambira[3], N. Gombe[4], T. Juru[4], M. Tshimanga[3]
[1]Ministry of Health and Child Care Zimbabwe, Centenary District, Harare, Zimbabwe, [2]Kadoma City Council, Health, Kadoma, Zimbabwe, [3]University of Zimbabwe, Community Medicine, Harare, Zimbabwe, [4]Ministry of Health and Child Care, Health Studies Office, Harare, Zimbabwe

Background: Antiretroviral Therapy (ART) treatment failure remains a public health concern threatening the goal of viral suppression. In Kadoma, a concomitant increase in prevalence of comorbidities (non-communicable and infectious diseases) among clients failing ART was noted from 2012-2016. An investigation to determine the role of comorbidities in ART treatment failure was conducted.
Methods: A 1:1 unmatched case-control study was conducted, a case of treatment failure defined as per World Health Organisation clinical, immunological or virological criteria. Cases and controls were randomly selected. Data collection comprised of interviews, records review, screening tests for hypertension, metabolic syndrome, diabetes, hepatitis, syphilis, cryptococosis and depression. Epi Info 7 was used to generate frequencies, proportions and means for descriptive statistics. Bivariate analysis was done to explore relationships between comorbidities and treatment failure. Logistic regression analysis was done to determine the independent factors associated with treatment failure.
Results: One hundred and eighteen cases and 118 controls were recruited. In bivariate analysis, male sex (OR=2.4, CI 1.3-4.2) and having ≥ 2 comorbidities (OR=3.1, CI 1.6-6.2), were risk factors for treatment failure whilst having ≤ 1 sexual partner in previous month (OR=0.47, CI 0.27-0.82) was protective. Tuberculosis infection (OR=2.5, CI 1.3-4.8) and oropharyngeal candidiasis (OR=4.3, CI 1.2-15.8) were predictors of treatment failure. In logistic regression analysis, reported use of dual contraception (aOR=0.44, CI 0.23-0.85) was protective whilst having detectable urobilinogen (aOR=14.82, CI 1.88-117.00) at urinalysis was a risk factor. A stronger dose response relationship was exhibited between coinfections [No coinfection OR=0.42, **1-2** coinfections OR=1.5, **≥3** coinfections OR=3.0] and ART treatment failure.
Conclusions: Although comorbidities have shown to play a role in ART failure, male sex and use of dual contraception have shown a bigger role in ART failure. These findings suggest sexually transmitted HIV drug resistance as being key to treatment failure in this setting. We recommend use of dual contraception, screening and treatment of comorbidities and a study to explore the significance of urobilinogen in treatment failure.

TUPEC239

An increase in rates of HIV infection among people who inject drugs in Petropavlovsk, Kazakhstan, 2016-2017

V. Kazakov[1], M. Izbagambet[2], A. Zhandybayeva[2], B. Baiserkin[1], D. Nabirova[3], D. Moffett[3], A. Mukhamediyev[4]
[1]Republican AIDS Center, Almaty, Kazakhstan, [2]Almaty City AIDS Center, Almaty, Kazakhstan, [3]U.S. Centers for Disease Control and Prevention, Central Asia Office, Almaty, Kazakhstan, [4]Astana City AIDS Center, Astana, Kazakhstan

Background: Drug injection is a major driver of HIV infection in Kazakhstan with HIV prevalence among people who inject drugs (PWID) from 9.3 to 26.5% in different regions. Between July 2016 and May 2017, 256 new cases of HIV were reported among PWID in a northern Kazakhstan region, and local authorities were concerned the cases were linked to an influx

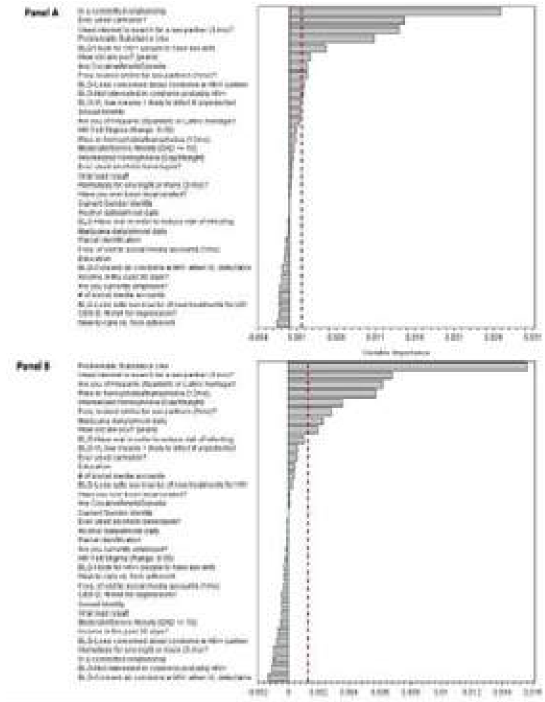
of synthetic drugs ("bath salts"). These cases accounted for 31% of HIV infection attributed to drug injection in the country. Of the 256 cases, 244 (95%) were detected in Petropavlovsk City. We aimed to identify factors associated with this increase in HIV infection.
Methods: Between June and July 2017, we performed a case-control study among PWID aged ≥18 years in Petropavlovsk. Cases with a new HIV+ test after July 1, 2016 and HIV- controls were identified through active surveillance and contact tracing. Participants responded to a questionnaire on demographics and sexual/drug injecting behaviors. Controls received serologic testing for HIV. Logistic regression was used to examine the association of exposures with HIV infection.
Results: Prevalence of risk behaviors was high among 73 cases and 111 controls, with mean duration of drug injection 10 and 12 years (range 3-19 and 4-20) respectively. In multivariate regression, heroin injection (adjusted odds ratio [AOR]=6.9, 95% confidence interval [CI] 1.1-135.1), bath salts use (AOR=3.6, 95% CI 1.4-10.4), sharing syringes (AOR 3.5, 95% CI 1.6-8.1), invasive medical procedures (AOR=3.5, 95% CI 1.4-9.3), and condom use (AOR=0.2, 95% CI 0.1-0.9) were strongly associated with HIV infection.
Conclusions: Heroin and bath salts use, sharing syringes and invasive medical procedures are key factors of HIV infection in Petropavlovsk. Scale-up of unlimited access to harm reduction commodities, HIV testing and treatment for PWID as well as strengthened hospital infection control are recommended to reduce HIV transmission risk in Petropavlovsk.

TUPEC240

Predictors of condomless sex among non-suppressed adolescent MSM and transgender women in the United States

S. Legrand[1], A. Platt[1], K. Muessig[2], J. Egger[1], K. Soni[3], L. Hightow-Weidman[3]
[1]Duke University, Duke Global Health Institute, Durham, United States, [2]University of North Carolina-Chapel Hill, Health Behavior, Chapel Hill, United States, [3]University of North Carolina-Chapel Hill, Medicine/ Infectious Diseases, Chapel Hill, United States

Background: A minority of HIV+ youth in the United States achieve viral suppression, with rates lower for Black young men who have sex with men (YMSM). Elevated viral loads (VLs) increase the likelihood of viral transmission during condomless anal intercourse (CAI).
Methods: From 10/2015 to 9/2016, HIV+ YMSM and transgender women (TW) who have sex with men (age 16-24) with detectable VLs were enrolled in a smartphone app-based antiretroviral therapy (ART) adherence intervention. Baseline data, stratified by any CAI and any serodiscordant CAI, were computed. Random Forests and regression methods were used to determine covariates of importance for predicting each type of CAI. Prevalence rate ratios and 95% confidence intervals were calculated.
Results: 146 participants enrolled; median age was 21.5 years; 50.7% started ART within past 12 months. Median VL was 4096 copies/ml. Most identified as male (93.2%), gay (77.4%) and Black (75.3%). The population exhibited high rates of problematic substance use (49.3%); 32.9% reported daily marijuana use. Half (51.9%) reported engaging in CAI in the past 3 months; 57.1% of those reported serodiscordant CAI. Significant predictors of CAI (Figure 1A) included any marijuana use, problematic substance use and being in a committed relationship. Youth with problematic substance use were 3x more likely to engage in serodiscordant CAI (p=0.001) (Figure 1B). Youth with higher internalized homophobia were more likely to engage in both CAI (p=0.02) and serodiscordant CAI (p=.011). There was no association between HIV transmission beliefs and serodiscordant CAI. Only 47% of participants endorsed the belief that they were less likely to infect another person through CAI if they had a low or undetectable VL.
Conclusions: High rates of CAI and serodiscordant CAI among HIV+ YMSM/TW with detectable VLs is concerning. In addition to being associated with CAI, substance use can negatively impact ART adherence; thus, multifaceted interventions that address conditions impacting HIV+ YMSM/TW is critical. CAI among those in relationships argues for a better understanding of communication patterns, relationship formation and dissolution that could guide interventions to increase protective behaviors among both partners. Addressing internalized homophobia through individual and structural methods, including promotion of messaging reinforcing "undetectable=untransmittable", should be targeted to YMSM/TW.



[Random Forest Variable Importance for Predictors of Any CAI (Panel A) and Serodiscordant CAI (Panel B). Dotted line at absolute value of minimum variable importance score.]

TUPEC241

Key drivers of the changing HIV/AIDS epidemic in North-East of India

R. Adhikary
Consultant - WHO/India, Gurgaon, India

Background: The HIV/AIDS epidemic in North-East of India started in early 1990s and until recently it was mainly driven by injecting drug use. However, some recent research studies as well as new evidences indicate that the epidemic in North-East of India, particularly in the states of Mizoram and Nagaland, is transitioning from an injecting drug use to a heterosexual epidemic. Urgent need was felt to assess and understand the underlying socio-eco-demographic, cultural and epidemiological factors of the HIV epidemic there.
Methods: The methodology of the assessment included three components:
(1) extensive review of existing literature (both published as well as non-published)
(2) in-depth analysis of available secondary data including huge amount of program data e.g. ICTC data, ART data etc. and other data sources like HSS, IBSS etc.
(3) discussions with key policy makers, program managers at national as well as state levels. Mizoram and Nagaland were covered in the first phase of the assessment. The first phase of the assessment was undertaken from Oct 2016 to Jan 2017.
Results: In Mizoram, the key drivers of the changing HIV epidemic include very high HIV prevalence among injecting drug users in some districts, high degree of casual sex, very low condom use, recent disruptions in program interventions, low treatment coverage, high lost-to-follow up of HIV positive cases, non-coverage certain important vulnerable groups and repeal of the Mizoram Liquor Total Prohibition Act. Whereas, in Nagaland, the key identified drivers of the changing epidemic are high STI prevalence among key populations, significant overlap between injecting drug use and commercial sex work, high degree of unprotect-

ed casual sex, late identification of positive cases and absence of Link Worker Scheme, an effective HIV intervention program in rural areas. All these key drivers are identified based on in-depth analysis of program data as well as other available data sources.
Conclusions: The findings clearly indicate that a more comprehensive intervention strategy needs to be adopted immediately to respond to the changing epidemic scenario in North-East of India. The sexual risk behaviours need to be addressed urgently with an equal priority.

TUPEC242

Depressive symptoms, substance use and sexual risk behaviors among Black men who have sex with men (MSM)

F.S. Winterhalter[1], J. Franks[1], Y. Hirsch-Moverman[1,2], H. Ortega[1], Y. Wu[1], J. Knox[2], W. El-Sadr[1,2], P.W. Colson[1]
[1]ICAP, Columbia University, New York, United States, [2]Columbia University Mailman School of Public Health, Department of Epidemiology, New York, United States

Background: MSM experience elevated rates of depression, which is associated with risk factors for HIV infection, including substance use and sexual risk. Depression in racial minority MSM is not well-studied and may contribute to persistently high HIV rates among black MSM in the United States (US). We explore the prevalence and correlates of depressive symptoms in HIV-negative US MSM enrolled in a pre-exposure prophylaxis (PrEP) study.
Methods: Participant inclusion criteria were self-identified black MSM who screened eligible for PrEP. Participants with a CES-D score ≥16 were considered to have depressive symptoms. Problematic drug use was measured with the TCU Drug Screen II (score ≥3), and problematic alcohol use with the Alcohol Use Disorders Identification Test (AUDIT, score ≥8). Structured interviewer-administered questionnaires were used to assess sexual risk behaviors, including transactional sex (giving or receiving goods such as money, alcohol, or drugs in exchange for sex with main sexual partners [MSP] and other partners) and condomless sexual intercourse with MSP and other partners. Comparisons between groups were measured using Student's t-tests, Chi-square tests, or Fisher's Exact tests, as appropriate.
Results: Among 193 MSM enrolled, 44.0% reported depressive symptoms; 16.6% reported problematic alcohol use and 15.0% reported problematic drug use. 17.7% of participants reported condomless sex with MSP and 11.8% reported engaging in transactional sex. Depressive symptoms were significantly associated with problematic drug use (p=0.0002), condomless intercourse with MSP (p=0.02) and transactional sex (p=0.008). Participants with depressive symptoms were at an almost 4-fold higher risk for problematic drug use [RR (95% CI): 3.99 (1.79 - 8.90)] compared to those without, a 1.5-fold higher risk of not using a condom with MSP [RR (95% CI): 1.49 (1.06 - 2.09)], and a 13-fold higher risk of exchanging goods for sex with other partners [RR (95% CI): 13.06 (1.73 - 98.63)].

Outcome	Crude RR (95% CI) for Outcome (Depressive symptomatology as predictor in bivariable association)	Fisher Exact or Chi-Square p-value (* indicates p-value < 0.05)
Problematic Alcohol Use	0.99 (0.52 - 1.87)	0.97
Problematic Drug Use	**3.99 (1.79 - 8.90)***	**0.0002***
Sexual Risk Behaviors:		
Condom Not Used During Last Sex with Main Partner	**1.49 (1.06 - 2.09)***	**0.02***
Last 30 Days:		
Transactional Sex with Main Partner (Receiving goods such as money, alcohol, or drugs in exchange for sex)	Statistic non-estimable due to zero cell counts	-
Transactional Sex with Main Partner (Giving goods such as money, alcohol, or drugs in exchange for sex)	Statistic non-estimable due to zero cell counts	-
Transactional Sex with Other Partner (Receiving goods such as money, alcohol, or drugs in exchange for sex)	2.35 (0.84 - 6.57)	0.09
Transactional Sex with Other Partner (Giving goods such as money, alcohol, or drugs in exchange for sex)	**13.06 (1.73 - 98.63)***	**0.001***

[Associations between depressive symptomatology, substance use and sexual risk behaviors among MSM at baseline (N=193)]

Conclusions: Depressive symptomatology was highly prevalent in this population of black MSM eligible for PrEP and was associated with problematic substance use and sexual risk. Our findings highlight the need for mental health services in this highly HIV-impacted population. Addressing depression and substance use in this vulnerable population may strengthen PrEP and other HIV prevention efforts.

TUPEC243

Factors associated with sexually transmitted infections among sexually active U.S. Navy and Marine Corps personnel across a shipboard deployment

J. Harbertson[1,2,3], P. Scott[4], Y. Li[4], N. Michael[4], B. Hale[2,5]
[1]US Military Research Program, San Diego, United States, [2]Defense Health Agency, Department of Defense HIV/AIDS Prevention Program, San Diego, United States, [3]Leidos, Inc., San Diego, United States, [4]Walter Reed Army Institute of Research, Silver Spring, United States, [5]UC San Diego, La Jolla, United States

Background: Longitudinal data are limited on risk factors associated with sexually transmitted infections (STIs) in deploying military populations who may acquire or transmit STIs transnationally. This study examined factors associated with STIs 12 months prior to international deployment departure (T1), during deployment (T2), and within 3 months of returning from deployment (T3) among US military personnel.
Methods: Data were collected among active duty U.S. Navy and Marine Corps personnel assigned to 11 deploying ships using an anonymous, voluntary, self-report survey, including questions on demographics, chlamydia, gonorrhea, trichomoniasis, or syphilis diagnosis by a healthcare provider, transactional sex, alcohol misuse, and drug use. Descriptive and generalized regression model analyses were conducted to determine the effects of main exposures after adjusting for sex, age, race, marital status and education. When longitudinal data were included, generalized estimating equations were used.
Results: Among 2,400 participants, 2,232 (T1), 649 (T2), and 1,200 (T3) met inclusion criteria (ie, reported age, sex and that they were sexually active in the relevant time interval) and were accordingly included in analysis. The proportion of sexually active individuals with a STI diagnosis was 2.8% (n = 63/2232, T1), 6.8% (n = 44/649, T2), and 2.3% (n = 28/1200, T3). After adjusting for demographics, participants with an STI diagnosis had significantly higher odds of screening positive for severe alcohol misuse, reporting transactional sex, MSM/ MSMW anal sex, and drugs with sex. The association between risk factors and STI diagnosis significantly varied by timepoint.
Conclusions: The majority of STIs were reported before or after international deployment, but there was a higher proportion of STIs reported among those sexually active during deployment. Proportions of STIs were substantially higher among individuals engaged in behaviors that could be screened for before and during deployment. Individuals that screen positive for these risk behaviors could receive differentiated care, more frequent STI testing, and provision of other supportive care (substance abuse or mental health resources, safer sex education) to possibly mitigate STI transmission risk while deployed internationally. These data may be relevant to other militaries who support international peacekeeping or deploying personnel.

TUPEC244

Trajectories of physical intimate partner violence among adolescent girls in rural South Africa: Who is at consistently high risk? (HPTN068)

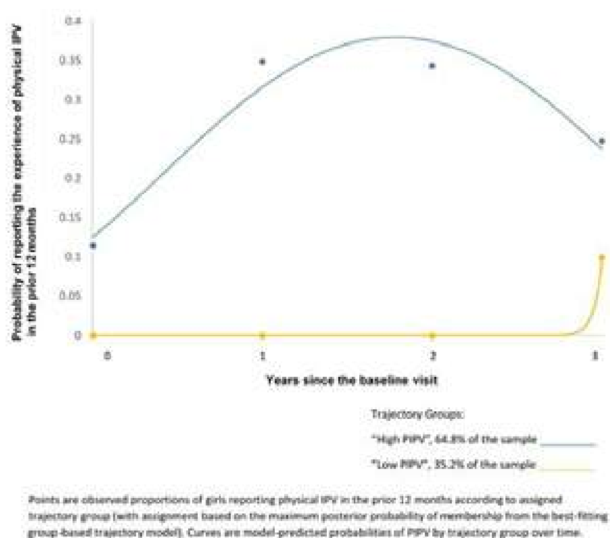
S.M. DeLong[1], K.A. Powers[1], B.W. Pence[1], S. Maman[2], K.L. Dunkle[3], A. Selin[4], R. Twine[5], F.X. Gómez-Olivé[5], C. MacPhail[6], K. Kahn[5], A. Pettifor[1,4,5]
[1]University of North Carolina at Chapel Hill, Department of Epidemiology, Chapel Hill, United States, [2]University of North Carolina at Chapel Hill, Department of Health Behavior, Chapel Hill, United States, [3]South African Medical Research Council, Pretoria, South Africa, [4]Carolina Population Center, University of North Carolina at Chapel Hill, Chapel Hill, United States, [5]MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), Faculty of Health Sciences, School of Public Health, University of the Witwatersrand, Johannesburg, South Africa, [6]University of Wollongong, New South Wales, Australia

Background: Adolescent girls are at high risk of HIV in South Africa, and intimate partner violence (IPV) is considered an important risk factor. Little is known about how IPV develops differently across individuals over time and what predicts those experiences.

Methods: We identified longitudinal trajectories and related baseline predictors of physical IPV (PIPV) among adolescent girls in the MRC/Wits-Agincourt Health and socio-Demographic Surveillance Site, South Africa. Data came from HPTN068, a randomized controlled trial of conditional cash transfers for HIV prevention. Adolescent girls in grade 8 or 9 in 2011 (baseline visit) who had at least three annual assessments for PIPV (yes/no in the prior 12 months) were included in the analysis (n=907). We used group-based trajectory modeling to identify latent groups with different temporal patterns of PIPV and simple logistic regression to assess baseline predictors of group membership.

Results: We identified two distinct PIPV trajectories among adolescent girls. A "High PIPV" group, comprising an estimated 64.8% of the population, was characterized by an increase in the predicted probability of PIPV from ~12.5% to ~31.6% over the first year, followed by a probability of ~37.5% and ~23.7% thereafter. The "Low PIPV" group, comprising an estimated 35.2% of the population, had a 0% probability of reporting PIPV for the first two years, followed by an increase to ~10% between years 2 and 3 (Figure 1). Girls in the high group were more likely to report at baseline that they had ever had vaginal or anal sex (unadjusted odds ratio [uOR]= 2.78; 95% CI: 1.88, 4.12); had unprotected sex in the prior 3 months (uOR= 2.52; 95% CI: 1.14, 5.57); had ever had transactional sex (uOR= 7.54; 95% CI: 1.70, 33.37); or had an older partner (uOR= 2.84; 95% CI: 1.24, 6.48).

Conclusions: Longitudinal patterns of PIPV varied among adolescent girls, with nearly two-thirds experiencing a consistently high probability of PIPV. Targeted intervention strategies tailored to those at higher risk could maximize reductions in PIPV.



[Figure 1. Physical IPV Trajectories among Adolescent Girls in the MRC/Wits-Agincourt HIV and socio-Demographic Surveillance Site, South Africa]

TUPEC245

"Probable seroconversion" is associated with having non-tested positive people who inject drugs (PWID) in the referral chain

I. Sazonova[1], P. Smyrnov[2], S. Friedman[3]
[1]Alliance for Public Health, Monitoring and Evaluation, Kyiv, Ukraine, [2]Alliance for Public Health, Kyiv, Ukraine, [3]Institute for Infectious Diseases Research National Development and Research Institutes, Inc., New York, United States

Background: Timely HIV detection to increase the number of people who know they are infected can reduce mortality and new infections. Analysis of PWID network structure may enhance case finding rates.

Methods: We analyzed2013 Ukrainian integrated bio-behavioural surveillance (IBBS) data for PWID for "probable seroconversion", which we defined as a current positive HIV test with a self-reported prior HIV-negative test.

We used logistic regression to analyze association between seroconversion status of PWID and HIV test results of peers immediately adjacent in the recruitment chain. A participant X is adjacent to participant Y if one of them was recruited by the other's coupon.

Results: 9502 PWID participated in IBBS 2013, of whom 6,255 PWID had prior HIV testing experience; 4,860 of these reported their most recent prior HIV test was negative. Comparing them with HIV testing results within the study, 238 probable seroconversions were found. In multivariate logistic regression, having either at least one HIV-positive PWID with previously unknown serostatus (AOR=2.07; CI: 1.46-2.93) was a predictor of probable seroconversion.

Having a PWID in the referral chain who shared syringe during last injection (AOR=2.46; CI: 1.21-5.00), as well as having only female PWID in the recruitment chain (AOR=1.66; CI: 1.03-2.68) also increase the odds for probable seroconversion.

Conclusions: PWID in Ukraine continue to have substantial HIV seroconversion rates, particularly if their peers include HIV-positive PWID who practice high-risk injection behaviour. HIV case finding that incorporates innovative network tracing techniques may be more effective.

TUPEC246

Replicable research on anal sex amongst female sex workers in India towards initiation of effective HIV prevention interventions across continents

A.P. Singh, R. Rani
Global Science Academy, AIDS Cell, Basti, India

Background: Anal-sex between men and women has not received much attention as anal-intercourse between men. However, it plays an important role in HIV transmission amongst heterosexuals. This study attempts not only to explore the occurrence and drivers of anal sex practices amongst Female Sex Workers (FSWs) in India but also to authentically provide new insights and base for future research.

Methods: Pre-tested questionnaire (translated and validated in Hindi and Kannada languages) was administered for interview by involving 120 FSWs from two important states of India namely Uttar Pradesh (UP) and Karnataka representing northern and southern India. Basti district, UP and Belgaum district, Karnataka were the study locations (60 FSWs from each state/district). Mean age of FSWs were 29.6 years (18 years-39 years) for UP while 32 years (20-42 years) for Karnataka. Informed consent was obtained from participants. Overall, study was conducted during 16thAugust 2017 to 15thNovember 2017.

Results: Data analysis revealed that 29% of FSWs had anal sex with clients and 66% used condom during their last anal sex in Karnataka while these ratios were 28% and 62% for UP. Dangerous misconception was observed prevailing amongst FSWs that anal sex is safer in terms of STI/HIV infection for which 56 out of 60 i.e. 93.3 % in Karnataka and 81.6% in UP FSWs considered it safe while this percentile was relatively high amongst illiterate respondents in Karnataka (31.6%) and UP (29.6%).

Multivariate analysis further showed that risk of pregnancy, preserving appearance of virginity, avoidance of contact with menstrual blood, sake of enhanced physical pleasure, experimentation as a matter of taste,

misconception that anal sex was safer, perception that loose vagina after child-birth minimizes pleasure as well as economic coercion were significant reasons of anal sex amongst FSWs.

Conclusions: There observed transactional anal-sex occurrences with FSWs at all the study locations. Findings showed significant anal-sex practices with intermittent condom use, lack of access to appropriate lubricants (for anal sex among FSWs) and low awareness of the associated risks amongst FSWs. This presents a serious threat to the health of FSW, their clients and is likely to be significant contributor to HIV transmission.

TUPEC247

Increased methamphetamine use in Hai Phong, Vietnam and associations with sexual and injection risk behaviors among persons who inject drugs, 2016-2017

J. Feelemyer[1], H. Duong Thi[2], K. Pham Minh[2], G. Hoang Thi[2], T. Thi Tuyet[3], O. Khuat Thi Hai[3], K. Arasteh[1], J.P. Moles[4], V. Vu Hai[5], R. Vallo[4], C. Quillet[4], D. Rapoud[4], L. Michel[6], T. Hammett[7,8], D. Laureillard[4,9], N. Nagot[4], D. Des Jarlais[1]
[1]Icahn School or Medicine at Mount Sinai, Psychiatry, New York, United States, [2]Hai Phong University of Medicine and Pharmacy, Haiphong, Vietnam, [3]Supporting Community Development Initiatives, Hanoi, Vietnam, [4]University of Monpellier, Inserm U 1058, Etablissement Français du Sang, Montpellier, France, [5]Viet Tiep Hospital, Dept of Infectious and Tropical Diseases, Haiphong, Vietnam, [6]Pierre Nicole Center, French Red Cross, CESP/Inserm 1018, Paris, France, [7]Abt Associates, Cambridge, United States, [8]Consultant to Icahn School of Medicine at Mount Sinai, New York, United States, [9]Caremeau University Hospital, Infectious Disease Dept, Nimes, France

Background: Methamphetamine is associated with both injection and sexual risk behaviors. The use of methamphetamine has increased significantly in Vietnam in the last 10 years. This study examines effects of increased methamphetamine use on an existing HIV epidemic among heterosexual persons who inject drugs (PWID) in Haiphong, Vietnam, with specific focus on potential sexual transmission of HIV.

Methods: Using respondent driven sampling (RDS), we recruited persons currently injecting drugs. Participants were administered a quantitative questionnaire on risk behaviors and were tested for HIV and hepatitis C virus (HCV). Bivariate and multivariable logistic regression assessed associations between current (in last 30 days) methamphetamine use, injection risk and sexual risk behaviors.

Results: We recruited 1336 heterosexual PWID in 2016-2017; they were predominately male (94%), injected heroin (~100%) and 51% reported current methamphetamine use. In the previous six months, among those sexually active (54%), 71% reported unsafe sex with any partners and among those with primary partners (45%), 79% reported unsafe sex with their primary partners. In multivariable analysis, current methamphetamine use among HIV seropositives was associated with any unsafe sex (AOR 2.30, 95% CI: 1.20-4.42) and unsafe sex with primary partners (AOR 2.43, 95% CI: 1.15 - 5.10). Current methamphetamine use was not associated with unsafe sex among HIV seronegatives. Methamphetamine use was not associated with injection risk behavior among either HIV seropostives or seronegatives.

Conclusions: The association with current methamphetamine use and potential sexual transmission of HIV in Haiphong is of considerable concern. Methamphetamine increases the likelihood of PWID transmitting HIV to non-injecting primary sexual partners. Methamphetamine use can also reduce adherence to ART and can lead to exhaustion of the immune system. All participants were injecting heroin, and methamphetamine use may interfere with opiate use treatment. Public health efforts should focus on the large increase in methamphetamine use and the associated sexual risk behaviors. Emphasis on sexual risk behavior, particularly among those that are HIV positive, in conjunction with continued monitoring of ART adherence and HIV viral loads will be critical.

TUPEC248

Predictors of abstinence and condom use among rural youth and adults in Malawi

D.L. Jere[1], C. Banda[1], L. Kumbani[1], L. Liu[2], L.L. McCreary[3], C.L. Patil[4], K.L. Norr[4]
[1]University of Malawi, Kamuzu College of Nursing, Blantyre, Malawi, [2]University of Illinois at Chicago, Epidemiology and Biostatistics, Chicago, United States, [3]University of Illinois at Chicago, Health System Sciences, Chicago, United States, [4]University of Illinois at Chicago, Women, Children & Famiiy Health Sciences, Chicago, United States

Background: Abstinence and condom use are effective strategies for reducing new infections, but they are seldom examined together or for both youth and adults. We compared abstinence and condom use predictors among youth and adults in a high-prevalence rural district in southern Malawi.

Methods: Baseline surveys of 544 youth (ages 15-19) and 410 adults from a community HIV prevention study were used. Dependent variables were abstinence and condom use (among sexually active individuals) in the past 2 months. Predictors were age, education, in school (youth only), religion, religious involvement, HIV-related knowledge (9 items), self-efficacy (4 safer-sex items, range 0-12) and partner communication (4 safer-sex topics, range 0-4). Logistic regression and ordinal proportional odds logistic regression models were conducted, for abstinence and condom use respectively, with backward selection, controlling for a two-sided Type I error probability of 0.05.

Results: Mean age was 16 for youth and 35 for adults. Mean education was 8.8 years for youth and 8.1 for adults. 77% of youth were in school. Both youth and adults were half female, 70% Protestant, and had high religious involvement (66%), knowledge and self-efficacy scores. Mean partner communication was 2.8.

Among youth, 48% abstained. Younger age, more education, currently in school and high religious involvement were significantly associated with abstaining. (Table 1). Among sexually active youth, 52% always used condoms and 34% used sometimes. Being older, in school and partner communication predicted more condom use.

Variable	Youth If Abstained (n = 544)	Youth Condom Use (n = 138)	Adult If Abstained (n = 410)	Adult Condom Use n = 302
Age	0.74 (0.65, 0.85)	1.36 (1.02, 1.81)	1.06 (1.02, 1.09)	N.S.
Gender	1.18 (1.08, 1.29)	2.71 (1.26, 5.81)	8.22 (3.24, 20.84)	N.S.
Education (Yrs.)	1.80 (1.13, 2.86)	2.71 (1.26, 5.81)	N.S.	N.S.
In School Now	1.80 (1.13, 2.86)	2.71 (1.26, 5.81)	--	--
Religion	N.S.	N.S.	N.S.	N.S.
Religious Involvement	1.65 (1.15, 2.36)	N.S.	N.S.	1.97 (1.21, 3.21)
HIV-Related Knowledge	N.S.	N.S.	N.S.	N.S.
Self-Efficacy	N.S.	N.S.	N.S.	1.22 (1.04, 1,43)
Partner Communication	--	1.60 (1.10, 2.31)	--	2.06 (1.68, 2.58)

[Table 1. Abstaining and condom use among sexually active persons for rural youth and adults (Odds Ratios and 95% Confidence intervals)]

Among adults, 12% abstained; older adults and females were more likely to abstain. Among sexually active adults, 29% always used condoms and 37% used sometimes. Greater religious involvement, self-efficacy and partner communication predicted more condom use.

Conclusions: Findings have important implications for HIV prevention. Half of youth are abstaining, and being in school is associated with abstinence and condom use. Therefore youth programs and policies should emphasize both prevention strategies and continued education. HIV prevention should emphasize partner communication skills, a modifiable factor affecting condom use regardless of age. Gender related only to adult abstinence, indicating the importance of prevention for both genders. Religious involvement affected youth abstinence and adult condom use, warranting further exploration of collaboration with religious organizations.

TUPEC249

Accuracy of HIV risk perception in east Zimbabwe 2003-2013

R. Schaefer[1], S. Gregson[1,2], R. Thomas[1], C. Nyamukapa[1,2]
[1]Imperial College London, Department of Infectious Disease Epidemiology, London, United Kingdom, [2]Biomedical Research and Training Institute, Harare, Zimbabwe

Background: Perceiving a risk for HIV infection is an important determinant for engaging in HIV prevention behaviour, particularly for adherence to prevention technologies like condoms and daily pre-exposure prophylaxis (PrEP). However, the degree to which HIV risk perception is accurate, i.e. corresponds to actual HIV infection risks, is unclear and there is a lack of longitudinal studies using objectively determined HIV data to test for associations between risk perception and HIV incidence.
Methods: Interview data and HIV test results from four surveys of a general-population open-cohort study in Zimbabwe were used (2003-2013). Participants (15-54 years) who participated in multiple surveys and were HIV-negative at the start of the period between surveys were included. Reported HIV risk perception (yes/no) at the beginning of the inter-survey period was tested for association with HIV infection in Cox regressions, controlling for age, sex, background characteristics, and sexual behaviour. Interaction terms tested whether associations between risk perception and HIV incidence changed over time or differed by demographic and behavioural variables.
Results: 7198 individuals contributed 31326 person-years and 343 HIV infections. Overall, 13.0% of males (95% confidence interval=11.9-14.1%) and 47.5% (46.4-48.7%) of females perceived a risk of HIV infection, with decreasing trends over time. Risk perception was higher among those with ≥2 sexual risk factors (males: 22.9% [19.6-26.6%]; females: 55.1% [41.9-67.7%]). HIV incidence was higher among those perceiving a risk (HIV incidence=1.27%) compared to those who did not (0.96%) (hazard ratio=1.34 [1.05-1.72], adjusting for age, sex, survey round, and study site). The association remained significant after controlling for background characteristics and/or sexual behaviour (Table) and was stronger among older people (25+ years) and in earlier surveys.
Conclusions: People perceiving a risk of HIV are at an objectively higher risk of infection in east Zimbabwe. However, HIV incidence is also high in those not perceiving a risk and risk perception is low even among those reporting risky sexual behaviour. These results are particularly concerning given that HIV incidence remains high in young women, while accuracy of risk perception is lower in this group. Innovative interventions, such as recently developed applications from behavioural economics, are needed to improve accuracy of risk perception.

		aHR	95% CI	aHR	95% CI	aHR	95% CI
	Infections/pyrs (IR per 100 pyrs)	Model 1 (n=10732)		Model 2 (n=10494)		Model 3 (n=10049)	
Risk perception: No	191/19884 (0.96)	1 (Reference)		1 (Reference)		1 (Reference)	
Risk perception: Yes	144/11348 (1.27)	1.34	(1.05-1.72)	1.41	(1.11-1.80)	1.33	(1.03-1.72)
Values are new HIV infections per person-years (pyrs), crude incidence rates per 100 person-years (IR per 100 pyrs), adjusted hazard ratios (aHR), 95% confidence intervals (CI), and p-values. The covariate results are not shown. Results are based on 30 imputed random dates of HIV infection between surveys. Participants were censored at their 55th birthday. Model 1: Age, sex, survey round, study site; Model 2: Age, sex, marital status, educational attainment, household wealth index, survey round, study site; Model 3: Age, sex, sexual risk factors, condom use (during last sex), partner has other partners							

[Risk perception and HIV incidence, Manicaland, Zimbabwe, 2003-2013.]

TUPEC250

Drivers of HIV infection in Botswana: Implications for treatment and prevention

J. Okano[1], K. Sharp[1], L. Busang[2], B. Fidzani[2], F. Mwangemi[2], S. Blower[1]
[1]University of California, Los Angeles, United States, [2]African Comprehensive HIV/AIDS Partnership, Gaborone, Botswana

Background: Botswana has one of the most severe HIV epidemics worldwide; in 2013, 23% of 15 to 69 year olds were infected. The population of Botswana is predominantly urban: 16% live in cities, 5% in towns, 43% in urban villages, 35% in rural villages and 1% are nomadic.
Methods: We analyzed data from the Botswana AIDS Impact Survey IV, a national representative survey of 5,415 households conducted in 2013 using a two-stage stratified sampling framework. 3,356 women and 2,745 men were tested for HIV. We conducted a multivariate analysis to identify gender-specific risk factors for HIV infection. We calculated age-adjusted odds ratios (aOR) with 95% confidence intervals (CIs).
Results: In 2013, overall prevalence was higher in women (26%) than men (20%). Prevalence was highest in women 35-39 years old (50%) and men 45-49 years old (42%). Living in cities was found to be much riskier than living in towns for both women (aOR 1.78 [95% CI, 1.04-3.04]) and men (aOR 2.10 [95% CI, 1.13-3.82]). Co-infection with other sexually transmitted infections was also a risk factor for both women (aOR 1.69 [95% CI, 1.24-2.30]) and men (aOR 2.19 [95% CI, 1.41-3.39]). For women, we found an additional risk factor: having a current male partner who was ten or more years older (aOR 1.51 [95% CI, 1.00-2.25]). For men, we found that medical circumcision was effective in preventing HIV infection (aOR 0.52 [95% CI, 0.34-0.79]), but traditional circumcision was not (aOR 0.98 [95% CI, 0.47-1.96]). 22% of men were circumcised, 84% of these medically, Figure. Notably, neonatal levels of circumcision were low (~10%).
Conclusions: There are significant differences in HIV prevalence in Botswana based on geography, gender, and age. HIV prevention, treatment and care services should take these differences into consideration. There is an urgent need to treat STIs, this would both decrease susceptibility to, and transmission of, HIV. Prevention programs need to not only target women with high numbers of partners, but women who are having sex with much older men. Scaling up medical circumcision, a current goal of the government of Botswana, is very likely to have a substantial impact on decreasing HIV transmission.

TUPEC251

Exploring gender-based violence experienced by female sex workers in Gaborone, Botswana

K.M. Maribe[1], A. Geltman[2], K. Francis[3], N.N. Monnapula[1], D.G. Richard-Jackalasi[4]
[1]Nkaikela Youth Group, Program Department, Gaborone, Botswana, [2]Pitzer College, Public Health, California, United States, [3]Nkaikela Youth Group, Coodinator, Gaborone, Botswana, [4]Nkaikela Youth Group, Administration and Procurement, Gaborone, Botswana

Background: Female sex workers (FSW) are disproportionately affected by HIV in Botswana, with an HIV prevalence rate of 61.9% compared to the 19.2% within the female general population. Amongst other variables correlated with HIV, a link exists between Gender Based Violence (GBV) and HIV. In Botswana, 1 in 3 women experience GBV, but little has been documented on the experiences of GBV among sex workers. The objective of this study is to explore the experiences of GBV among FSW's in Gaborone and their subsequent increased risk of HIV infection.
Methods: Overall, 20 FSW's from Gaborone shared their experiences of GBV through 10 in-depth interviews and 2 focus group discussions between November and December 2017. On average each interview session lasted 30 minutes, while focus group discussions lasted 45 minutes. The participants were purposely sampled from Nkaikela Youth Group (NYG), a non-government organization providing FSW friendly services. Data was collected, transcribed, and analyzed using thematic analysis by a NYG social worker and an intern from Pitzer College.
Results: GBV was identified to be one of the variables that promotes entry into sex work. Of the 20 respondents, 25% cite that their introduction into sex work was somewhat influenced by experiences of GBV. In addition, sex work has been found to expose FSW's to abuse, with

100% of respondents having reported experiencing GBV by their clients. Results revealed 70% of FSW's experienced physical violence, while 90% experienced sexual violence from clients. Forced sexual interactions are not perceived as rape by FSW's unless they are not paid afterwards. These experiences are normalized as part of the job and often not reported to the police because of the illegality of sex work in Botswana. Experiencing sexual and emotional violence contributed to FSWs' inability to negotiate safer sex, thus increasing their risk of exposure to HIV. Of the 20 respondents, 55% were HIV positive.

Conclusions: High incidence of GBV and its normalization are key variables influencing the disproportionate prevalence of HIV among sex workers. Targeted violence prevention programs, psycho social support and advocacy interventions for legal reforms are necessary in programming for FSW.

TUPEC252

Relationship between intimate partner violence and risk behaviors for HIV/STIs among Black women accessing publicly funded STD clinics in Baltimore, MD, USA

A.E. Servin-Aguirre[1,2], K. Tsuyuki[2], J. Campbell[3], A. Cimino[3], J. Stockman[2]
[1]*Centro de Estudios Universitarios Xochicalco, Medicine, Tijuana, Mexico,* [2]*University of California, San Diego, Medicine, La Jolla, United States,* [3]*Johns Hopkins University, School of Nursing, Baltimore, United States*

Background: In the United States (U.S.), Black women bear the greatest burden of both HIV infection and sexually transmitted infections (STIs). Further, previous research suggests that intimate partner violence (IPV) is linked to HIV/STI risk and infection among heterosexual women. However, few studies have examined associations between recent IPV and increased HIV/STI risk behaviors among Black women in geographic areas with high HIV prevalence in the U.S. The goal of the proposed study was to examine associations between recent IPV and risk behaviors for HIV/STI risk behaviors among Black women in Baltimore, MD.

Methods: A cross-sectional survey was conducted with Black women ages 18-44 (n=265) seeking health care at government funded STD clinics in Baltimore, MD, USA from November 2014 to December 2017. The survey assessed sociodemographic characteristics, recent and past IPV (physical and forced sex), substance abuse, history of incarceration and HIV/STI sexual risk behaviors. Multivariate logistic regression models were conducted to determine whether recent IPV (physical and/or forced sex) were associated with risk behaviors for HIV/STIs.

Results: The mean age was 26.6 years, 27.2% were married and 64.3% were living at or below the federal poverty level. Furthermore, 1.52% reported being HIV-positive,17% reported not knowing their HIV status and 74% reported ever testing positive for an STI (e.g., chlamydia, gonorrhea, syphilis, hepatitis B, hepatitis C, trichomonas, herpes). Recent IPV (physical violence and/or forced sex in the past 12-months) was reported by 32.3% of the women. In logistic regression models adjusted for age, education, and relationship status women who reported experiencing recent IPV were more likely to report in the past 12-months using illicit drugs (AOR=3.56, 95% IC=1.75,7.23); having an STI (AOR=1.08, 95% IC=1.03, 1.27), engaging in unprotected vaginal or anal sex (AOR=1.32, 95% IC 1.06, 1.64) and having a higher number of concurrent sex partners (AOR=1.80, 95% CI=1.04, 3.13).

Conclusions: IPV was common among study participants and were associated with greater HIV/STI risk behaviors. Future efforts should focus on prevention (e.g. Prep) and advocacy interventions among Black women experiencing and/or at risk for IPV and HIV/STIs when they are coming as they are coming into care at STI clinics.

TUPEC253

Dose-response relationships between substance use frequency, self-reported involvement in sexual HIV transmission behaviors and HIV viral load among men who have sex with men in Los Angeles

B. Quinn[1,2], K. Arfer[3], P. Gorbach[4], S. Shoptaw[5]
[1]*Burnet Institute, Behaviours and Health Risks Program, Melbourne, Australia,* [2]*University of California, Center for Behavioral & Addiction Medicine, Los Angeles, United States,* [3]*University of California, Los Angeles, United States,* [4]*University of California, Department of Epidemiology, Fielding School of Public Health & Division of Infectious Diseases, David Geffen School of Medicine, Los Angeles, United States,* [5]*University of California, David Geffen School of Medicine, Department of Family Medicine, Los Angeles, United States*

Background: Despite demonstrated links between the use of such drugs as illicit stimulants, alcohol and alkyl nitrite and HIV-related outcomes among men who have sex with men (MSM), limited research has explored the possibility of dose-response relationships between substance use and involvement in sexual HIV transmission behaviors and HIV disease progression among this group. We investigated whether more frequent use of methamphetamine, cannabis and amyl nitrites, and a higher frequency of heavy alcohol consumption, was associated with: 1) Self-reported involvement in sexual HIV transmission behaviors (last anal sex partner in past three months) among both HIV-positive and HIV-negative MSM; and, 2) Having a detectable viral load among HIV-positive MSM.

Methods: Data were sourced from the *mSTUDY*, an ongoing prospective cohort mainly comprising men of color who have sex with men in Los Angeles County. We fit three logistic regression models, each with a per-subject random intercept and varying by HIV-related outcome and subsample, and examined how odds ratios (ORs) - varied across frequency categories for each drug.

Results: The sample comprised 485 participants with 1,319 observations (72% provided ≥2 observations). At baseline, the median age of participants was 31 (range: 18-46 years), 51% were HIV-positive, 48% identified as Hispanic/Latino and 45% identified as African American/black.

For self-reported involvement in sexual HIV transmission behaviors, there was evidence of monotonic dose-response relationships for amyl nitrites among HIV-negative participants, and for methamphetamine across the whole sample; among HIV-negative participants, for example, the odds of reporting involvement in sexual HIV transmission behaviors increased with frequency of methamphetamine use from 3.03 (95%CI: 1.08, 8.69) for 'less than monthly' to 8.95 (95%CI: 2.80, 32.93) for 'daily' use. Overall, heavy drinking was not strongly associated with involvement in sexual HIV transmission behaviors among HIV-positive or HIV-negative participants; however, heavy daily drinking was associated with viral suppression.

In general, cannabis trended towards lower odds of reporting involvement in sexual HIV transmission behaviors. There was evidence of a dose-response relationship between methamphetamine use frequency and detectable viral load.

Conclusions: Compared to the use of alcohol (heavily), cannabis and amyl nitrites, methamphetamine had the clearest deleterious dose-response relationships with HIV-related outcomes among our sample.

TUPEC254

The impact of severe drought and HIV in Southern Africa: Results from the LePHIA survey 2016-2017

A. Low[1], K. Frederix[2], S. McCracken[3], E. Gummerson[4], E. Radin[4], S. Davia[5], N. Ahmed[4], S. Findley[6], A. Schwitters[5]
[1]*Columbia University, ICAP, New York, United States,* [2]*ICAP, Maseru, Lesotho,* [3]*CDC, Atlanta, United States,* [4]*ICAP at Columbia University, New York, United States,* [5]*CDC-Lesotho, Maseru, Lesotho,* [6]*Columbia University, New York, United States*

Background: An analysis of the impact of drought in Africa on HIV by Burke, et al (2014) demonstrated an 11% increase in prevalence in HIV-endemic rural areas attributable to local rainfall shocks. The Lesotho Population-Based HIV Impact Assessment (LePHIA) was conducted

November 2016-May 2017, after one of the most severe droughts in Southern African history, allowing for reevaluation of this relationship in a setting of expanded antiretroviral (ART) coverage.
Methods: LePHIA selected a nationally representative sample of adults and children. Individuals completed an interview and HIV testing. Deviations in rainfall for May 2014-June 2016 were measured using precipitation data from Climate Hazards Group InfraRed Precipitation with Station Data (CHIRPS), with severe drought (SD) set at < 15% of the average rainfall from 1981-2016. The association between SD and HIV-related outcomes was assessed using logistic regression, incorporating survey weights and stratified by age, gender and geography (urban vs rural), with a particular focus on young persons.
Results: All of Lesotho suffered from drought, with regions receiving 1% to 31% of their historical rainfall. Only 5.7% (507/8825) of households were in regions without SD, corresponding to 5.9% of children (271/4,291) and 5.8% of adults (742/12,887). In rural areas, 39.5% of households in SD areas reported food shortage in the past four weeks vs. 27.8% in non-drought areas (p=0.01). SD was associated with higher HIV prevalence in 15-19 year old females in rural areas (odds ratio [OR]=2.77, 95%CI:1.19-6.47,p=0.02), and lower awareness of HIV status in urban females aged 15-24 (OR=0.23, 95%CI:0.08-0.70, p=0.01). In rural 15-24 year old females, SD was associated with higher reported transactional sex (OR=3.26, 95%CI:1.78-5.98, p< 0.001), early sexual debut (OR=3.11, 95%CI:1.43-6.74, p=0.004), lower attendance of secondary school (OR=0.44, 95%CI:0.0.25-0.78, p=0.005), and lower condom use (at last sex, OR=0.55, 95%CI:0.31-0.99, p=0.05). In a multivariable model, the impact of drought on HIV prevalence in 15-19 year old females persisted after adjusting for household wealth.
Conclusions: Severe drought was associated with higher HIV prevalence in adolescent girls, lower educational attainment and higher risky sexual behavior. Policy-makers should adopt potential mechanisms to mitigate the impact of income shock from natural disasters on vulnerable populations.

TUPEC255

CD101 Ig-like variants modify the effect of bacterial vaginosis on HIV acquisition

V. Wanga[1], R. Mackelprang[2], K. Thomas[2], C. Cohen[3], N. Mugo[2,4], E. Bukusi[2,5], G. Bryun[6], E. Irungu[4], C. Celum[1,2,7], J. Baeten[1,2,7], J. Lingappa[2,7,8], for the Partners in Prevention HSV/HIV Transmission Study and the Partners PrEP Study
[1]*University of Washington, Department of Epidemiology, Seattle, United States,* [2]*University of Washington, Department of Global Health, Seattle, United States,* [3]*University of California, San Francisco, Department of Obstetrics, Gynecology, and Reproductive Sciences, San Francisco, United States,* [4]*Kenya Medical Research Institute, Partners in Health Research and Development, Thika, Kenya,* [5]*Kenya Medical Research Institute, Center for Microbiology Research, Nairobi, Kenya,* [6]*University of the Witwatersrand, Perinatal HIV Research Unit, Soweto, South Africa,* [7]*University of Washington, Department of Medicine, Seattle, United States,* [8]*University of Washington, Department of Pediatrics, Seattle, United States*

Background: Multiple studies suggest that factors eliciting host genital tract inflammation may heighten HIV-1 acquisition risk. For instance, bacterial vaginosis (BV) and variation in the extracellular Immunoglobulin-like (Ig-like) domains of the *CD101* gene both impact host inflammation and are associated with increased risk of HIV-1 acquisition. Studying interactions between these factors could provide insights into the mechanisms underlying this enhanced HIV-1 infection risk. Here we assess whether inflammation associated with *CD101* variation could modify the effect of BV on HIV-1 acquisition risk.
Methods: We used data from two African heterosexual HIV-1 serodiscordant couple cohorts (Partners in Prevention HSV/HIV Transmission Study and Partners PrEP Study) with longitudinal assessment of HIV-1 acquisition (by ELISA) and BV (by Nugent score ≥ 7). As previously published, we genotyped *CD101* for a case-control subset of participants and classified them based on presence of one or more *CD101* functional Ig-like domain variants. Here, we assess effect modification by *CD101* variants on the association of BV with HIV-1 using generalized estimating equations (GEE) extension to logistic regression.
Results: Our analysis included 430 initially HIV-uninfected women with *CD101* genotype and BV data, of which, 38 acquired HIV-1 and 202 had ≥1 visit with BV during follow-up. The presence of *CD101* Ig-like variants was associated with 2.5 times higher odds of seroconversion (95%CI (1.2, 4.9), p=0.01), while the association with BV was OR=1.7 (95% CI (0.9, 3.4), p=0.11), after adjusting for age, study, geographical region and any unprotected sex with study partner. The association of BV with seroconversion was significantly modified by the presence of *CD101* Ig-like variants (p=0.02). Among women without Ig-like variants (N=233), BV was associated with a 5-fold increased odds of seroconversion (OR=4.9 (1.6, 15.2), p=0.01). However, among women with Ig-like variants (N=197), BV was not significantly associated with HIV-1 acquisition (OR=0.8 (0.4, 2.0), p=0.69).
Conclusions: We hypothesize that both BV and *CD101* Ig-like variants facilitate HIV-1 acquisition by augmenting similar genital inflammation pathways. Our results suggest that in the presence of *CD101* Ig-like variants, BV does not increase HIV-1 acquisition risk. Further studies of this may provide insights for a generalized target for HIV-1 prevention interventions.

TUPEC256

Cannabis use and increased risks for HIV among young black sexual minority males in Los Angeles County, California

L.H. D'Anna[1], J. Wood[1], C. Canjura[1], J. Owens[1], T.A. Washington[2], PPOWER Leadership Team
[1]*California State University, Long Beach, Center for Health Equity Research, Long Beach, United States,* [2]*California State University, Long Beach, School of Social Work, Long Beach, United States*

Background: Young black men who have sex with men (YBMSM) are at particularly high risk for cannabis abuse/dependence, with the probability of dependence increasing with frequency of use. Further, when used as a sex-drug by YBMSM, cannabis is associated with condomless and group sex resulting in increased HIV/STI risks. High rates of cannabis use within a sample drawn from Los Angeles County prompted us to explore the relationship between cannabis use and HIV risk factors among YBMSM.
Methods: Survey data were analyzed from a convenience sample of YBMSM (n=161, ages 18-24, mean=22 years) participating in our wellness project from 2016-2018 to explore the influence of peer support on
1) HIV/ hepatitis C testing and
2) Reduction of problem alcohol and cannabis use.
Results: Cannabis/hash was the most commonly used substance; 57.8% reported use in the past 30 days, while 42.2% used cannabis at least 5 days in the past 30 days, and 18.6% used cannabis daily or almost daily (20+ days out of 30). Cannabis smoking in the past 30 days was also related to problem alcohol use measured by the AUDIT problem drinking scale (t=2.743, p=.007), but no other substances. Using a 16 variable composite, cannabis smoking was significantly associated with an overall sexual risk profile (t=4.378, p< .001). Chi-squared tests revealed cannabis use was positively associated with HIV risk behaviors:
1) Ever engaging in anal sex (p = .005),
2) Sex with more than five male partners in the past 3 months (p=.041),
3) Unprotected sex with a partner known or suspected to inject drugs (p= .050),
4) Having sex while under the influence of alcohol or drugs (p < .001), and
5) Exchanging sex for money, drugs or shelter (p < .001).
Conclusions: These initial findings suggest that cannabis may be an important contributor to the overall sexual HIV risk profile for YBMSM and point to the importance of identifying opportunities for developing holistic wellness intervention approaches that take into account the context within which YBMSM engage in high risk sexual behaviors. This is particularly important given the expansion of cannabis legalization in the U.S.

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TUPEC257

Factors associated with risk HIV-infection among pregnant women in Cameroon: Evidence from the 2016 national sentinel sero-surveillance study

J.D.D. Anoubissi[1], C. Kengne Nde[1], J. Fokam[2,3,4], D.G. Toghoua Tseuko[5], M. Arlette[1], R. Fodjo Toukam[1], Y. Moussa[1], M. Ngo Nemb[1], S. Billong[1,3,4], G. Ekali Loni[1], C. Nguefeu Nkenfou[2,6], D. Kob[7], M.-C. Okomo[5], J.-B. Elat Nfetam[1]
[1]National AIDS Control Committee, Yaoundé, Cameroon, [2]Chantal BIYA International Reference Centre (CBIRC) for Research on HIV/AIDS Prevention and Management, Yaoundé, Cameroon, [3]Faculty of Medicine and Biomedical Sciences (FMBS), University of Yaounde 1, Yaoundé, Cameroon, [4]National HIV Drug Resistance Surveillance and Prevention Working Group, National AIDS Control Committee, Yaoundé, Cameroon, [5]National Public Health Laboratory, Yaoundé, Cameroon, [6]Higher Teachers' Training College, University of Yaounde I, Yaoundé, Cameroon, [7]USAID, Yaoundé, Cameroon

Background: HIV/AIDS remains a major public health concern in Cameroon that requires regular surveillance for informed policy-making toward programmatic interventions. Using the national sentinel surveillance survey in Cameroon, we ascertained HIV prevalence and factors associated with risk of infection among pregnant women.

Methods: A cross-sectional study was conducted throughout 2016 in the 10 regions of Cameroon among 7000 first antenatal care (ANC-1) attendees (4000 from urban and 3000 rural sites) in 60 sentinel sites. HIV serological testing was performed by serial algorithm at the National Reference Laboratory (NRL). Prevalence was determined and multivariate logistic regression was used to assess determinants of HIV infection, with p-value< 0.05 considered statistically significant.

Results: Of the 7000 targets, a total of 6859 first ANC-1 were enrolled (98.0% sampling coverage). Median age was 26 [IQR: 21-30] years and 47,40% had a secondary level of education. Acceptability of HIV test was 99.19% (6513/6566). The national prevalence of HIV was 5.70% (95% CI: 4.93 - 6.4), with 5.58% (95% CI: 95%: 4.88 - 6.35) in urban and 5.87% (95% CI: 5.04 - 6.78) in rural settings. Factors associated with HIV infection were:

(1) age between 20 and 44 years, with risk of being HIV infected increasing with age;

(2) the marital status revealing that pregnant women who were married or living with their partner were less likely to be infected than single ones (aOR: 0.60; 95% CI: 0.46 - 0.78); and

(3) the geographical setting revealing that participants in the Adamawa region were 2 or 3 times less likely to be infected than those living in the Centre, East, North-West and South-West regions.

Conclusions: The burden of HIV infection is still high among pregnant women nationwide, thus prompting the need for interventions in priority populations. Thus, to further decrease new cases of HIV-infection and move toward eliminating AIDS by 2030, preventive actions should prioritize interventions preferentially among single pregnant women, with advanced age, and particularly in the Centre, East, North- West and South-West regions of the country.

TUPEC258

The association of schistosomiasis and HIV acquisition: A review of the literature

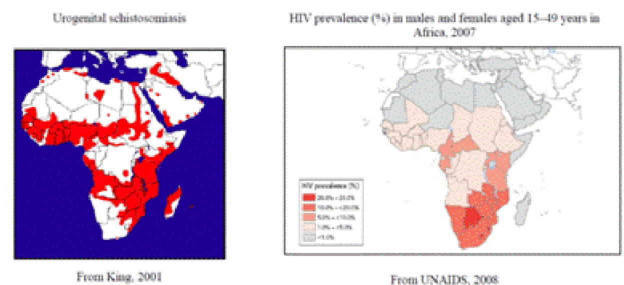
P. Patel[1], E. Townley[2], D.H. Watts[3], W.E. Secor[4]
[1]Centers for Disease Control and Prevention, Division of Global HIV and TB, Atlanta, GA, United States, [2]National Institutes of Health, ColumbusUSA Contractor at Division of AIDS, National Institute of Allergy and Infectious Diseases, Bethesda, United States, [3]Department of State, Office of the Global AIDS Coordinator, Washington DC, United States, [4]Centers for Disease Control and Prevention, Division of Parasitic Diseases and Malaria, Atlanta, GA, United States

Background: Schistosomiasis is an infectious disease that affects more than 230 million people worldwide, of whom 90% are in Africa. Schistosome infection usually occurs in childhood with freshwater contact and recurrent exposures throughout the lifespan. In some regions, particularly sub-Saharan Africa, the epidemics of HIV and schistosomiasis closely overlap; communities with the highest burden of schistosomiasis also have high HIV prevalence (Figure). Furthermore, endemic schistosomiasis, specifically female genital schistosomiasis (FGS), which affects 19 million girls, may increase risk of HIV infection, particularly among adolescent girls and young women (AGYW). FGS, caused by *Schistosoma haematobium*, causes mucosal changes in the vaginal epithelium and alters host immune response, rendering women at higher risk of infertility and potentially, HIV acquisition.

Methods: We examined peer-reviewed literature published between January 1, 2011 and October 18, 2016 to assess currently available evidence regarding effects of schistosomiasis on HIV with a focus on sub-Saharan Africa. The databases searched were OVID/Medline, Embase, and Global Health. Of the 175 abstracts identified, 16 focused on HIV and *S.* haematobium and were reviewed; 4 reported on prevalence of HIV relative to *S.* haematobium.

Results: Three cross sectional studies have shown increased HIV prevalence (2-4 times) among communities endemic for *S.* haematobium infection and an ecological study of 43 sub-Saharan Africa countries demonstrated that for each 100 individuals infected with *S.*haematobium, there was a 2.9% relative increase in HIV prevalence. Mathematical modelling predicted that mass drug administration targeted at school-age children to treat schistosomiasis could reduce HIV incidence by 9-22% and overall HIV prevalence by 6-20%.

Conclusions: The association of schistosomiasis, specifically FGS, with increased HIV acquisition is biologically plausible but research has been suboptimal. Research is needed to understand the effect of FGS and its treatment on HIV acquisition, particularly among AGYW. Furthermore, studies are necessary to understand whether the increased risk of HIV acquisition is substantial enough to warrant offering pre-exposure prophylaxis for HIV among AGYW with FGS and whether treatment of FGS affects the risk of HIV acquisition. Data suggest that uptake of WHO's mass drug administration for schistosomiasis policy may prevent infertility and potentially HIV infection among AGYW.



[Figure. Geographical overlap of urogenital schistosomiasis and HIV infection distribution]

TUPEC259

Delayed HIV testing among men who have sex with men in China is common: Findings from the T2T study

H. Zou[1,2,3], X. Meng[4], Y. Lu[2], Z. Wang[2], T. Jia[4], H. Yin[4], Z. Luo[5], Y. Ding[5], W. Chen[5], S. Huang[6], H. Zheng[6], B. Yang[6], A. Grulich[3], The T2T Study
[1]Sun Yat-sen University, School of Public Health (Shenzhen), Shenzhen, China, [2]Sun Yat-sen University, School of Public Health, Guangzhou, China, [3]University of New South Wales, Kirby Institute, Sydney, Australia, [4]Wuxi Municipal Centre for Disease Control and Prevention, Wuxi, China, [5]Shenzhen Nanshan Center for Chronic Disease Control, Shenzhen, China, [6]Dermatology Hospital, Southern Medical University, Guangzhou, China

Background: Guidelines in China recommend yearly HIV testing for men who have sex with men (MSM) and some other countries recommend up to 3-monthly for MSM at higher risk of HIV transmission. We assessed the prevalence and factors associated with delayed HIV testing among MSM in China.

Methods: MSM aged ≥18 years old who had ≥2 male sex partners were recruited between January and August, 2017 in 3 metropolitan cities: Guangzhou and Shenzhen in southern China and Wuxi in eastern China. A self-completed tablet-based questionnaire was collected about HIV/STI testing history, socio-demographic characteristics and sexual behaviors. HIV, syphilis, rectal/urethral gonorrhea, rectal/urethral chlamydia and anogenital warts were tested/checked. Patients were as-

signed "high-risk" status if they had >5 partners or an STI in the past 6 months. Delayed testing status was defined as having no test within the past 6 months for high-risk men, 12 months for non-high-risk men. Mixed effects logistic regression models were used to determine factors associated with delayed testing status.
Results: A total of 603 MSM were enrolled in our study, with a mean age of 27.9 years (SD=7.8). Overall, 81.4% (491/603) had ever tested for HIV. High-risk (27.0%, 163/603) and non-high-risk men (73.0%, 440/603) had similar rates of delayed HIV testing: 31.3% vs 28.2% (X^2=1.118, *P*=0.290). Younger men were significantly less likely to have ever tested (50.0% in < 20 years vs 84.9% in >=20 years, *P*< 0.001) and more likely to have delayed HIV testing (53.3% vs 26.3%, *P*< 0.001). Men with delayed HIV testing status were significantly more likely to have more sex partners (26.3% vs 17.3%, *P*=0.012), have inconsistent condom use with casual partners (54.8% vs 39.7%, *P*=0.009) and be diagnosed with HIV (16.6% vs 5.6%, *P*< 0.001) and urethral chlamydia (10.9% vs 3.8%, *P*=0.002).
Conclusions: Delayed HIV testing is common among MSM in China. Efforts are needed to further decrease delayed HIV-testing among MSM, particularly young men who engage in high-risk sexual behaviors.

TUPEC260

Male partners of adolescent girls and young women in Durban, South Africa: How high is their HIV risk and what groups are most at risk?

A. Gottert[1], S. Mathur[1], C. Cawood[2], J. Pulerwitz[1]
[1]*Population Council, HIV and AIDS Program, Washington, United States,* [2]*Epicentre AIDS Risk Management, Paarl, South Africa*

Background: Adolescent girls and young women (AGYW, ages 15-24) are at high risk of HIV in South Africa. Context-specific data on characteristics, HIV risk and health-seeking behaviors of male partners of AGYW are sorely needed to develop more effective HIV programs.
Methods: We surveyed 962 men ages 20-40 recruited at community 'hot spot' venues (n=649) and HIV service sites (n=313) in two informal settlements in Durban, from May-September 2017. We present descriptive and regression analyses of men's characteristics and their partnership and service-use experiences.
Results: Men's average age was 28, 15% were married/cohabiting, and 61% were employed. Over two-thirds (71%) reported two or more sexual partners in the last year; 24% had five or more. Overall, 75% had AGYW partner(s); 54% had both AGYW partners and partners age 25+. Men's last three partners were 3.4 years younger on average; 8% had partners 10+ years younger. Thirty-two percent reported consistent condom use with their last partner; 14% with each of their last three non-marital partners. Sixty-four percent reported HIV testing in the last year. Among HIV-positive men (n=84), 87% were on treatment, and 24% knew that they were virally suppressed. In multivariate analyses controlling for demographic characteristics, men with more sexual partners in the last year were more likely to have a technical college/university education (p< 0.05), be employed (p=0.01), and be small business owners/entrepreneurs (p< 0.01). Taxi drivers had more age disparate partners (p< 0.001) as well as more partners ages 15-19 in the last year (p< 0.05), and were less likely to have tested for HIV (p< 0.05). Formally employed men were about half as likely to be virally suppressed as informally or unemployed men (p< 0.05).
Conclusions: Men in informal settlements in Durban are at very high risk of both acquiring HIV and transmitting to AGYW due to high numbers of partners, overlapping partnerships of AGYW and older women, inconsistent condom use, suboptimal testing, and low viral load suppression. Engaging men in primary HIV prevention and targeted health services is critical, and in Durban, focusing on reaching men at workplaces, technical colleges/universities, taxi ranks and self-owned businesses may yield the greatest results.

TUPEC261

HIV incidence and treatable STIs among adolescent girls and young women in Swaziland

M. Gorgens[1], S. Ketende[1,2], A. Longosz[1], V. Tsododo[3], M. Dlamini[3], M. Nkambule[4], T. Dlamini[4], M. Mabuza[4], N. Dlamini[4], B. Dube[4], W. Heard[1], K. Sikwibele[3], D. De Walque[1], K. Mabuza[4], Sitakhela Likusasa Study Group
[1]*The World Bank, Health, Nutrition and Population, Washington DC, United States,* [2]*John Hopkins University, Baltimore, United States,* [3]*Institute for Health Measurement Southern Africa, Manzini, Swaziland,* [4]*Swaziland National Emergency Response Council on HIV/AIDS (NERCHA), Mbabane, Swaziland*

Background: Swaziland continues to have the highest prevalence of HIV in the world, and one of the highest HIV incidences among adult populations (aged 15-49). In 2015, the Sitakhela Likusasa Impact Evaluation enrolled 4389 HIV negative adolescent girls and young women (AGYW) aged 15-22, 50% of whom were out of school at enrolment, in a 3-year impact evaluation to test the cost effectiveness of incentives on reducing HIV incidence.
Methods: The Sitakhela Likusasa midline survey - consisting of determining participants' HIV status, syphilis status and *trichomonas vaginalis* status, and administering a behavioural, schooling status, and service coverage questionnaire - of all enrolled study participants was conducted between November 2016 and July 2017.
Results: The loss to follow rate was 15.8%. Of those loss to follow up, participants who were out of school at baseline were 48% less likely to participate at midline. HIV incidence rate per 100 years at midline for AGYW who were under 18 years of age and out of school at baseline was almost identical to AGYW who were 18 or older and out of school at baseline, 3.635 [95%CI: 2.064-6.400] vs. 3.696 [95%CI: 2.851- 4.792]. Prevalence of treatable STI was highest among 15-17 year-olds who were out of school compared to all other AGWY regardless of schooling status. AGWY who were out of school at baseline were more than twice likely to have a treatable STI at midline compares to AGYW who were 18-22 years old and out of school at baseline, OR: 2.36.

Age and schooling status at baseline	HIV Incidence				STI Incidence	
	Person-time	Failures	HIV incidence rate per 100 years	[95% confidence interval]	Prevalence	OR [95% confidence interval]
18-22 and out of school at baseline	1542.08	57	3.696	[2.851- 4.792]	2.56% (36/1431)	1
18-22 and in school at baseline	669.853	11	1.642	[0.909- 2.965]	1.77% (11/621)	0.70 [0.35,1.38]
15-17 and in school at baseline	1455.416	16	1.099	[0.673- 1.794]	1.41% (19/1347)	0.55 [0.32,0.97]
15-17 and out of school at baseline	330.155	12	3.635	[2.064-6.400]	5.73% (17/296)	2.36 [1.31,4.26]
TOTAL	3997.504	96	2.401	[1.966-2.933]		

[HIV incidence and STI incidence amongst study population in Sitakhela Likusasa Impact Evaluation (2017)]

Conclusions: The data presented here highlights the importance of school enrollment as a significant determinant of vulnerability to HIV incidence in Swaziland. The association between school enrollment and HIV incidence is stronger than the association with age, as out-of-school girls AGYW are more vulnerable to HIV incidence irrespective of age. HIV prevention programs for the out-of-school participants are essential, under-served at the moment, yet hard because of the challenges in reaching these mobile, hard-to-reach populations.

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HIV incidence and associated factors among men who have sex with men (MSM) in a treatment as prevention environment: Benefits of a prospective cohort study and administrative health data linkage

N.J. Lachowsky[1,2], H.L. Armstrong[1,3], S. Pan[1], N. Bacani[1], G. Olarewaju[1], E.A. Roth[2], R.S. Hogg[1,4], D.M. Moore[1,3]

[1]*British Columbia Centre for Excellence in HIV/AIDS, Division of Epidemiology & Population Health, Vancouver, Canada,* [2]*University of Victoria, Victoria, Canada,* [3]*University of British Columbia, Faculty of Medicine, Vancouver, Canada,* [4]*Simon Fraser University, Burnaby, Canada*

Background: In British Columbia (BC), new HIV diagnoses are stable among men who have sex with men (MSM, 57% of all cases in 2015) despite implementation of Treatment as Prevention since 2010. We measured HIV incidence and associated factors within a prospective cohort of MSM in Vancouver, BC, Canada.

Methods: Sexually-active MSM were enrolled starting 02/2012 in a longitudinal cohort study recruited using respondent-driven sampling. Study visits occurred every six months and included a computer-assisted self-interview on demographics, sex and substance use, and a nurse-administered sexual health check-up with point-of-care HIV testing. Participants consented to data linkages with the BC Centre for Excellence in HIV/AIDS's databases containing all provincial HIV viral load and treatment data. We calculated HIV incidence rates and examined factors associated with HIV seroconversion using Poisson regression (adjusted for follow-up time).

Results: At 02/2017, 497 HIV-negative MSM at baseline contributed a mean follow-up time of 2.32 years. At baseline, 81.7% were gay-identified, 74.5% Caucasian, and 40.2% aged under 30. Of 17 HIV seroconversions, 6 (35.3%) were identified through administrative health data linkage. The HIV incidence rate from observational study follow-up alone was 0.93/100 person-years, but was 1.47/100 person-years with data linkage. Compared with MSM who remained HIV-negative, MSM who seroconverted were more likely to report more recent anal sex partners (median=10 versus 2, RR=1.02, p=0.001), recent condomless sex with an HIV-positive or unknown status partner (64.7% versus 31.9%, RR=3.93, p=0.006), recent group sex (41.5% versus 16.0%, RR=3.61, p=0.008), a lifetime STI diagnosis (41.2% versus 12.5%, RR=4.93, p=0.001), and self-perceived high HIV risk (29.4% versus 7.9%, RR=4.47, p=0.005). There were no differences in HIV Treatment Optimism Scale scores (median=27, p=0.963), awareness of post-exposure prophylaxis (82.4% versus 77.9%, p=0.245), or awareness of pre-exposure prophylaxis (64.7% versus 66.7%, p=0.747). Based on HIV Incidence Risk Index for MSM (HIRI-MSM), 94.1% of seroconverters scored at least 10 points (RR=13.67, p=0.011).

Conclusions: Data linkage identified a third more seroconversions than observational cohort follow-up alone. HIRI-MSM was validated in this sample. Despite no difference in biomedical prevention awareness, only a third of serconverters self-perceived high risk of HIV acquisition indicating need of targeted health promotion and provider-initiated interventions.

Epidemiology of AIDS events (e.g. AIDS-related opportunistic infections and cancers)

TUPEC263

Performance of cryptococcal antigen lateral flow assay in postmortem samples of people living with HIV

J.C. Hurtado[1,2], P. Castillo[1,3], F. Marco[1,2], C. Carrilho[4,5], M. Navarro[1,2], I. Casas[1,2], L. Quintó[1], F. Fernandes[4,5], M. Ismail[4,5], A. Sanz[1], I. Mandomando[6], N. Rakislova[1,3], C. Menéndez[1,6,7], Q. Bassat[1,6,8], J. Vila[1,2], J. Ordi[1,3], M. Martínez[1,2], E. Letang[1]

[1]*ISGlobal-Hospital Clínic-Universitat de Barcelona, Barcelona, Spain,* [2]*Hospital Clínic de Barcelona, Microbiology, Barcelona, Spain,* [3]*Hospital Clínic de Barcelona, Pathology, Barcelona, Spain,* [4]*Maputo Central Hospital, Pathology, Maputo, Mozambique,* [5]*Eduardo Mondlane University, Faculty of Medicine, Maputo, Mozambique,* [6]*Centro de Investigação em Saúde de Manhiça, Maputo, Mozambique,* [7]*Consorcio de Investigación Biomédica en Red de Epidemiología y Salud Pública (CIBERESP), Madrid, Spain,* [8]*ICREA, Catalan Institution for Research and Advanced Studies, Barcelona, Spain*

Background: There is a need to identify tools providing reliable and robust information on the cause of death at the individual level in sub-Saharan Africa. Cryptococcosis is estimated to cause 15% of AIDS-deaths globally, but remains largely undiagnosed in sub-Saharan Africa. We aimed to validate the use of cryptococcal antigen lateral flow assay (CrAg-LFA) in post-mortem samples from Mozambique in the context of a standardized minimally invasive autopsy (MIA) protocol.

Methods: From November 2013 to December 2015, coupled MIA and complete diagnostic autopsy (CDA) were performed in 223 patients who died at the Maputo Central Hospital in Mozambique, including 109 HIV-infected adult patients. MIA procedures comprised a collection of fluids (blood and cerebrospinal fluid) and puncture of solid organs (lungs, liver and central nervous system) for microbiological and pathological analysis. Molecular microbiology analyses were performed in the MIA and the CDA. To detect *Cryptococcus* a specific real-time PCR were performed in all tissues. Additionally, CrAg-LFA test was done in plasma samples and in cerebrospinal fluid samples of plasma CrAg-positive patients. Histologically, periodic acid-Schiff staining was performed in all organs from cases showing a positive result in the microbiological tests. The performance of CrAg-LFA testing vs. the CDA results in terms of identifying Cryptococcal infections was calculated between HIV-infected adults.

Results: Sixteen (15%) cryptococcal infections (9 male and 7 female) were identified by CrAg-LFA among 109 HIV-infected adults. Cryptococcosis was identified as infection in 15/16 (94%) and assigned as the cause of death in 11/16 (69%) cases in the CDA and the MIA (100% concordance). Clinically, 11/17 (65%) cases had been identified to have neurological symptoms, but premortem diagnosis of cryptococcosis occurred only in 4 (24%) cases. The sensitivity, specificity, and positive and negative predictive value of the CrAg-LFA were 100% (one-sided, 97.5%CI: 78-100), 99% (two-sided, 95%CI: 94-100), 94% (two-sided, 95%CI: 68-100), and 100% (one-sided, 97.5%CI: 96-100).

Conclusions: Cryptococcosis is a relevant and clinically underdiagnosed cause of death in HIV-infected patients in Mozambique. CrAg-LFA testing in post-mortem plasma samples represents a highly sensitive, specific, and affordable approach to accurately assess the contribution of cryptococcosis to AIDS mortality in Africa.

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Performance of vaginal self-sampling for HPV testing among HIV-infected women in Botswana

T. Elliott[1], R. Kohler[2,3], B. Monare[1], N. Moshashane[1], K. Ramontshonyana[1], C. Muthoga[1], R. Howett[1], C. Morroni[1,4,5], D. Ramogola-Masire[1]
[1]Botswana UPenn Partnership, Gaborone, Botswana, [2]Harvard TH Chan School of Public Health, Boston, United States, [3]Dana-Farber Cancer Institute, Boston, United States, [4]Liverpool School of Tropical Medicine, Liverpool, United Kingdom, [5]Botswana Harvard Aids Institute Partnership, Gaborone, Botswana

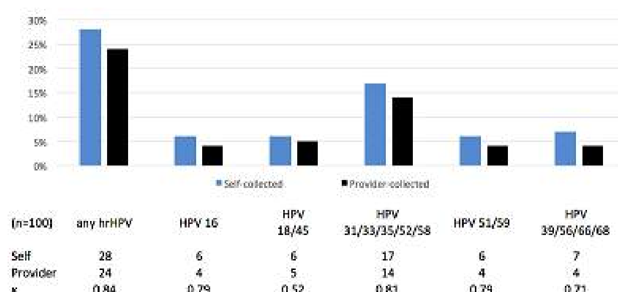
Background: Despite wide coverage of antiretroviral therapy (ART), 26% of adult women in Botswana are HIV-positive and at increased risk for cervical cancer. Multiple professional societies and health organizations recommend testing for high-risk human papillomavirus (hr-HPV) in place of or in addition to visual inspection and pap smear screening. However, in resource limited settings, high screening coverage may not be feasible with provider-collected samples. We conducted the first assessment of self-collected vaginal samples compared to provider-collected cervical samples in Botswana, and report the prevalence of hr-HPV in an HIV-positive population.

Methods: We recruited HIV positive women ≥25 years attending an HIV clinic in Gaborone, the capital city. Participants self-collected vaginal samples using flocked swabs and then had a provider-collected cervical sample taken for comparison. All samples were tested for hr-HPV within 24 hours using the Cepheid GeneXpert HPV assay. Women with any hr-HPV positive result returned to the clinic for colposcopy. Unweighted statistics were used to determine agreement.

Results: A total of 103 eligible women were recruited with a median age of 44 (IQR: 40-51). All participants were on ART with a median CD4 count of 651 (IQR: 451-893), and 97 (94.2%) reported previous cervical screening. Thirty-one (30.1%) women tested positive for any hr-HPV (Table 1), and of these 10 tested positive for more than one genotype. The most common genotypes were HPV 31/35/52/58 (self 16.5%; provider 13.6%) [Figure 1]. Overall agreement for detection of hr-HPV between self and provider samples was 91% with a of 0.79. Excluding three inadequate self-samples, agreement of paired samples was 94% with a of 0.84.

	Positive for any hr-HPV (%) 31 (30.1)	Negative for any hr-HPV (%) 72 (69.9)	Total (n, %) 103 (100)	p-value
Age, median (IQR)	44 (37-48)	44 (40-53)	44 (40-51)	0.24
Single, never married	24 (77.4)	49 (68.1)	73 (70.9)	0.29
Rural residence	17 (54.8)	28 (38.9)	45 (43.7)	0.13
No/Primary education	9 (29.0)	27 (37.5)	36 (35.0)	0.41
Secondary/Tertiary education	22 (71.0)	45 (62.5)	67 (65.1)	
Current/former smoker	0 (0.0)	5 (6.9)	5 (4.9)	0.13
Duration of ART use (yrs), median (IQR)	12 (7-13)	12 (11-14)	12 (9-14)	0.08
Age at first sex	18 (17-20)	19 (17-20)	18 (17-20)	0.55
Concurrent sexual partners	4 (12.9)	2 (2.8)	6 (5.8)	0.04

[Characteristics of women attending HIV clinic by HPV result]



[High-risk HPV genotype prevalence and agreement for paired samples among HIV-positive women in Botswana]

Conclusions: In this well-managed HIV-positive population, hr-HPV prevalence was 30%, and detection was comparable between self and provider samples. Despite a small number of inadequate samples, self-sampling is a feasible and accurate alternative to provider screening. Using self-sampling for HPV testing may play an important role in screen and treat programs for cervical cancer control in high HIV burden settings with limited resources like Botswana.

TUPEC265

CD4/CD8 ratio and risk of Kaposi sarcoma and non-Hodgkin lymphoma in people living with HIV achieving suppressed viraemia on antiretroviral therapy

F. Caby[1,2], S. Grabar[1,3], on behalf of the CD4/CD8 Ratio and Cancer Working Group of the COHERE in EuroCoord
[1]Sorbonne Université, INSERM, Institut Pierre Louis d'Épidémiologie et de Santé Publique, UMR_S 1136, Paris, France, [2]Centre Hospitalier VIctor Dupouy, Infectious diseases, Argenteuil, France, [3]AP-HP, Groupe Hospitalier Cochin-Hôtel Dieu, Université Paris Descartes, Unite de Biostatistique et Epidémiologie, Paris, France

Background: A persistently abnormal CD4/CD8 ratio despite combination antiretroviral therapy (cART) reflects ongoing immune dysfunction and has been inversely correlated with the risk of non-AIDS defining cancer in people living with HIV (PLHIV). However the predictive value of the CD4/CD8 ratio has never been studied for AIDS-defining cancers such as Kaposi sarcoma (KS) and non-Hodgkin lymphoma (NHL) which remain the most frequent cancers in PLHIV receiving cART. Here, we evaluated the impact of CD4/CD8 ratio restoration (≥1) on KS and NHL risks in PLHIV achieving suppressed viraemia on cART.

Methods: PLHIV from the Collaboration of Observational HIV Epidemiological Research Europe (COHERE) were included if they achieved virological control (viral load≤500 copies/mL) within 9 months following cART initiated between 2000 and 2014. Baseline was the time of the first CD4/CD8 measurement after virological control, with persistent suppressed viraemia. Patients with KS or NHL before baseline were excluded. Cox models were used to identify factors associated with KS and NHL risks.

Results: A total of 58308 patients (76% men, median[IQR] age 38 [32-45] years) were followed-up during 59[30-96] months. At baseline, CD4 count, CD8 count and CD4/CD8 ratio were 412[292-550]/mm³, 937[668-1306]/mm³ and 0.43[0.28-0.64] respectively. Overall, 221 KS and 187 NHL were diagnosed, 9[2-37] and 18[7-42] months after baseline respectively. At 2 years, CD4/CD8 ratio was restored (≥1) in 28% (95%CI:27-28). CD4/CD8 ratio restoration, in addition to CD4 restoration, tended to decrease KS risk (see table). High baseline CD8 count was associated with higher NHL risk. Both KS and NHL risks were strongly increased in case of virological failure.

Conclusions: In this population of patients who had achieved suppressed viraemia, restoration of the CD4/CD8 ratio may confer an additional benefit to CD4 restoration with regard to KS risk. For NHL risk, the main immunological associated factor was baseline CD8 count. Furthermore, avoiding virological failure appeared to be key to minimize KS and NHL risks. A closer clinical monitoring should be proposed in patients with high CD8 count despite virological control and/or low persistent CD4/CD8 ratio.

	Kaposi sarcoma		Non-Hodgkin lymphoma	
	Adjusted* HR (CI95%)	p	Adjusted* HR (CI95%)	p
After baseline: CD4< 350/mm3 CD4>=350/mm3and CD4/CD8<1 CD4>= 350/mm3and CD4/CD8>=1	1.76(1.25-2.48) 1 0.68(0.44-1.06)	0.0006	1.66(1.11-2.49) 1 0.79(0.52-1.20)	0.0075
BaselineCD8count (/mm3) < 1000 [1000-2000[>= 2000	1 1.02(0.77-1.36) 1.10(0.65-1.88)	0.9387	1 1.00(0.72-1.37) 1.92(1.20-3.08)	0.0156
Virological failure after baseline (viral load >500 copies/mL)	2.71(1.79-4.11)	< 0.0001	2.34(1.56-3.51)	< 0.0001
*Models were adjusted for baseline characteristics (age, sex, geographical origin, HIV transmission group, calendar period of cART introduction, CDC stage) and for time-dependent covariables measured after baseline: virological failure (>500 copies/mL) and a composite 3-level variable (CD4<350/mm3, CD4≥350/mm3 and CD4/CD8<1, CD4≥350/mm3 and CD4/CD8≥1).				

[Immuno-virological factors associated with KS and NHL risks: multivariable analyses]

TUPEC266

Characterization of advanced HIV disease in a rural sub-Saharan African cohort

L. van Essen[1], A.V. Kalinjuma[2], A. Katende[2], H. Mapesi[2], N. Matskiv[3], T.R. Glass[4,5], T. Klimkait[5,6], D. Paris[4,5], M. Battegay[5,7], M. Weisser[2,4,5], E. Letang[1,2,4]
[1]ISGlobal, Barcelona Ctr. Int. Health Res. (CRESIB), Hospital Clínic - Universitat de Barcelona, Barcelona, Spain, [2]Ifakara Health Institute, Ifakara, Tanzania, United Republic of, [3]Hospital General Universitario Gregorio Marañón, Madrid, Spain, [4]Swiss Tropical and Public Health Institute of Basel, Basel, Switzerland, [5]University of Basel, Basel, Switzerland, [6]University of Basel, Molecular Virology, Department Biomedicine Petersplatz, Basel, Switzerland, [7]University Hospital Basel, Departments of Medicine and Clinical Research, Basel, Switzerland

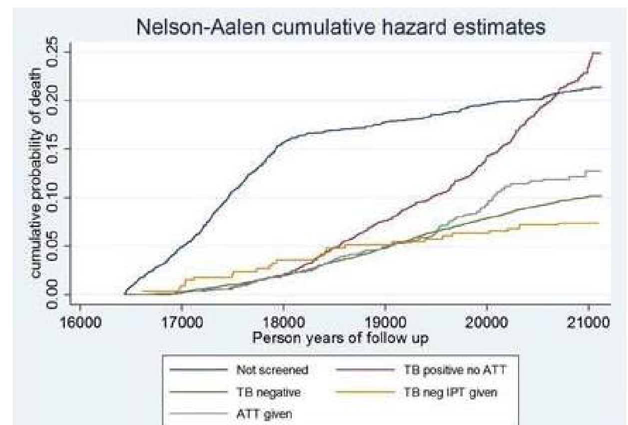
Background: Globally, up to half of people living with HIV (PLWH) have advanced HIV disease (AHD) at diagnosis. However, there is scarce information about AHD in sub-Saharan Africa. We assessed the prevalence, clinical-epidemiological characteristics and predictors of AHD and associated mortality in a rural African cohort of PLWH.
Methods: Prospective cohort study including all ART-naïve adult PLWH enrolled in the Kilombero-Ulanga Antiretroviral Cohort, Tanzania, between Jan 2013 and Dec 2016. AHD was defined as having CD4 count ≤200 cells/µL or WHO clinical stage III or IV at diagnosis. Factors associated with AHD were identified using multivariable logistic regression. Cox regression was used to identify predictors of death among patients with AHD.
Results: Of 1733 participants, 1133 (65%) had AHD. 45% were male, the median age was 40 years (IQR 33-47), and the median CD4 count, 119 cells/µl (IQR 50-206). 75% had symptoms, mostly respiratory (44%) and gastro-intestinal (27%). Independent risk factors for AHD were male gender (adjusted Odds Ratio (aOR) 2.03, 95%CI 1.63-2.52), age >40 years (aOR 1.42, 95%CI 1.15-1.74), living alone (aOR 1.61, 95%CI 1.30-1.99), lower education (aOR 1.53, 95%CI 0.99-2.38) and HIV diagnosis through provider-initiated testing (aOR 1.32, 95%CI 1.06-1.63). 1390/1733 (80%) participants started ART, including 939 with AHD (86%), at a median time of 10 days from enrolment (IQR 5-28).
One year after recruitment, there were 74 confirmed deaths (4.5%), 96% (71/74) among people with AHD($p<$ 0.001). Tuberculosis (26%) and cryptococcosis (24%) accounted for most deaths. After adjusting for age, gender, BMI, CD4 counts and tuberculosis diagnosis, not having started ART (adjusted Hazard Ratio (aHR) 7.48, 95%CI 4.09- 13.68), having a positive cryptococcal antigen in plasma (aHR 4.66, 95%CI 2.39-9.09), and haemoglobin< 8 g/dl, (aOR 1.78, 95% CI 0.96-3.28) independently predicted death among people with AHD.
Conclusions: AHD was prevalent in this rural African population, and most deaths occurred in people with AHD. Prevention and case finding programs should be tailored at older males, living alone, not seeking voluntary HIV testing, and with lower education. To reduce AIDS-related mortality in Africa, ART services need to be differentiated to provide adapted packages of care to people presenting with AHD.

TUPEC267

Impact of TB-related interventions on mortality among people living with HIV on anti-retroviral therapy: A national observational cohort study in Papua New Guinea

S. Miyano[1,2], N. Dala[3], P. Boas[3], G. Anup[1]
[1]World Health Organization, HIV/STI/Hepatitis Programme, Port Moresby, Papua New Guinea, [2]National Center for Global Health and Medicine, Tokyo, Japan, [3]National Department of Health, HIV/STI Programme, Port Moresby, Papua New Guinea

Background: In addition to anti-retroviral therapy (ART), screening for TB, enrolling those screened negative to Isoniazid preventive therapy (IPT), and initiating anti-TB treatment (ATT) for those screened positive and diagnosed as TB have been strongly recommended as standard services for people living with HIV (PHLIV). This study aimed to assess the effectiveness of interventions in reducing mortality in Papua New Guinea (PNG).
Methods: The National HIV Patient Cohort Database (HPDB) was used to analyse the data of PLHIV on ART from 2005 to 2017 coming to clinics focusing on socio-demographics, screening for TB, enrolment of IPT among those found negative and initiation of ATT among co-infected. Cox proportional hazard models were used to compare mortality among 5 different groups.
Results: Over twelve years, 31,997 PHLIV were registered (64,526 person-years; male 40.2%, female 59.7%, transgender 0.1%; mean age 35.5 years and CD4 cell count 236.2 cells/mm³ at first visit). Three-quarters of them were screened for TB, of which 88.4% were found negative, and 3.3% of those initiated IPT. Of those screened positive for TB, 98.2% initiated ATT. PLHIV not screened for TB had twice as high mortality as those screened, found negative and given IPT (HR=2.08; 95%C.I. 0.92-2.17, $p<$ 0.001). Other groups showing higher mortality were those who were TB positive and not on ATT (HR=1.8; 95%C.I. 1.25-2.76, p=0.002), and those who were TB negative and not given IPT (HR=1.15; 95% C.I. 1.05-1.27, p=0.004). The group that were TB positive and given ATT did not show any significant increase in mortality (HR=1.4; 95% C.I. 0.92- 2.17, p=0.12).
Conclusions: This is the first longitudinal cohort analysis reviewing the national HIV/TB programme in PNG. While TB screening rate among PLHIV has been dramatically increasing over the years, the enrolment of IPT still remains extremely low. However, most of the cases diagnosed as TB has been successfully initiated ATT. The statistical analysis showed that not conducting screening, not introducing IPT, and not initiating ATT contributed to statistically higher mortality. It is concluded that screening for TB, enrolment of IPT and initiating ATT were causal to their survival, and should be provided to all eligible PLHIV.



[Nelson- Aalen cumulative hazard estimates]

Epidemiology of non-AIDS infections and communicable diseases (e.g. viral hepatitis, STIs)

TUPEC268

Virological and serological predictors of anal high-grade squamous intraepithelial lesions among HIV-positive men who have sex with men

E. Marra[1], M.L. Siegenbeek van Heukelom[2], A. Leeman[3], T. Waterboer[4], C.J.L.M. Meijer[5], P.J.F. Snijders[5], A.J. King[6], I. Cairo[7], A. van Eeden[8], W. Brokking[8], W. Quint[3], J.M. Prins[2], H.J.C. de Vries[9], M.F. Schim van der Loeff[9]
[1]Public Health Service Amsterdam, Infectious Diseases and Prevention, Amsterdam, Netherlands, [2]AMC, Amsterdam, Netherlands, [3]DDL Diagnostic Laboratory, Rijswijk, Netherlands, [4]German Cancer Research Center (DKFZ), Heidelberg, Germany, [5]VUmc, Amsterdam, Netherlands, [6]RIVM, Bilthoven, Netherlands, [7]OLVG, Amsterdam, Netherlands, [8]DC Klinieken, Amsterdam, Netherlands, [9]Public Health Service Amsterdam, Amsterdam, Netherlands

Background: HIV-positive men-who-have-sex-with-men (MSM) are at increased risk for developing anal cancer. Detection of anal cancer precursor lesions [high-grade squamous intraepithelial lesions (HSIL)] is cumbersome and demanding. Our objective was to identify virological/serological predictors of anal HSIL in HIV-positive MSM.

Methods: Participants, HIV-positive MSM, were recruited from a longitudinal study (2010-2013), during which anal self-swabs and serum were collected at up to five bi-annual visits. Swabs were tested for HPV and genotyped (SPF_{10}-PCR-DEI-$LiPA_{25}$-system-version 1.0). Viral load of high risk HPV (hrHPV) types in anal swabs was determined using a type-specific quantitative (q)PCR. Serum antibodies to E6, E7, E1, E2 and L1 proteins of hrHPV types were analyzed by multiplex serology. 193 participants had a high-resolution anoscopy (HRA) after the last study visit, between 2010 and 2015, and were included in the current analysis. Anal HSIL was diagnosed by histopathological examination of anal biopsies. Causative HPV type(s) of anal HSIL were determined by laser capture microdissection and genotyped as described above.

Univariable and multivariable logistic regression using generalized estimating equations (GEE) was used to study whether persistent HPV infection, HPV16/18 viral load and/or HPV seropositivity were predictors of anal HSIL caused by the same HPV-genotype as detected in swabs and serum.

Results: Of 193 HIV-positive MSM (median age 50 (IQR:45-56) years), 50 (26%) were diagnosed with histologically proven anal HSIL. The mean nadir CD4+ was 245 cells/µl (SD 134), and 94% had an undetectable HIV viral load at time of HRA. HrHPV persistence in anal swabs was common (varying by HPV type between 3-21%). The geometric mean titer of the HPV16 viral load was 47.0 DNA copies per human cell (95%CI 12.7-173.6). For HPV16, in total 19% of the participants were HPV L1 seropositive and 3% were E6 seropositive. In univariable logistic regression using GEE, anal hrHPV persistence and higher anal HPV viral load were associated with anal HSIL ($P< 0.001$, and $P=0.010$, respectively). In multivariable logistic regression only anal HPV persistence was associated with anal HSIL caused by the same HPV type (OR 15.3, 95%CI 6.4-36.5).

Conclusions: Only persistent infection with an HPV genotype was associated with anal HSIL caused by the same type.

TUPEC269

Behavioural profile of viral hepatitis co-infected MSM at HIV diagnosis

T.H. Kwan[1], N.S. Wong[2], K.C.W. Chan[3], O.T.Y. Tsang[4], W.S. Leung[4], K.M. Ho[5], M.P. Lee[6], S.N. Chan[7], G.C.Y. Lui[8], S.S. Lee[2]
[1]Chinese University of Hong Kong, Jockey Club School of Public Health and Primary Care, Shatin, Hong Kong, [2]Chinese University of Hong Kong, Stanley Ho Centre for Emerging Infectious Diseases, Shatin, Hong Kong, [3]Integrated Treatment Centre, Department of Health, Kowloon Bay, Hong Kong, [4]Princess Margaret Hospital, Department of Medicine and Geriatrics, Lai Chi Kok, Hong Kong, [5]Princess Margaret Hospital, HIV & Infectious Disease Centre, Lai Chi Kok, Hong Kong, [6]Queen Elizabeth Hospital, Department of Medicine, Kowloon, Hong Kong, [7]Queen Elizabeth Hospital, Kowloon, Hong Kong, [8]Chinese University of Hong Kong, Department of Medicine and Therapeutics, Faculty of Medicine, Shatin, Hong Kong

Background: Sexual spread of viral hepatitis B and C, apart from conventional bacterial sexually transmitted infections (STI), has gained momentum among HIV+ men who have sex with men (MSM) following widespread introduction of antiretroviral therapy. We hypothesize that viral hepatitis co-infected MSM constitute a community group with a unique profile of sexual behavioural risks.

Methods: All adult patients with newly diagnosed HIV infection attending any one of the 4 public HIV services in Hong Kong were invited to join a prospective cohort study involving a self-administered questionnaire, blood sampling for HIV phylogenetic analysis, and clinical data transcription. Hepatitis B and C infection status (HBsAg, Anti-HCV) at HIV diagnosis, alongside STI history, were noted and analysed.

Results: During a 1-year period since August 2016, 344 newly diagnosed patients were recruited, of which 87% were MSM. The latter's prevalence of hepatitis B and C infection was respectively 5.37% and 3.69%. Totally 191 MSM (median age 31) with completed questionnaire, HIV subtype and clinical data were analysed. Bacterial STI (syphilis, gonorrhoea, and/or chlamydia) occurred in 40% of them. HIV+ MSM with viral hepatitis (B or C) at diagnosis were more likely to have concurrent partners (odds ratio [OR]: 2.98, $p=0.034$), participated in group sex, (OR:4.46, $p=0.005$) and used recreational drugs for sex (chem-sex, OR: 5.79, $p=0.001$). Specifically HIV/HCV co-infected MSM gave a higher odds of history of chem-sex (OR: 8.62, $p=0.026$) and infection with syphilis (OR: 9.86, $p=0.022$) but not the other STIs. All HIV/HCV co-infected patients self-reported local HIV acquisition. There's no difference in the HIV subtype distribution between MSM with or without viral hepatitis. Having sought partners in sauna in the year before infection showed a marginal effect on their hepatitis status (OR: 2.53, $p=0.051$).

Conclusions: Viral hepatitis B and C were markers reflecting the practice of high risk sexual activities among HIV+ MSM. For HCV co-infected MSM, there was also association with chem-sex and concurrent transmission of syphilis but not chlamydia or gonorrhoea around the time of HIV diagnosis. The unique profile suggested that viral hepatitis infected MSM, especially those with hepatitis C, formed a characteristic network in the community.

TUPEC270

Results of a 15-year targeted HBV-vaccination program for high behavioral risk groups

A. Urbanus, A. Meiberg, H. Ruijs
RIVM, Bilthoven, Netherlands

Background: In 2002 the Netherlands started a hepatitis B-vaccination program targeted at high behavioral risk groups in absence of a universal vaccination policy. Universal HBV-vaccination for children was only implemented in 2011. The public health services offer free HBV-vaccination to behavioral risk groups like injecting drug users (IDU), sex-workers (SW), men who have sex with men (MSM) and heterosexuals with multiple sexual contacts (HMS). Here the results of a 15 year unique vaccination program are described (2002-2017).

Methods: The program aims to reach the various risk-groups at outreach locations (e.g. Saunas, festivals, brothels, methadone clinics etc.) and STI clinics and administers free HBV-vaccines. To increase vaccination

coverage and adherence, targeted campaigns are conducted each year via social media, online dating platforms and commercial sex websites. Since vaccination of IDU and HMS was not efficient anymore (i.e. HBV was not circulating in these riskgroups anymore), they were excluded from the program in respectively 2012 and 2007. Since 2012 HIV-positive participants received a double dose of HBV-vaccination in order to increase immunity, conform the Dutch guidelines.

Results: Over a 15-year period over 140,000 (41% MSM, 15% SW, 12.6% IDU 28.8% HMS) participants received their first of three HBV-vaccination, 8137 (5.7%) participants were already immune (anti-HBc positive) and 0.5% were found to be HBsAg positive. In total 336,671 HBV-vaccinations were administered. Compliance varied between risk groups: 72% of MSM finished the complete series, while only 60% of HMS, 57% of IDU and 50% of CSW finished the complete series. Since 2012, 1,604 first double dose vaccines were administered among HIV-positives, of whom most were MSM (96%).

Conclusions: The targeted HBV-vaccination program for high behavioral risk groups has been successful over the past 15 years. In order to increase efficiency of the program policy changes are implemented, like shifting more from offline outreach to online outreach activities, or targeting more younger MSM. Although less cost-effective over the last years, still each year about 4,000 MSM and 1,000 CSW receive their first HBV-vaccination thanks to constant commitment and creativity of enthusiastic health professionals for new approaches.

TUPEC271

Healthcare utilization and STI incidence in young men on pre-exposure prophylaxis (PrEP) compared to young men who are not on PrEP: The PrEPARE Study

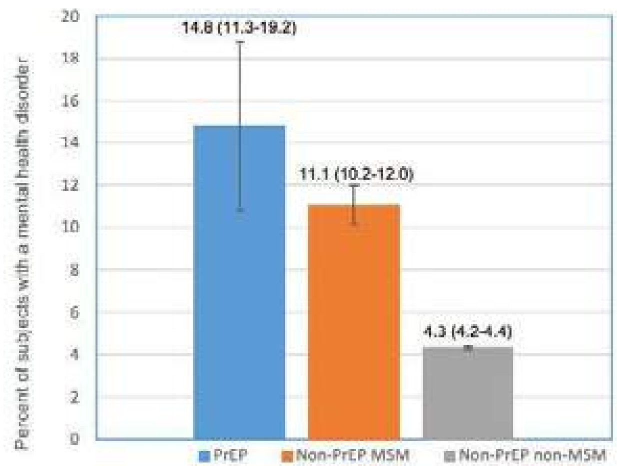
R. Hechter[1], L.-H. Chen[1], K. Yu[2]
[1]Kaiser Permanente Southern California, Department of Research and Evaluation, Pasadena, United States, [2]Kaiser Permanente Southern California, Department of Quality and Infectious Diseases, Pasadena, United States

Background: Many young adult males do not seek healthcare services for a variety of reasons. Regular healthcare visits for pre-exposure prophylaxis (PrEP) prescription required by CDC guidelines may serve as a portal for young male PrEP users to engage in holistic healthcare. In a large, diverse, community-based population, we evaluated the association of PrEP use with healthcare utilization, and incidence of sexually transmitted infections (STIs) among young men.

Methods: Within a large U.S. integrated healthcare delivery system in Southern California, we identified eligible young males (18-34 years) during 07/2014-06/2016. We ascertained demographic characteristics, PrEP use, healthcare utilization, immunization, and STI diagnosis through electronic health records. We evaluated the independent association of PrEP use with healthcare utilization during 6 months following PrEP initiation or study entry, using Poisson regression models with robust variance to sequentially adjust for: baseline utilization, age, race/ethnicity, education, and membership length.

Results: We identified 304 PrEP users, 4,495 men who have sex with men (MSM) without PrEP use and 273,050 other young men. Compared to the two comparison groups, PrEP users were older (27-34 vs.18-26 years), had more primary and urgent care visits, more visits with psychiatry and other specialty care providers (P< 0.001), slightly more ED visits and similar rate of hospitalization. More PrEP users had a diagnosis of mental health disorder (Figure). The coverage of 3 doses of HPV and hepatitis B vaccines was low among all groups, with higher rates among PrEP users (HPV:19%, hepatitis B:18%). Majority of PrEP users received tests for syphilis/ gonorrhea/ chlamydia (97%), hepatitis B (70%), hepatitis C (92%) and HIV (95%) during follow-up, while the testing rates were lower in the comparison groups (MSM:11-23%, other: < 5%). The incidence of syphilis, gonorrhea and chlamydia was 7.6%, 19.7%, and 3.0% among the PrEP users, significantly higher than the comparison groups (P< .001). In multivariable analyses, PrEP use was associated with greater use of primary care, urgent care and ED visit (Table).

Conclusions: Young male PrEP users are more likely to utilize primary and preventive care and undergo STI screening, but have a higher rate of STIs and mental health disorders compared to their counterparts.



[Proportion of subjects who had a mental health disorder diagnosis during 6-month follow-up period.]

Healthcare Utilization	PrEP user vs. MSM (non PrEP user)	PrEP user vs. other young men
No. of primary care visit	1.21 (1.07-1.36)	1.81 (1.61-2.03)
No. of urgent care visit	1.31 (1.07-1.61)	1.99 (1.64-2.42)
No. of ED visit	1.10 (0.78-1.55)	1.42 (1.02-1.96)
No. of hospitalization	0.20 (0.02-1.41)	0.35 (0.05-2.48)

[Multivariable association of PrEP use with healthcare utilization (rate ratio, 95% CI) during 6-month follow-up period.]

TUPEC272

Eliminating hepatitis C as public health threat: Significant increase in HCV direct-acting antiviral therapy and rapid decline in viraemic prevalence among people who inject drugs in Australia

J. Iversen, L. Maher
UNSW Sydney, The Kirby Institute, Sydney, Australia

Background: Australia implemented subsidised access to hepatitis C virus (HCV) direct acting antiviral (DAA) therapy in March 2016, with no restrictions on disease stage, substance use or provider type. Progress towards the WHO HCV elimination goal of 80% of the eligible chronic HCV population treated by 2030 is encouraging, with one in four Australians with chronic HCV initiating DAA therapy by June 2017. However, little is known about people who inject drugs (PWID) initiating treatment, an important consideration in relation to the WHO gaol to also reduce HCV incidence by 80% by 2030.

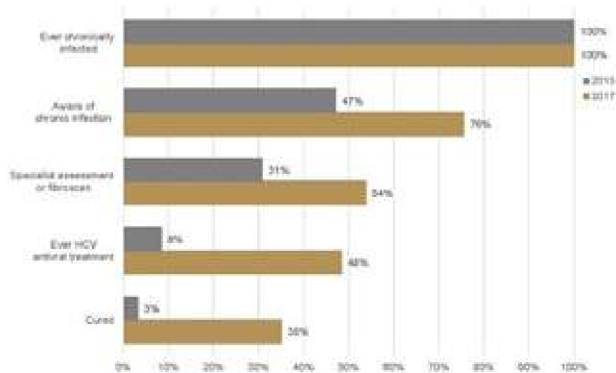
Methods: Annual cross-sectional bio-behavioural surveillance among PWID involved completion of a self-administered questionnaire and provision of a dried blood spot for HIV and HCV (antibody and RNA) testing. Data from 2015 (pre-DAAs baseline) and 2017 (post-DAAs) were used to populate the cascade of HCV care (confirmatory RNA testing, specialist assessment and/or FibroScan®, antiviral treatment and viral clearance/cure) among respondents with a history of chronic HCV infection^.

Results: Samples comprised n=2,304 (2015) and n=2,600 (2017). Just over half were exposed to HCV and ~20% of the exposed group had spontaneously cleared the virus. Among those assessed as eligible for HCV treatment (ever living with chronic HCV), we observed a significant increase (p< 0.001) at all stages of the cascade of HCV care in 2017 compared to 2015 baseline (Figure 1). Prevalence of lifetime treatment uptake increased from 8% in 2015 to 48% in 2017, with a corresponding decline in viraemic prevalence among the overall sample from 45% in 2015 to ~25%^ in 2017.

Conclusions: High levels of HCV treatment uptake are achievable among PWID in settings with no restrictions on access to therapy. Our study also demonstrates that increased uptake of HCV treatment can significantly reduce underlying viraemic prevalence among PWID, the group most at risk of onward transmission, over very short time periods. While results indicate that eliminating hepatitis C as a public health

threat is feasible, challenges remain, including ensuring equity of access among vulnerable sub-populations and preventing reinfection among PWID.

^Laboratory determined (HCV RNA) in 2015, self-report in 2017 (HCV RNA available in May 2018, results will be updated).



[The HCV cascade of care among people who inject drugs in Australia, 2015 and 2017]

TUPEC273

Low prevalence and incidence of hepatitis C among men who have sex with men and transgender women in a key population-led Test and Treat cohort in Thailand

R. Ramautarsing[1], J. Jantarapakde[1], S. Pengnonyang[1], R. Meksena[1], N. Teachatanawat[1], T. Sungsing[1], P. Mingkwanrungruangkit[1], N. Mahachokchai[2], S. Samalu[3], T. Nakpor[4], R. Reankhomfu[5], P. Rattakitvijunnanakorn[1], S. Tongmuang[1], S. Charoenying[6], S. Mills[6], R. Vannakit[7], P. Phanuphak[1], N. Phanuphak[1]

[1]Thai Red Cross AIDS Research Center, Prevention Department, Bangkok, Thailand, [2]Rainbow Sky Association of Thailand, Bangkok, Thailand, [3]The Service Workers in Group Foundation, Bangkok, Thailand, [4]SISTERS Foundation, Chonburi, Thailand, [5]Caremat, Chiang Mai, Thailand, [6]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [7]Office of Public Health, U.S. Agency for International Development Regional Development Mission Asia, Bangkok, Thailand

Background: Although the prevalence of hepatitis C virus (HCV) in the general population in Thailand is declining, data are lacking on the epidemiology of HCV among men who have sex with men (MSM) and transgender women (TGW). We estimated HCV prevalence and incidence among sexually active, high-risk MSM and TGW in a Key Population (KP)-Led Test and Treat cohort.

Methods: From May 2015 through October 2016, Thai MSM and TGW 18 years and older were recruited from six KP-led clinics in Thailand. Baseline demographics and behavioral risk were assessed using questionnaires. Trained KP health workers provided HIV testing with same-day results every six months, sexually transmitted infection screening every twelve months, and anti-HCV testing at baseline and month 12.

Results: A total of 2,644 participants with a median (interquartile range) age of 24.1 (20.9-29.6) years were enrolled (1,858 [70.3%] MSM, 786 [29.7%] TGW). At baseline, 400 (15.1%) participants were HIV positive, and 6.2% had active syphilis. In the previous six months, participants reported engaging in unsafe sex (77.1%), having multiple sex partners (53.8%), engaging in group sex (11.2%), using any type of illicit drug (18.7%), using amphetamine-type stimulants (7.8%), and using intravenous drugs (IVDs) (3.3%). HCV prevalence (95% confidence interval-CI) was 0.76% (0.49%-1.18%) overall, 0.63% (0.37%-1.06%) among HIV-negative participants and 1.52% (0.68%-3.34%) among HIV-positive participants (p=0.06). HCV prevalence was similar among MSM and TGW (0.71% vs. 0.90% respectively, p=0.61). Independent predictors for positive anti-HCV were age (adjusted odd ratio-aOR [95%CI] 1.09 [1.04-1.15], p=0.001), active syphilis (aOR [95%CI] 4.43 [1.37-14.37], p=0.013) and ever IVD use (aOR [95%CI] 4.11 [1.07-15.84], p=0.04). At month 12, there were two incident HCV cases (incidence [95%CI] of 1.76 [0.44-7.02] per 1,000 person-years). Both were HIV-negative at enrollment, and one seroconverted for HIV at month 12.

Conclusions: We found low HCV prevalence, regardless of HIV status, and low incidence in a cohort of high-risk MSM and TGW enrolled from KP-led clinics in Thailand. MSM and TGW who have active syphilis, report IVD use, or are practicing risk behaviors for HIV should be the target for HCV screening in Thailand.

TUPEC274

High burden of coinfection with HIV and hepatitis C virus (HCV) among people who inject drugs: A respondent-driven sampling study in Jakarta, Indonesia

C. Stoicescu[1], A. Iryawan[2], M. Mahanani[3], E. Nasution[4]

[1]University of Oxford, Social Policy & Intervention, Oxford, United Kingdom, [2]Indonesian Drug Users Network, Jakarta, Indonesia, [3]Atma Jaya University, AIDS Research Centre, Jakarta, Indonesia, [4]Indonesian Drug Users Network, National Coordinator, Jakarta, Indonesia

Background: The intersection of HIV and HCV has numerous detrimental effects on health outcomes. The absence of reliable data on HIV/HCV coinfection among people who inject drugs (PWID) limits the ability to intervene effectively and is a particular concern in resource-limited settings. Given limited surveillance data on coinfection in Indonesia, the Indonesian Drug Users Network implemented a peer-driven intervention with educational, behavioural, and serological components. This study utilises data gathered in the latter two components to estimate the prevalence and predictors of HIV/HCV coinfection in a representative sample of PWID in Jakarta, Indonesia.

Methods: Between August 2015 and January 2016, 326 PWID were recruited using respondent-driven sampling. Eligibility criteria included being ≥18 years of age, injecting illicit drugs in the previous year, residing in Jakarta, and possessing a valid peer recruitment coupon. HCV prevalence was estimated by the presence of HIV and anti-HCV antibodies incorporating RDS-weights. Predictors of coinfection were assessed using weighted multivariate logistic regressions.

Results: Overall HIV prevalence was 53.4%, with higher prevalence among males (53.9%) relative to females (50.0%). HCV prevalence was 89.2% in the entire sample, 90.5% among males, and 80.8% among females (p< 0.05). Coinfection with HIV/HCV was 52.3% in the whole sample, with higher rates among males (53.6%) relative to females (44.6%). Predictors of coinfection included: past-month sharing of injecting paraphernalia (OR=3.99, 95% CIs:1.61-9.94, p< 0.01), lifetime overdose (OR=2.98, 95% CIs:1.28-6.98, p< 0.01), recent tuberculosis diagnosis (OR=3.99, 95% CIs:1.61-9.94, p< 0.01) and history of arrest (OR=1.48, 95% CIs:0.52-4.26, p< 0.01).

Conclusions: The high burden of HIV/HCV co-infection among Indonesian PWID highlights an urgent need for tailored prevention, care and support services. Integration of HCV services within the existing HIV care continuum is essential to curb the dual impact of these epidemics and improve quality of life of PWID.

TUPEC275

Perinatal HIV diagnosis and STI treatment outcomes among HIV positive women in Pretoria, South Africa

L. de Vos[1], M. Mudau[1], D. Olivier[1], C. Bezuidenhout[1], J. Klausner[2], K. Lovero[3], A. Medina-Marino[1]

[1]Foundation for Professional Development, Research Unit, Pretoria, South Africa, [2]Global Health David Geffen School of Medicine, Division of Infectious Diseases, Los Angeles, United States, [3]Columbia University, Department of Psychiatry and New York State Psychiatric Institute, New York, United States

Background: Aside from the physiological implications of the virus on pregnancy, perinatal HIV diagnosis and the processing thereof, may affect health seeking behaviour, treatment adherence and reproductive health including STIs. We aimed to determine the association between perinatal HIV diagnosis and STI treatment outcomes.

Methods: HIV-infected pregnant women attending first antenatal care services (ANC) were enrolled from three primary healthcare facilities in Pretoria, South Africa between June 2016 and September 2017. Eligibility

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included >18yrs, ≤34 weeks gestation, intent to stay in Tshwane, willingness to collect a vaginal specimen for STI testing and a documented HIV diagnosis. Participants were tested for Chlamydia, Gonorrhoea and Trichomonas, at first ANC and post-delivery. A test-of-cure was scheduled for women with a positive STI. Date of HIV diagnosis and other relevant clinical information was extracted from maternal records. Data was captured using RedCap and analysed with STATA v. 13.

Results: We enrolled 430 women attending first ANC; mean age=30 years, median gestational age= 21 weeks, 13% primigravida, 37% newly diagnosed with HIV. Women diagnosed with HIV at first ANC, were more likely to experience higher levels of depressive symptoms than those with a previous diagnosis (OR=2.4, 95% CI 1.22-4.81). STI prevalence at first ANC was 40% (N=174), 91% of women newly diagnosed with HIV disclosed their STI status to their partner and overall reported good STI treatment adherence. Among newly diagnosed women who tested positive for an STI during pregnancy, 23/54 were still positive at their test-of-cure (OR=2.4, 95% CI 1.13-4.96). Sixty-three percent (N=20/32) reported using condoms every time since STI diagnosis. Despite these findings, womanly diagnosed with HIV at first ANC more likely to test STI positive at the postnatal visit (OR=2.6, 95% CI 1.24-5.41).

Conclusions: Pre- and post-HIV counselling should ensure sufficient and ongoing support for women newly diagnosed with HIV including STI management. However, future research should further investigate why newly HIV diagnosed women struggle (more) to clear their STI infection despite adherence and disclosure.

Epidemiology of non-AIDS non-communicable diseases (e.g. non-AIDS cancers, CVD)

TUPEC276

Health conditions and use of medications by people living with HIV: The Positive Voices 2017 Survey

M. Auzenbergs[1,2], M. Kall[1], V. Delpech[1]
[1]Public Health England, London, United Kingdom, [2]Watipa, London, United Kingdom

Background: In the UK, the uptake of antiretroviral therapy is high (>97%) among the 91,987 persons seen for HIV care and more than a third (38%) are aged 50 years and older. Population-level estimates of co-morbidities and use of non-HIV related medications are needed to plan the provision of health services, particularly among an aging population.

Methods: Positive Voices is a cross-sectional, probability survey of people with HIV. A representative pre-selected sample of people attending 73 HIV clinics in England & Wales between January and September 2017 was invited to complete a paper or online survey. Participants selected comorbidities (self-reported ever diagnosed) from a comprehensive list of 25 conditions and reported rarer conditions in free text. Use of prescription medication in the past 4 weeks for each condition was collected in addition to ARV medication.

Results: 74% have been diagnosed with at least one chronic condition, rising to 86% among those aged ≥50 (Table 1). Depression (33%) and anxiety (26%) were the most commonly reported co-morbidities overall (with 75% of depression and anxiety diagnoses made at the time of, or after, HIV diagnosis) and the most prevalent in the 18-49 age group. However, among people aged 50+, high cholesterol (45%) and hypertension (36%) were the most prevalent co-morbidities, followed by depression (34%). With the exception of depression and anxiety, most co-morbidities were more common among older adults (Table 1), with the most marked differences being a 4-fold higher prevalence of osteopenia/osteoporosis and a 3-fold higher prevalence of arthritis, peripheral neuropathy and erectile dysfunction compared to under 50s. Overall, 98% of respondents were taking ARVs and 64% of people were taking at least one non-HIV medication, rising to 75% in those 50+ yrs. Differences in rates in co-morbidities and medication use were observed by gender and other demographic characteristics.

		Prevalence Estimates			Percentage of patients on prescribed medication in the last 4 weeks	
	n	Overall % (95% CI)	Age 18-49 years % (95% CI)	Age ≥50 years % (95% CI)	Age 18-49 years % (95% CI)	Age ≥50 years % (95% CI)
High cholesterol	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hypertension	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Diabetes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Arthritis	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rheumatoid arthritis	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Osteopenia/Osteoporosis	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Depression	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Anxiety	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Insomnia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Peripheral neuropathy	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Erectile dysfunction	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kidney disease	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hepatitis B	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hepatitis C	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Any comorbidity	[illegible]	[illegible]	[illegible]	[illegible]	-	-
At least one co-medication	[illegible]	[illegible]	-	-	[illegible]	[illegible]

[Table 1. Prevalence of selected self-reported ever-diagnosed comorbidities and polypharmacy among people living with HIV, Positive Voices, 2017]

Conclusions: People living with HIV, particularly those over the age of 50, report high rates of comorbidities and medication use. These findings will assist in the modelling and planning of future health and social care services and highlight the need for integrated care for people living with HIV.

TUPEC277

Prevalence and risk factors for hypertension among people living with HIV in Zambia

J. Pry[1,2], M. Vinikoor[1,3], E. Geng[4], M. Roy[4], A. Mody[4], N. Padian[5], C. Bolton[1,3], I. Sikazwe[1], C. Holmes[6]
[1]Centre for Infectious Disease Research Zambia, Lusaka, Zambia, [2]University of California Davis, Davis, United States, [3]University of Alabama Birmingham, School of Medicine, Birmingham, United States, [4]University of California San Francisco, Medicine, San Francisco, United States, [5]University of California Berkeley, Berkeley, United States, [6]George Washington University, School of Medicine, Washington D.C., United States

Background: As the response to the HIV epidemic matures, and people age while on antiretroviral treatment, understanding cardiovascular disease risk factors such as hypertension in this population is key. Our objective was to describe the prevalence, risk factors and trends of hypertension, using routine data, amongst patients in the national HIV treatment program.

Methods: We extracted blood pressure readings for all individuals in the HIV electronic medical record database aged 17-75 years, with at least two measurements between January 1, 2011 and December 31, 2016. Hypertension was defined as two consecutive visits with systolic pressure >140 (mmHg) and/or diastolic >90 (mmHg). Height, weight, age, CD4 count, education, and income were extracted at baseline. We analyzed frequencies, trends and demographic risk factors for hypertension using descriptive statistics and mixed-effects logistic regression.

Results: Among 641,760 patients in the database, 187,620 (29.2%) had at least two blood pressure measures for a total of 1,157,430 visits during the study period. Median age was 37.8 years (IQR: 31.2 - 44.4), 100,721 (64.4%) were female, and median baseline CD4 cell count was 216 (n = 64,184, IQR: 100.5 - 331.5). 186,244 (99.3%) were on ART. Patients included in the analysis had a median of 5 visits (IQR: 2.5- 7.5) and time from first to last visit with a blood pressure measure was a median of 1213 days (IQR: 483.5 - 1942.5). Patients with at least one elevated blood pressure measure totaled 72,877 (38.8%) and 25,477 (13.6%) met the criteria for hypertension. In mixed effects regression analysis (table 1), greater BMI, male sex, increased age, time in care, and higher income were associated with hypertension whereas CD4 and education were not. A minimal, though statistically significant, increase in mean between baseline systolic and diastolic blood pressure at 3 years (n = 11,028 (43.3%)) among hypertensive cases was 1.76 and 1.16 mmHg, respectively.

Conclusions: Hypertension is common among people in HIV care in Zambia. Predictors of hypertension mirror those observed in higher income settings although hypertension screening here was incomplete. The remarkable burden of hypertension in this population suggests a need for greater integration of hypertension management with HIV care in Zambia.

Covariate	Prevalence Ratio	p-value	95% LL	95% UL
Age				
17-19 years	1.000	ref	ref	ref
20-29 years	1.319	0.475	0.617	2.821
30-39 years	2.596	0.014	1.209	5.576
40-49 years	6.370	< 0.001	2.956	13.726
50+ years	22.746	< 0.001	10.499	49.280
Female	1.000	ref	ref	ref
Male	1.447	< 0.001	1.25	1.68
BMI				
Underweight	1.000	ref	ref	ref
Normal Weight	2.326	< 0.001	1.929	2.804
Overweight	6.105	< 0.001	4.754	7.839
Obese	9.441	< 0.001	6.747	13.210
Education				
No education	1.000	ref	ref	ref
Highest grade (1-12)	0.892	0.398	0.686	1.162
College/University	1.282	0.192	0.883	1.863
Income Level (monthly)				
< K500	1.000	ref	ref	ref
K500 - K999	1.192	0.327	0.839	1.692
K1000 - K1499	1.303	0.045	1.006	1.687
K1500 - K1999	1.484	0.002	1.153	1.910
> K1999	1.172	0.274	0.881	1.560
Time in Care (90 days)	1.024	0.030	1.011	1.036
Baseline CD4	1.000	0.456	0.999	1.000

[Table 1: Mixed Effects Regression Model Results]

TUPEC278

Opportunities, challenges and implications of m-Health oral cancer screening for HIV-positive individuals in India

S. Joshi[1], I. Marbaniang[2], A. Chandanwale[1], S. Sangle[1], S. Khaire[1], R. Thakur[1], A. Gupta[2,3], R. Chigurupati[4], V. Mave[2,3]
[1]BJ Government Medical College, Pune, India, [2]BJGMC-CRS, Pune, India, [3]CCGHE, Johns Hopkins University, Baltimore, United States, [4]Boston University, Boston, United States

Background: Oral cancer accounts for 30% of all cancers in India. HIV-induced immunosuppression is a risk factor for cancer. Tobacco, alcohol use and oral HPV: risk factors for oral cancer are common among PLWH. Screening for oral cancer in India is sparse and patient to provider ratio high. We evaluated a novel m-Health oral cancer screening approach for PLWH led by non-medical healthcare workers.

Description: Employing a validated oral cancer screening mobile application, PLWH (≥21 years) with no prior history of oral cancer were enrolled June to November 2017 at the ART clinic, Sassoon General Hospitals, Pune, India. Two trained non-medical healthcare workers obtained demographic, HIV, cancer risk factor data and took 8 or more photographs of the oral cavity using a smartphone. Photographs were uploaded to a cloud-based server and reviewed independently by two oral cancer specialists for oral potentially malignant disorders (OPMDs). If disagreement occurred, a third independent senior specialist adjudicated. Image review results were communicated to the healthcare workers. Individuals deemed to have OPMDs were contacted for an in-person clinical evaluation by a specialist and provided additional care as necessary.

Lessons learned: Of 331 enrollees, 50% were male, median age was 40 years (IQR: 34 -45), median CD4 was 529 cells/mm³ (IQR: 366 - 727), 15% ever smoked, 2% currently smoked; 39% ever chewed tobacco, 26% currently chewed tobacco; 35% ever used alcohol and 1% drank currently. Oral sex was reported by 15% and multiple sexual partners by 29%. Of 2648 images reviewed, 99% were deemed adequate for making a clinical diagnosis; 42 participants (13%) were judged to have OPMDs by two clinicians. They were older (p=0.01), more likely to be male (p=0.05). Of the 42, 36% did not return after being contacted. Of 27 who returned, 52% were diagnosed with OPMDs on clinical examination and provided standardized care.

Conclusions/Next steps: In a cohort with high CD4 count, prevalence of oral cancer risk factors was high. While OPMDs were overdiagnosed on image review, m-Health provided an effective and rapid method of oral cancer screening, without overburdening providers.Scaling up of this strategy will however require better risk communication to improve participant follow-up.

TUPEC280

Heart rate variability, HIV and cardiovascular disease risk in rural South Africa

N.G. Godijk[1], A.G. Vos[1,2], V. Jongen[1], R. Moraba[3], H. Tempelman[3], D.E. Grobbee[1], R.A. Coutinho[1], W. Devillé[1,3], K. Klipstein-Grobusch[1,4]
[1]University Medical Centre Utrecht, Julius Global Health, Julius Center for Health Sciences and Primary Care, Utrecht, Netherlands, [2]University of the Witwatersrand, Wits Reproductive Health and HIV Institute, Faculty of Health Sciences, Johannesburg, South Africa, [3]Ndlovu Care Group, Groblersdal, South Africa, [4]University of the Witwatersrand, Division of Epidemiology and Biostatistics, School of Public Health, Faculty of Health Sciences, Johannesburg, South Africa

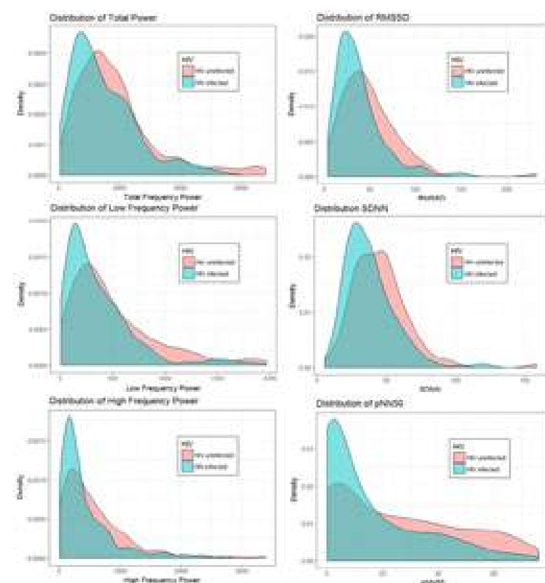
Background: The increased use of anti-retroviral therapy (ART) transformed human immunodeficiency virus (HIV) infection into a chronic disease. Possible HIV-associated complications have emerged including cardiovascular diseases (CVD). Surrogate markers can estimate CVD risk, however data from high HIV-prevalence areas such as rural South Africa are limited. This study aims to determine

1) the distribution of heart rate variability (HRV), a surrogate marker of CVD risk,

2) the association between HIV and HRV and

3) the association between ART and HRV in the rural South African population.

Methods: Participants of the Ndlovu Cohort Study visiting the research centre in Elandsdoorn, South Africa between August and December 2017 were included in this cross-sectional study. HRV was measured using a standardized 5-min resting ECG. HRV was determined using total-frequency (0.04 to 0.5 Hz), low-frequency (0.04 to 0.15 Hz), high-frequency power (0.15 to 0.5 Hz), standard deviation of the normal RR intervals (SDNN), the root of the mean squares of successive RR differences (RMSSD) and the percentage of RR intervals greater than fifty milliseconds different from its predecessor (pNN50). All parameters had a skewed distribution and were log-transformed for multivariable analysis. Information on gender, body mass index (BMI), age, medication use, blood pressure, physical activity, education and income level were obtained using standardized questionnaires. The Kruskal Wallis test was used to test a difference in medians between HIV-infected and HIV-uninfected participants. Multivariable linear regression analyses were performed to identify predictors of HRV.



[Figure 1. The distribution of heart rate variability in a rural South African population]

Model	Variable	Coef.	Std. Error	p-value
Model log RMSSD	Age	-0.02	0.00	0.00
	HIV-infection	-0.16	0.07	0.03
Model log SDNN	Age	-0.01	0.09	0.00
	HIV-infection	-0.11	0.05	0.02
Model log pNN50	Age	-0.02	0.00	0.00
	HIV-infection	-0.11	0.05	0.02
Model log LF power	Age	-0.04	0.00	0.00
	HIV-infection	-0.21	0.10	0.04

[Table 1. Predictors of log RMSSD, log SDNN, log pnn50 and log LF power in a rural South African population]

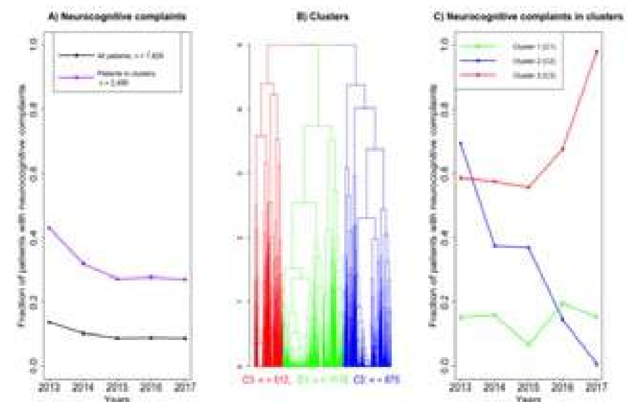
Results: In total 325 participants were included, of whom 202 (62.2%) were HIV-infected. All HRV parameters (median values) were lower for the HIV-infected compared to the HIV-uninfected participants. The multivariate models showed a significant inverse association between HIV and SDNN, RMSSD, pNN50 and LF power, and between age and all HRV parameters. There was no indication of a difference in HRV between participants on ART versus not on ART.
Conclusions: These findings show that HIV-infected participants have a lower HRV, indicating an increased risk of CVD and this suggests that embedding of CVD prevention in HIV-care is necessary.

TUPEC281

Neurocognitive complaints in people living with HIV: Characterizing clusters of patients with similar changes in neurocognitive complaints in the Swiss HIV Cohort Study

K. Kusejko[1,2], L. Salazar-Vizcaya[3], D.L. Braun[1,2], M. Battegay[4], E. Bernasconi[5], A. Calmy[6], M. Cavassini[7], M. Hoffmann[8], R. Du Pasquier[7], J. Böni[2], S. Yerly[6], T. Klimkait[9], M. Perreau[10], A. Rauch[3], H.F. Günthard[1,2], R.D. Kouyos[1,2], and the Swiss HIV Cohort Study
[1]University Hospital Zurich, Zurich, Switzerland, [2]University of Zurich, Zurich, Switzerland, [3]Bern University Hospital, Bern, Switzerland, [4]University Hospital Basel, Basel, Switzerland, [5]Regional Hospital Lugano, Lugano, Switzerland, [6]Geneva University Hospital, Geneva, Switzerland, [7]Lausanne University Hospital, Lausanne, Switzerland, [8]Cantonal Hospital St Gallen, St Gallen, Switzerland, [9]University of Basel, Basel, Switzerland, [10]University of Lausanne, Lausanne, Switzerland

Background: Despite the seminal success of antiretroviral therapy (ART), HIV-associated neurocognitive disorders remain one of the most difficult comorbidities for clinicians to deal with. To date, the pathogenesis and risk factors of neurocognitive disorders are only incompletely understood. We use the extensive, longitudinal data of the Swiss HIV Cohort Study (SHCS) to study self-reported neurocognitive complaints over time.
Methods: Since 2013, SHCS patients are routinely asked twice a year whether they have complaints about memory loss, concentration or slowing down in reasoning. We included patients with at least five follow-up visits at least three years apart in the analysis. A hierarchical clustering algorithm based on the difference of scores calculated from the three questions concerning neurocognitive complaints was applied to detect patients with a similar trajectory of scores. Potential confounders were compared between the clusters using Fisher exact tests.
Results: Of the 7,829 patients included in the analysis, 2,499 reported at least once having frequent neurocognitive complaints, with a decreasing trend over time (Figure A). Via a cluster algorithm, these 2,499 patients were grouped into three main clusters (Figure B), characterized by a constant small fraction (C1), a decrease (C2) and an increase (C3) of neurocognitive complaints over time, respectively (Figure C). There was no significant difference in gender or ethnicity between the clusters. The median birth year in C1 was 1965, in C2 1964 and in C3 1963. Patients in C2 and C3 suffered significantly more often from depression compared to C1 (p< 0.001). Moreover, adherence to ART was worst in C3 (p< 0.001). No difference in mean CD4 cell counts or viral suppression was found, but patients in C3 had more often a history of central nervous system (CNS) opportunistic infections (p =0.007). Differential effects of ART were found with respect to C3.
Conclusions: There is an overall decrease of patients reporting neurocognitive complaints in the years 2013 to 2017 in SHCS patients. However, a cluster of patients with even increasing complaints remains present. Factors associated with being in this cluster (C3) included a slightly higher age, depression, less adherence to ART, history of CNS opportunistic infections and different ART regimens.



[Figure: A) Fraction of patients with neurocognitive complaints. B) The three top clusters. C) Fraction of neurocognitive complaints in the clusters.]

TUPEC282

Frailty-related phenotype, quality of life and non-communicable disease in older Ugandan adults - associations with toxic stress and HIV infection

A.E. Ezeamama[1], N. Nakasujja[2], A. Sikorskii[3], M. Ssonko[4], N. Kaminski[3], D. Guwatudde[5], M.J. Boivin[3], B. Giordani[6]
[1]Michigan State University, Psychiatry, East Lansing, United States, [2]Makerere University School of Medicine, Kampala, Uganda, [3]Michigan State University, East Lansing, United States, [4]Mildmay Uganda, Kampala, Uganda, [5]Makerere University School of Public Health, Kampala, Uganda, [6]University of Michigan, Ann Arbor, United States

Background: Toxic stress may accelerate non-communicable disease (NCD) onset and severity through induction of inflammatory processes and behavioral mal-adaptations. Toxic stress as risk factor for NCD outcomes in older Ugandans with and without HIV-infection is under-investigated.
Therefore, we evaluate the hypothesis that toxic stress is associated with frailty-related phenotype (FRP), low quality of life (QOL) and prevalent NCDs in Ugandan adults at high risk of NCDs.
Methods: We have enrolled, 97 adults ≥50 years with chronic HIV-infection stably linked to HIV-care and 30 age (+/-5 years), sex and village matched HIV-negative community controls from Wakiso District of Uganda. QOL and FRP were defined using the short form Medical Outcomes Study questionnaire and Edmonton frail scale respectively. Number of physician-diagnosed comorbid NCDs (arthritis, depression, ever stroke, diabetes, heart, liver, lung or bone disease) was calculated and dichotomized as none versus any; QOL and FRP outcomes were dichotomized at the mean. Toxic stress was measured using the perceived stress scale and categorized based on tertiles. Odds ratios (OR) and 95% confidence interval (CI) were calculated for HIV- and Stress-related prevalence of low QOL, FRP and presence vs. absence of NCD in SAS v.9.4.
Results: HIV-infected status and stress measures were positively associated with prevalent NCD although neither relationship was statistically significant. The odds of high frailty was 5.2 (95%CI: 1.5, 17.0) times elevated for HIV-infected vs. community controls while low (OR=0.04, 95% CI: 0.1, 1.1) and moderate (OR=0.9, 95%CI:0.3, 2.6) toxic stress level was inversely associated with frailty. High vs. Low QOL was not associated with HIV-infection (OR=0.6, 95%CI:0.2, 2.0) vs. community-control status. However the odds of high QOL was significantly elevated for older adults reporting low (OR = 12.6, 95% CI: 3.8, 41.3) and moderate (OR=11.6, 95% CI:3.7, 36.8) toxic stress.

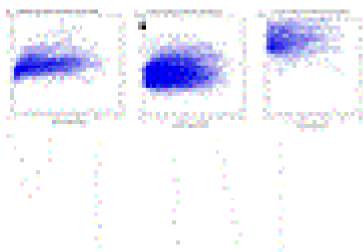
Conclusions: These preliminary data suggest that intentional reduction of Toxic stress could lead to improved QOL and lower frailty in high risk older Ugandans as they age with HIV. We are exploring how to mitigate the effects of toxic stress on these aging adults with HIV.

TUPEC283

Trends of Body Mass Index in HIV positive patients receiving antiretroviral treatment in rural Tanzania

A.V. Kalinjuma[1], H. Hussey[2,3], G. Sikalengo[2], E. Letang[2,4,5], M. Battegay[6,7], D. Paris[5,6], M. Weisser[2,5,6], KIULARCO Study Group
[1]Ifakara Health Institute, Intervention and Clinical Trial Depatment, Ifakara, Tanzania, United Republic of, [2]Ifakara Health Institute, Intervention and Clinical Trial Department, Ifakara, Tanzania, United Republic of, [3]Institute of Tropical Medicine and International Health, Charité-Universitätsmedizin Berlin, Berlin, Germany, [4]ISGlobal, Barcelona Centre for International Health Research (CRESIB), Hospital Clinic Universitat de Barcelona, Spain, [5]Swiss Tropical and Public Health Institute, Basel, Switzerland, [6]University of Basel, Basel, Switzerland, [7]University Hospital Basel, Division of Infectious Diseases and Hospital Epidemiology, Basel, Switzerland

Background: The risk for non-communicable diseases rises with increased prevalence of overweight and obesity in people living with HIV (PLHIV). Simultaneously, low body mass index (BMI) is a predictor of morbidity and mortality in PLHIV. The objectives of this study were to determine the prevalence of underweight and overweight/obesity and to describe the evolution of BMI in PLHIV on antiretroviral treatment (ART) enrolled in the Kilombero and Ulanga Antiretroviral Cohort, Ifakara, Tanzania.
Methods: Prospective cohort study. Consented non-pregnant adults (≥19 years) enrolled from 01/2013-12/2016 were included and follow-up ended in 6/2017. BMI was classified into three categories, according to WHO: underweight: BMI <18.5kg/m²; normal weight: BMI 18.5-24.99 kg/m²; and overweight/obese: BMI ≥25.0 kg/m². Generalized estimated equations with multinomial distribution were adopted to assess the association of BMI and baseline demographic and clinical characteristics.
Results: At start of ART (baseline), 60% of 1,452 participants were female, 87% farmers, 86% with primary school education and 52% had WHO stage III/IV. The median age was 40 years (IQR: 34-49) and CD4 count was 196 cells/µL (IQR: 79-325). Arterial hypertension was diagnosed in 11% and renal impairment in 6%. Prevalence of underweight and overweight/obesity were 21% and 15% respectively. Overweight/obesity was frequent in females (20% vs 8%). The median baseline CD4 count was 99 cells/µL (IQR: 38-228) and 294 cells/µL (IQR: 158-429) in underweight and overweight/obese patients respectively. BMI increased and stabilized in the majority of underweight patients after ART initiation (Figure: Panel (a)). Patients with normal BMI at baseline remained stable within their BMI class during follow-up (Figure: Panel (b)). Baseline WHO stage III and IV had increased odds of being underweight (OR=3.4, 95% CI: [1.9-6.2] and OR=7.4, 95% CI: [3.7-14.5] respectively). Male, patients with CD4 count ≥350 cells/µL and hypertensive patients had OR=0.3, 95% CI: [0.2-0.5], OR=2.3, 95% CI: [1.2-4.4] and OR=2.1, 95% CI: [1.2-3.5] of being overweight/obese respectively.
Conclusions: There exists double burden of underweight and overweight/obesity, even in a rural HIV cohort. We identified gender and clinical baseline factors associated with low and/or high BMI. Measures to address this double burden of malnutrition should be in place.



[Figure: Trends of BMI in patients started ART with all three BMI categories]

TUPEC284

Higher risk of metabolic syndrome among HIV infected women compared to men in Kenya

A. Osoti[1,2], T. Temu[3], S. Page[4], N. Kirui[5], G. Bloomfield[6], C. Farquhar[7]
[1]University of Nairobi, Obstetrics and Gynecology, Nairobi, Kenya, [2]University of Washington, Epidemiology, Seattle, United States, [3]University of Washington, Global Health, Seattle, United States, [4]University of Washington, Division of Metabolism and Endocrinology, Seattle, United States, [5]Moi Teaching and Refferal Hospital, Medicine, Eldorert, United States, [6]Duke University Medical Center, Division of Cardiology Department of Medicine and Global Health, Durham North Carolina, United States, [7]University of Washington, Epidemiology, Global Health, Internal Medicine, Seattle, United States

Background: Antiretroviral therapy (ART) has enhanced life expectancy in resource-constrained settings. Older age, HIV and ART related inflammatory changes might increase gender specific risk of metabolic syndrome (MetS), a risk factor of cardiovascular disease (CVD).
Methods: In a cross-sectional survey among adults receiving HIV-related care in Eldoret, Kenya, cardiovascular risk factors were assessed using the World Health Organization stepwise approach to surveillance (STEPS) questionnaire and MetS was defined according to International Diabetes Federation consensus criteria. Continuous variables were compared using two-sample t-tests and categorical variables using Pearson's chi-square tests or Fisher´s exact tests. We estimated prevalence of MetS overall and of components of MetS (waist circumference, HDL-cholesterol, triglycerides, fasting blood sugar and blood pressure) among women compared to men. Using bivariate and multivariate logistic regression, we obtained unadjusted and adjusted odds ratios (OR) respectively for the association between sex and MetS and tested if the association varied by ART use.
Results: Among 300 participants, 192 (64%) were female. Women were younger compared to men (mean age 39 vs 43 years; p=0.002), had higher mean body mass index (BMI) (26 vs 23 kg/m²; p= < 0.001), were less likely to be on ART (49% vs 65%; p=0.008), and had higher mean waist circumference (87.3 vs 84.7 cm; p= 0.039). Total cholesterol, triglyceride, waist-hip ratio and the blood pressures were not significantly different between men and women. The overall prevalence of MetS was 16% and was three-fold greater in women compared to men (21% vs 7%; OR 3.3; 95% Confidence Interval [CI] 1.5, 7.3, p=0.004). The increased risk remained significant for one or more components (p< 0.001) and when adjusted for age, duration of HIV infection, BMI, viral load and CD4 count (adjusted OR 3.6; 95% CI 1.5, 8.6; p=0.003) and was not different for those taking versus not taking ART.
Conclusions: Compared to men, women living with HIV were younger, less likely to be on ART and had higher waist circumference, BMI, and prevalence of MetS. Risk of MetS was not influenced by ART use. Interventions to reduce CVD risk in HIV infected adults should consider reduction in MetS and central obesity, especially among women.

TUPEC285

Concurrence of unhealthy alcohol use, tobacco use, and depression on all-cause mortality among persons living with HIV

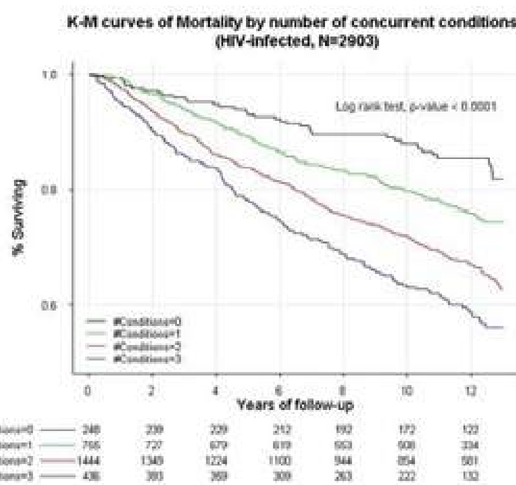
N. Chichetto[1], S. Kundu[2], M. Freiberg[2], A. Butt[3,4,5], R. Cook[6], K. So-Armah[7], H. Tindle[1], Veterans Aging Cohort Study
[1]*Vanderbilt University Medical Center, General Internal Medicine and Public Health, Nashville, United States,* [2]*Vanderbilt University Medical Center, Division of Cardiovascular Medicine, Nashville, United States,* [3]*VA Pittsburgh Healthcare System, Pittsburgh, United States,* [4]*Weill-Cornell Medical College, New York, United States,* [5]*Hamad Medical Corporation, Doha, Qatar,* [6]*University of Florida, Epidemiology, Gainesville, United States,* [7]*University of Boston, Medicine, Boston, United States*

Background: Unhealthy alcohol use, cigarette smoking, and depression contribute independently to preventable mortality. While health effects of these individual conditions are well studied, the combined impact of concurrent unhealthy drinking, cigarette smoking, and depression on mortality are understudied, particularly among persons living with HIV (PLWH). We examined the association between the concurrence of these conditions and all-cause mortality among PLWH.

Methods: Data are from the Veterans Aging Cohort Study (VACS), a prospective, observational multi-site cohort of HIV-infected and uninfected US veterans from 2002-2015. Among HIV-infected (N=2903) patients, we assessed baseline number of concurrent conditions (CC 0-3; unhealthy drinking [Alcohol Use Disorders Identification Test], cigarette smoking [former or current], and depression [Patient Health Questionnaire-9]) and all-cause mortality by the end follow-up. We constructed Kaplan-Meier (KM) survival curves, age-adjusted mortality rates and performed Cox proportional hazards regression to estimate the hazard ratio (HR) and 95% confidence intervals (CI) of number of CC on all-cause mortality, compared to those with no CC.

Results: The majority were male (97.2%) and non-White (66.4% Black, 20.0% White, 13.6% Hispanic/other race/ethnicity), with a median age of 49 years. During the median follow-up period of 11.4 years, there were 851 deaths. Most patients had at least one CC (8.5% 0 CC, 26.2% 1 CC, 49.7% 2 CC, 15% 3 CC). KM curves (Figure) and age-adjusted mortality rates per 1000 person years demonstrated increasing mortality with increasing CC (0 CC: 14.8 [10.0-19.6]; 1 CC: 22.3 [18.9-25.6]; 2 CC: 32.6 [29.9-35.6]; 3 CC: 44.7 [38.0-51.4], p< 0.001). After adjusting for demographics (age, race/ethnicity, education), comorbidities (cardiovascular-related factors, renal disease, hepatitis C infection), illicit substance use, and HIV-specific variables (HIV-1 RNA viral load, CD4+ T-cell count, HAART use), a dose response emerged between CC and mortality (1 CC: HR 1.41 [CI 0.98-2.01]; 2 CC: HR 1.78 [CI 1.26-2.52]; 3 CC HR 2.34 [CI 1.61-3.41]), compared to those with no CC (HRs p< 0.001).

Conclusions: Concurrent unhealthy drinking, tobacco use, and depression was common among PLWH, with 65% having at least 2 CC. Number of CC was incrementally associated with higher mortality risk, underscoring the need to screen and treat these conditions in parallel.



[Figure 1. Kaplan-Meier curves of mortality by number of concurrent conditions]

TUPEC286

HIV nor ART contribute to cardiovascular disease risk proxy in a young urban African population

A. Vos[1,2,3], M. Moorhouse[2], R. Barth[3], D. Grobbee[1], F. Venter[2], K. Klipstein-Grobusch[1,4]
[1]*University Medical Center Utrecht, Julius Center for Health Sciences and Primary Care, Utrecht, Netherlands,* [2]*University of the Witwatersrand, Wits Reproductive Health and HIV Institute, Johannesburg, South Africa,* [3]*University Medical Center Utrecht, Department of Internal Medicine, Utrecht, Netherlands,* [4]*University of the Witwatersrand, School of Public Health, Johannesburg, South Africa*

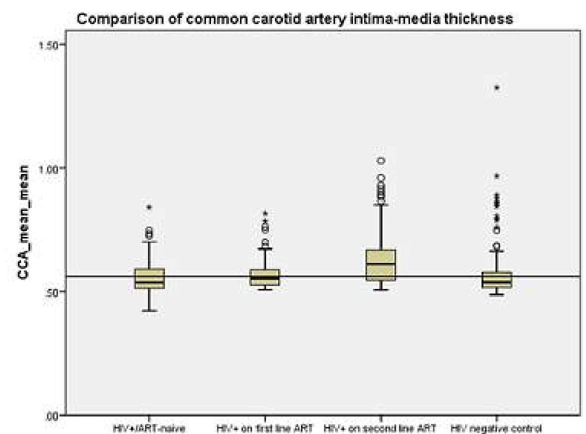
Background: The HIV-infected population is aging with increasing antiretroviral (ART) coverage. HIV and ART are risk factors for cardiovascular disease (CVD) in high-income countries, but the risk in low- and middle-income countries is unknown. This study sets out to investigate the risk of cardiovascular disease, using carotid intima-media thickness (CIMT), an established proxy for CVD risk, in an urban African population.

Methods: A cross-sectional study was performed in Johannesburg, South Africa, comparing four groups of adults: HIV-positive/ART-naïve, HIV-positive on first-line ART, HIV-positive on second-line ART and gender and age matched HIV-negative participants who were recruited by HIV-positive participants. Data were collected on demographics, cardiovascular risk factors, HIV- and ART factors. CIMT was measured as a surrogate marker for CVD. The thickness of the common carotid artery (CCA) wall was measured using B-mode ultrasound. The mean thickness of the right and left CCA near and far wall was used for analysis. The difference in CIMT between groups was analyzed using a generalized linear model.

	HIV+/ART-naïve n = 103	HIV+ on first-line ART n = 94	HIV+ on second-line ART n = 197	HIV-negative n = 153
Age (mean, SD)	33.9 (8.5)	36.9 (6.64)	43.1 (8.0)	34.7 (10.6)
Gender (female) (n, %)	64 (62.1)	59 (62.8)	141 (72.6)	75 (49.0)
Systolic blood pressure (mmHg) (mean, SD)	120.8 (15.2)	125.4 (17.4)	122.6 (19.2)	125.3 (18.9)
BMI (kg/m2)	24.6 (5.4)	25.7 (5.5)	27.9 (6.5)	26.0 (6.5)
Abdominal obesity (n, %)1	53 (51.5)	50 (53.2)	142 (72.1)	79 (51.6)
Current smokers (n, %)	27 (26.2)	12 (12.8)	17 (8.6)	56 (36.6)
Time since HIV diagnosis in months (median, IQR)	0 (0-1)2	47 (37-72)	108 (84-148)	-
CIMT (median, IQR)3	0.54 (0.51-0.59)	0.55 (0.53-0.59)	0.61 (0.55-0.67)	0.54 (0.52-0.58)

1. Waist circumference ≥94 for men and ≥80cm for women, 2. 83 participants (81.4%) were newly diagnosed upon enrolment. 3. Thickness is the mean of left and right CCA measurements; thickness was measured for the near wall and far wall at 3 angles at both sides, mean thickness was used. BMI; body mass index, CIMT; carotid intima-media thickness, CVD; cardiovascular disease, IQR; interquartile range, n; number, SD; standard deviation

[Table 1. Population characteristics]



[Figure 1. Comparison of unadjusted carotid artery intima-media thickness]

Results: 548 participants were included; 103 in the HIV-positive/ART-naïve group, 94 in the group using first-line ART, 197 in the group using second-line ART and 153 HIV-negative controls. The mean age was 37.9

years, 62% were female and almost all were black Africans (>99%). (Table 1) Participants in the group receiving second-line ART were mainly female, older, with a higher BMI and a higher prevalence of abdominal obesity than those in the other groups. Median CCA thickness was significantly higher in this group compared to any of the other groups (P <0.01) (figure 1), but the difference disappeared when adjusting for gender and age.

Conclusions: CIMT (and hence possibly CVD risk) did not differ between HIV-negative and HIV-positive individuals, whether or not on ART, in this urban African population. Further research on CVD risk due to HIV and/or ART with aging is needed. CIMT may need re-evaluation as a proxy for CVD in African populations.

TUPEC287

Association between recommended first-line antiretroviral therapy regimens and chronic kidney disease in HIV-positive adults in Thailand: A retrospective cohort study

N. Paengsai[1], R. Chaiwarith[2], T.R. Cressey[3,4,5], N. Salvadori[3,4], A. Tantraworasin[1,6], N. Kosachunhanun[2], C. Bowonwatanuwong[7], S. Bhakeecheep[8], K. Noppakun[2]

[1]Chiang Mai University, Clinical Epidemiology Program, Faculty of Medicine, Chiang Mai, Thailand, [2]Chiang Mai University, Department of Medicine, Faculty of Medicine, Chiang Mai, Thailand, [3]Institut de Recherche pour le Développement (IRD) UMI 174-PHPT, Chiang Mai, Thailand, [4]Chiang Mai University, Department of Medical Technology, Faculty of Associated Medical Sciences, Chiang Mai, Thailand, [5]Harvard T.H. Chan School of Public Health, BOSTON, United States, [6]Chiang Mai University, Department of Surgery, Faculty of Medicine, Chiang Mai, Thailand, [7]Mahidol University, Department of Medicine, Faculty of Tropical Medicine, Bangkok, Thailand, [8]National Health Security Office Chiang Mai Branch (Region 1), Chiang Mai, Thailand

Background: Antiretroviral therapy (ART) has shifted the causes of mortality for HIV-infected individuals from infectious diseases to non-communicable diseases, including chronic kidney disease (CKD). Other than the known risk factors of CKD, lower CD4 counts, higher HIV RNA viral loads and receiving individual antiretroviral drugs (tenofovir disoproxil fumarate [TDF] and lopinavir/ritonavir [LPV/r]) in HIV-positive patients are also risk factors. However few studies have investigated the association between specific ART regimens and risk of CKD. We investigated the association of World Health Organization (WHO) 2016 and Thailand 2017 recommended first-line ART regimens and the risk of CKD in HIV-positive adults in Thailand.

Methods: We analyzed all records of a large retrospective cohort study of HIV-positive adults within the Thai National AIDS Program from October 1, 2006 to September 30, 2014. Adults who received a first-line ART regimen of

(i) zidovudine(AZT)+lamivudine(3TC)+nevirapine(NVP),

(ii) TDF+3TC+NVP (iii) AZT+3TC+efavirenz(EFV),

(iv) TDF+3TC/emtricitabine(FTC)+EFV (v) AZT+3TC+LPV/r, and

(vi) TDF+3TC+LPV/r were included in this analysis.

CKD was defined as

1) decreased glomerular filtration rate < 60 ml/min/1.73 m^2 for >3 months as per KDIGO 2012; or

2) a confirmed 2010 WHO diagnosis (ICD10 code N183, N184, N185).

CKD incidence was the number of new cases divided by that of person-years of follow-up (PYFU). We used competing risks survival regression models, treating mortality as a competing event, to identify ART regimens associated with CKD, adjusted for sex, age, history of diabetes mellitus and kidney stone, absolute CD4 cell count and propensity scores.

Results: Of 31,997 adults receiving first-line ART, 240 patients developed CKD. With 101,417 PYFU, the overall incidence of CKD was 2.4 per 1,000 PYFU. In the multivariable analysis, using AZT+3TC+NVP as the control group, regimens associated with a higher risk of CKD were TDF+3TC/FTC+EFV (adjusted sub-distribution hazard ratio 1.7, 95% confidence interval 1.2-2.3), TDF+3TC+NVP (3.6, 2.2-5.8) and TDF+3TC+LPV/r (4.8, 2.6-8.9). In a subgroup analysis, TDF+3TC+NVP (2.3, 1.4-3.7) and TDF+3TC+LPV/r (2.6, 1.4-4.7) were associated with a higher risk of CKD, compared to TDF+3TC/FTC+EFV regimen.

Conclusions: Most of the currently recommended TDF-containing first-line ART regimens, particularly with NVP and LPV/r, were associated with a higher risk of CKD compared to AZT+3TC+NVP.

Describing the spread of HIV through molecular epidemiology

TUPEC288

A web-based searching program for nationwide HIV transmission clusters efficiently detected local HIV transmission in the MSM group in Japan

T. Shiino[1], M. Takeyama[2], M. Ishihara[2], R. Minami[3], A. Hachiya[4], Y. Yokomaku[4], W. Sugiura[5], K. Yoshimura[6], The Japanese Drug Resistance HIV-1 Surveillance Network

[1]National Institute of Infectious Diseases, Infectious Disease Surveillance Center, Tokyo, Japan, [2]University of the Ryukyus, First Department of Internal Medicine, Okinawa, Japan, [3]Kyushu Medical Center, Fukuoka, Japan, [4]Nagoya Medical Center, Medical Research Center, Nagoya, Japan, [5]GlaxoSmithKline K.K., Tokyo, Japan, [6]National Institute of Infectious Diseases, AIDS Research Center, Tokyo, Japan

Background: Viral sequence-based transmission clustering of HIV-1 infected individuals among men who have sex with men (MSM) in Japan was conducted using advanced phylogenetic inferences. HIV-1 transmission networks spread with a consistent pattern in MSM groups; therefore, cluster information estimated from viral sequences are useful for an active prevention program. In order to make the transmission cluster (TC) information of newly diagnosed patients readily available to medical staff, we have developed a web-based searching program for HIV nationwide TC based on sequence data (SPHNCS).

Methods: SPHNCS contains reference sequences of the protease-reverse transcriptase region from 4,386 subtype B-infected individuals registered in the Japanese Drug Resistance HIV-1 Surveillance Network between 2003 and 2012 with the associated TC information. The system exhaustively estimates the number of base substitutions per site between a query sequence and the reference using Tamura and Nei's method. TC of the query was identified as that of the most closely linked neighbor, at a distance of less than 1.5%. To verify the quality of the algorithm, we compared the estimated TCs of both the conventional method and SPHNCS for 87 individuals recruited from University of the Ryukyus Hospital in Okinawa from 2013 to 2016.

Results: Using the conventional method, 52/87 individuals from Okinawa were linked to any TCs, 8 were classified as non-B subtypes, and 27 were singletons. SPHNCS accidentally classified two singletons and one newly detected cluster as existing TCs, and failed to detect 18 TC-involved individuals. The specificity and sensitivity of the program were 0.952 and 0.591, respectively. It perfectly detected Okinawa-specific 7 new TCs and 4 sub-clusters of the existing TCs. The specificity was constantly >0.95 until a 1.6% threshold distance, whereas the sensitivity increased linearly from 0.400 to 0.813 in 1% to 2% threshold distances.

Conclusions: Understanding HIV transmission dynamics allows individuals involved public health activities to define a local key population for implementation of prevention strategies. SPHNCS can detect ongoing HIV transmission among MSM populations with high accuracy, achieving on-site targeting for the active prevention program, PrEP, by medical staff in Japan.

TUPEC289

A comprehensive mapping of HIV-1 genotypes in various risk groups and regions across China based on a nationwide molecular epidemiologic survey

Y. Feng[1], H. Xing[1], Y. Ruan[1], L. Liao[1], L. Plessis[2], Y. Shao[1],
Group for HIV Molecular Epidemiologic Survey of China
[1]National Center for AIDS/STD Control and Prevention, Chinese Center for Disease Control and Prevention, Beijing, China, [2]University of Oxford, Oxford, United Kingdom

Background: In the last 30 years, China has experienced several waves of HIV-1 epidemics. The main driving factors of HIV-1 epidemic have shifted considerably, from blood transmission to sexual transmission. It is about 10 years since the last survey has been conducted, there is increasing need for the geographic and demographic distribution of HIV genotypes on present stage.
Methods: We estimated the likely prevalence and distribution of HIV-1 genotypes through 5627 newly diagnosed HIV positive individuals from various risk groups in all of the 31 provinces of mainland China in 2015.
Results: A total of 4817 HIV-1 sample were amplified and sequenced successfully. 20 HIV subtypes or Circulating recombinant forms (CRFs) were detected. In addition, a large number of different types of unique recombinant forms (URFs) or genotypes inconsistent strains, were determined. CRF07_BC, CRF01_AE, CRF08_BC and B were estimated as the predominant HIV-1 subtypes circulating in China and together accounted for 89.2% of all HIV infection (accounting for 41.2%, 32.6%, 11.3% and 4.0% respectively).
We compared the results of the molecular epidemiological studies of 2006 and 2015. The results shown that the growth in reported cases of HIV infection from 2006 to 2015 come mainly from the increase of infection from CRF07_BC and CRF01_AE, which contributed 48.1% and 38.9% respectively. When we give attention to the level of the clusters/categories and the route of transmission, it worth to note that CRF07_ungrouped, CRF01_C1 and CRF08_BC, which were mainly infected through IDUs and Heterosexuals in 2006, had transferred into predominantly heterosexuals in 2015. CRF07_01, CRF01_C4, CRF01_C5 and CRF55_01B, which transmitted predominantly through MSMs, were very few reported cases in 2006, totally contributed 64.3% of increasing from 2006 to 2015.
Conclusions: Our study revealed an unprecedented high level of complexity of the HIV epidemic in China. More various types of CRFs and URFs found in this survey strongly reflects the increasing complexity of HIV in the country. In comparing the survey in 2006, we can conclude that the increase in the number of HIV reports in China over the past ten years is mainly due to the rapid spread of strains through of sexual transmission, especially through MSMs.

TUPEC290

External introductions sustain endemic HIV incidence in South Africa: Implications for public health interventions

C. Coltart[1,2], A. Zhukova[3], A. Tostevin[4], G. Harling[4], O. Stirrup[4], F. Tanser[2], D. Pillay[2], O. Gascuel[3], S. Hue[5], A. Johnson[4]
[1]University College London, Institute for Global Health, London, United Kingdom, [2]Africa Health Research Institute, KwaZulu-Natal, South Africa, [3]Institut Pasteur, Paris, France, [4]University College London, London, United Kingdom, [5]LSHTM, London, United Kingdom

Background: Despite prevention efforts, HIV incidence in rural KwaZulu-Natal (KZN) remains very high. KZN reports high rates of migration, primarily temporary labour and circular migration. Although mobility and migration are both associated with increased HIV acquisition risk, the manner in which these impact HIV dynamics within this area is unclear. This limits our ability to implement preventative measures within the mobile and migrant populations. Therefore, we investigate the contribution of mobility/migration to HIV transmissions within the AHRI Demographic Surveillance Area (DSA).
Methods: We combined epidemiological, phylogenetic and bioinformatics approaches using AHRI data (2010-14) to investigate patterns and rates of HIV transmission between geographical categories (randomly sampled subset: 750 of 2,179 sequences, 250 from each of three geographical categories: individuals residing in 'High' or 'Low' prevalence areas of the DSA, or 'external sources'). We define individuals who changed residence within the last year, or were not registered within the DSA (external sources) as 'migrants'. Phylodynamic analysis used a maximum-likelihood approach to infer a phylogenetic tree and the most likely source (geographical category) of infection of the sampled individuals (repeated x10). The relative rates of transmission between each origin category were calculated by counting and averaging different parent-child state configurations in the reconstructed transmission trees.
Results: We find that external introductions remain a substantial source of HIV infections accounting for over 45% of transmissions, suggesting that mobility/migration play a key role in sustaining this epidemic. We also find that external sources introduce infection to those residing in 'High' prevalence areas within the DSA, who subsequently seed infection in 'Low' prevalence areas (Figure 1). Furthermore, transmission events often remain localised in geographical categories (78.4% external-external, 38.6% high-high and 23.5% low-low transmissions).
Conclusions: Viral imports play a significant and ongoing role in driving and sustaining the HIV epidemic in the AHRI DSA. Since continuous reintroduction of new infections is not captured by traditional public health strategies, the efficacy of existing interventions among those that share sexual networks with migrants is likely to be sub-optimal. There is an urgent need to develop testing and treatment interventions that flexibly support mobile/migrant populations in order to control the ongoing HIV epidemic.

Figure 1: Maximum likelihood tree and estimation of ancestral states, describing the phylodynamics of HIV infection in rural KwaZulu-Natal
The tree for all available sequences was built with RAxML, and pruned to contain an equal number of tips in each state (250 of each, sampled randomly). We used PastML (Ishikawa et al. 2018, submitted) to infer the ancestral states describing the strain origins. PastML uses the maximum likelihood principle and decision theory concepts, to select one or several states for each the tree nodes, depending on the information brought by the node descendants and neighbours. The results show that infection into the AHRI DSA originally came from 'External' sources (green nodes at the top of the tree) and then was spread largely by people from 'External' and 'High' prevalence areas (green and red), before seeding infection to people in 'Low' prevalence areas (blue).

[Maximum likelihood tree and estimation of ancestral states, describing the phylodynamics of HIV infection in rural KwaZulu-Natal]

Modelling the potential impact of prevention strategies on the HIV epidemic

TUPEC291

A mathematical modeling analysis of HIV transmission following release from prisons in the US among participants in the imPACT intervention trial

S. Levintow[1], K. Powers[1], C. Golin[1], K. Knight[2], P. Flynn[2], J. Carda-Auten[1], J. Groves[1], B. Pence[1], B. White[1], S. Napravnik[1], D. Wohl[1]
[1]University of North Carolina, Chapel Hill, United States, [2]Texas Christian University, Fort Worth, United States

Background: Freely accessible antiretroviral therapy facilitates viral suppression for persons with HIV in prison, but if post-release challenges in accessing medication are coupled with resumption of sexual behavior,

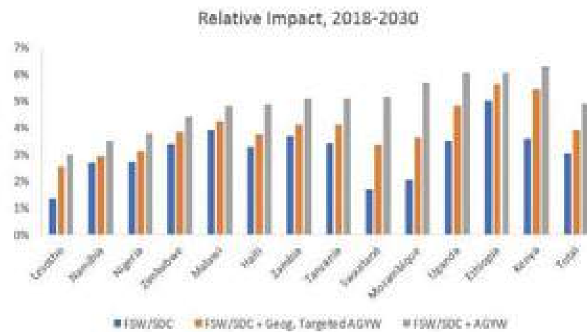
onward HIV transmission can occur. We sought to model secondary sexual HIV transmission in the imPACT (individuals motivated to Participate in Adherence, Care, and Treatment) trial following participants' release from state prisons in North Carolina and Texas.
Methods: 405 virally suppressed persons with HIV awaiting prison release were randomized to standard care (routine discharge planning) or the imPACT intervention (motivational interviewing, linkage to care, medication text reminders). HIV RNA and sexual behavior (frequency of sexual contact and condom use by partner HIV status and act type) were assessed at weeks 2, 6, 14 and 24 post-release. We conducted 10,000 simulations of a Bernoulli process model to estimate secondary transmissions in four intervals (the first 2 weeks after release and the 30 days before weeks 6, 14, and 24), incorporating individual-level viral load and behavioral data. We also modeled a hypothetical scenario of 0% condom use and 0% viral suppression to estimate the potential increase in HIV transmission that could occur under these extreme conditions. In all analyses, we combined study arms and included only the 323 participants who contributed data at ≥1 visit.
Results: In the first six months post-release, 37% of participants reported sex with an HIV-negative or status-unknown partner and 62% were virally suppressed at 24 weeks. Given observed sexual behaviors and viral load, we estimated 1.72 transmission events total (95% CI: 0.92-3.11) across the four post-release intervals. In the hypothetical extreme of 0% condom use and viral suppression, this estimate increased to 7.03 (5.14-9.17) events.
Conclusions: Suboptimal viral suppression combined with reported sexual behavior were predicted to produce approximately two secondary HIV transmissions in the six-month period after prison release, with a predicted increase to seven events under hypothetical elimination of viral suppression and condom use. These analyses highlight the importance of efforts to support care engagement, treatment adherence, and risk reduction for people with HIV who are re-entering their communities from prison.

TUPEC292

Oral Pre-Exposure Prophylaxis (PrEP) modeling for strategic planning: Results from thirteen countries

M. Schnure[1], K. Kripke[2], S. Forsythe[2], M. Hamilton[2], J. Dent[1], M. Reidy[2], R. Glaubius[2], D. Castor[3], C. Pretorius[2]
[1]Health Policy Plus (HP+) Project, Palladium, Washington, United States, [2]Health Policy Plus (HP+) Project, Avenir Health, Washington, United States, [3]USAID, Washington, United States

Background: Many countries are incorporating oral PrEP into their combination prevention strategies following WHO's 2015 guidance on oral PrEP for individuals at substantial risk of contracting HIV. In an effort to inform oral PrEP policy and programs, the USAID-funded Health Policy Plus (HP+) project applied a new mathematical modeling approach to estimate the impact, cost, and cost-effectiveness of providing oral PrEP to different subpopulations in thirteen countries.
Methods: HP+ estimated HIV incidence by risk group and province and considered the impact of oral PrEP through 2030 in the context of the national HIV prevention program using the Incidence Patterns Model (IPM) and an adaptation of the Goals model that incorporated additional risk groups using adjustment factors based on incidence ratios derived from IPM. These two models are linked through a workbook in Microsoft Excel to develop targets and summarize cost and impact modeling results.
Results: In most cases, the vast majority of HIV infections averted by oral PrEP were achieved by focusing on female sex workers (FSW) and sero-discordant couples (SDC) (Fig 1).
In Mozambique and Swaziland, substantial additional impact, without a concomitant decrease in cost-effectiveness, was achieved when medium-risk adolescent girls and young women (AGYW) were also included. Patterns of relative impact and cost-effectiveness by individual risk group varied across countries, with cost per HIV infection averted ranging from US$1,216 in Lesotho for FSW to US$228,694 in Haiti for medium-risk AGYW. When considering oral PrEP in the context of scale-up of other interventions, PrEP is more impactful and cost-effective when scale-up of ART and VMMC is less.
However, scaling up oral PrEP provides additional HIV infections averted even when countries reach 90-90-90 targets for ART and 90% coverage of VMMC among males ages 10-29.



[Additional impact from rolling out oral PrEP, by country and rollout scenario, 2018-2030. Relative impact is defined as the number of HIV infections averted by rolling out PrEP divided by the total number of HIV infections without PrEP. FSW: female sex workers; SDC: sero-discordant couples; AGYW: adolescent girls and young women ages 15-24 years (18-24 for Mozambique]

Conclusions: Oral PrEP is an important component of combination prevention programs, given its potential to protect highly vulnerable and underserved populations. Even in the context of 90-90-90 achievement, our modeling results support oral PrEP scale-up for high-incidence populations. These data will be used to assist countries in rolling out PrEP, while taking into account considerations such as equity, human rights, and implementation realities.

TUPEC293

Determinants of the predicted effectiveness of universal test and treat in a high prevalence generalised HIV epidemic: Insights from the HPTN 071 (PopART) individual-based model

R. Sauter[1], W. Probert[1], M. Pickles[2], A. Cori[3], S. Floyd[4], D. Donnell[5], S. Fidler[3], R. Hayes[4], C. Fraser[1], for the HPTN 071(PopART) study team
[1]University of Oxford, Big Data Institute, Nuffield Department of Medicine, Oxford, United Kingdom, [2]University of Winnipeg, Winnipeg, Canada, [3]Imperial College London, London, United Kingdom, [4]London School of Hygiene & Tropical Medicine, London, United Kingdom, [5]Fred Hutchinson Cancer Research Center, Seattle, United States

Background: HPTN071(PopART) is a three-arm cluster-randomized trial in 12 communities in Zambia and 9 in South Africa, measuring the impact of a combination prevention intervention including universal testing and treatment (UTT) on population-level HIV incidence. Data were collected on the baseline characteristics, and uptake of the intervention. Mathematical modelling informed the trial planning and was developed into an efficient stochastic individual-based simulation model (IBM) of heterosexual HIV transmission in generalised epidemics. Gains in algorithmic efficiency mean that IBM of HIV can be used in fitting to trial data and understanding which determinants are expected to influence the trial outcome.
Methods: Model output was calibrated to historical prevalence and community-level UTT data, identifying the most likely parameter values. Stochastic IBM uncertainty and heterogeneities across communities were assessed by running simulations repeatedly with community-specific parameters. Sensitivity analyses identified the most important determinants of predicted trial impact and long-term effectiveness.
Results: The IBM adequately replicates heterogeneities across sex and age-groups in the trial data. The mean predicted reduction in incidence in the intervention arm was 39% (range 17% to 52%) compared to control communities. The most important determinant of outcome was the uptake of intervention. Conditioning on this, increasing the proportion of infections from individuals in the acute phase, and increasing the number of infections from outside a trial community (both from 10% to 20%) causes on average a 4% decrease in the trial impact. The parameterisation of the sexual contact network explains differences of up to 2%. On average the trial outcome varies by 3% across communities, attributable

to heterogeneities in demography, baseline HIV prevalence, and linkage to care. Differences between Zambia and South Africa can be explained by country-specific differences in the proportion of partners from outside a trial community and the baseline prevalence of male circumcision.
Conclusions: The choice of IBM parameters (some obvious and some less so) has a substantial effect on the predicted trial outcome. Detailed modelling of the trial allows identification of determinants of effectiveness, that will in turn improve long-term modelling projections, offering insight into developments far beyond the trial horizon, relevant for decisions to be taken after trial completion.

TUPEC294

The impact of more frequent HIV testing on HIV transmission among men who have sex with men

M. Reitsema[1,2], M. Visser[1], B. van Benthem[1], J. Heijne[1], M. Xiridou[1]
[1]National Institute of Public Health & Environment, Centre for Infectious Diseases Control, Bilthoven, Netherlands, [2]Leiden University Medical Center, Department of Medical Statistics and Bioninformatics, Leiden, Netherlands

Background: One of the goals of UNAIDS is to increase the diagnosed fraction among HIV-infected individuals to 90% by 2020. To achieve this, efforts are made to promote HIV testing. In this study, we assess the impact of increased HIV testing among men who have sex with men (MSM) in the Netherlands.
Methods: We developed an individual-based model that describes transmission of HIV and N. gonorrhoeae (gonorrhoea) among MSM. The model was fitted to annual HIV diagnoses during 2007-2014. Based on data from STI Clinics, we assumed that, until 2017, 20% of MSM test consistently for HIV every six months. We increased this percentage in 2018 to:
(a) 30%;
(b) 50%;
(c) 50% among MSM with at least 10 partners in the preceding 6 months;
(d) 50% among MSM diagnosed with gonorrhoea in the preceding 12 months.
We calculated the incidence of HIV for each scenario in the subsequent ten years.
Results: With the current 20% six-monthly testing, the incidence of HIV infection is estimated to be 0.300 (interquartile range, 0.186-0.432) infections per 100 person-years in 2027. With 30% or 50% six-monthly testing, HIV incidence in 2027 was reduced by 13% or 37%, respectively. Increasing testing to 50% among MSM with at least 10 partners reduced HIV incidence in 2027 by 23%, while increasing testing to 50% among MSM with diagnosed gonorrhoea resulted in 12% reduction in HIV incidence.
Compared to the current testing rates, the number of extra HIV tests that would have to be carried out to prevent one new HIV infection is 501 with 30% six-monthly testing; 621 with 50% six-monthly testing; 171 with 50% six-monthly testing among MSM with at least 10 partners; and 24 with 50% six-monthly testing among MSM with gonorrhoea diagnosis.
Conclusions: Even small increases in consistent HIV testing can prevent a considerable number of new HIV infections. Increasing HIV testing among high-risk MSM may be less effective than increasing testing among all MSM, but it is more efficient in terms of tests needed to avert an infection.

TUPEC295

Estimating the potential impact of PrEP uptake scenarios on the HIV epidemic in the United States

J. Chou[1], M. Skornicki[1], E. Bendavid[2], O. Diaz[1]
[1]Precision Health Economics, Los Angeles, United States, [2]Stanford University, Palo Alto, United States

Background: The use of tenofovir disproxil fumarate and emtricitabine as pre-exposure prophylaxis (PrEP) for the human immunodeficiency virus (HIV) has been available since 2012, but uptake has been low, even among higher risk populations, such as men who have sex with men (MSM). We simulate the impact of increased PrEP uptake on the HIV epidemic among MSM in the United States.
Methods: We used the HIV Transmission and Progression (HIV TaP) model, a mathematical transmission and progression model, to simulate PrEP usage impact on HIV incidence and progression among Black, White, and Hispanic MSM in the United States.
We modeled three scenarios: "Baseline" in which no patients received PrEP to isolate the impact of PrEP; "Moderate Uptake", with 25%, 300%, and 300% growth; and "High Uptake" with 50%, 600%, and 600% growth in uptake rate by 2025, for White, Black, and Hispanic, respectively. Growth functions were fit using published claims analysis of PrEP usage, 2025 goals, and assuming a plateau by 2025. Anti-retroviral treatment rates were constant across scenarios.
Results: Relative to Baseline, Moderate Uptake resulted in 150,000 avoided infections for White MSM by year 20; Black, 79,000; Hispanic, 77,000; totaling 310,000 avoided infections at an incremental cost of $9,500 per avoided infection. High Uptake resulted in 200,000 avoided infections among White MSM by year 20; Black, 111,000; Hispanic, 100,000; totaling 410,000 avoided infections at an incremental cost of $13,000 per avoided infection. The impact of these avoided infections translated to the following gains in quality-adjusted life years (QALYs) in the Moderate Uptake scenario: White MSM, 120,000; Black, 51,000; Hispanic, 50,000; totaling 220,000 by year 20 at an incremental cost of $13,000 per QALY gained. High Uptake resulted in the following QALY gains by year 20: White MSM, 150,000; Black, 65,000; and Hispanic, 66,000; totaling 280,000 at an incremental cost of $19,000 per QALY gained.
Conclusions: Increasing uptake of PrEP has the potential to help slow the spread of HIV, preventing a significant number of infections over 20 years. These avoided infections and corresponding QALY gains can be achieved at relatively low incremental costs across the total MSM population.

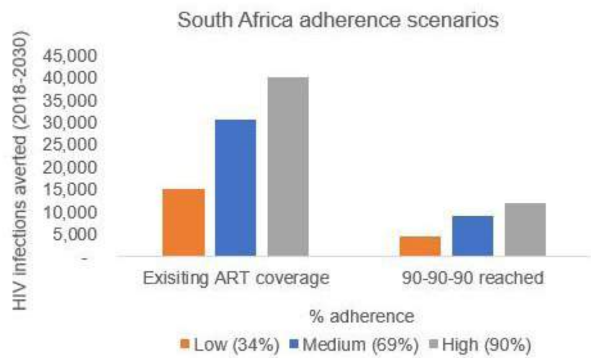
TUPEC296

Modeling the potential impact of the dapivirine ring for HIV prevention

K. Kripke[1], M. Reidy[1], E. Gardiner[2], on behalf of the OPTIONS Consortium
[1]Avenir Health, Washington DC, United States, [2]AVAC: Global Advocacy for HIV Prevention, New York, United States

Background: As the dapivirine intra-vaginal ring, developed by the International Partnership for Microbicides (IPM), moves forward through regulatory review and open-label extension studies, the potential impact and cost-effectiveness of this new longer-acting prevention product is unclear. This study uses mathematical modeling to explore dapivirine ring impact under different scenarios of use. With no comparable products on the market, target coverage levels are informed by proxies, such as contraceptive use.
Methods: This analysis used the Goals module from the Spectrum suite of models to create different scenarios for ART scale-up (including holding constant at 2016 levels and reaching the 90-90-90 targets), oral PrEP, and dapivirine ring coverage for 13 countries (Kenya, Botswana, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe). Within these scenarios, adherence to the dapivirine ring was varied to represent the range of results observed in clinical trials.
Results: The potential impact of the ring varies substantially depending on scale-up of ART and the level of adherence to the ring. In a scenario with all 13 countries achieving the 90-90-90 targets, 52% ring effectiveness (from 75% efficacy and 69% adherence), and a modest peak coverage equivalent to ¼ of each country's modern contraceptive prevalence in the populations of medium-risk women (multiple partners) and female sex workers, we estimate over 39,000 new HIV infections could be averted by 2030. However, if the 90-90-90 targets are not reached and higher levels of ring adherence are achieved with open label use (as seen with oral PrEP), the potential impact of the ring is much greater (see Fig.1 for an example showing South Africa). To illustrate that extreme, if ART coverage is held constant at 2016 levels and 90% ring adherence is achieved, as many as 170,000 HIV infections could be averted.
Conclusions: The dapivirine ring, as a product able to be used discreetly by women, could be a beneficial addition to the HIV prevention toolkit; however, our modeling suggests that its potential impact is highly vari-

able. More understanding of the effectiveness and potential uptake of the intervention would improve our ability to estimate its potential impact.



[Figure 1. New HIV infections averted by dapivirine ring 2018-2030 in South Africa under different scenarios of ART coverage and adherence]

TUPEC297

Modeling projected HIV incidence in the SEARCH study of treatment as prevention in East Africa

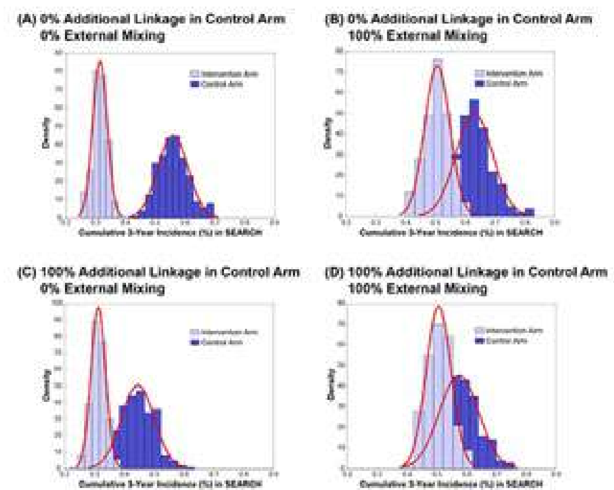
B. Jewell[1,2], L.B. Balzer[3], T.D. Clark[4], E.D. Charlebois[4], S.R. Maddali[4], A. Akullian[2], M.R. Kamya[5], D.V. Havlir[4], M.L. Petersen[1], A. Bershteyn[2]
[1]University of California, Berkeley, Berkeley, United States, [2]Institute for Disease Modeling, Seattle, United States, [3]Harvard University, School of Public Health, Boston, United States, [4]University of California, San Francisco, San Francisco, United States, [5]Makere University, College of Health Sciences, Kampala, Uganda

Background: While mathematical models have predicted that antiretroviral therapy (ART) scale-up via universal test-and-treat (UTT) will reduce population-level HIV transmission, this has not been demonstrated in a randomized trial. SEARCH is a cluster-randomized trial of the UTT strategy for HIV prevention (NCT01864603) taking place in 32 rural communities in Uganda and Kenya. We used a mathematical model calibrated to baseline data in all 32 communities and ART scale-up in 16 intervention communities to predict the cumulative three-year HIV incidence rate ratio (IRR) that might be observed in the study.

Methods: Using data on baseline HIV prevalence, viral suppression, male circumcision, and household demographics (N=146,874 adults ≥15 years), we fit an existing microsimulation network model of HIV transmission, EMOD-HIV v2.5, to the SEARCH population. The 32 SEARCH communities were clustered into six nodes reflecting the trial arm and HIV epidemic pattern. We incorporated data on viral suppression in SEARCH intervention communities in follow-up years one and two as proxies of ART coverage, and used the model to estimate uncertainty about the predicted outcome with respect to two key unknowns: ART scale-up in control communities and sexual mixing with individuals outside intervention communities. Investigators performing the modeling were blinded to interim seroconversion data to preserve the integrity of the prediction.

Results: We estimated that the upper boundary of the IRR in SEARCH, assuming standard ART scale-up in the control arm and no external mixing, was a mean of 0.57 (95% confidence interval 0.47-0.68), a 43% reduction from the control to the intervention arms of the trial. However, if SEARCH intervention communities participate in sexual mixing with a similarly sized population outside of the study or baseline testing increased ART linkage for all eligible individuals in the control arm, the mean estimated IRR was 0.81 and 0.70, respectively. With both maximum external mixing and increased ART linkage in the control arm, the estimated IRR was 0.88.

Conclusions: Based on modeling results, we would expect to see a maximum 43% reduction in HIV incidence in SEARCH, although this observed incidence reduction could be mitigated by increased ART linkage in the control arm or substantial mixing with non-SEARCH individuals.



[Modeled cumulative-3 year incidence in SEARCH control and intervention communities under different assumptions of ART scale-up and external mixing]

TUPEC298

Antiretroviral treatment, prevention of transmission and modeling the HIV epidemic: Why the calculated ART effectiveness parameter matters

R. Granich[1], S. Gupta[2], M. Wollmers[3], M. Ruffner[3], B. Williams[4]
[1]Independent Consultant, Potomac, United States, [2]Independent Public Health Consultant, Delhi, India, [3]PEPFAR, Washington, United States, [4]SACEMA, Stellenbosch, South Africa

Background: Human immune deficiency virus (HIV) remains a major public health threat with two million infections, 1 million HIV-associated tuberculosis (TB) cases a year and one million deaths each year. Population-based studies suggest a marked decline in incidence, prevalence and deaths, mostly likely due to treatment expansion, in countries in East and Southern Africa. This calls into question the antiretroviral treatment (ART) related parameters used to project HIV incidence and prevalence.

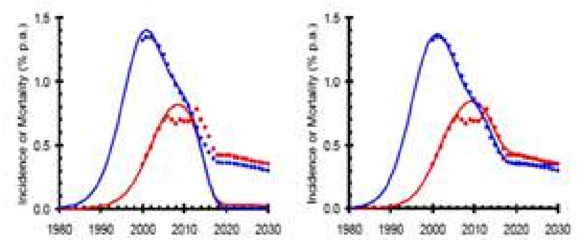
Methods: We reviewed 2015-2016 global and national mathematical modeling studies regarding ART impact on new HIV infections. We extracted ART and HIV transmission parameters (e.g., proportion diagnosed, on ART, on ART and virally suppressed, on ART and not virally suppressed, reduction in HIV transmission for those on ART and virally suppressed, reduction in transmission for those on ART and not suppressed, and retention). Models assumed varying program implementation rates and we calibrated the derived ART effectiveness to 2020 (see Table 1). Using the extracted parameters, we calculated a model-specific ART Effectiveness percentage for the impact of ART on transmission by 2020. We then compared the two models with the lowest and highest ART effectiveness.

Results: For the 9 models ART effectiveness percentage reduction in HIV transmission by 2020 ranged from 20% to 86%; there were significant disparities between the highest (SACEMA) and lowest (GOALS) models (Figure 1). The GOALS Mozambique model limits ART initiation to 80% of people living with HIV with a CD4+ cell count below 350 cells/mL, assumes 70% retention, and a reduction in HIV transmission of 80% yielding a derived ART effectiveness of 20%. The SACEMA model assumes 90-90-90 by 2020 (i.e., 73% viral suppression of estimated PLHIV), ART reduces transmission by 96% in those virally suppressed, and by 88% in those on ART but not virally suppressed with a derived effectiveness of 86% and consequent decline towards ending AIDS and HIV elimination. ART parameter selection and assumptions dominate and low ART effectiveness translates into lower impact.

Conclusions: Using less pessimistic parameters for ART effectiveness suggests that expanding access to sustainable viral suppression could significantly reduce transmission and eliminate HIV in many settings.

Study	Setting	Parameters	ART effectiveness
Williams (SACEMA model), Current HIV AIDS Research 2015 Epidemiological Trends for HIV in Southern Africa: Implications for Reaching the Elimination Targets	Southern Africa	• Proportion on ART virally suppressed: 90% • Reduction in transmission on ART * virally suppressed 96% * not virally suppressed 88% • Full coverage (2020): People at risk tested on average twice a year and started on treatment immediately	Effectiveness: 86% Calculations (for 2020): On ART: 90% Not on ART: 10% Of those on ART percentage virally suppressed: 90% Of those on ART percentage not virally suppressed: 10% On ART and virally suppressed transmission reduced: 96% On ART and not virally suppressed transmission reduced: 88% Effectiveness: 1-(Proportion on ART(Proportion on ART virally suppressed*Proportion transmission+Proportion on ART not virally suppressed*Proportion of transmission on ART not virally suppressed)+Not on ART)= Equation: 1-(0.9*(0.9*0.04+0.1*0.12)+0.1) =0.86
Smith (Imperial Modeling Group), Lancet HIV 2016 Maximizing HIV prevention by balancing the opportunities of today with the promises of tomorrow: a modeling study	South Africa	• Efficacy (protection afforded by perfect use of a product) of early ART: 85% • Effective coverage (proportion of people who fully adhere to a product such that they benefit from its protection): Constant: 0%; medium: 40%; maximum: 60%	Effectiveness: 51% Calculations (for 2020): On ART: 60% Not on ART: 40% On ART transmission reduced: 85% Explanation 1-(On ART and suppressed*transmission on ART and suppressed+proportion not on ART)= Effectiveness: 1-(0.6*0.15+0.4) = 0.51
McGillen (Imperial model), Lancet HIV 2016 Optimum resource allocation to reduce HIV incidence across sub-Saharan Africa: a mathematical modelling study	18 countries from sub-Saharan Africa (80% of adult HIV burden in the region)	• Effectiveness of early ART as prevention (reduction in risk of onward transmission): 70% Note: Early ART refers to a prevention method comprising outreach testing programmes and the offer of treatment to all PLHIV. • Achievable coverage: 33% among heterosexual men and low-risk women and 66% among MSM and FSW (this is the coverage of early ART for PLHIV who have not already presented for care i.e. their CD4 is above 200 initially and above 350 later when ART eligibility shifted) • Proportion of people living with HIV who are virally suppressed: 63%	Effectiveness: 44% Explanation: 1-(proportion on ART*transmission on ART and suppressed+proportion not on ART)= Calculations (for 2020): On ART: NA Not on ART: NA On ART virally suppressed: 63% On ART not virally suppressed: NA On ART transmission reduced: 70% Effectiveness: 1-(0.63x0.3+0.37) = 0.44
Stover (GOALS model), PLoS ONE 2016 What Is Required to End the AIDS Epidemic as a Public Health Threat by 2030? The Cost and Impact of the Fast-Track Approach	45 countries (86% of new infections globally)	• 95% reduction in infectiousness among those virally suppressed • Adult ART 2020 coverage: 81% (90% started, 90% retained); 90% of them are retained and 90% are virally suppressed • Adult ART 2030 coverage: 90% (95% started, 95% retained); 95% of them are virally suppressed • Eligibility for treatment expands to all PLHIV by 2018	Effectiveness: 62% Explanation: Calculation (for 2020): On ART: 81% Not on ART: 19% Of those on ART percentage virally suppressed: 81% Of those on ART percentage not virally suppressed: 19% On ART and virally suppressed transmission reduced: 95% On ART not virally suppressed transmission reduced: NA Explanation: 1-(proportion on ART*(proportion on ART and suppressed*transmission on ART and suppressed*proportion on ART and NOT suppressed)+proportion not on ART)= Effectiveness: 1-(0.81*(0.81*0.05+0.19)+0.19)=0.62
Kripke (DMPPT 2.1 model), PLoS ONE 2016 Impact and Cost of Scaling Up Voluntary Medical Male Circumcision for HIV Prevention in the Context of the New 90-90-90 HIV Treatment Targets	Lesotho, Malawi, South Africa, Uganda	• "ART effect " parameter (ratio of infectiousness with ART to without ART) was used to model the level of viral suppression: base value was 0.25 (till 2015) and reduced to 0.1 (by 2020) and 0.05 (by 2030) under 90-90-90 scenario • Adult ART 2020 coverage: 81% • Eligibility for treatment expands to all PLHIV by 2017	Effectiveness: 73% Calculations (for 2020): On ART: 81% Not on ART: 19% On ART transmission reduced: 90% Explanation: 1-(proportion on ART and suppressed*transmission on ART and suppressed+proportion not on ART) Effectiveness: 1-(0.81x0.1+0.19) = 0.73
Korenromp (GOALS model), PLoS ONE 2015 Impact and Cost of the HIV/ AIDS National Strategic Plan for Mozambique, 2015-2019—Projections with the Spectrum/ Goals Model	Mozambique	• ART reduces infectivity of PLHIV by 80%, as an average effectiveness between recent studies including a 96% reduced infectivity found in a clinical trial across multiple-mainly developed, western-countries with very high adherence [Cohen NEJM 2011; Attia AIDS 2009], a 38% reduction in a high-coverage ART program in rural South Africa [Tanser Science 2013];85% suppression observed in Swaziland [SHIMS 2010-12; Justman CROI 2013] • Scenario ‚current targets': ART is scaled-up from 56% to 76% of adults with CD4 <350 in North region, from 65% to 81% in Center, and from 57% to 85% in South; additionally eligibility includes TB/HIV-co-infected adults and pregnant women (from 2012 and 2014, respectively), in all scenarios irrespective of CD4 count. • Scenario ‚Accelerated scale-up': ART is further scaled-up to 85% of eligible PLHIV with CD4 <350 and all FSW irrespective of CD4 count • Retention on ART, at 3 years after enrolment: 52% in current targets scenario and 70% in Accelerated scale-up scenario	Effectiveness: 20% Calculations (for 2020): On ART: 35% (imputed) [85% of those <350 CD4 cell count (i.e. 25% of PLHIV), ART for all pregnant women, female sex workers, TB/ HIV] Not on ART: 65% Retention on ART: 70% On ART transmission reduced: 80% Explanation: 1-(proportion of those <350*proportion <350 on ART and suppressed*proportion reduction in transmission)+(1- proportion of those <350*proportion <350 on ART and suppressed)* proportion reduction transmission not on ART Effectiveness: 1-((0.35*0.7*0.2)+(1-0.35*0.7)*1)= 0.20
Walensky (CEPAC model), Ann Intern Med 2016 The Anticipated Clinical and Economic Impact of 90-90-90 in South Africa	South Africa	• UNAIDS Target strategy: 73% suppression in 5 years from 24% current • HIV transmission rates by disease stage and viral load: 0.16-9.03/100 person years • Mean ART efficacy, % virologic suppression at 48 weeks: 72%	Effectiveness: 41% Calculations (for 2020): On ART: 81% Not on ART: 19% Of those on ART percentage virally suppressed: 90% Of those on ART percentage not virally suppressed: 10% On ART and virally suppressed transmission reduced: 72% On ART not virally suppressed transmission reduced: NA Explanation 1-(proportion on ART(proportion on ART and suppressed*proportion reduction in HIV transmission+proportion on ART not suppressed)+proportion not on ART)= Effectiveness: 1-(0.90* (0.90*.28+ 0.1*1)+0.1)= 0.41 (41%)
Olney (Imperial Modeling Group), Lancet HIV 2016 Evaluating strategies to improve HIV care outcomes in Kenya: a modelling study	Kenya	• Infectiousness of HIV-positive, on ART and virally suppressed: 0.1 (estimate) • Proportion of individuals initiating ART who adhere to ART and achieve viral suppression: 86%	Effectiveness: 63% Calculations (for 2020): On ART: 81% (assumption based on UNAIDS 90-90-90 target) Not on ART: 19% Of those on ART percentage virally suppressed: 86% Of those on ART percentage not virally suppressed: 14% On ART and virally suppressed transmission reduced: 90% On ART not virally suppressed transmission reduced: NA Explanation 1-(proportion of people on ART in 2020(Proportion on ART and suppressed*transmission on ART and suppressed+proportion on ART not suppressed)+proportion not on ART) Calculation: 1 - (.75*(0.86 * 0.1 + .14) + 0.25) = 58%
Hontelez (STDSIM model), AIDS 2016 Changing HIV treatment eligibility under health system constraints in sub-Saharan Africa: investment needs, population health gains, and cost-effectiveness	10 sub-Saharan African countries (80% regional burden)	• ART reduces infectiousness of HIV by 90% • Under 90-90-90 scenario, 81% ART coverage and 73% viral suppression among people living with HIV achieved	Effectiveness: 73% Calculations (for 2020): On ART: 81% Not on ART: 19% On ART transmission reduced: 90% Explanation: 1-(proportion on ART and suppressed*proportion reduction on HIV transmission+proportion on ART not suppressed) Effectiveness: 1-(0.81*0.1+0.19)= 0.73

[Derived ART Effectiveness (9 Models)]



Legend:
Dots: GOALS model[1]; Lines: SACEMA model.[2]
Left: GOALS projections compared to SACEMA projections.
Right: Adjustment of SACEMA model to assume 65% of those infected with HIV are on ART and ART reduces transmission by 65% the SACEMA model gives results that are very close to the GOALS model.

[Figure 1: Annual HIV incidence (blue) and mortality (red) for Mozambique]

TUPEC299

Modeling structural changes allowing scale-up of harm reduction and antiretroviral therapy for people who inject drugs on the HIV epidemic in Russia

J. Cepeda[1], P. Vickerman[2], C. Beyrer[3], N. Martin[1]
[1]University of California, Medicine, San Diego, United States, [2]University of Bristol, Brisol, United Kingdom, [3]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States

Background: Russia has one of the fastest growing epidemics in the world, fueled primarily by injection drug use. Several regions within the Ural and Siberian Federal Districts have the highest rates of new HIV diagnoses, the majority among people who inject drugs (PWID). Essential harm reduction and HIV services are lacking or prohibited by law: opioid-agonist medically assisted therapy (MAT) is illegal, syringe exchange program (SEP) coverage is minimal, and antiretroviral therapy (ART) for PWID is prohibited. We modeled the impact of structural changes permitting scale-up of harm reduction and ART on the HIV epidemic among PWID in two settings in the Russian Ural and Siberian districts.

Methods: We developed a dynamic deterministic model of HIV injecting and sexual transmission among PWID, calibrated to two Russian settings: Omsk, an expanding epidemic (8% of PWID infected in 2009, 17% in 2011) and Ekaterinburg, a stable but high prevalence epidemic (60% PWID infected). The model was stratified by HIV stage, ART, injecting risk (high/low), and harm reduction status (off/on). No ART or harm reduction was assumed at baseline. We modeled scaled-up harm reduction (combination SEP+MAT, reducing injecting risk by 70%) to 20%, 40%, or 60% coverage among PWID, integrated with ART within harm reduction (recruitment 30%/year) from 2018. We calculated the percentage of HIV cases and HIV-deaths averted by comparing each scenario to the base-case (no intervention) from 2018-2028.

Results: Over a decade, scaling-up harm reduction to 20%, 40%, and 60% coverage integrated with ART in Omsk could avert 35% (2.5-97.5 percentile interval: 22%-36%), 47% (32%-59%), and 60% (43%-73%) of HIV cases, respectively. In Ekaterinburg, scaling up to 20%, 40%, and 60% coverage levels could avert 19% (9%-35%), 28% (15%-45%), and 40% (22%-57%) of HIV cases, respectively. Over half of HIV-related deaths could be averted in the next decade in both settings with 60% harm reduction coverage integrated with ART.

Conclusions: Harm reduction services integrated with ART could have a substantial impact on HIV transmission and mortality among PWID in Russia. Removing legal barriers prohibiting MAT and ART for PWID, alongside scale-up of SEP, is urgently needed in Russia.

TUPEC300

Modeling the impact and cost-effectiveness of oral pre-exposure prophylaxis (PrEP) in Mozambique

J. Dent Hulse[1], K. Kripke[2], T. Hawry[3], N. Gaspar[3], A. Cuoto[4], N. Chicuecue[4], J. Seleme[4], D. Castor[5], C. Pretorius[2]
[1]Health Policy Plus Project (HP+) - Palladium, Washington, United States, [2]Health Policy Plus Project (HP+) - Avenir Health, Washington, United States, [3]USAID, Maputo, Mozambique, [4]Ministry of Health, Maputo, Mozambique, [5]USAID, Washington, United States

Background: Mozambique is a high-burden HIV country with a generalized epidemic. To assist the national HIV program in integrating oral PrEP into the country's existing HIV prevention strategy, the USAID-funded Health Policy Plus (HP+) project developed a new mathematical modeling approach to estimate the impact and cost-effectiveness of different oral PrEP scale-up scenarios.
Methods: Three roll-out scenarios were developed to model the cost and impact of providing oral PrEP to female sex workers, serodiscordant couples, and medium-risk young women ages 18-24. HP+ used the Incidence Patterns Model and the Goals model to estimate HIV incidence by risk group and province and oral PrEP impact in the context of the national HIV prevention program through 2030. We developed an Excel-based tool to link the two models, set scale-up targets, and summarize the cost and impact results. In the modeled scenarios, oral PrEP coverage increased following a logistic growth curve that reached 50% of the target population by 2030.
Results: We estimated that targeting female sex workers, serodiscordant couples, and medium-risk young women will avert the most HIV infections without sacrificing much cost-effectiveness, compared to more narrowly targeted strategies. These estimates were sensitive to changes in oral PrEP adherence; strategies with lower adherence averted fewer infections and were less cost-effective. In terms of individual risk groups, the projected cost per HIV infection averted was lowest (i.e. most cost-effective) for serodiscordant couples and female sex workers at US$22,400 and US$27,700, respectively, and highest (i.e. least cost-effective) for medium-risk young women, at US$33,000. Providing oral PrEP to medium-risk young women was projected to have the greatest impact, averting 13,000 HIV infections. If Mozambique achieves its Fast Track 2030 targets, oral PrEP could avert 13,200 HIV infections; if the targets for other HIV prevention and treatment interventions are not met, the impact of oral PrEP would be higher.
Conclusions: We developed a modeling approach that provides policymakers with impact and cost-effectiveness data to guide decision-making on PrEP. Our modeling results encouraged the Mozambique MOH to consider providing oral PrEP to female sex workers, serodiscordant couples, and medium-risk young women, a high-incidence population not previously prioritized for oral PrEP rollout.

Modelling the evolution of the HIV epidemic through behavioural and PrEP studies

TUPEC301

Effectiveness and cost-effectiveness of condomless sex-targeted PrEP in KwaZulu Natal, South Africa: Influence of HIV testing frequency and 1st line ART regimen

A. Phillips[1], V. Cambiano[2], R. Homan[3], T. Rehle[4], G. Meyer-Rath[5,6], L.F. Johnson[4], F. Tanser[7], S. Moyo[8], D. Castor[9], E.S. Russell[9], R.V. Barnabas[10], U. Parikh[11], J. Mellors[11], P. Revill[12]
[1]UCL, Institute for Global Health, London, United Kingdom, [2]UCL, London, United Kingdom, [3]FHI 360, Durham, United States, [4]University of Cape Town, Cape Town, South Africa, [5]Boston University, Boston, United States, [6]University of the Witwatersrand, Johannesburg, South Africa, [7]Africa Health Research Institute, Mtubatuba, South Africa, [8]Human Sciences Research Council, Pretoria, South Africa, [9]USAID, Washington, United States, [10]University of Washington, Seattle, United States, [11]University of Pittsburgh, Pittsburgh, United States, [12]University of York, York, United Kingdom

Background: Cost-effective strategies to start/continue PrEP in adolescent girls and young women (age 15-24; AGYW) and other populations in South Africa are not well defined. The role of drug resistance and appropriate frequency of HIV testing are also not clear.
Methods: An individual-based model was calibrated to KZN,South Africa. Variables indicating condomless sex with new and longer term partners, PrEP use, HIV testing, circumcision and, in people with HIV, variables reflecting HIV clinical status, ART use and drug resistance, were updated 3 monthly. We considered PrEP introduction in various demographic groups targeted according to condomless sex. Assumptions on PrEP are in the Table. We assume introduction of dolutegravir-based first line ART from 2018. Cost /year of PrEP: $206. Cost /year for clinical care for people on ART, including drug costs: $376. 3% discounting per year; 50 year time horizon for cost-effectiveness.

Assumptions around PrEP
PrEP only taken in 3 mth periods in which person has condomless sex
HIV testing performed at baseline and 3 monthly while taking PrEP. Lack of sensitivity of rapid tests to detect recent infection accounted for.
3% (10% in sensitivity analysis) rate of stopping PrEP /3 mths despite continued condomless sex
After stopping, PrEP can be restarted if again eligible (20%/3 months);
Adherence: 11% of people have average adherence <50%, 35% of people have between 50-80% adherence, 54% of people have >80% average adherence. Adherence varies within individuals over periods.
PrEP efficacy: 95%. Effectiveness = efficacy x adherence. Given the adherence, this means effectiveness as implemented is 70% per infected condomless partner per 3 month period.
PrEP 50% as effective against a virus containing both M184V & K65R mutations, fully effective otherwise
15% of people will not consider starting PrEP even if eligible
No increases in condomless sex in the population as a result of PrEP being introduced
People can receive PrEP while living with HIV because of PrEP use when already infected with HIV (due to < 100% test sensitivity (98% assumed) or because they are in primary infection) or because infection occurs despite PrEP (due to sub-optimal adherence or less than 100% PrEP efficacy or presence of M184V and K65R in source partner).
Risk of M184V / K65R by 3 months on PrEP while infected with HIV: 11%/4%

[Table. Assumptions around PrEP.]

Results: With PrEP eligibility/retention such that ~40% of AGYW having condomless sex take PrEP, a >25% reduction in mean HIV incidence 2018-2038 is predicted. If PrEP is targeted at people having new condomless sex partners (or those with a longer term HIV diagnosed partner not on ART) then it is cost-effective, with most DALYs averted when all men/women age 15-64 having condomless sex are eligible. Lower PrEP retention (10% stopping/3 mths instead of 3%) is associated with lower impact (18% incidence reduction in AGYW vs 26% in base case) although PrEP remains cost effective. Less frequent HIV testing while on PrEP (6 or 12 monthly rather than 3) did not have an appreciable negative effect on

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impact. If the 1st-line regimen remains efavirenz-containing rather than dolutegravir-containing, increased acquisition and transmission of drug resistance is predicted to undermine ART, leading to an overall increase in AIDS death rate with PrEP introduction.

Conclusions: If retention can be kept high, PrEP targeted at people having risky condomless sex is likely to reduce HIV incidence and be cost-effective in KZN over a long time horizon. These beneficial effects of PrEP may not be realized if 1st-line ART continues to contain efavirenz rather than dolutegravir due to HIV drug resistance.

TUPEC302

PrEP for MSM can result in reductions in HIV transmission and can be cost-effective, even with a small decrease in condom use

M. Reitsema[1,2], A.J. van Hoek[1], J. Wallinga[1,2], B. van Benthem[1], A. van Sighem[3], M. Schim van der Loeff[4], M. Xiridou[1]
[1]National Institute of Public Health & Environment, Centre for Infectious Diseases Control, Bilthoven, Netherlands, [2]Leiden University Medical Center, Department of Medical Statistics and Bioninformatics, Leiden, Netherlands, [3]Stichting HIV Monitoring, Amsterdam, Netherlands, [4]Public Health Service Amsterdam, Amsterdam, Netherlands

Background: Pre-exposure prophylaxis (PrEP) has been shown to be highly effective in reducing HIV transmission among men who have sex with men (MSM). We investigated whether lower condom use (risk compensation; RC) in a nationwide PrEP programme targeted at high-risk MSM in the Netherlands would reduce the impact on HIV incidence and worsen the cost-effectiveness.

Methods: We developed an individual-based model for HIV transmission, which was fitted to annual HIV diagnoses in 2007-2014 in the Netherlands. MSM were eligible for PrEP if they had steady partners with unsuppressed viral load; or had condomless anal intercourse with casual partners in the preceding 6 months; or had gonorrhoea in the preceding 6 months. Eligibility was assessed when MSM got tested for HIV or other sexually transmitted infections. Among eligible MSM, 75% received PrEP for at least one year. We simulated three scenarios in the years 2018-2027: without PrEP; with PrEP and no RC; with PrEP and RC, where RC was modelled by increasing the probability of not using condoms by 75% for those on PrEP. Cost-effectiveness analysis was performed, with healthcare-payers perspective, discounting costs with 4% and health benefits with 1.5%. PrEP costs of €125 per 3 months were assumed.

Results: Due to RC of PrEP users, the number of PrEP-eligible MSM increases in time and the number of PrEP-users is 5,835 without RC and 6,290 with RC, in 2027. The incidence rate of HIV infection in 2027 among PrEP users is 7% higher with RC than without RC. However, since more MSM are on PrEP with RC than without RC, HIV incidence in 2027 with PrEP is reduced by 73% without RC and by 76% with RC, compared to not using PrEP. With or without RC, PrEP is cost-saving. Risk compensation can result in 118 additional QALYs gained and €13 million additional costs (compared to PrEP without RC), reducing the cost-effectiveness of PrEP.

Conclusions: PrEP can be effective in reducing HIV incidence among MSM and can be cost-effective. This holds even with reduced condom use, provided the PrEP programme can be expanded to the additional high-risk MSM who become eligible.

TUPEC303

Evaluating the cost-effectiveness and impact of oral pre-exposure prophylaxis for HIV prevention in Swaziland

S. Forsythe[1], K. Kripke[2], M. Schnure[3], S. Matse[4], N. Gambu[4], D. Castor[5], E. Njeuhmeli[6], C. Pretorius[7]
[1]Avenir Health, Center for Economics & Costing, Cuernavaca, Mexico, [2]Avenir Health, Modelling, Glastonbury, United States, [3]Palladium Group, Washington, United States, [4]Swaziland National AIDS Programme, Mbabane, Swaziland, [5]USAID, Washington, United States, [6]USAID, Mbabane, Swaziland, [7]Avenir Health, Glastonbury, United States

Background: Swaziland has one of the highest HIV prevalence levels in the world (34% among females 15-49 and 19% among males 15-49), along with an HIV incidence of approximately 2% among 15-49-year-old females. Swaziland introduced small-scale pilot programs of oral pre-exposure prophylaxis (PrEP) for HIV prevention in 2017, and the Ministry of Health and PEPFAR sought guidance from modelers at Project SOAR (funded by PEPFAR through USAID) to inform the focus and scale of the national oral PrEP program based on impact and cost-effectiveness.

Methods: We estimated the HIV incidence by risk group and province and considered the impact of oral PrEP through 2030 in the context of the national HIV prevention program using the Incidence Patterns Model (IPM) and an adaptation of the Goals model that incorporated additional risk groups using adjustment factors based on incidence ratios derived from IPM. We developed an Excel-based tool, the oral PrEP workbook, to link these models, set scale-up targets, and summarize the cost and impact results.

Results: We estimated that targeting serodiscordant couples (SDC) and female sex workers (FSW) would be the most cost-effective approach to delivering oral PrEP; although the impact of providing oral PrEP to these populations would be relatively small. While less cost-effective than providing oral PrEP to SDC and FSW, providing oral PrEP to adolescent girls and young women ages 15-29 years and adult males ages 20-34 years could potentially have the largest overall impact in terms of HIV infections averted. Variables that would particularly affect the cost-effectiveness of PrEP include the estimated cost of PrEP services, correct and consistent use of the medication once dispensed, and the scale-up of other interventions (including voluntary medical male circumcision and HIV treatment programs).

Conclusions: We developed a modeling approach that provides policy makers with impact and cost-effectiveness data to guide decision-making on oral PrEP. Our modeling results provided the MOH with data to support providing oral PrEP to general population women and men in the highest incidence age groups. Because of its highly generalized HIV epidemic, Swaziland is considering offering oral PrEP to adult males, a population not prioritized in other countries.

Modelling attempts to end HIV

TUPEC304

Mobile multi-disease screening at scale: Modelling the effects in Kenya, Nigeria, and India

P. Kasaie[1], B. Weir[2], D. Dowdy[2], K. Baker[3], L. Holmes[3], S. Labossiere[3], C. Beyrer[2]
[1]Johns Hopkins University, Health, Behavior and Society, Baltimore, United States, [2]The Johns Hopkins School of Public Health, Baltimore, United States, [3]The Johns Hopkins University, Baltimore, United States

Background: Mobile multi-disease screening is effective in increasing diagnosis and linkage to treatment for HIV and other health conditions, yet it has not been widely implemented. We model mobile multi-disease screening in countries with diverse HIV and NCD epidemics (Kenya, Nigeria, and India) to inform dissemination.

Methods: Using intervention and cost data from the SEARCH study and country specific epidemiologic data, we use the Spectrum package and extra-model analyses to estimate the costs and effects of multi-

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disease screening on HIV, hypertension, and diabetes from 2018 to 2028. We modeled scenarios with 100,000 and 500,000 individuals screened each year and assumed 81% uptake of ART among HIV diagnosed individuals, corresponding to a target level of 90% linkage and 90% engagement in HIV care.

Results: The number of persons initiating ART was highest in Kenya and lowest in India (Panel A), and HIV infections averted was highest in Kenya (7,626 to 37,913 infections averted) and lowest in India (246 to 1,200 infections averted) (Panel B).

The total number of disability-adjusted life years (DALYs) averted was highest in Nigeria (192,361 to 969,087) compared to Kenya (48,683 to 525,099) and India (14,750 to 45,260) (Panel C), and the cost per HIV-related DALY averted was $1,425 in India, $431 in Kenya, and $109 in Nigeria. Adding diabetes screening identified 48,033-240,165 new cases in India ($25 per case identified), 6,580-32,900 in Kenya ($181), and 8,993-44,964 in Nigeria ($132).

Conclusions: Mobile multi-disease screening appears particularly effective for HIV in Kenya and Nigeria, and particularly effective for diabetes in India. Due to low HIV prevalence in India, a more targeted approach focusing on key populations (e.g., men who have sex with men) or using other forms of sampling (e.g., response-driven sampling) can results in more effective outcomes.

The role of social and sexual networks in the spread of HIV

TUPEC305

Evaluating the role of friendship networks and other factors upon participation in couples-based HIV testing and counselling (CHTC) in KwaZulu-Natal, South Africa

M. Johnson[1], L.A. Darbes[2,3], K. Fritz[4], V. Hosegood[5,6], M.O. Johnson[2], T. Ngubane[7], H. van Rooyen[7], N. McGrath[6,8,9]

[1]University of Southampton, NIHR CLAHRC Wessex Data Science Hub, Southampton, United Kingdom, [2]University of California, Center for AIDS Prevention Studies, San Francisco, United States, [3]University of Michigan School of Nursing, Department for Health Behavior and Biological Sciences, Center for Sexuality and Health Disparities, Ann Arbor, United States, [4]International Center for Research on Women, Washington, D.C., United States, [5]University of Southampton, Department of Social Statistics and Demography, Faculty of Social, Human and Mathematical Sciences, Southampton, United Kingdom, [6]Africa Health Research Institute, KwaZulu-Natal, South Africa, [7]Human Sciences Research Council, Durban, South Africa, [8]University of Southampton, Academic Unit of Primary Care and Population Sciences and Department of Social Statistics and Demography, Southampton, United Kingdom, [9]University College London, Research Department of Epidemiology & Public Health, London, United Kingdom

Background: Participation in CHTC is low in SA. While friendship networks have the potential to facilitate the spread of health behaviours, they may influence couples positively or negatively depending upon couple relationship characteristics and the quality and frequency of interactions within networks. This may have implications for couples-based HIV prevention interventions.

Methods: We used data from a randomised controlled trial of a behavioural couples-based intervention designed to increase CHTC uptake in rural SA. Partners individually completed a survey capturing socio-demographic information and measures of relationship characteristics and quality. Self-reported strength of agreement with statements 'I have a supportive group of friends separate from my partner' and 'I have a close friend other than my partner'; were combined and taken together as indicating involvement in friendship networks (hereafter 'social connectedness'). As exploratory analysis indicated that social connectedness did not change significantly during follow-up (9 months), we created baseline average and difference scores for enrolled couples (n=327), and used logistic regression to test for associations with participation in CHTC.

Results: Overall, 27% (n=88) of couples participated during follow-up. Univariately, couples with higher average social connectedness scores were significantly less likely to participate (table). However, after adjustment for other factors, including female religious affiliation (p=0.036), study trial arm (aOR 7.13, p< 0.001) and cohabitation (aOR 2.94, p=0.004), average social connectedness was no longer statistically significant, although association estimates remained similar to univariable estimates. Univariately insignificant factors (including age, partnership length and relationship quality measures) were not considered in model building, although the potential for average social connectedness score to mask partner differences motivated inclusion of each couple's social connectedness difference score (p=0.587) as an adjustment variable.

Conclusions: Although partner cohabitation was more strongly associated with participation in CHTC, couple average social connectedness score may also have a role. No association was found for couple difference score. The suggestion that couples with higher average scores were less likely to participate may reflect greater exposure to stigmatising messages or normative behaviours and attitudes that may undermine HIV prevention activities. Future couples-based prevention interventions should consider the potential effect of social connectedness on participation and engagement.

Variable (composite couple report except where indicated)	N (% participating in CHTC)	Univariate Model OR (95% CI) N=327	Univariate Model Wald p-value	Multivariate Model Adjusted OR (95% CI) N=327	Multivariate Model Likelihood ratio test p-value
Couple average social connectedness score					
4 points or less	76 (34.2)	Reference	0.013	Reference	0.117
5-6 points	66 (37.9)	1.17 (0.58, 2.33)		1.42 (0.64, 3.17)	
7-10 points	88 (18.2)	0.43 (0.21, 0.88)		0.52 (0.22, 1.23)	
11 points or more	97 (21.7)	0.53 (0.27, 1.05)		0.84 (0.37, 1.90)	
Trial arm					
Control	160 (11.3)	Reference	< 0.001	Reference	< 0.001
Intervention	167 (41.9)	5.69 (3.19, 10.16)		7.13 (3.79, 13.39)	
Cohabiting					
No	251 (22.7)	Reference	0.003	Reference	0.004
Yes	76 (40.8)	2.34 (1.36, 4.04)		2.94 (1.49, 5.83)	
Religion (female reported)					
Christian	177 (23.7)	Reference	0.054	Reference	0.036
None	34 (47.1)	2.86 (1.34, 6.09)		3.18 (1.34, 7.58)	
Zionist	84 (27.4)	1.21 (0.67, 2.19)		0.98 (0.51, 1.90)	
Other	32 (21.9)	0.90 (0.36, 2.23)		0.69 (0.25, 1.90)	
Couple difference social connectedness score					
-7 points or more (female higher)	67 (26.9)	0.81 (0.40, 1.64)	0.587	0.73 (0.24, 2.15)	0.826
-6 to -2 points (female higher)	55 (27.3)	0.83 (0.40, 1.74)		0.87 (0.32, 2.36)	
-1 to +1 point	90 (31.1)	Reference		Reference	
+2 to +6 points (male higher)	57 (28.1)	0.86 (0.42, 1.79)		1.12 (0.39, 3.23)	
+7 points or more (male higher)	58 (19.0)	0.52 (0.23, 1.15)		0.65 (0.21, 2.02)	

[Univariate and multivariate logistic regression models for the association of social connectedness and other factors with participation in CHTC]

TUPEC306

Hotspots by random chance: Small community size and isolation can explain "patchiness" in HIV epidemics

A. Bershteyn[1,2], A. Akullian[1,2], D. Klein[1,3], B. Jewell[1,4], A. Vandormael[5,6], D. Cuadros[7], F. Tanser[5,8,9], P. Eckhoff[1,3]

[1]Institute for Disease Modeling, Bellevue, United States, [2]University of Washington, Department of Global Health, Seattle, United States, [3]Bill and Melinda Gates Foundation, Seattle, United States, [4]University of California and San Francisco, Department of Medicine, San Francisco, United States, [5]University of KwaZulu-Natal, School of Nursing and Public Health, Durban, United States, [6]University of KwaZulu-Natal, KwaZulu-Natal Research Innovation and Sequencing Platform (KRISP), Durban, South Africa, [7]University of Cincinnati, Department of Geography and Geographical Information Science, Cincinnati, United States, [8]Africa Health Research Institute (AHRI), Durban, South Africa, [9]Centre for the AIDS Programme of Research in South Africa (CAPRISA), Durban, South Africa

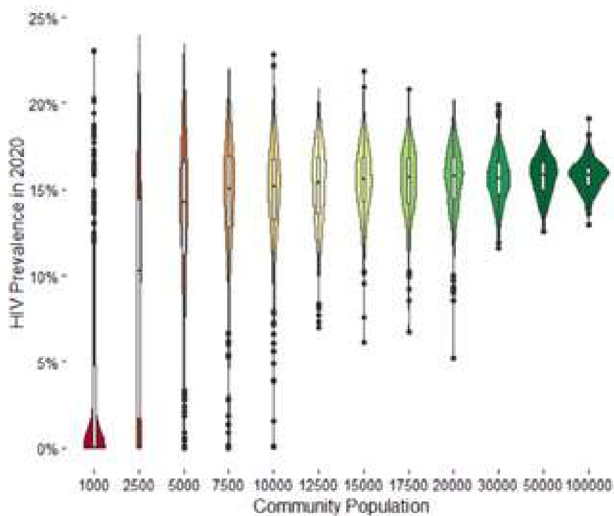
Background: It has long been observed that HIV epidemics are "patchy," exhibiting stable hotspots over spatial scales as small as a few kilometers. While there may be important unobserved covariates that drive HIV hotspots, we hypothesized that some hotspots may arise simply due to chance, because of the auto-correlated nature of HIV epidemic dynamics: areas that start out with more HIV cases by random chance often remain at higher prevalence over time.

Methods: A network model of HIV transmission in South Africa was used to examine the situations in which random chance could account for the "patchiness" of HIV under realistic assumptions about sexual mixing and relationship turn-over. Communities with identical demographic, biological, and behavioral characteristics were simulated, with variations only due to stochastic perturbations of the model.

Results: Epidemic "patchiness" emerges in communities of < 20,000 adults when fully isolated in terms of sexual mixing -- a typical size for a community in highly endemic rural areas. However, the community

size threshold for "patchiness" becomes smaller with increasing sexual mixing between surrounding communities. At the limit of full mixing between communities, without sexual preference for one's own community, hotspots cease to emerge by chance. Our findings also reveal one reason why HIV prevalence was especially "patchy" during the early epidemic, aside from differences in risk among populations. The rapid rate of growth in HIV prevalence accentuated random differences between communities at a fixed point in time, as the vertical distance between parallel lines grows with increasing slope. Simulating interventions such as test-and-treat, VMMC scale-up, and PrEP, we find that these interventions are more effective and cost-effective in hotspots, even when these hotspots came about due to random chance.

Conclusions: HIV hotspots may not always have underlying drivers, especially for smaller communities that are relatively isolated from sexual mixing with outside communities. Even if such communities are simply unlucky, they are nonetheless more effective places to target HIV interventions.



[Variability in HIV Prevalence in Small, Isolated Communities]

TUPEC307

Methods to study network subcomponents of uninfected people during an HIV outbreak among people who inject drugs (PWID): An example from Athens

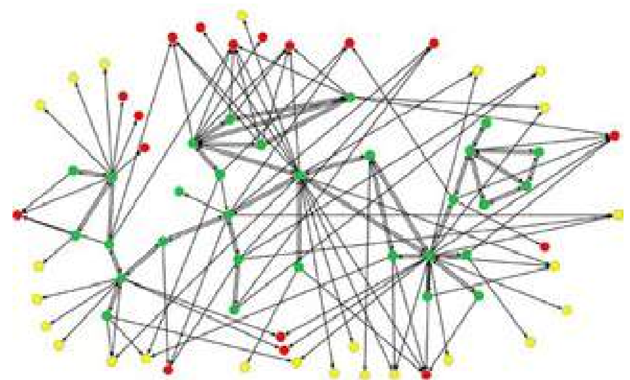
S.R. Friedman[1], L.D. Williams[2], E. Kostaki[3], E. Pavlitina[4], D. Paraskevis[3], A. Hatzakis[3], J. Schneider[5], P. Smyrnov[6], G. Nikolopoulos[7]
[1]National Development and Research Institutes, Institute for Infectious Diseases Research, Highland Park, United States, [2]National Development and Research Institutes, Institute for Infectious Diseases Research, New York, United States, [3]Medical School, National and Kapodistrian University of Athens, Department of Hygiene, Epidemiology and Medical Statistics, Athens, Greece, [4]National Development and Research Institutes, Athens TRIP Field Office, Athens, Greece, [5]University of Chicago Medical School, Department of Medicine and and Center for HIV Elimination, University of Chicago, Department of Zoology, Chicago, United States, [6]Alliance for Publich Health, Kyiv, Ukraine, [7]University of Cyprus, Medical School, Nicosia, Cyprus

Background: What explains the existence of large pockets of uninfected people connected sexually and/or via injection to larger networks containing many infected people? Explanations include "firewall effects" (Friedman et al 2001; Dombrowski et al 2017) wherein the only HIV+ people they take risks with have low viral loads; the "bottleneck effect" wherein few network paths into the pocket of non-infection exist; low risk behaviors; and impending outbreak. We test each of these.

Methods: TRIP used enhanced risk network tracing methods and referrals to recruit 45 recently-infected, 105 long-term infected and 128 uninfected participants. The largest connected component had 92 members. Within this component there was a subcomponent of 29 connected uninfected PWID. We explored potential explanations for the existence of this large subnetwork of uninfected by considering each possible explanation in turn. Data on risk behaviors in the last 6 months were collected at the individual level. Recent infection was determined by LAg (Sedia™ Biosciences Corporation), data on recent seronegative tests, and viral load. HIV-RNA was quantified using Artus HI Virus-1 RG RT-PCR (Qiagen).

Results: The Figure shows the 29 members (3 were women) of the connected subcomponent of uninfected participants and their risk ties to each other and to the 17 recently-infected and 24 long-term infected participants with whom they have direct risk-network connections. 21 (72%) of these uninfected were linked to recently-infected participants, and 16 (55%) to long-term infected participants. 19 of the 29 (66%) subcomponent members were "extremely high risk": they self-reported syringe sharing and had at least one link to someone who shares syringes and had a viral load > 100,000 copies/ml.

Conclusions: Neither "firewalls" nor "bottleneck" explanations at the network level, nor individual-level low risk behaviors, explains the existence of the large subcomponent of non-infection. Indeed, about two-thirds of subcomponent members were at extremely high risk. These data imply that the epidemic in Athens was not over, but could spread to such uninfected pockets if additional prevention efforts (such as expanded syringe or PrEP access) do not prevent this. The methods developed here provide practical tools to study "bottleneck" and "firewall" network hypotheses in practice.



[Figure. Subnetwork of 29 uninfected participants and the recently- and long-term infected to whom they are linked. Long term positives are marked in yellow. Recently infected are in red. Uninfected are green.]

TUPEC308

Inferring age-assortative mixing patterns by applying phylogenetic methods on the HIV transmission network of the Swiss HIV Cohort Study

K. Kusejko[1,2], C. Kadelka[1,2], A. Marzel[1,2], M. Battegay[3], E. Bernasconi[4], A. Calmy[5], M. Cavassini[6], M. Hoffmann[7], J. Böni[2], S. Yerly[5], T. Klimkait[3], M. Perreau[6], A. Rauch[8], H.F. Günthard[1,2], R.D. Kouyos[1,2], Swiss HIV Cohort Study
[1]University Hospital Zurich, Zurich, Switzerland, [2]University of Zurich, Zurich, Switzerland, [3]University Hospital Basel, Basel, Switzerland, [4]Regional Hospital Lugano, Lugano, Switzerland, [5]Geneva University Hospital, Geneva, Switzerland, [6]Lausanne University Hospital, Lausanne, Switzerland, [7]Cantonal Hospital St Gallen, St Gallen, Switzerland, [8]Bern University Hospital, Bern, Switzerland

Background: Age-mixing patterns are of key importance for understanding the dynamics of HIV-epidemics and target public health interventions. We use the densely sampled Swiss HIV Cohort Study (SHCS) resistance database to study age-assortative mixing using phylogenetic methods. In addition, we investigate whether the mean age difference of pairs in the phylogenetic tree is influenced by sampling as well as by additional distance thresholds for including pairs.

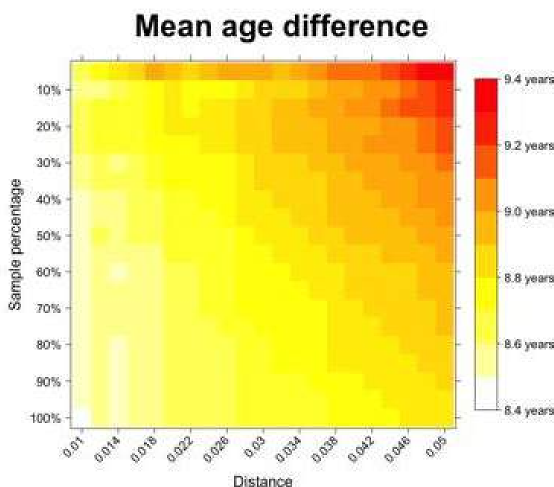
Methods: HIV-1 *pol*-sequences of 11,922 SHCS patients and approximately 240,000 Los Alamos background sequences were used to build a phylogenetic tree. Using this tree, 100% down to 1% of the tips were sampled repeatedly to generate sub trees (N = 500 for each sample proportion), of which pairs of SHCS patients were extracted. The mean of

the absolute age differences of the pairs was analyzed with respect to this sample proportion and a distance criterion for inclusion of the pairs. In addition, the transmission groups men-having-sex-with-men (MSM), intravenous drug users (IDU) and heterosexuals (HET) were analyzed separately.

Results: Considering the tree with all 11,922 SHCS patients, 2,991 pairs could be extracted, with 954 (31.9%) MSM-pairs, 635 (21.2%) HET-pairs, 414 (13.8%) IDU-pairs and 352 (11.8%) HET/IDU-pairs.

Age is significantly assortative for all risk groups considered (p < 0.001, compared to random pairs), meaning that patients of similar age are more likely to be pairs. The mean age difference in the phylogenetic analysis, using a fixed distance of 0.05, was 9.2, 9, 7.3 and 5.6 years for MSM-, HET-, HET/IDU- and IDU-pairs, respectively. Decreasing the cophenetic distance threshold from 0.05 to 0.01 significantly decreased the mean age difference (see Figure). Similarly, repeated sampling of 100% down to 1% of the tips revealed an increased age difference at lower sample proportions.

Conclusions: HIV-transmission is age-assortative, but the degree of assortative mixing detected by phylogenetic analyses depends on both sampling proportion and distance criterion. The mean age difference decreases when using more conservative distance thresholds, implying an underestimation of age-assortativity when using liberal distance criteria. Similarly, overestimation of the mean age difference occurs for pairs from sparsely sampled trees, as it is often the case in sub-Saharan Africa.



[Variation of the mean age difference of pairs extracted from the phylogenetic HIV transmission tree: by distance threshold and sample percentage.]

TUPEC309

"We still get down, but we not together": How Black U.S. heterosexual men's narratives about sexual partner type and condom use disrupt the *main* and *casual* partner dichotomy

I.A. Bowleg[1], J. Massie[1], S. Holt[1], J. Tschann[2]
[1]*George Washington University, Psychology, Washington, United States,*
[2]*University of California, Psychiatry, San Francisco, United States*

Background: HIV prevention researchers routinely use terms such as *main* and *casual* to categorize sexual partner type. Partner type has implications for condom use and HIV risk. This issue is especially pertinent in the U.S. where there is a generalized HIV/AIDS epidemic (i.e., >1%) in urban predominantly low-income Black heterosexual communities. Yet HIV prevention research from the perspective of Black heterosexual men (BHM) is virtually nonexistent. To address this gap, we examined BHM's narratives about main and casual partner types, partnership dynamics, and partner type-specific facilitators and barriers to condom use. We also explored whether condom use differed not just *across* main and casual partner types, but *within* casual heterosexual partner types.

Methods: We conducted individual interviews with 30 Black self-identified heterosexual men recruited from randomly selected venues in Philadelphia, PA. Participants ranged in age from 18 to 44 (M = 31.47, SD = 8.41); were predominantly low income (n = 17, 63% had incomes below the median income of $18,704); and 18 (60%) reported at least two partner types in the last 6 months. After multiple readings, we imported the professionally transcribed interviews into NVivo 10 qualitative analysis software. We analyzed the data using thematic analysis and used our findings to develop a Venn diagram of the reported partner types and partnership dynamics.

Results: Analyses highlighted 6 key themes:

(1) two salient partner types: main and casual; and three casual partner subtypes: primary, recurrent, and one-time;

(2) overlapping partnership dynamics between main partners and primary and recurrent-casuals, but not one-time casuals;

(3) reports of inconsistent condom use with primary-casuals and overlapping partnership dynamics with main partners such as history/familiarity, emotional intimacy, time spent together non-sexually, and knowledge/trust condom use discourses;

(4) consistent condom use with one-time casuals only;

(5) age group differences in reported partner type; and

(6) frequent reports of concurrent sexual partnerships with no reported condom use.

Conclusions: To reduce HIV risk, there is a dire public health need for more behavioral HIV prevention research to understand and inform interventions that effectively address the culturally and contextually-grounded realities of BHM's sexual partner types and partnership dynamics.

TUPEC310

Steady male sexual partner network correlates of forced sex among Black women at risk for HIV in Baltimore, MD, USA

K.K. Gundersen[1], J.K. Stockman[1], N.A. Al-Alusi[1], J.C. Campbell[2], A.N. Cimino[2], A.E. Rudolph[3]
[1]*University of California, San Diego, Medicine, La Jolla, United States,*
[2]*Johns Hopkins University, School of Nursing, Baltimore, United States,*
[3]*Boston University, School of Public Health, Boston, United States*

Background: Forced sex, defined as unwanted sex through physical force or threats, is a risk factor for HIV acquisition. Forced sex has been linked to women's reduced ability to use protection and higher risk behaviors among women and their male partners—some of whom are violent. Research has yet to examine how steady sexual partners' attributes may differ for women who have and have not experienced forced sex. We examined the associations between network characteristics of steady sexual partners and forced sex history since the age of 18.

Methods: Between 2015 and 2018, Black women aged 18-44 years were recruited from STD clinics in Baltimore, Maryland, USA into a retrospective cohort study on sexual assault and HIV risk. Eligible women (n=183) were classified as exposed (n=68) or unexposed (n=115), based on whether or not they experienced forced sex after age 18. Using an audio computer-assisted interview, women were asked to report demographic and relationship-level questions on up to 5 male steady sexual partners within the past year. The 183 eligible women reported a total of 363 recent steady male partners. Log-binomial regressions with generalized estimating equations were utilized to compare the network characteristics of recent steady male partners of exposed women (n=137) to those of unexposed women (n=226).

Results: Controlling for women's age, education, employment, and housing status, steady male partners of the women who experienced sexual violence were more likely to experience the following in the previous 6 months: a male sex partner (adjusted prevalence ratio [APR]=1.61; 95% CI: 1.00, 2.58), another female partner (APR=1.31; 95% CI: 1.12, 1.54), a sexually transmitted infection (APR=1.46; 95% CI: 1.11, 1.94), injected drugs (APR=2.58; 95% CI: 1.29, 5.14), or snorted, sniffed, or smoked illicit drugs (APR=3.03; 95% CI: 1.60, 5.74) compared to steady male partners of women who have not experienced sexual violence.

Conclusions: Study findings provide evidence that steady male partners of women with experiences of sexual violence engage in risky behaviors,

further compounding women's risk for HIV acquisition. Interventions that educate abused women about partner selection as it relates to HIV risk are urgently needed to reduce HIV risk among this marginalized group.

The role of syndemics

TUPEC311

Impact of personality disorders on leaving hospital against medical advice among people living with HIV in British Columbia, Canada

T. Beaulieu[1], T. Li[1], A. Wu[1], V. Lima[1,2], A. Krishnamoorthy[3], J. Montaner[1,2], R. Barrios[1,3], L. Ti[1,2], on behalf of the STOP HIV/AIDS Study Group
[1]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada, [2]University of British Columbia, Department of Medicine, Vancouver, Canada, [3]Vancouver Coastal Health, Vancouver, Canada

Background: Leaving hospital against medical advice (AMA) is a significant source of morbidity, mortality, and a major burden to the healthcare system. Studies have indicated that marginalized populations, including people living with HIV (PLHIV) and those living with a personality disorder (PD), experience high hospitalization rates. Specifically, borderline PD has been shown to be characterized by emotional dysregulation often resulting in high impulsivity, recurrent self-harm and suicidal tendencies. We sought to identify whether being diagnosed with a PD was associated with leaving hospital AMA among PLHIV in British Columbia (BC), Canada.

Methods: Data were derived from the STOP HIV/AIDS in BC cohort, a provincial-level linkage of a series of surveillance, laboratory, and health administrative databases of all identified PLHIV in BC. Using multivariable generalized estimating equations (GEE), we examined the relationship between diagnoses of PD and leaving hospital prematurely among PLHIV who experienced at least one hospitalization during the study period.

Results: Among 8763 PLHIV included in the study sample, 1321 (15.07%) were diagnosed with a PD. The prevalence of leaving hospital AMA was 8.80%. In multivariable analyses, after adjusting for a range of demographic and clinical confounders, there remained a positive association between being diagnosed with a PD and leaving hospital prematurely (adjusted odds ratio [AOR] = 1.52; 95% confidence interval [CI]: 1.20 - 1.91).

Conclusions: Results showed a significant and independent association between diagnoses of PD and leaving AMA among PLHIV. These findings underscore the importance of identifying specific PD related behaviours which are influencing the acceptance of treatment and addressing these barriers to HIV treatment including managing expectations, and supports to treat behavioural barriers by means of counselling/behavior support approach and medications to manage emotional crisis. Furthermore, these findings suggest a need to develop novel health system interventions to minimize AMA discharge among this population.

TUPEC312

Syndemic conditions of substance use, intimate partner violence (IPV) and incarceration and HIV risk among US-based young Black MSM (YBMSM): Implications for the global HIV epidemic among MSM

A. Maiorana[1], E.A. Arnold[1], S. Brown[2], R. Williams[1], S.M. Kegeles[1]
[1]University of California, Center for AIDS Prevention Studies, San Francisco, United States, [2]University of Texas Southwestern, Community, Prevention, and Intervention Unit, Dallas, United States

Background: Syndemic conditions are psychosocial and structural factors that interact and amplify each other to produce excess burden of disease in a particular population. Quantitative studies internationally have found evidence that syndemics increase HIV vulnerability among MSM. In the U.S. HIV, particularly in the South, disproportionally affects YBMSM, but little is known about how psychosocial and structural factors relate to their HIV risk. In this longitudinal qualitative study, we describe the lived experiences of YBMSM in Dallas, Texas, in relationship to substance use, IPV, and a history of incarceration as syndemic conditions that affect their vulnerability for acquiring or transmitting HIV.

Methods: Guided by grounded theory, we conducted four in-depth interviews every six months in 2015-2017 with a diverse cohort of 30 YBMSM, age 19-29. Qualitative analysts coded the data and identified emergent themes.

Results: Many participants had few marketable skills, were marginalized, and faced challenging circumstances and familiar and social contexts. Six participants were living with HIV at their first interview, and eight other, denoting sexual risk, self-reported seroconversion in subsequent interviews. Methamphetamines use contributed to participants' unstable living situation, job loss, destructive relationships, and HIV risk. Approximately a third of participants, unable to navigate conflict and interpersonal dynamics, reported a history of physical IPV, sometimes related to substance use, in their romantic relationships. About half of the men had a history of incarceration resulting from IPV, substance use, and/or other illegal activities. Many reported that having a criminal record curbed opportunities for employment, housing, and financial stability. Consequently, some engaged in survival means involving HIV risk (sex work, organizing sex parties). For some participants, their socio-economic status fluctuated and did confer protection against HIV risk.

Conclusions: Substance use, IPV, and incarceration as syndemic conditions create vulnerability points related to YBMSM's HIV risk. Using syndemic theory as a framework may elucidate the interaction of structural and individual-level factors that exacerbate HIV among YBMSM in the U.S. These dynamics may also apply to MSM globally, particularly in areas where they are marginalized and highly stigmatized, to inform the development of tailored HIV interventions.

TUPEC313

Effectiveness of an integrated, syndemically-oriented sexual risk reduction intervention among MSM in North India: Findings from a quasi-experimental trial

V. Chakrapani, M. Kaur, R. Kumar
Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India

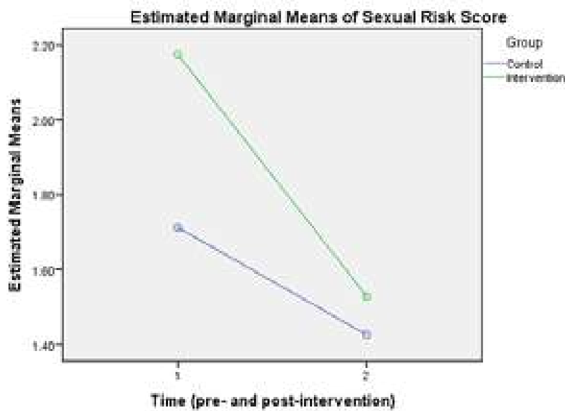
Background: In India, despite a decade of HIV prevention interventions that focus on to condom promotion and distribution, and high levels of HIV knowledge, consistent condom use among MSM remains sub-optimal (about 50%). Given the evidence for co-occurring and mutually reinforcing psychosocial conditions (i.e., syndemics) such as alcohol use, depression and violence victimization, we developed and tested a syndemically-oriented motivational interviewing-based intervention among MSM to promote safer sex, and compared with a standard-of-care control.

Methods: In 2016/17, we conducted a quasi-experimental study with non-equivalent comparison groups design: intervention group had 229 MSM and standard-of-control group had 230 MSM. MSM were recruited through non-governmental agencies in Chandigarh, North India. In the intervention group, MSM received a two-session peer-delivered syndemically-oriented intervention: risk reduction counselling along with screening, counselling and referrals for four syndemic conditions: alcohol use, depression, violence victimization and internalized homonegativity (self-stigma). Participants completed assessments before intervention and at 4th month. The primary outcome measure was sexual risk composite score (that included number of sexual partners, consistency of condom use with male partners and engagement in sex work). GLM repeated measures procedure (in SPSS-23) was used, with control and intervention conditions as between-subjects factor, and time (baseline/endline) as within-subjects factor. Covariates included were: sexual stigma and condom use self-efficacy scores from baseline.

Results: Participants' median age was 26 years (Interquartile range-7) and median monthly income was INR 8000 (IQR-12000). Fifty-one percent had up to secondary education, 68.2% were single, 38.6% engaged in sex work, and had diverse self-identities: kothis-38.6%, giriyas/panthis-17.9%, doubledeckers-16.3%, gay-8.1%, bisexual-12%, and straight/

heterosexual-5%. Of the 459 MSM, 89.9% completed pre- and post-intervention assessments. After adjusting for sexual stigma and condom use self-efficacy, ANCOVA results showed a significant decrease in sexual risk (26% reduction in absolute risk score) among those in the intervention group: F (1, 452)=19.80, p < .001, partial eta squared =.042).

Conclusions: This pilot quasi-experimental study among MSM has demonstrated the feasibility and potential effectiveness of a syndemically-oriented brief intervention to reduce sexual risk. Screening for and addressing syndemic conditions can be integrated into the existing condom knowledge/promotion-based HIV prevention intervention to substantially reduce sexual risk.



[Figure 1. Significant reduction in sexual risk among MSM in intervention group]

TUPEC314

Transactional sex and poverty as syndemic conditions for HIV risk among transgender women

J. Parsons[1], N. Antebi-Gruszka[2], B. Millar[2], D. Cain[2], S. Gurung[2], H.J. Rendina[1]
[1]Hunter College-CUNY, Psychology, New York, United States, [2]Center for HIV Educational Studies and Training, New York, United States

Background: Research has consistently shown a relationship between syndemic factors and HIV transmission risk behavior among men who have sex with men. Little research, however, has examined these syndemic factors among transgender women, nor to what degree different factors are relevant for this population.

Methods: A sample of 215 transgender women, ages 18-65 (M=34.3) were recruited. The majority (75.8%) were women of color. Participants completed measures of HIV transmission risk behavior, four previously established syndemic conditions (polydrug use, depression, childhood sexual abuse, intimate partner violence), and two conditions hypothesized to be relevant for transwomen (transactional sex and poverty).

Results: Only one of the six associations between the four established syndemics conditions (childhood sexual abuse and intimate partner violence) was significant. Transactional sex was positively associated with polydrug use (OR=6.59, 95% CI=1.51, 28.75), childhood sexual abuse (OR=2.80, 95% CI=1.49, 5.24), intimate partner violence (OR=2.14, 95% CI=1.18, 3.88), and poverty (OR=2.22, 95% CI=1.24, 3.97). Only transactional sex was positively associated with HIV transmission risk behavior (OR=2.24, 95% CI=1.16, 4.34). Multivariable logistic regression was used to show the odds of HIV transmission risk behavior explained by all six syndemic conditions. The adjusted odds ratio of the summed six syndemic conditions in the model was significant (AOR=1.33, 95% CI=1.05, 1.68, *p* =0.02).

Conclusions: We found evidence supporting the inclusion of transactional sex and poverty as socioeconomic syndemic conditions related to HIV transmission risk behavior among transgender women, suggesting that syndemic research with transgender women can not rely on the same models used with MSM. In bivariate analyses, transactional sex was significantly associated with three syndemic conditions, and poverty was associated with transactional sex. These findings suggest that transactional sex, and poverty to a lesser extent, co-occur and are co-experienced among transgender women. When we treated these conditions as syndemics, we found a strong positive association between transactional sex and HIV transmission risk behavior.Holistic interventions targeting the identified syndemic conditions in an effort to address the extremely high HIV prevalence among transgender women are especially warranted. This need is even greater in transgender women of color, who experience disproportionately higher rates of exposure to psychosocial conditions exacerbating HIV risk.

TUPEC315

Finding casual sex partners on the internet, and the twin epidemics of methamphetamine use and incident HIV infection in a cohort of MSM in Bangkok, Thailand

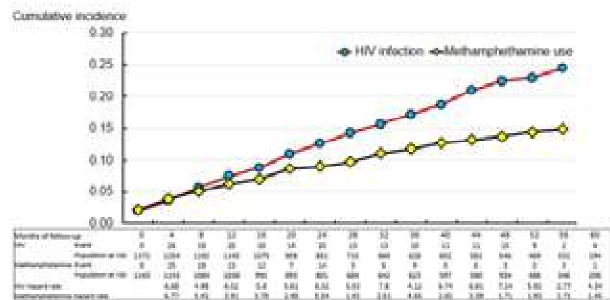
P. Piyaraj[1], P.A. Mock[2], W. Thienkrua[2], J. Tongtoyai[3], A. McNamara[2], W. Chonwattana[2], W. Wimonsate[2], A. Varangrat[2], T.H. Holtz[4], K.E. Nelson[5], F. van Griensven[6]
[1]Phramongkutklao College of Medicine, Bangkok, Thailand, [2]Thailand MoPH-US CDC Collaboration, Nonthaburi, Thailand, [3]Thailand MoPH-US CDC Collaboration, Bangkok, Thailand, [4]US Centers for Disease Control and Prevention, Atlanta, United States, [5]Johns Hopkins University, Baltimore, United States, [6]Thai Red Cross AIDS Research Center and UCSF Department of Epidemiology and Biostatistics, Bangkok, Thailand

Background: Finding casual sex partners on the internet and methamphetamine use have been described as risk factors for HIV infection in men who have sex with men (MSM). However, the interplay between these factors has not been studied prospectively in one design.

Methods: Cohort study of 1,744 Bangkok MSM with follow-up visits every four months from 2006 to 2014. Men were tested for HIV infection at every study visit, and for sexually transmitted infections at baseline. Demographics (at study entry) and HIV risk behavior information were collected by audio computer-assisted self-interview (every visit). Cox proportional hazard regression analysis was used to evaluate covariates for incident methamphetamine use and HIV infection.

Results: Incidence of methamphetamine use was 3·8, and of HIV infection, 6·0 per 100-person years of follow-up (figure). Dual risk factors for both incident methamphetamine use, and HIV infection were younger age and finding casual sex partners online. Ever having received money for sex was found predictive for incident methamphetamine use; living alone, recent anal sex, and ulcerative sexually transmitted infections at baseline were predictive for incident HIV infection.

Conclusions: Twin epidemics of methamphetamine use and HIV infection are occurring among MSM in Bangkok. Finding casual sex partners on the internet, methamphetamine use, and sexually transmitted infections play important roles in sustaining the HIV epidemic in this population. Virtual HIV prevention education, drug use harm reduction, and biomedical HIV prevention methods, such as pre-exposure prophylaxis, may help to reduce or revert the HIV epidemic among MSM in Bangkok.



[Kaplan Meier cumulative incidence of newly reported methamphetamine use and HIV seroconversion in a cohort of MSM in Bangkok, 2006-2014]

TUPEC316
Association of HIV infection with syndemics of psychosocial factors and condomless anal intercourse in MSM in Malaysia

R.X. Ng[1], M.A. Ab Halim[2], T. Guadamuz[3], A. Kamarulzaman[2,4], S.H. Lim[2,5]
[1]University of Malaya Medical Center, Department of Medicine, Division of Infectious Diseases Unit, Kuala Lumpur, Malaysia, [2]Centre of Excellence for Research in AIDS, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia, [3]Mahidol University, Department of Society and Health, Faculty of Social Sciences and Humanities, Bangkok, Thailand, [4]University of Malaya, Faculty of Medicine, Department of Medicine, Division of Infectious Diseases, Kuala Lumpur, Malaysia, [5]University of Malaya, Department of Social and Preventive Medicine, Kuala Lumpur, Malaysia

Background: Men who have sex with men (MSM) account for majority of newly diagnosed HIV infection in Malaysia. In Malaysia, sexual activities between men are forbidden by local civil and Shariah laws leading to cultural and social stigmatization and increase vulnerability to psychosocial factors, contributing to HIV infection in a syndemic way. This study aimed to assess the additive effects of multiple psychosocial factors (syndemics), condomless anal intercourse (CAI) and HIV infection among Malaysian MSM in order to inform the development of novel, comprehensive preventive HIV interventions.
Methods: Demographic data, psychosocial factors, CAI and HIV status were collected via an anonymous online survey through MSM social networking sites. Syndemic phenomenon is defined as presence of ≥ 2 psychosocial factors and HIV infection was assessed by self-report. Multivariate regression was used to investigate the independent association between the syndemic factors, CAI and HIV infection.
Results: A total of 483 MSM (whom had anal intercourse in past 12 months) with mean age of 28.7 (range: 18-55) years old completed the survey. Only 320 (66.3%) participants reported ever having taken an HIV test; among them, 88 (27.5%) were HIV positive. Self-reported sexual identity (homosexual versus non-homosexual) was associated with self-reported HIV status (odds ratio (OR) = 2.06, 95% confidence interval (CI) = 1.07-3.97). Prevalence of psychosocial factors were depressive symptoms (61.5%), suicidal ideation (23.6%), history of childhood sexual abuse (CSA) (12.2%), "chemsex" (use of stimulant drugs before or during anal sex) (25.1%) and inter-partner violence (IPV) (19.3%). CAI in the past 3 months was reported by 55.7% of participants and 53.0% experienced syndemic phenomenon. Depressive symptoms (adjusted odds ratio (AOR)=2.19, 95% CI=1.24-3.85), "chemsex" (AOR=2.01, 95% CI=1.19-3.52) and history of CSA (AOR=2.18, 95% CI=1.11-4.67) were associated with self-reported HIV status. The number of psychosocial factors significantly increased the odds of CAI and HIV.
Conclusions: Syndemic phenomenon was present in this sample with large proportion of the participants manifesting significant psychiatric symptoms, experienced childhood sexual abuse and IPV. The results underscore the need for an urgent, comprehensive HIV prevention strategy including addressing mental illness and substance use amongst Malaysian MSM in order to effectively respond to the HIV epidemic.

Syndemic Count n=483		CAI last 3 months n=269		Self-reported HIV status n=88	
	n (%)	n (%)	Odds Ratios (OR) (95% Confidence Intervals (CI))	n (%)	OR (95% CI)
0 + 1	103 (21.3)	45 (16.7)	1	12 (13.6)	1
2	199 (41.2)	111 (41.3)	1.63 (1.01-2.63)	32 (36.4)	1.61 (0.77-3.36)
3	142 (29.4)	79 (29.4)	1.62 (0.97-2.70)	**31 (35.2)**	**2.58 (1.21-5.51)**
4 + 5	39 (8.1)	**34 (12.6)**	**8.76 (3.17-24.22)**	**13 (14.8)**	**4.00 (1.53-10.43)**

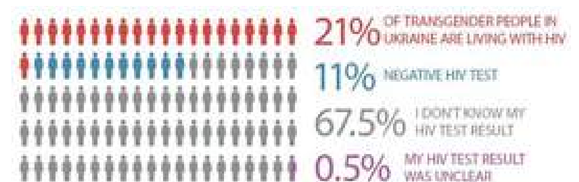
[Association between Syndemic Count, Condomless Anal Intercourse (CAI) and Self-reported HIV status among MSM in Malaysia]

The role of political and structural factors

TUPEC317
Study of behavioral models of transgender people leading to high rates of HIV prevalence in Ukraine

I. Medvid
HPLGBT, Board the HPLGBT, Kyiv, Ukraine

Background: In Ukraine´s current national HIV strategy, there is no targeted intervention or funding for work with transgender people. This is due to a lack of reliable epidemiological and behavioral data on the prevalence of HIV and risky practices among transgender people in Ukraine.
Methods: A quantitative study in 2017 using the RDS method. This is the largest of its kind in the EECA countries: 438 transgender people were surveyed across Ukraine, including Crimea and the eastern regions of the country where military operations are taking place.
Results: 69% of transgender people in Ukraine did not use a condom during their most recent sexual intercourse. The main reasons for this were that sexual partners insisted on sex without condoms (28%) and the lack of condoms (23%).
91% of transgender people in Ukraine have at least once provided sexual services for money and/or other benefits.
According to respondents´ own reports, HIV prevalence among transgender people could be as high as 21%. At the same time, HIV infection specialists and other doctors in AIDS centers in Ukraine do not receive special training to work with transgender people, and transgender people with HIV are registered in health facilities according to their biological gender.
Conclusions: Data obtained suggest that, as in other countries, the risk of HIV transmission among transgender people in Ukraine is 50 times higher than among the general population.
Level of knowledge about HIV/AIDS and STI among transgender people needs to be raised, by means of targeted interventions, and access for transgender people to HIV services needs to improve, including through awareness training for doctors. There is also a need for advocacy work to improve the meaningful participation of trans people and their organizations in national anti-epidemic action.
Next steps should aim to ensure that the state recognizes the vulnerability of transgender people and explicitly includes transgender people in list of groups with an increased risk of HIV infection. Transgender people should be included in national coordination mechanisms, in particular, the National Council for Countering Tuberculosis and HIV/AIDS.



[Transgender people and HIV in Ukraine]

TUPEC318
Are HIV variants from former soviet union countries spreading across the world?

L. Aibekova[1], B. Foley[2], S. Abidi[3], S. Ali[4]
[1]Nazarbayev University, Biological Sciences, Astana, Kazakhstan, [2]Los Alamos National Laboratory, Los Alamos, United States, [3]Aga Khan University, Department of Biological and Biomedical Sciences, Karachi, Pakistan, [4]Nazarbayev University, Astana, Kazakhstan

Background: While cases of new HIV infections among adults have declined globally in recent years, the annual number of new HIV infections in Eastern Europe and Central Asia increased by 60% with an estimated 190,000 new HIV infections in 2016. The number of people living with HIV in these countries reached 1.6 million by 2016. Following the collapse of Soviet Union in 1991, socioeconomic interactions among the former

Soviet Union (FSU) countries facilitated cross-border mobility, leading to the transmission of certain infectious diseases within this region. Initially, HIV outbreaks in the FSU countries were characterized by repeated transmission of HIV variants A_{FSU} and B_{FSU}, which may now be used to track the origin and transmission routes of HIV within and outside the FSU countries. The present study was designed to find distinct signature patterns of HIV variants A_{FSU} and B_{FSU} and using these signatures to track the transmission patterns of HIV subtype A and B in FSU countries and worldwide.

Methods: To this end, phylogenetic analysis of publicly available HIV-1 subtype A and subtype B *pol* and *env* full gene sequences from FSU countries was performed using *MEGA 6.0*. Each cluster from these trees was separately analyzed for A_{FSU} and B_{FSU} signatures using the software *VESPA*. The signature sequences were then used to screen all the subtype A and B sequences, including the ones FSU as well as non-FSU countries, in the HIV Los Alamos database.

Results: Our results revealed that transmission of FSU specific HIV-1 variants has now bridged outside the FSU region.

Conclusions: This analysis elucidates the origins and emerging patterns of HIV transmission within and outside the FSU countries.

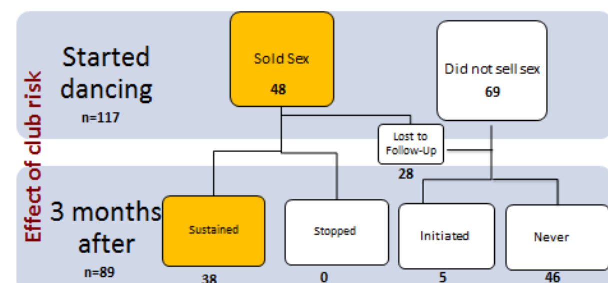
TUPEC319

Sex work trajectories over a 3-month period among a cohort of new female exotic dancers in Baltimore, MD

N. Flath[1], N. Opper[2], J. Park[2], M. Brantley[3], K. Morales[4], S. Sherman[2]
[1]Johns Hopkins Bloomberg School of Public Health, Health, Behavior, Society, Baltimore, United States, [2]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States, [3]Tennessee Department of Health, Nashville, United States, [4]John Hopkins Bloomberg School of Public Health, Baltimore, United States

Background: Entry into dancing at an exotic dance club (EDC) may be a gateway into initiating, escalating and sustaining sex work. We aimed to determine trajectories of sex work three months after starting to work as a Female Exotic Dancer (FED). Furthermore, we explore the role of structural vulnerabilities including co-occurring social and economic disadvantage, HIV risk factors, and aspects of the club environment on the trajectory of sustaining sex work over time.

Methods: Among a cohort of 117 new FEDs, 89 were followed-up (FU) averaging 3 months after baseline to complete a self-administered survey capturing the role of the EDC on the HIV risk profile in twenty-two EDCs in Baltimore MD; spanning May and October 2014. Trajectories of sex work were characterized as those who sustained sex work from baseline to FU, sold sex at baseline and stopped at FU, initiated only at FU or never sold. Sustaining was the most common trajectory, therefore correlates with structural vulnerabilities and HIV/STI risk factors were estimated with fisher exact tests. A multivariate model was built on the exposure of recent illicit drug use (i.e., heroin, crack, cocaine, and speedball). We adjusted for structural vulnerability indicators and club clustering using GEE logistic regression with robust estimation of variance.



[Trajectories of Sex Work among New Female Exotic Dancers in Baltimore, Maryland]

Results: After following 89 new FEDs, 38 sustained selling sex, 5 initiated, 46 never sold and no dancers stopped. Illicit drug use, housing instability and a history of childhood sexual and physical violence were significantly associated with sustained sex work (respectively, adjusted odds ratio (aOR) 3.4 95% confidence Interval (CI) 1.1,10.6 p< 0.05, aOR 2.2 95% CI 1.1, 4.6 p< 0.05 and aOR 2.5 95% CI 1.2, 5.2 p< 0.01).

Conclusions: The sexual risk trajectory may depend on the structural factors that the dancers walk into the club with. Illicit drug use, histories of violence, and housing instability begin to explain the trajectory of sustained sex work. Identifying modifiable structural and environmental drivers that promote or inhibit HIV/STI risk in a new occupational setting provides insight into the tools of resiliency available to buffer risk and prevent morbidities among women working within the adult entertainment industry.

TUPEC320

Estimating the potential impact of compulsory drug abstinence programs (CAP) on HIV incidence among people who inject drugs (PWID) in Tijuana, Mexico, using mathematical modeling

A. Borquez[1], C. Rafful[1], D. Abramovitz[1], L. Beletsky[1,2], S. Strathdee[1], N.K. Martin[1]
[1]University of California San Diego, Infectious Diseases and Global Public Health, La Jolla, United States, [2]Northwestern University, School of Law and Bouvé College of Health Sciences, Boston, United States

Background: Exposure to CAP has been associated with HIV risk behaviors, HIV infection and fear of accessing HIV services in various settings, including China, Thailand and Malaysia. In Tijuana, Mexico, forceful police referrals to CAP and allocation of government funds for expansion of CAP increased in 2015 to deal with homelessness and drug use. An estimated 5,000-10,000 PWID live in Tijuana among whom HIV prevalence is 3.5% and incidence 1.1%/year. We found exposure to CAP was associated with overdose risk among this population. Here, we extend this work to investigate the potential impact of CAP scale-up, compared with that of opioid agonist therapy (OAT), on HIV incidence among PWID.

Methods: We analyzed data from a cohort of PWID in Tijuana (2011-2020) which bi-annually collects information on sexual and drug-using behaviors and on a range of exposures, including CAP, to inform the parameterization of a deterministic mathematical model of HIV transmission among this population. We investigated temporal trends in exposure to CAP and associations with syringe sharing, controlling for duration of injection, and represented these in the model. We estimated future impact (from 2018-2030) of CAP or OAT scale-up on HIV incidence among PWID.

Results: Exposure to CAP in the past 6 months among PWID in Tijuana was low at baseline (1.4%) and fluctuated between 1.6 % and 5.0% in 2015-2016. Ever being exposed to CAP versus not was associated with an increased risk of receptive syringe sharing in the past 6 months (RR: 1.14 (95%CI: 1.00-1.30)). Modeling estimated that between 2018-2030 CAP could lead to a 9% (95% CrI: 1%-20%) increase in new HIV infections, if peak admission rates were maintained. If OAT was provided instead, an 8% (95% CrI: 4%-13%) reduction in new infections would be expected.

Conclusions: Exposure to CAP has seen recurrent increases in recent years among PWID in Tijuana, likely as a result of current polices. Further scale-up could lead to a rise in HIV incidence among PWID. Instead, OAT scale up could substantially reduce it. A reappraisal of the response to the opioid epidemic in Tijuana, which considers the health and human rights of PWID, is needed.

TUPEC321

Racial microaggressions, not overt racial discrimination, heighten U.S. Black heterosexual men's sexual HIV risk through increased substance use before or during sex

S.L. Holt, A.M. del Río-González, I.A. Bowleg
George Washington University, Department of Psychology, Washington, United States

Background: In 2016, Black men represented just 13% of males in the U.S., but 64% of HIV cases among men attributed to heterosexual contact, underscoring a need for more HIV prevention research with Black heterosexual men (BHM). Numerous studies document the impact of racial discrimination — overt discrimination (e.g., not being hired because

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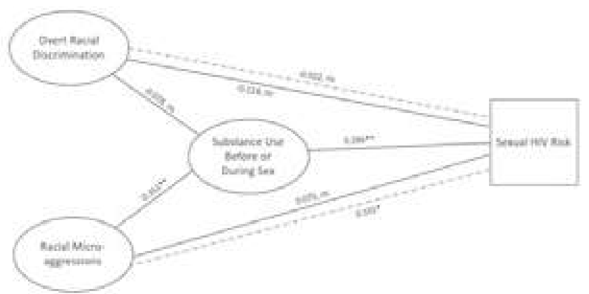
of your race) and/or more subtle microaggressions (e.g., being looked at suspiciously because of your race) — on Black people's substance use, with evidence of substance use as a coping mechanism. Furthermore, it is well-documented that substance use increases sexual HIV risk. Yet, research on racial discrimination and sexual HIV risk is rare. To address these gaps, we tested a conceptual model in which we hypothesized that racial discrimination would increase BHM's substance use before or during sex and in turn, sexual HIV risk.

Methods: Participants were 722 self-identified BHM living in Washington, DC who reported having sex with women in the past 3 months and ranged in age from 18 to 44 (*M*= 30.4). Field interviewers administered surveys using computer-assisted software within participants' homes in 2015-2016. We used structural equation modeling via Mplus 7 to test the study's mediation model.

Results: Participants reported experiencing microaggressions (*M*= 2.01) more than twice as frequently as overt racial discrimination (*M*= 0.73) (scale 0=Never to 6=Nearly every day). Neither overt racial discrimination nor racial microaggressions were directly associated with sexual HIV risk. Racial microaggressions, but not overt racial discrimination, however, were associated with increased substance use before or during sex, which was in turn associated with increased sexual HIV risk. Furthermore, racial microaggressions were indirectly positively associated with sexual HIV risk through their influence on substance use before or during sex (see Figure 1).



[Figure 1. Structural Equation Model, Depicting Paths and Standardized Estimates among Racial Discrimination, Substance Use, and Sexual HIV Risk]

Conclusions: These results suggest that it is the subtle and mundane racial microaggressions, rather than the more overt but less frequent acts of discrimination, that increase BHM's substance use before or during sex, and in turn their sexual HIV risk. These results highlight the need for individual-level culturally-specific interventions to help BHM positively cope with racial microaggressions as well as structural-level interventions to reduce the frequency of these microaggressions.

Understanding the spread of HIV through behavioural studies

TUPEC322

Coverage of modern contraceptive use and highly active anti-retroviral therapy among women of reproductive age living with HIV in Nigeria

F. Oluwasina[1], B. Onifade[2], K. Ssamula[3], I. Okafor[4], W. Odoke[5], P. Iutung[6], O. Gbadamosi[6], J. Gonzalez Perez[6]
[1]AIDS Healthcare Foundation, Monitoring and Evaluation, Abuja, Nigeria, [2]National AIDS and STIs Control Program, Strategic Information, Abuja, Nigeria, [3]AIDS Healthcare Foundation, Monitoring and Evaluation, Kampala, Uganda, [4]University Teaching Hospital, Community Medicine, Abakaliki, Nigeria, [5]AIDS Healthcare Foundation, Monitoring and Evaluation, Nairobi, Kenya, [6]AIDS Healthcare Foundation, Program Management, Kampala, Uganda

Background: Current levels of contraceptive use in all of sub-Saharan Africa are already preventing 173,000 HIV-positive births annually, even though contraception is not widely used in the region. The practices of contraception by HIV positive women might not be well understood or met. This study aims to assess the coverage of contraceptive use among women living with HIV at ART centres in Nigeria.

Methods: A retrospective cross-sectional study which consist of 746 HIV women, aged 15 to 49 years using systematic random sampling methods at 55 facilities comprising both primary and secondary health care facilities. Data were retrieved from though Electronic Medical Record system between January 2014 and June 2017. The variables obtained included maternal age, number of living children, marital status, religion, the educational level, and the use of antiretroviral treatment (HAART), the knowledge, attitude and practice of contraception. Analyses were done using SPSS 20.1. Fisher exact test was used for comparison. The level of significance was P< 0.05.

Results: Out of a total of 746 HIV positive women who participated in the study, 71% (529) were using modern contraceptive methods and 98% knew at least one method of modern contraception. Twenty-one percent (156) had fallen pregnant whilst on HAART while 81 (51.9%) said that the pregnancy had been unplanned. Factors associated with contraceptive practice were knowledge of HIV status (68.5%) and health worker advice 469 (62.8%). Women ≥28 years consider using contraceptive (OR 2.6, 95%CI 1.3-4.9), on HAART (OR 2.8, 95%CI 0.8-9.2), divorced (OR 1.7, 95%CI 0.8-3.7), had ≥1 living children (OR 1.2, 95%CI 0.6-2.4) and when the women were educated (OR 1.2, 95%CI 0.6-2.4). Condom use was among participants was 49.7%.

Conclusions: Contraceptive use is relatively low among participants in this study. Age and parity were found to be influence the uptake of contraception among these women. Information regarding contraceptive use should therefore be provided at all ART clinics. Integration of Family planning and HIV services should be implemented and more emphasis should be made on condom use even when using other contraceptive methods to ensure dual protection.

TUPEC323

Condomless anal intercourse by partner type among Chinese men who have sex with men in Tianjin

N. Zhou[1], J.A. Bauermeister[2], W. Guo[3], M. Yu[1], J. Yang[4], M. Zheng[5], Y. Guo[1], H. Gong[1], Y. Gao[6], G. Jiang[1]
[1]Tianjin Centers for Disease Control and Prevention, Tianjin, China, [2]University of Pennsylvania, Philadelphia, United States, [3]National Centre for AIDS/STD Control and Prevention, Chinese Centre for Disease Control and Prevention, Beijing, China, [4]Tianjin Dark Blue Working Group, Tianjin, China, [5]Tianjin Centers for Disease Control and Prevention, HIV/AIDS/STD Control and Prevention, Tianjin, China, [6]Tianjin Hongqiao District Center for Disease Control and Prevention, Tianjin, China

Background: HIV prevalence and incidence is high among men who have sex with men (MSM) in China, underscoring the need to support and optimize HIV risk reduction strategies for this population. We sought to estimate the prevalence of condomless anal sex among MSM living in Tianjin, China.

Methods: We recruited 595 HIV-negative MSM (Mean age=29.27 years; 76% gay identified) living in Tianjin to participate in a HIV study between 2013 and 2014. Data were collected after a voluntary counseling and testing session through a face-to-face survey. We used multivariable logistic regressions to examine the association between sociodemographic characteristics and HIV risk correlates (e.g., HIV knowledge, prior STIs) and MSM's likelihood of engaging in condomless anal intercourse (CAI) with main and casual partners in the prior six months.

Results: CAI was prevalent in the sample (N=321; 53.9%), with men reporting CAI with regular (N=233; 39.2%) or casual (N=189; 31.8%) partners. Identifying as gay was the only correlate of engaging in CAI with a regular partner (OR=1.69; 95% CI: 1.09, 2.63). CAI with a casual partner was more likely among men who were older (OR=1.03; 95% CI: 1.01, 1.05), identifying as gay (OR=1.73; 95% CI: 1.08, 2.79), and aware of HIV treatment policies in China (OR=1.40; 95% CI: 1.16, 1.69). MSM with more educational attainment (OR=.65; 95% CI: .50, .85) and greater HIV transmission knowledge (OR=.85; 95% CI: .73, .99) were less likely to report CAI with a casual partner.

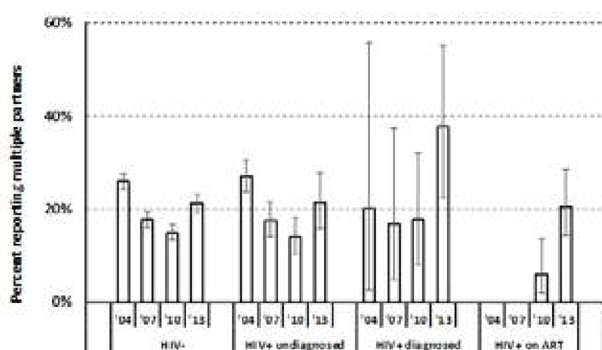
Conclusions: HIV risk reduction efforts should be developed to be sensitive and responsive to the unique experiences of Chinese MSM. We discuss opportunities for future work, including the development HIV risk reduction interventions.

TUPEC324

Could increases in high-risk sexual behaviour contribute to continuing high HIV incidence following the scale-up of ART? Evidence from East Zimbabwe

S. Gregson[1,2], C. Nyamukapa[1,2]
[1]Imperial College London, Department of Infectious Disease Epidemiology, London, United Kingdom, [2]Biomedical Research and Training Institute, Manicaland Centre for Public Health Research, Harare, Zimbabwe

Background: Slow reductions in HIV incidence have been observed in sub-Saharan African populations despite rapid increases in ART coverage. A contributing factor could be increases in high-risk sexual behaviour at the population level - particularly if concentrated in people living with HIV (PLHIV) not yet on treatment. We test this hypothesis by examining trends in high-risk sexual behaviour disaggregated by HIV infection, HIV diagnosis and ART status in a population in east Zimbabwe with continuing high HIV incidence (0.75%; 95%CI 0.60%-0.95%, 2009-2013).
Methods: Trends in multiple partners in the last year and condom use at last sex were measured using data on approximately 7000 sexually-active adults (15-54 years) in each of four rounds of a general-population open cohort spanning the scale-up of ART services in east Zimbabwe (2003-2013). Levels of sexual risk behaviour by infection, diagnosis and treatment status were compared using multivariable logistic regression adjusted for age and location.
Results: The proportion of adults reporting multiple sexual partners in the last year declined steadily over the first three rounds of the survey but increased in the post-ART period, 2009-2013, particularly in men (men: 14.4% to 21.4%, p< 0.001; women: 1.7% to 2.1%, p=0.1), for whom increases were found in all HIV, HTC and ART sub-groups (Figure). Overall changes in condom use were small but an increase was observed in PLHIV who had been diagnosed or were on ART (44.1% to 59.4%, p=0.057). ART coverage was 36% and 43% in men and women in 2012-2013. PLHIV not yet on treatment were less likely to report 5 or more lifetime sexual partners than those on ART (AOR=0.51, p< 0.001) but were equally likely to report multiple sexual partners (p=0.9) and less likely to report condom use at last sex (AOR=0.34, p< 0.001). Similar patterns were found for men and women.
Conclusions: Increases in high-risk sexual behaviour following the scale-up of ART - particularly in PLHIV not on treatment who may be recently infected and highly infectious - could have limited reductions in HIV incidence in east Zimbabwe. Early ART initiation and improved implementation of efficacious methods of primary prevention could accelerate declines in HIV incidence.



[Figure; Trends in multiple sexual partners in the last year by HIV infection, diagnosis and ART status, in men aged 15-54 years, east Zimbabwe, 2003 to 2013]

TUPEC325

HIV testing among Black heterosexual men in the U.S. capital is linked with social-structural factors at the individual, but not the neighborhood, level

A.M. del Rio Gonzalez, M. Mbaba, S. Holt, I. Bowleg
George Washington University, Psychology, Washington, United States

Background: Black men in the U.S. experience disproportionate poverty, unemployment and incarceration— all of which have been linked to increased HIV rates. In Washington, D.C., Black men represent about half of the male population, yet they accounted for 89% of HIV cases due to heterosexual contact in 2016. Although awareness of HIV status is critical for reducing HIV/AIDS, Black heterosexual men (BHM) are rarely the focus of initiatives promoting HIV testing. Research with other populations (e.g., MSM) have found that social-structural factors both at the individual (e.g., incarceration, poverty) and the neighborhood (e.g., access to HIV-related services, poverty at the census-tract level) levels are significant predictors of HIV testing. We investigated how both individual and neighborhood-level characteristics were associated with being tested for HIV in the last 12 months among BHM in Washington D.C.
Methods: As part of a mixed-methods study examining neighborhood and individual contexts of sexual HIV risk among a predominantly BHM sample, we randomly sampled households from 28 neighborhood clusters in D.C. with >40% Black population. Participants were 810 self-identified BHM between 18 and 44 years old who responded to a computer-assisted survey. We utilized multilevel modeling analysis to assess how individual and neighborhood-level characteristics were associated with HIV testing in the last year.
Results: Most participants reported getting tested in the last year (*n*=456, 67%), and nearly all reported getting tested at least once in their lifetimes (*n*=727; 91%). At the individual level, incarceration history, income, health insurance and HIV concern significantly predicted testing in the last 12 months. Neighborhood-level characteristics, however, were not significantly associated with testing in the last year (Table 1).

	Beta	p
Individual-level characteristics		
Incarceration history	.432	<.001
Income	-.145	<.001
Health insurance	.383	.040
Concern about HIV	.103	.023
Neighborhood-level characteristics (Census tract data)		
Density of HIV clinics	-.385	.122
HIV rate (per 100,000 inhabitants)	.001	.201
Percentage of population under poverty line	-.046	.113

[Table 1. Multilevel model of being tested for HIV in the last 12 months among Black heterosexual men in Washington D.C.]

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Conclusions: HIV testing among BHM in D.C. is prevalent, independent of where in the city they live. Underscoring the importance of the social-structural context, having a history of incarceration, lower income and having health insurance increased the likelihood of being tested in the last year. Although measured at the individual-level, these factors reflect some of the key social-structural issues that Black men face in the U.S. Understanding how these factors facilitate testing is a critical step in framing HIV testing efforts for BHM.

TUPEC326

Intimate partner violence, depressive symptoms and sexual behaviour among gay, bisexual and other men who have sex with men in the PROUD PrEP trial

A. Miltz[1], F. Lampe[1], L. Bacchus[2], S. McCormack[3], D. Dunn[3], E. White[3], A. Rodger[1], A. Phillips[1], L. Sherr[1], M. Gafos[2], PROUD Study Group
[1]University College London, Centre for Clinical Research, Epidemiology, Modelling and Evaluation, London, United Kingdom, [2]London School of Hygiene & Tropical Medicine, Department of Global Health and Development, London, United Kingdom, [3]University College London, MRC Clinical Trials Unit, London, United Kingdom

Background: Intimate partner violence (IPV) has been found to be associated with depression and with sexual risk behaviour linked to STI/HIV transmission in U.S. studies of gay, bisexual and other men who have sex with men (GBMSM). There is a lack of data in the UK/Europe. This study investigates the prevalence of IPV, associated factors, and relationship with depression and sexual behaviour among GBMSM enrolled in the PROUD trial evaluating pre-exposure prophylaxis (PrEP).
Methods: PROUD was an open label randomised trial (enrollment 2012-2014) evaluating the benefit of PrEP for HIV-negative GBMSM in England who reported recent condomless sex (CLS) with an expectation of subsequent CLS. This analysis included 436 GBMSM with IPV data at the 12- and/or 24-month follow-up. IPV prevalence was assessed at each time-point; associated factors and cross-sectional associations with depressive symptoms (PHQ-9≥10) and measures of CLS and sexual-partner numbers were assessed using Poisson generalized estimating equations combining time-points, adjusted for: age; UK born; sexual identity; education; clinic site.
Results: The majority of men (>70%) reported CLS with ≥2 partners in the past three months. At month-12 (N=410), 44.9% of men reported being a victim of IPV and 19.5% a perpetrator of IPV, in their lifetime. Corresponding percentages at month-24 (N=333) were 40.2% and 18.0%. Internalized homophobia and sexualized drug use were associated with IPV victimization (Table 1).

N=436 GBMSM, observations=743 (data at 12-or 24-month follow-ups in GEE models)		Association of psychosocial factors with lifetime IPV victimization (psychological, physical, and/or sexual)
Independent variables:		Prevalence Ratio [95% CI] p value by Wald test
Had sex after using recreational drugs in past three months	Unadjusted	1.36 [1.08, 1.71] p=0.013
	Adjusted for key socio-demographic factors	1.36 [1.08, 1.71] p=0.010
Age<13 years at anal sex debut	Unadjusted	1.16 [0.73, 1.86] p=0.523
	Adjusted for key socio-demographic factors	1.15 [0.72, 1.84] p=0.565
Negative attitudes towards gay sexuality (marker of internalised homophobia)	Unadjusted	1.28 [1.03, 1.59] p=0.026
	Adjusted for key socio-demographic factors	1.31 [1.05, 1.64] p=0.016
‚Out' to all/almost all friends, work colleagues and close family	Unadjusted	0.96 [0.77, 1.20] p=0.728
	Adjusted for key socio-demographic factors	0.93 [0.74, 1.17] p=0.516

[Table 1: Unadjusted and adjusted associations of psychosocial factors with lifetime IPV victimization in the PROUD trial]

Younger age and sexualized drug use were associated with IPV perpetration. IPV was strongly associated with depressive symptoms (adjusted prevalence ratio [aPR] for IPV victimization: 2.57 [95% CI: 1.71, 3.86]; p< 0.001). IPV was not consistently associated with measures of CLS/partner numbers. However, at month-12, IPV victimization was associated with receptive CLS with an HIV-positive partner not known to be on treatment (aPR 2.84 [95% CI: 1.27, 6.36]; p=0.011) and IPV perpetration was associated with group sex (aPR 1.40 [95% CI: 1.16, 1.69]; p< 0.001).
Conclusions: GBMSM at high-risk of HIV who are seeking/taking PrEP may experience a high burden of IPV, which may be linked to depressive symptoms. It is recommended that training on awareness and selective enquiry for IPV among GBMSM in sexual health clinics, should be enhanced.

TUPEC327

Poor acceptance of HIV diagnosis is a primary barrier to successful engagement in HIV medical care among vulnerable, high-risk heterosexuals in the United States

A. Kutnick, M. Gwadz, N. Leonard, C. Cleland, A. Ritchie, The BCAP Collaborative Research Team
NYU, Rory Meyers, Center for Drug Use and HIV/HCV Research, New York, United States

Background: Current World Health Organization (2015) guidelines recommend persons living with HIV/AIDS (PLHA) engage in medical care and initiate antiretroviral therapy (ART) immediately after diagnosis. However, after HIV diagnosis it is common in the United States for vulnerable (PLHA) to delay engagement in HIV medical care and ART initiation. Further, while past research has shown greater acceptance of one's HIV diagnosis, in contrast to denial or avoidance, is associated with positive HIV health outcomes, little is known about the phenomenon of "acceptance" of HIV among vulnerable PLHA and its relationship to engagement in medical care. The present study, guided by an ecological framework and Critical Race theory, uses an Interpretive Phenomenological Analysis (IPA) to address this gap.
Methods: High-risk heterosexual PLHA of color (N = 140) were recruited through peer referral in Brooklyn, NY in 2012-2015. A subset (N = 28) was purposively sampled for maximum variation for in-depth, semi-structured, qualitative interviews on psychological adaptation to HIV diagnosis and engagement in medical care. Data were analyzed using an Interpretive Phenomenological Analysis. Most participants were male (60.8%); Black (78.6%); aged 47-years (SD=7.12 years) on average; unemployed (92.9%); lacked basic necessities in the past year (75.0%); had histories of homelessness (71.4%) and incarceration (85.7%); and met criteria for lifetime problematic substance use (78.6%).
Results: Analyses revealed that acceptance was a pre-requisite to successful engagement in medical care. However, acceptance was often a lengthy (>3 years), complex and non-linear process, with many participants still struggling with acceptance of HIV status 10+ years after diagnosis. We found six inter-related factors particularly impeded acceptance of HIV status: (1) problematic substance use; (2) past history of trauma; (3) the experience of HIV as abstract in the absence of physical symptoms; (4) social isolation, which amplified feelings of HIV-stigma; (5) receiving HIV testing in settings perceived as harsh and coercive such as prison or mandated treatment; and (6) distrust of the medical establishment.
Conclusions: In light of current HIV treatment guidelines, interventions that facilitate timely acceptance of HIV diagnosis, and consequent engagement in medical care and ART initiation for vulnerable PLHA are sorely needed.

TUPEC328

Disclosure of HIV diagnosis and its relationship to successful engagement in medical care and initiation of ART in the 21st century

A. Kutnick, M. Gwadz, N. Leonard, C. Cleland, A. Ritchie, the BCAP Collaborative Research Team
NYU, Rory Meyers, Center for Drug Use and HIV/HCV Research, New York, United States

Background: To best prevent transmission of HIV and improve HIV health outcomes, it is recommended that persons living with HIV/AIDS (PLHA) both disclose their HIV status to sexual and drug-injection partners and initiate ART soon after diagnosis. However, the relationship among disclosure of HIV status and successful engagement in medical care and initiation of ART remains precarious, particularly among high-risk heterosexual populations. The present study, guided by an ecological framework, uses qualitative methodologies to address this gap.
Methods: High-risk heterosexual PLHA of color (N=140) were recruited through peer referral in NYC in 2012-2015. A subset (N=28) were purposively sampled for maximum variation, for in-depth, semi-structured, qualitative interviews on disclosure of HIV status and en-

gagement in medical care. Data were analyzed using an Interpretive Phenomenological Analysis. Most participants were male (60.8%); Black (78.6%); aged 47-years (SD=7.12 years) on average; unemployed (92.9%); lacked basic necessities in the past year (75.0%); had histories of homelessness (71.4%); incarceration (85.7%); and met criteria for lifetime problematic substance use (78.6%).
Results: Analyses revealed that engagement in HIV medical care varied greatly depending on the tenor (positive or negative) of the disclosure experience. Negative disclosure experiences were common and impeded engagement in medical care and ART initiation, mainly by leading to feelings of shame and alienation that exacerbated avoidance of HIV care. Disclosure to sexual partners emerged as particularly challenging because feelings of betrayal, guilt, and fear of loss of one's intimate relationships often arose. However, we found six inter-related factors facilitated positive disclosure experiences: (1) engagement in substance use treatment; (2) engagement in mental health care; (3) social support from friends and family; (4) positive, long-term relationships with health-care providers; (5) positive experiences with ART (i.e. minimal side-effects and achieving HIV viral suppression); and (6) acceptance of HIV diagnosis, that is the acknowledgement to oneself that one is indeed infected with HIV, in contrast to denial and avoidance, often a lengthy and complex process.
Conclusions: Disclosure of HIV status after diagnosis is challenging and can complicate successful engagement in medical care and ART initiation. However, effective interventions that facilitate positive disclosure experiences exist and should be implemented soon after diagnosis.

Modelling future healthcare needs

TUPEC329

Outcomes of South African mothers living with HIV (MLH) and their children compared to neighborhood peer mothers without HIV (MWOH) and their children over five years

M.J. Rotheram-Borus[1], M. Tomlinson[2], I. le Roux[2], T. Weichle[1], J. Stewart[2], S. Gordon[2], C. Lin[3]
[1]University of California, Department of Psychiatry and Biobehavioral Sciences, Semel Institute, Los Angeles, United States, [2]Stellenbosch University, Department of Psychology, Stellenbosch, South Africa, [3]University of California, Department of Psychiatry and Biobehavioral Sciences, Los Angeles, United States

Background: Recent research examining the children of mothers living with HIV (CMLH) have had conflicting results. Many studies are limited to clinic-based samples in which about one quarter of CMLH are lost within a year.
This study compares outcomes for CMLH and children of mothers without HIV (CMWOH) in multiple domains - physical growth, behavioral adjustment, and cognition - over the first five years of life.
Methods: Almost all (98%) pregnant women in 12 Cape Town neighborhoods (N=594) were recruited in pregnancy and reassessed five times over five years with high retention (83% - 92%); 205 were MLH and 389 were mothers without HIV (MWOH). Comprehensive evaluations of MLH and CMLH were compared over time to MWOH and CMWOH in the same neighborhoods, recruited concurrently. Growth was charted as the World Health Organization Z scores for weight and height; behavior was assessed with the Achenbach Child Behavior Checklist and the Strengths and Difficulties Questionnaire at 36 and 60 months; cognition was assessed with the Bayley Scales at 18 months; Peabody Picture Vocabulary at 36 months; the Kaufman Scales of Mental Development at 60 months and Blair Measures of executive functioning at 36 and 60 months.
Results: CMLH were similar in health care utilization over five years, reflected in the number of hospitalizations and clinic visits; rates of immunizations and influenza were similar over time. Weight-for-age Z scores were significantly lower, but not in the malnourished range, and children were similar in height and stunting. Developmental milestones were similar, as was behavioral adjustment across CMLH and CMWOH. Cognition was similar on the Bayley Scales, and the Peabody Picture Vocabulary Tests, but the Kaufman Scale was significantly lower by about 3 IQ points at five years (p< .05).
Conclusions: CMLH and CMWOH were similar on most outcomes. Children's lower weight and the cognitive scores at five years suggest there may be small cumulative deficits accruing over time. These differences are likely attributable to social factors related to HIV (maternal alcohol abuse or depression, less income, single parenthood), rather than HIV exposure in-utero.

TUPEC330

Quantifying the impact of reduced investments in integrated HIV care delivery in Belgium

S. Vermeersch[1], R. Demeester[2], S. Callens[3], S. De Wit[4], L. Annemans[5], BREACH Consortium
[1]Hict NV, Bruges, Belgium, [2]University Hospital of Charleroi, Internal Medicine and Infectious Diseases, Charleroi, Belgium, [3]Ghent University Hospital, Internal Medicine and Infectious Diseases, Ghent, Belgium, [4]University Hospital St Pierre, Infectious Diseases, Brussels, Belgium, [5]Ghent University, Public Health, Ghent, Belgium

Background: In Belgium, AIDS Reference Centers (ARC) deliver patient-centered, integrated HIV care, leveraging state of the art knowledge and expertise to provide multidisciplinary patient management. We developed an integrated value-centered framework to help drive value-driven financing approaches. The quantification of ARC value drivers is a key framework component. The present study quantifies the impact of disinvestments in ARC.
Methods: We leveraged the published BELHIVPREV model to assess the health and budget impact and return on investment (ROI) in ARC for 5 key value drivers: (i) preventing new infections; (ii) reducing the number of undiagnosed patients; (iii) linkage to and (iv) retention in care and (v) achieving and maintaining virologic control. We simulated 4 scenarios for 2020, which were further extrapolated to 2030 (Table 1). The model scenarios were based on hypothetical, yet realistic, expert estimated parameter settings. Cumulative costs were generated from 2015 to 2030 and assumed an additional 3M€/year investment (+60% of total Belgian ARC costs) in the 'additional effort' scenario and a 2,2M€/year disinvestment (-43% of total Belgian ARC costs) in the 'reduced effort' scenario. For the 'additional' and 'reduced' effort scenarios the ROI was calculated as the ratio of (cumulative budget impact - cumulative investment cost) over (cumulative investment cost).
Results: Table 1 summarizes estimated number of new diagnoses and total annual (pharmaceutical) budget for 2020 and 2030 for the 4 different scenarios. ROI for the 'additional' and 'reduced' effort scenarios were 2,4 and -4,0, respectively; i.e. every € invested in ARC between 2015 and 2030 results in 2,4€ additionally saved by 2030, whereas every € disinvested results in an additional 4,0€ loss to society.

	Current effort	Reduced effort	Additional effort	Additional effort + reinforced outreach
Undiagnosed	11%	12%	10%	8%
Treated	94%	92%	97%	97%
Viral load < 200 c/ml	98%	94%	98%	98%
Linked in care	98,2%	95%	99%	99%
Retained in care	97,9%	97%	99%	99%
PrEP (patients)	1 500	1 000	2 633	2 633
New diagnoses **2020** (patients)	899	1 121	603	513
New diagnoses **2030** (patients)	1 165	1 985	410	319
Annual budget **2020** (euro)	203 M€	202 M€	207 M€	209 M€
Annual budget **2030** (euro)	254 M€	296 M€	211 M€	204 M€

[Table 1]

Conclusions: Assuming reductions in ARC budgets translate to reduced effort on the 5 value drivers included in our analysis. Budget reductions have significant and lasting negative impact on the epidemic and estimated (pharmaceutical) budgets. Likewise, investments in ARC budgets, if translated to increased effort, result in significant and lasting positive epidemic and budget impact. In both cases, costs offsets generated early on (2015-2020) are largely compensated in later years (2020-2030). Investing in integrated care remains critical in managing HIV disease and budget impact.

TUPEC331

Estimating latent tuberculosis infection prevalence in the United States: Back-calculation from active TB cases

A. Mirzazadeh[1], I.E. Fellows[2], A. Parriott[3], H. Ashki[3], A. Readhead[4], P. Barry[4], J. Flood[4], T.R. Navin[5], A.N. Hill[5], S. Reynolds[5], S. Marks[5], D. McCabe[3], J. Mermin[6], J.G. Kahn[3], P.B. Shete[7]
[1]Institute of Global Health Sciences, University of California (UCSF), Epidemiology & Biostatistics, San Francisco, United States, [2]Fellows Statistics, San Diego, United States, [3]Philip R Lee Institute for Health Policy Studies, University of California (UCSF), San Francisco, United States, [4]Tuberculosis Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, Richmond, United States, [5]Division of Tuberculosis Elimination, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, U.S. Centers for Disease Control and Prevention (CDC), Atlanta, United States, [6]National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC, Atlanta, United States, [7]Division of Pulmonary and Critical Care, UCSF and Zuckerberg San Francisco General Hospital, San Francisco, United States

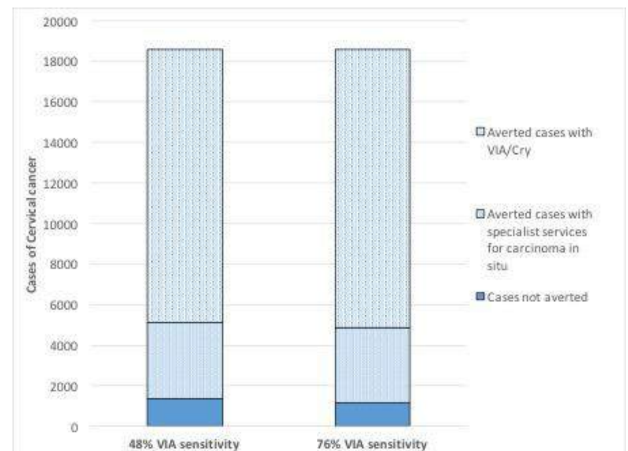
Background: Identification and treatment of latent tuberculosis infection (LTBI) is a critical component of the United States national plan for tuberculosis disease (TB) elimination. However, estimating LTBI prevalence has been challenging. In this study, we present a back-calculation model based on reported active TB disease to estimate the prevalence of LTBI within the United States (U.S.), California, and five counties in California with the highest burden of TB.
Methods: Our model incorporates annual TB cases (1993 to 2016) reported to CDC and annual mortality-adjusted reactivation risks for 85 years following infection to "back-calculate" LTBI prevalence. We used Markov Chain Monte Carlo to calibrate an exponential decay curve fit to surveillance data to estimate reactivation risks, then adjusted the reactivation risks for all-cause mortality risks. Calculations were done using a back-calculation package in R software after accounting for the long lag between LTBI and active disease, and general all-cause mortality as a competing risk. We produced uncertainty limits (UL) using lower and upper bounds for reactivation risks and the LTBI prevalence.
Results: The mortality-adjusted reactivation risk in the first year following infection was 1.42% (UL 1.40 to 1.43), and the lifetime cumulative risk for 85 years was 7.12% (UL 4.70 to 9.54). The back-calculation estimates suggest that 2.36% (UL 1.61 to 4.09) of U.S. population in 2016 were living with LTBI (corresponds to 7.65 million (UL 5.22 to 13.25)]. Estimated LTBI prevalence in 2016 was 4.07% (UL 2.71 to 7.23) in California, 5.29% (UL 3.80 to 8.18) in Alameda County, 5.51% (UL 3.50 to 10.23) in Los Angeles County, 4.13% (UL 2.72 to 7.38) in Orange County, 4.79% (UL 3.22 to 8.28) in San Diego County, and 5.60% (UL 3.97 to 8.81) in Santa Clara County.
Conclusions: Our LTBI prevalence estimates are similar with previous estimates from the 2011-2012 National Health and Nutrition Examination Survey (NHANES) for the U.S. (2.1%) when TST & IGRA combined positivity was used to define the LTBI infection, and in range with NHANES estimates extrapolated to state and county demographics for California (5.99%), and the five counties (5.18%-8.20%). Our model can be used at national, state, and county levels to estimate LTBI.

TUPEC332

Epidemiological benefits of integrating services for the secondary prevention of cervical cancer into HIV care in Kenya: A mathematical modelling study

P.N. Perez Guzman, R. Cassidy, T. Hallett, M. Smit
Imperial College, London, Department of Infectious Disease Epidemiology, London, United Kingdom

Background: Practice guidelines in Kenya recommend secondary prevention of cervical cancer (CC) through a 'screen-and-treat' approach for pre-cancerous lesions of the cervix. The Ministry of Health recognises HIV care as one of the most effective platforms for integrating such services. However, CC screening coverage remains low, at an estimated 3.2% country-wide. We aim to quantify the impact of fully implementing guideline recommendations on CC incidence amongst HIV-positive women in care (HIV-WiC).
Methods: We developed an individual-based multi-disease model of the HIV and HPV epidemics in Kenya. The model was parameterised with and fitted to national and regional surveillance and epidemiological data (Figure 1A). We compared projections of the *status quo* levels of HPV screening to a scenario of 100% coverage of HIV-WiC with visual inspection which acetic acid (VIA) and, if indicated, treatment of pre-cancerous lesions (cervical intraepithelial neoplasia 1 to 3) with cryotherapy (Cry). We assumed VIA sensitivity to range from 48% to 76% and Cry success rates of 87.5% based on literature. Screening intervals were 6-monthly, for the first year, followed by annual, as per national guidelines.
Results: Our model predicts a baseline of 18,600 CC cases (18,078-19,123) between 2018 and 2035 amongst HIV-WiC, with an incidence of 215.35 (208.96-221.76) per 100,000 person-years (py). Integrating screen-and-treat services with VIA/Cry in this population could avert 72% to 74% of cases (13,480-13,700) and reduce CC incidence to 56 to 58 per 100,000py (48-69), depending on VIA sensitivity (Figure 1). Widespread availability of specialised services for the treatment of carcinoma *in situ* could further avert up to 20% of pre-invasive cancer cases, potentially driving CC incidence down to 38 per 100,000py.
Conclusions: In the absence of effective secondary prevention programs, HIV-WiC are at an increased risk of CC than HIV-negative populations. Our modelled projections are in agreement with this. Despite variability in VIA performance, scaling-up VIA/Cry in HIV-WiC in Kenya could forestall a large proportion of HPV-related morbidity.



[Figure 1 - Modelled cervical cancer incidence rate in HIV-WiC from 2018 to 2035, with varying levels of VIA sensitivity from pre-cancerous lesions (ce]

TUPEC333

Characterizing the need for integrated chronic disease healthcare for people living with HIV

B. Osetinsky[1], A. Mwangi[2], E. Sang[3], G. Bloomfield[4], S. Pastakia[5], R. Wamai[6], S. de Vlas[7], J. Hontelez[7], J. Hogan[1], S. McGarvey[1], M. Lurie[1], O. Galarraga[1]
[1]Brown University School of Public Health, Providence, United States, [2]Moi University, Eldoret, Kenya, [3]Academic Model for Providing Access to Healthcare, Eldoret, Kenya, [4]Duke University, Durham, United States, [5]Purdue University, West Lafayette, United States, [6]Northeastern University, Boston, United States, [7]Erasmus MC, Rotterdam, Netherlands

Background: Non-communicable diseases (NCDs) are a significant and growing source of morbidity and mortality among HIV positive people in sub-Saharan Africa. In Kenya, pilot integrated care programs providing services for both HIV and chronic NCDs such as hypertension and diabetes are emerging in some counties, but there is little information about the growth of overlapping conditions at the clinical and population level to provide a basis to assess healthcare needs. The research described within this abstract generates foundational knowledge of potential demand for integrated care in two ways; by assessing development of hypertension among a longitudinal clinical cohort of people living with HIV, and modeling the dual burden of NCD and HIV at the population level.

Methods: The clinical cohort is from longitudinal retrospective clinical data from the Academic Model of Providing Access to Healthcare (AMPATH). The AMPATH patient population included in the analysis was 92,588 HIV-positive adults enrolled in care from 2005-2011. We used multilevel modeling to analyze the change in prevalence of hypertension in the HIV-positive clinical population. To model the spread and control of HIV, we adapted an established microsimulation, STDSIM, to include the disease progression for hypertension, and project trends in HIV and hypertension at the population level in Kenya from 2004 to 2020. The calibration samples for the model are from nationally-representative surveillance surveys and reports of HIV and of NCDs in Kenya of adults ages 18-70.
Results: The hypertension prevalence of the AMPATH HIV positive clinical population grew from 6.5% in 2006 to 10.7% in 2011. When adjusting for age, clinic, WHO stage, and antiretroviral therapy, there is an 3% annual increase in the prevalence of hypertension from 2005 to 2011. The nationally representative model was calibrated to fit Kenya's national estimates of 31% prevalence of hypertension, and 6.2% HIV in 2015. Our model estimated national prevalence of both comorbidities at 2.2% for adults over age 18.
Conclusions: The dual burden of hypertension and HIV is a significant source of morbidity in Kenya. Both HIV positive clinical populations data and the national modeling show an increase in HIV and hypertension as comorbidities as hypertension prevalence increases.

Identifying optimal service models

TUPEC334

Prevalence and predictors of viral suppression among people living with HIV in British Columbia, Canada: Findings from the SHAPE study

A. Bever[1], K. Salters[1], L. Ti[1,2], S. Parashar[1,3], C. Olatunbosun[1,4], G. McGowan[1,5], R. Hogg[1,3], R. Barrios[1], SHAPE Study
[1]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada, [2]University of British Columbia, Vancouver, Canada, [3]Simon Fraser University, Burnaby, Canada, [4]St. Paul's Hospital Ambulatory Pharmacy, Vancouver, Canada, [5]Ministry of Health, Victoria, Canada

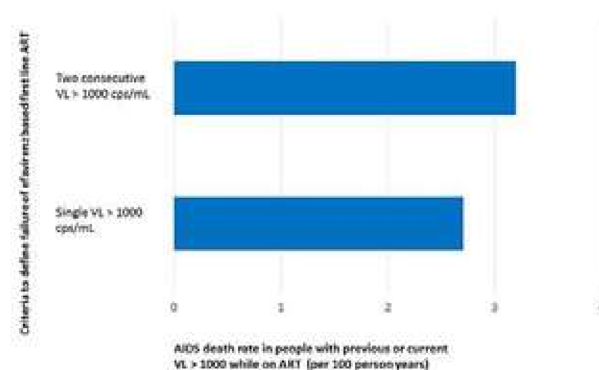
Background: The STOP HIV/AIDS Program aims to improve treatment success among people living with HIV (PLWH) in British Columbia (BC), Canada by expanding access to HIV testing, antiretroviral therapy, and supportive HIV care. The STOP HIV/AIDS Evaluation (SHAPE) study was developed to assess the program's impact, highlight health disparities, and identify barriers to HIV care that disproportionately affect marginalized populations.
This analysis documents the prevalence and examines predictors of viral load suppression (VLS), the final clinical marker of the HIV cascade of care and an important indicator of treatment success.
Methods: The SHAPE study is a longitudinal cohort of PLWH ≥ 19 years of age in BC, initiated in 2016, with clinical follow-up ongoing. Recruitment targets for particular socio-demographic and clinical characteristics were established with the aim of building a cohort that is representative of PLWH in BC. For this analysis, bivariable and multivariable logistic regression models were used to identify predictors of VLS (defined as viral load < 50 copies/mL for ≥ 3 months in the year prior to interview).
Results: Of the 503 participants who completed a baseline survey, 477 met the inclusion criteria (≥ 3 months of VL data available) and 408 (85.5%) achieved VS. In multivariable analyses, being older (>39 years) was positively associated with achieving VLS [ages 40-49: adjusted odds ratio [OR]= 2.11 (95% CI= 1.03, 4.31); ages ³50: aOR=2.45 (95% CI=1.27, 4.72)]. Those who were currently homeless (aOR= 0.21, 95%CI= 0.07, 0.62) or homeless within the last 12 months (aOR= 0.65, 95%CI= 0.30, 1.40) were less likely to achieve VLS. PLWH self-reporting injection drug use (IDU) (aOR= 0.24, 95%CI= 0.12, 0.47), men who have sex with men (MSM) reporting IDU (aOR= 0.24, 95%CI= 0.09, 0.64) and other HIV transmission groups (aOR= 0.49, 95%CI= 0.23, 1.02) were less likely to achieve VLS compared to MSM only.
Conclusions: Strategies for supporting individuals in HIV care must account for intersecting facets of marginalization that influence progression through the cascade of care. Targeted supports may help reduce health inequities experienced by individuals with a history of IDU, younger adults, and those facing housing instability.

TUPEC335

Simplifying switch to second line ART: Predicted effect of a policy of defining 1st line failure of efavirenz-based regimens by a single VL > 1000 in sub-Saharan Africa

A. Shroufi[1], V. Cambiano[2], L. Bansi-Matharu[3], G. Van Cutsem[1], D. Maman[1], A. Phillips[3]
[1]Medecins Sans Frontieres, Medical, Cape Town, South Africa, [2]University College London, HIV Epidemiology and Biostatistics Group, London, United Kingdom, [3]University College London, Faculty of Pop Health Sciences, London, United Kingdom

Background: Many individuals failing first line Antiretroviral Therapy (ART) never receive second line ART, or do so after long delays. For people on ART with a viral load (VL) > 1000 cps/ml WHO recommends VL measurement 3 months after enhanced adherence support, with switch to a 2nd line regimen occurring if VL elevation persists. The need for a confirmatory VL prior to switching to a 2nd line regimen may delay or prevent switching. Here we use an established individual-based model of HIV transmission, progression and the effect of ART which incorporates drug resistance in order to consider this question.
Methods: Using this mathematical model, we compare the effect of a policy requiring one VL > 1000 copies/ml for people failing efavirenz-based regimens to be switched to second line, with one requiring two consecutive values > 1000 cps/ml. We simulated a range of setting-scenarios reflecting the breadth of the epidemic seen in sub-Saharan Africa; taking into account potential delays in defining failure and switching to 2nd line regimens.
Results: The generated setting scenarios had in 2018 19% (13% - 33%) of people on ART with an NNRTI mutation and 88% (77% - 93%) with viral load < 1000 copies/ml. Among those having experienced a VL>1000 copies/ml on ART, using a single VL > 1000 to define failure of efavirenz-based 1st line regimens would lead to a higher proportion of people with NNRTI resistance having been switched to a second line regimen (62% vs 43%; difference 19% (16% - 22%)), resulting in a median (over setting scenarios) 20% reduction in the rate of AIDS death (90% range 2% - 32%; from a median of 3.2 to 2.7 per 100 person years) over 3 years from 2018.
Conclusions: Relaxation of the requirement for two consecutive VL values > 1000 to define 1st line failure of efavirenz-based regimens should be considered.



[Figure 1: AIDS death rate in people with previous or current VL > 1000 while on ART according to criteria to define failure of first line ART.]

TUPEC336

HIV disclosure to partners among pregnant women receiving HIV care in Kenya

D. Matemo[1], L. Osborn[1], K. Ronen[2], J. Unger[2], A.L. Drake[2], G. John-Stewart[2], J. Kinuthia[1]
[1]*Kenyatta National Hospital, Research and Programs, Nairobi, Kenya,* [2]*University of Washington, Global Health, Seattle, United States*

Background: HIV status disclosure by pregnant women to their sexual partner enables partner testing and linkage to care, and can facilitate maternal ART adherence and prevention of mother-to-child HIV transmission. Understanding factors associated with disclosure to partners is critical for developing interventions to expand HIV testing and linkage to care.

Methods: This analysis utilized enrollment data from an ongoing trial evaluating mHealth strategies to improve ART adherence among women living with HIV in Nyanza Region and Nairobi, Kenya (Mobile WAChX, NCT02400671). Women were eligible to participate if they were pregnant, HIV-infected, and had daily access to a mobile phone. A structured questionnaire evaluated disclosure to partner, sociodemographic characteristics, self-reported ART adherence information-motivation-behavior skills (modified Lifewindows IMB, 75 point score), depression (PHQ9) and social support (MOS, 72 point score). Plasma samples were collected for viral load (VL) measurement. Univariate logistic regression was used to evaluate associations with partner disclosure.

Results: :Among 825 participants enrolled, 768 (93%) reported current sexual partners and 570 (74%) of these had disclosed their HIV status to their partner. Participants had a median age 27 years (IQR 23-31) and 84% (695) were cohabiting/married. Median social support score was 63 (IQR 50-72). Median ART adherence IMB score was 58 (IQR 55-62). HIV status disclosure was associated with older participant age (OR 1.06 per year, 95% CI: 1.03-1.09), facility delivery (OR 1.52, 95% CI: 1.01-2.27), duration of current relationship (OR 1.15 per year increase, 95% CI: 1.10-1.20) and co-habitation with partner (OR 4.43, 95% CI: 2.89-6.80). Disclosure was also positively associated with social support score (OR 1.01 per point, 95% CI: 1.00-1.02), IMB score (OR 1.05 per point, 95% CI: 1.00-1.08), and negatively associated with stigma (OR 0.90, 95% CI: 0.83-0.99).

Conclusions: Disclosure among pregnant women on lifelong ART was associated with a number of positive outcomes such as information, motivation and behavioral skills for ART adherence, social support and lower stigma. Relationships between these factors are complex. Women who do not or cannot disclose likely require enhanced support for ART adherence.

TUPEC337

Nigeria needs to prioritize cost effective HIV Testing Services (HTS) strategy and approach to achieve the UNAIDS 90: 90: 90 targets

G.S. Okorie[1], E. Ikomi[2], E. Agogo[1], I. Idika-Chima[3]
[1]*National Agency for the Control of HIV/AID, Program Coordination, Abuja, Nigeria,* [2]*National Agency for the Control of HIV/AID, Policy and Strategy Department, Abuja, Nigeria,* [3]*Teenz Global Foundation, Program Coordination, Abuja, Nigeria*

Background: It is estimated that over 3 million Nigerians are living with HIV. However, only 983,980 are currently on treatment with the implementation of the test and treat strategy. This demonstrates a 65% gap in treatment. The National Agency for the Control of AIDS (NACA) in its co-ordination role provides policy direction in the design and implementation of all HIV activities in Nigerian. After the adoption of UNAIDS targets by the Federal Government, NACA commissioned and monitored the implantation of five (5) HTS approaches. The aim was to present a policy direction regarding HTS strategy and approach that is evidence-based, cost effective, with local content that would fast track the achievement of the set targets.

Description: NGOs provided HTS at 34 locations across Nigeria. The five approaches include; door-to-door; Multi-disease Campaign; Key Population focused; Junction town; In- school. Rapid test kits were used in all the approaches. The different sites were selected based on pre-determined criteria in a developed framework. The project was completed within 4 months. The programmatic data collected from different approaches were validated by the national monitoring and evaluation systems and is reported as part of national dataset for 2015/16. The amount disbursed for implementation was collected from the accounts department of NACA.

Lessons learned: Females constituted 55% of 204,169 clients reached. The door-to-door, Junction town and in school interventions reached more males. The incidence ranged from 0.3% to 18% with clear evidence of more female (0.75%) infection (F: 1,523: M: 494). The costs per client reached were door-to-door $ 3.88; Multi-disease Campaign $ 19.98; key population focused $76.16; Junction town $17.52: In school $ 3.60. Although the focused approach identified more HIV positives, coverage is low. To achieve the set targets, mapping and remodel of approach to reach more people who are living with HIV at less cost is required. Strategic change in strategy to ensure availability of test kits and mitigation of stigma is required.

Conclusions/Next steps: Rebasing of Nigerian HIV prevalence through population survey is required (programmatic results 0.98%, current 3%). Review of HTS algorithm, framework and test run blend of strategy/ies that will improve yield and coverage is essential.

TUPEC338

Identifying components of service delivery and HIV care cascade outcomes: A systematic review of Methadone Maintenance Treatment (MMT)

N.A. Mohd Salleh[1,2], P. Voon[1], M. Karamouzian[1], J. Shoveller[3], E. Wood[1], M.J. Milloy[1,4], L. Richardson[1,5]
[1]*British Columbia Centre on Substance Use, Vancouver, Canada,* [2]*University of British Columbia, Interdisciplinary Studies Graduate Program, Vancouver, Canada,* [3]*University of British Columbia, School of Population and Public Health, Vancouver, Canada,* [4]*University of British Columbia, Department of Medicine, Vancouver, Canada,* [5]*University of British Columbia, Department of Sociology, Vancouver, Canada*

Background: The link between methadone maintenance therapy (MMT) and HIV treatment-related outcomes has been extensively described. Nevertheless, HIV-positive people who use illicit drugs (PWUD) continue to demonstrate poor HIV care cascade outcomes, posing a serious challenge to achieving the UNAIDS 90-90-90 goals. In this review, we aim to assess components of service delivery in optimizing the use of MMT that lead to improvements in the three main stages of the HIV care cascade.

Methods: We searched multiple database platforms for studies that described components of service delivery in conjunction with the provision of methadone in the last 10 years. Outcomes of interest were improved uptake of HIV testing, exposure to ART including initiation and adherence, as well as viral load suppression. Records were screened by title and abstracts independently by two reviewers.

Results: We identified 2186 records after removing duplicates. Title and abstract screening has yielded 438 records which were retrieved as full texts. From this, 18 studies were eligible for this systematic review. Components of service delivery that accommodate MMT provision that improve HIV care cascade outcomes include:
1) routine practices adopted by service providers (admission procedures, physical examinations, co-morbidity screening, referrals to HIV care),
2) strategies to mitigate the impact of stigma associated with HIV testing (voluntary rather than mandatory, self-testing),
3) medication dispensing strategies (directly administered antiretroviral therapy),
4) medication-related factors (simple regimen tablet, adequate methadone doses),
5) clinical management of co-morbidities (HIV care, mental health, hepatitis C and tuberculosis),
6) incorporation of needle and syringe exchange program and
7) social support (case management, counselling sessions to address social issues, counselling on ART and MMT and contingency management).

Conclusions: Evidence in this review has largely pointed out the evidence of a multidisciplinary team to manage comorbidities and strategies to effectively deliver medication to PWUD. There has been an in-

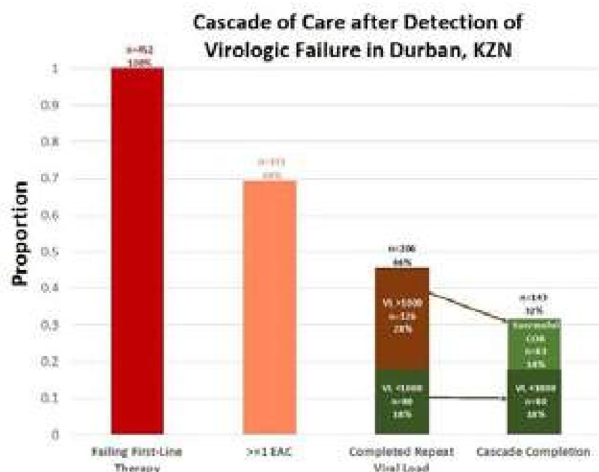
crease in global interest to provide patient-centered services, such that care and treatment would address a wide range of issues affecting this population. However, more work needs to be done to increase the effectiveness of MMT in enhancing HIV-related outcomes among PWUD, especially in determining which areas of social support require further attention.

TUPEC339

The second cascade in the management of adult patients after first line ART failure in public HIV clinics in Durban, South Africa

H. Sunpath[1,2], K. Naidu[3], S. Pillay[1], M.Y.S. Moosa[1], P. Dladla-Msimango[4], V. Marconi[5], K. Naidoo[2], M. Seidner[6,7], D.J. Brijkumar[8]
[1]University of KwaZulu-Natal, Infectious Diseases Unit, School of Clinical Medicine, Nelson Mandela School of Medicine, Durban, South Africa, [2]University of Kwa Zulu-Natal, Centre for AIDS Program of Research In South Africa, Durban, South Africa, [3]MatCH (Maternal, Adolescent and Child Health), School of Public Health, University of the Witwatersrand, MatCH (Maternal, Adolescent and Child Health), Durban, South Africa, [4]Department of Health, Ethekwini Health District, Durban, South Africa, [5]Emory University School of Medicine, Division of Infectious Diseases, Atlanta, United States, [6]Harvard Medical School, Infectious Diseases Unit, Massachusetts General Hospital, Boston, United States, [7]University of KwaZulu-Natal, Africa Health Research Institute, Durban, South Africa, [8]University of KwaZulu-Natal, Infectious Diseases, Durban, South Africa

Background: The identification of patients experiencing first-line ART failure has increased rapidly and will continue to grow as access to viral load (VL) testing improves. At detection of virology failure (VF), most national treatment programs recommend a 3-6 month monitoring period for multiple adherence counseling visits, repeat VL testing, test result dissemination, assesment of comorbidities and regimen decision making. These recommendations create complexities in scheduling and patient follow-up putting those failing therapy at risk for persistent failure and transmission of potentially resistant virus. We sought to evaluate the cascade of care after first-line ART failure in three public clinics in Durban, South Africa.
Description: We conducted a retrospective chart review of patients who had a VL >1000 copies/mL between 01 March and 30 June 2016 and abstracted clinical data from three public clinics. We estimated the proportion of patients failing first-line ART who completed each stage of the care cascade including:
1) completion of at least one adherence counseling visit;
2) repeat viral load testing; and
3) return for results with appropriate maintenance on first-line ART or changes to regimen (COR) for second-line ART.



[Figure 1]

Lessons learned: Among 9782 patients accessing first line ART in these facilities total of 452 individuals were identified as having VF during the three-month period of observation. Of these, 70% (313/452) returned for at least one adherence counseling visit, and 46% (206/452) received a repeat VL test. Of those with a repeat VL, 39% (80/206) re-suppressed their virus to < 1000 and remained on first-line therapy, and of the remaining 126 patients, 50% (63/126) were appropriately switched to a second line regimen. In total, only 32% (143/452) of patients in the sample completed the cascade of VF care; and only 27% (117/452) and 8% (35/452) did so within 180 and 90-days, respectively. (Figure 1)
Conclusions/Next steps: We identified significant delays and management bottlenecks for a majority of patients experiencing VF on first-line ART in South Africa. As access to VL monitoring improves, efforts to strengthen care for this patient population must be prioritized to maintain individual and population-level treatment and prevention goals.

Social and behavioural concepts and theories

TUPED340

Alcohol community's intervention for prevention of HIV risk amongst youth in Pretoria

M.R. Manganye
Sefako Makgatho Health Sciences University, Public Health, Pretoria, South Africa

Background: This study was a randomised, controlled trial to assess the efficacy of a Social Cognitive Theory-based intervention in reducing alcohol-related sexual behaviour among young adults in Mamelodi, Pretoria.
Methods: The individual level randomization was carried out. Simple randomization was applied to the participants into the intervention or control arm. The duration of the study was 12 months with data collected at recruitment, screening, baseline, 3 months and 6 months follow-up.
Results: There was a significant reduction in engagement with multiple sexual partners in intervention group with only 5% reporting having multiple sexual partners, compared with 31% in control group, at month 6 follow-up. On condom use, there was a significant reduction in proportion of the participants in the intervention group (2%) who never used a condom, as against in the control group (41%), at the month 6 follow-up. There was a statistically significant decrease on the proportions of unprotected sex in exchange for money or material things in both the intervention group (from a 12% baseline; 12% month 3, to 8% month 6 follow-up) and the control group (from an 18% baseline; 40% month 3, to 10% month 6 follow-up). The results showed that there was a reduction in alcohol consumption from the baseline through to the month 6 follow-up. However, the difference in alcohol reduction was not statistically significant between the intervention and control groups. Interestingly, a high proportion of the participants moved from gross alcohol consumption to moderate drinking (15 - 21 Units), sensible drinking (08 - 14 Units) and infrequent drinking (0 - 7 Units).
Conclusions: The study findings conclude that Social Cognitive Theory through CLEAR intervention increases the propensity of young adults to reduce alcohol-related HIV-risk behaviour especially in relation to reducing multiple sexual partnerships, transactional sex, and increasing condom use. This propensity is attributable to the application of CLEAR led to the reduction of risk behaviours.

TUPED341

Mediation analysis among peer norms, self-efficacy, and condom use among Chinese men who have sex with men: A parallel process latent growth curve modeling

H. Li[1], J. Tucker[2], C. Wei[3], W. Ma[1], J. Wang[4], G. Marley[1], D. Kang[5], M. Liao[5], W. Tang[2], B. Jiang[1]
[1]Shandong University, Jinan, China, [2]UNC Chapel Hill, UNC Project-China, Guangzhou, China, [3]Rutgers University, New Jersey, United States, [4]George Washington University, Washington, DC, United States, [5]Shandong CDC, Jinan, China

Background: Although norm and self-efficacy are two important constructs in health behavior theories, critical thinking and empirical examinations about the relationship among these two variables are still limited in the literature. The constructs of norm and self-efficacy that apply in one context may not necessarily be applicable in another. This study aims to examine direct and indirect relationships among peer norms, self-efficacy, and condom use among Chinese men who have sex with men (MSM).
Methods: A condom use video promotion campaign with a longitudinal research design, including a baseline survey and two follow-ups, were conducted among online MSM in China in 2015. Given the fact that the content of the video were about sexual activities and condom promotion between men, 804 Chinese MSM who reported having sex with men in the last three months were recruited. Parallel process latent growth curve modeling and mediation analysis were conducted using Mplus 7.4.
Results: Among the 804 MSM, the mean age was 24.9 ±6.5; 58.3% were ≤ 24 years of age; 10.8% were currently married to a woman or engaged; 67.8% had a college diploma or higher level of education; 82% had an annual income less than 9678 USD (60000 RMB).The proposed mediation relationship was examined by correlation analysis and parallel process latent growth curve modeling with a good fit index: RMSEA = 0.043, 90% CI (0.040, 0.045), CFI = 0.968, TLI = 0.968. The initial factor of peer norms was indirectly associated with the initial factor of condom use via the initial factor of self-efficacy (0.40, $p < 0.001$). Also, the growth factor of peer norms was indirectly associated with the growth factor of condom use via the growth factor of self-efficacy (0.331, $p < 0.001$). The model explained 76.7%, 69.7%, and 62.1% of the variances in condom use at the three time points respectively.
Conclusions: Self-efficacy mediated the association between peer norms and condom use. The study has moved the theories forward, indicating a strong potential of casual relationship between norms and self-efficacy among Chinese MSM, thereby justifying the equal importance of enhancing norms and self-efficacy in health behavior promotion in a Chinese cultural context.

TUPED342

Developing a typology of HIV/STI testing patterns and associated motivators: A framework to guide interventions among men who have sex with men

R.K.J. Tan[1], N. Kaur[2], C.S. Wong[2], M.I.-C. Chen[1,2]
[1]National University of Singapore, Saw Swee Hock School of Public Health, Singapore, Singapore, [2]Tan Tock Seng Hospital, Institute of Infectious Diseases and Epidemiology, Singapore, Singapore

Background: Men who have sex with men (MSM) in Singapore are disproportionately represented in prevalent HIV infections, relative to the general population. Notably, voluntary HIV/STI testing rates have remained suboptimal among MSM. While existing research has sought to identify the factors associated with testing behaviors among MSM, few studies have attempted to delineate the mechanisms that underlie different patterns of HIV/STI testing. This study proposes a typology of HIV/STI testing patterns and their associated motivators among MSM.
Methods: We conducted 21 semi-structured in-depth interviews with a purposively recruited sample of self-identified MSM in Singapore. Maximum variation sampling was employed to ensure a diversity of responses from MSM of varying age, socioeconomic status, ethnicity, and HIV/STI status. Topics explored included formative sexual experiences, relationships with other men, experiences of HIV/STI testing, and lived experiences of HIV/STI diagnosis and acquisition. Interviews were audio-recorded, transcribed, coded, and analyzed through an inductive analytical approach.
Results: A typology comprising four distinct HIV/STI testing patterns emerged from the data. Testing patterns are categorized based on the regularity of testing, relative to intrinsic or extrinsic factors that motivate testing behaviors. These include
1) triggered episodic testing, where testing is triggered by a psychological response to HIV/STI symptoms, or as a means to assuage one's own paranoia, fear or other negative emotions that arise from discrete HIV/STI risk events;
2) cued episodic testing, where testing is episodic and influenced by the presence of prompts and cues from friends, community organizations, or sexual health promotion messaging;
3) mandated regular testing, where testing is mandated or directed by healthcare institutions or by employer or government-mandated health screening; and
4) value-based regular testing, where testing is motivated by the value placed by participants on the importance of regular testing, typically driven by engaging in peer support groups, volunteering, or working in the context of sexual health-seeking and promotion.
Conclusions: Participants illustrate the ability to switch between types of testing patterns based on their existing psychosocial and contextual resources. The proposed typology provides policymakers a framework to guide sexual health promotion and behavioural interventions that seek to influence testing patterns among MSM.

		Motivating Factors	
		Intrinsic	Extrinsic
Regularity of Testing	Episodic	**Triggered Episodic Testing** Triggered by a psychological response to manifestations of HIV/STI symptoms, and to assuage paranoia, fear or other negative emotions.	**Cued Episodic Testing** Influenced by the presence of prompts and cues from friends, community organizations, or sexual health promotion messaging.
	Regular	**Value-Based Regular Testing** Motivated by the value placed by participants on the importance of regular testing, typically driven by engaging in peer support groups, volunteering, or working in the context of sexual health-seeking and promotion.	**Mandated Regular Testing** Regular testing directed by employers or healthcare institutions and regimes.

[Typology of HIV/STI testing patterns by regularity of testing relative to factors motivating testing behaviors]

TUPED343

HIV microaggressions: A novel area of stigma research among people living with HIV

L. Eaton, C. Merley, B. Hamilton, T. Grebler, M. Kalichman, S. Kalichman
University of Connecticut, Storrs, United States

Background: Since the beginning of the HIV epidemic stigma has stymied HIV prevention and treatment efforts. Stigma is multi-faceted and directed from many sources, and therefore, remains a challenging social factor to overcome. HIV microaggressions are subtle, negative messages that denigrate people living with HIV (PLWH). Although microaggressions have been researched extensively in other areas
(*e.g.*, race), there are currently no available quantitative assessments of HIV microaggressions.
Methods: We developed an HIV microaggressions scale based on prior microaggressions work and stakeholder/community feedback. We enrolled 106 PLWH living in Atlanta, GA, USA to participate in an assessment of experiences of HIV microaggressions. HIV diagnosis was confirmed for all participants.
A principle components factor analysis with varimax rotation was conducted on all 14 items and scale reliability analyses were completed.
Results: Results demonstrated a five factor solution with 65% of the variance explained, and Cronbach's =.80. Analyses identified the following subareas of our microagressions scale: negative assumptions about

PLWH (example item "people living with HIV shouldn´t have sex"), negative portrayals (example item "you heard about someone being outed about their HIV positive status"), HIV messaging avoidance (example item, "you avoided reading comments section of article on HIV"), subtle mistreatment (example item, "you saw an HIV positive person being portrayed negatively in media"), and negative intrapersonal messaging (example item, "In an online dating profile, someone wrote „drug/disease free, UB2" or „neg for neg only""). All participants reported experiencing at least some instances of HIV microaggressions in the prior month, with variability being observed across the number of instances. The most frequently reported items included: "you heard someone say, I'm HIV negative, I'm clean" (N=96, 91.6%) and "you heard someone say, "but he/she doesn't look HIV positive" (N=99, 93.4%). Further, microaggressions were found to be associated with recent health care access.

Conclusions: Microaggressions are known to impact health outcomes, yet little is understood about microaggressions among PLWH. In the current study, we identified HIV microaggressions as being frequently reported among PLWH. Further research is needed to assess the impact of microaggressions on HIV related health outcomes including heath care engagement and markers of disease progression.

TUPED344

From knowledge to empowerment: A holistic approach to decrease the incidence of HIV among young people globally

W.J. van Enck[1], M. Todesco[2], D. Braeken[3]

[1]Dance4Life, Research & Development, Amsterdam, Netherlands, [2]Dance4Life, Amsterdam, Netherlands, [3]IPPF (former), Amsterdam, Netherlands

Background: To tackle the slow decline in new HIV infections among young people (especially girls), it is necessary to step out of the realm of traditional, knowledge transfer approaches. Instead, empowerment approaches built around the principles of Positive Youth Development (PYD) provide new solutions to existing problems. Based on the insights from over a decade of programming, Dance4Life presents an innovative Empowerment model to tackle the sexual and reproductive health risks of young people globally.

Description: Too often, sexuality education is treated as a scientific topic, resulting in disengagement from information that does not resonate with the daily lives of young people. Dance4Life presents a holistic peer-to-peer PYD approach that helps young people build social emotional learning (SEL) competencies that serve as mediating factors for positive behaviour change, such as increased negotiation skills and use of contraceptives, seeking health services, and voluntary testing and counselling. Young people are empowered to take responsible decisions about their life through increased self-efficacy towards sexual and reproductive health (SRH) issues, robust gender equal attitudes, and awareness of social norms and willingness to change harmful ones.

Lessons learned: The Dance4Life Empowerment model is a contextualized, peer-to-peer approach that enables facilitators to connect to young people and create a safe space where participants feel free to speak out, share and address sensitive issues. UNESCO's key elements for CSE are integrated in the curriculum, while focus shifts from transferring knowledge to experiential learning through creative facilitation of activity-based sessions. Peers refer youth to rights-based sources of information and health services they themselves perceive as youth-friendly. The model ensures that the internal incentive to change is supported by an enabling environment, where quality SRH services are available and accessible, and community support is created through advocacy.

Conclusions/Next steps: Tackling the slow decline in new HIV infections and other SRH challenges can only be accelerated when young people are provided with a positive approach, relevant to their personal lives. The Dance4Life Empowerment model serves as a powerful incentive, and provides a scalable and sustainable intervention for improving the sexual and reproductive health of young people globally.

TUPED345

Using social science methods to understand pathways to impact: A national HIV self-testing intervention targeting men who have sex with men and trans people in England and Wales

T.C. Witzel[1], F.M. Burns[2], A. Rodger[2], C. Bonell[1], F. Lampe[2], A. Speakman[2], D. Dunn[3], D. Ward[3], L. McCabe[3], M. Gabriel[3], M. Gafos[3,4], R. Trevelion[5], S. McCormack[3], A. Phillips[4], P. Weatherburn[1]

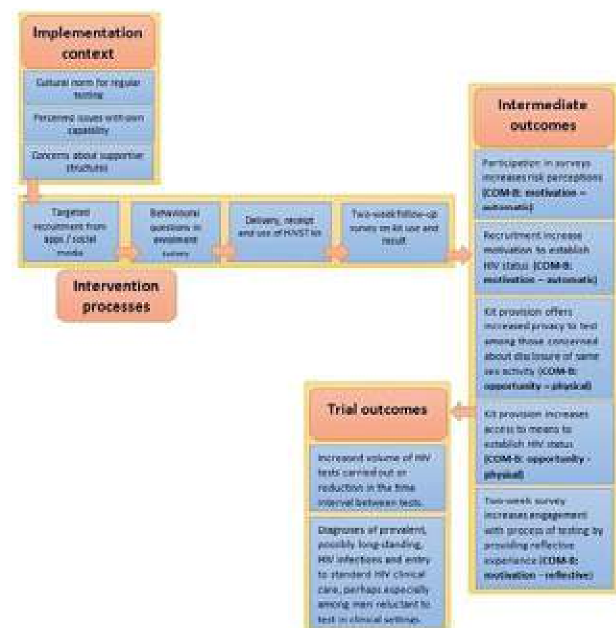
[1]London School of Hygiene and Tropical Medicine, Public Health and Policy, London, United Kingdom, [2]University College London, Institute of Global Health, London, United Kingdom, [3]University College London, MRC Clinical Trials Unit, London, United Kingdom, [4]London School of Hygiene and Tropical Medicine, Global Health and Development, London, United Kingdom, [5]HIV iBase, London, United Kingdom

Background: Increasing HIV testing among at-risk populations is a global HIV prevention goal. HIV self-testing (HIVST) could expand testing to new populations. SELPHI is an online randomised controlled trial evaluating whether HIVST increases rates and timeliness of HIV diagnoses among MSM and trans people. SELPHI target sample is 10,000, and initial randomisation is to HIVST or standard care.

SELPHI has used the COM-B behaviour change model in intervention development. COM-B theorises alterations in capability, opportunity and motivation as key to successful behavioural interventions.

The aim of this study is to articulate potential pathways to impact in a national HIVST intervention using COM-B.

Methods: Three formative studies investigating attitudes towards HIVST contributed to the logic model: a systematic literature map, six focus groups discussions (FGDs) (July to Nov 2015) with 47 MSM in three cities and 17 key informant interviews (IDIs) (May to Dec 2016) across England. FGDs and IDIs were transcribed and analysed thematically. Themes were extracted from qualitative data and relevant literature, then mapped onto a thematic framework informed by COM-B. The logic model was developed by transposing framework components to contextual factors, intervention processes, intermediate and trial outcomes.



[Figure 1: SELPHI logic model]

Results: As shown in figure 1, contextual factors included a strong norm for regular testing supporting implementation. Perceived capability concerns (low self-efficacy and lack of support) were barriers.

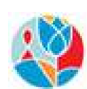
The logic model suggests intervention processes facilitate behaviour change by increasing motivation and opportunity.

Three intervention processes enhance motivation:

i) collection of behavioural information at registration increases risk perception;

ii) a free kit offer enhances the desire to establish HIV status; and

iii) follow-up contact increases engagement with testing.



One process increases opportunity by providing an additional, convenient modality, reducing the burden of time associated with testing while increasing privacy.
In order to address capability issues, advertising should enhance motivation by highlighting facilitators while addressing and minimising capability concerns.
Conclusions: The logic model describes the potential of SELPHI to affect behaviour change. By heightening risk perception and providing HIVSTs and follow-up support, SELPHI increases opportunity and motivation to test. Using COM-B allows us to better understand intervention processes and likely outcomes.

TUPED346

Developing and validating a Safer Sex Empowerment Scale (SSES) for young Black men who have sex with men

S.K. Choi[1], S. Legrand[2], K. Muessig[1], S. Ennett[1], M. Boynton[1], L. Hightow-Weidman[3]
[1]University of North Carolina Chapel Hill, Health Behavior, Chapel Hill, United States, [2]Duke Global Health Institute, Durham, United States, [3]University of North Carolina Chapel Hill, Institute for Global Health and Infectious Diseases, Chapel Hill, United States

Background: Young Black Men who have Sex with Men (YBMSM) experience profound levels of stigma and marginalization which has been shown influence engagement in risky sexual behaviors. Increasing empowerment to engage in safer sex among marginalized groups, in spite of discrimination and stigma, could help reduce rates of HIV infection. Safer sex empowerment is defined by social action that involves participation of individuals, communities, and societies to increase safer sex behaviors. There is currently no published instrument designed to measure levels of safer sex empowerment, thus we developed and validated a Safer Sex Empowerment scale (SSES).
Methods: This study used baseline survey data from 474 YBMSM enrolled in healthMpowerment.org, a mobile-phone-optimized, Internet-based intervention designed to reduce sexual risk behaviors among YBMSM. Based on literature review, common constructs of empowerment included self-efficacy, self-esteem, emotional support and sense of community. At the beginning, 35 items related to these constructs were included in the analysis. Principal components analysis was used to identify an empirically derived set of sub-constructs. Pearson's correlation coefficients were used to examine the validity.
Results: Mean age was 24.3 (SD 3.2), 24% had at least a college degree, and 42% were HIV-positive. The finalized SSES included 29 items with five factors: (1) emotional support: support showing love, empathy, or affection, (2) self-efficacy for condom use: ability to use condoms, (3) negative self-esteem: critical of self-worth, (4) positive self-esteem: appreciating their own merits, and (5) self-efficacy to refuse sexual behavior: ability to refuse sexual behavior. The SSES showed good reliability (Cronbach alpha=0.90) and construct validity was established by examining correlation coefficients for anxiety (=-0.29, p< 0.0001), depression (=-0.53, p< 0.0001) and safer sex intentions (=0.29, p< 0.0001).
Conclusions: Findings support a SSES that includes five sub-constructs; emotional support, self-efficacy for condom use, negative and positive self-esteem, and self-efficacy to refuse sexual behavior. The SSES can be a helpful tool to further quantify the role of empowerment in impacting safer sex behaviors among YBMSM. Measuring these relationships and developing and evaluating interventions based on these relationships could pave the way for empowering YBMSM toward safer sex thereby impacting disparate HIV rates among YBMSM.

TUPED347

Motivation matters! Using qualitative research to develop an mHealth intervention to support antiretroviral adherence among HIV-positive female sex workers in Mombasa, Kenya

F.M. Aunon[1], G. Wanje[2], L. Masese[3], T.A. Odeny[4], W. Jaoko[5], J. Simoni[1], R.S. McClelland[3,6,7]
[1]University of Washington, Department of Psychology, Seattle, United States, [2]University of Nairobi Institute of Tropical & Infectious Diseases (UNITID), Nairobi, Kenya, [3]University of Washington, Department of Medicine, Seattle, United States, [4]Kenya Medical Research Institute, Center for Microbiology Research, Nairobi, Kenya, [5]University of Nairobi, Department of Medical Microbiology, Nairobi, Kenya, [6]University of Washington, Department of Global Health, Seattle, United States, [7]University of Washington, Department of Epidemiology, Seattle, United States

Background: While mHealth interventions have been identified as innovative approaches to addressing antiretroviral (ART) adherence challenges, theory-driven interventions remain limited. We conducted focus group discussions (FGDs) grounded in Information, Motivation and Behaviour (IMB) theory to design a personalised, interactive, text-based intervention to support ART adherence among HIV-positive female sex workers (FSWs) in Mombasa, Kenya.
Methods: Qualitative FGDs with 23-positive FSWs were used to iteratively develop an SMS-based intervention (Motivation Matters!). FSW were purposively sampled across two stages of treatment: ART-naïve (one group) and ART-initiated (two groups). Two rounds of FGDs were conducted with each group, for a total of six FGDs. The first round of FGDs was used to identify culturally appropriate treatment content grounded in IMB theory (e.g., identifying information and misconceptions influencing decisions, eliciting sources and types of motivation, and identifying cues promoting ART adherence). A second round of FGDs was then used to determine intervention format and structure. All FGDs were recorded, transcribed and translated, and analysed according to the IMB model. From these broad IMB themes, grounded theory approach was used to identify subthemes and key content areas used to develop text messages.
Results: Text messages were developed based on IMB themes generated by FGDs. Based on FGDs, information-oriented texts addressed women's concerns about responding to missed doses, taking ART while drinking alcohol, and the influence of religion on adherence. Motivation-oriented texts reflected the women's desire to feel healthy enough to engage in everyday activities and provide family support. Based on FSWs' feedback, behaviour-oriented texts suggested strategies to remember taking ART, especially if there was a disruption in schedule. In addition, messages were personalized based on religion, language, and the time of day sent. Women appreciated the proposed interactive texting and requested more frequent messages shortly after ART initiation.
Conclusions: The theory-driven approach described above has the potential to inform development of culturally-tailored interventions to support ART adherence among key populations. This study begins to explore the extent to which application of theory and feedback from target populations during intervention development provides more efficacious interventions. The developed intervention is now being tested with a cohort of FSWs newly initiating ART.

TUPED348

The roles of behavioral and social sciences research in the fight against HIV/AIDS: A functional framework

P. Gaist[1], M. Stirratt[2]
[1]National Institutes of Health, Office of AIDS Research, Rockville, United States, [2]National Institutes of Health, National Institute of Mental Health Division of AIDS Research, Rockville, United States

Background: Though there have been significant biomedical advances in HIV/AIDS prevention and treatment, the public health crisis of HIV/AIDS persists. This persistence has led researchers to more closely examine the inter-related roles of behavioral and socio-structural factors that impinge, improve, and/or otherwise impact HIV/AIDS prevention, treatment, and care at both the individual and population levels.
Methods: To support the future application of behavioral and social sciences research (BSSR), authors Gaist and Stirratt created a functional framework for HIV/AIDS-related BSSR. The framework consists of 4 primary domains: (1) Basic BSSR to understand vulnerable populations and the context of risk; (2) Elemental BSSR to improve behavioral and social approaches to risk reduction, prevention, and care; (3) Supportive BSSR for strengthening the design and outcomes of biomedically focused research in HIV/AIDS treatment and prevention; and (4) Integrative BSSR to attend to effective implementation of HIV/AIDS interventions in real-world settings.
Results: Basic, Elemental, Supportive, and Integrative BSSR culminate to create a figurative table of HIV prevention, care, and cure research and practice. As shown in the figure below, Basic BSSR provides a sturdy foundation for the other 3 domains and guides future efforts to improve HIV-related health outcomes. Each of the components are integral to fully understanding behavioral and social aspects acting as barriers or facilitators to HIV prevention and treatment.
Conclusions: These 4 domains illustrate the important role of BSSR in current and future efforts to address HIV/AIDS on a global scale. The successful development and delivery of effective, evidence-based HIV prevention and treatment requires BSSR in each of the domains. All 4 domains benefit by research to further identify structural determinants of HIV, help individuals/communities navigate the expanding and changing HIV prevention and treatment landscape, and scale intervention endeavors. Significant progress has been made in identifying and addressing behavioral and social aspects that impact HIV prevention, care, and treatment interventions. However, future application of BSSR within and across these domains are necessary to ultimately end the HIV/AIDS epidemic. This functional framework provides a useful perspective and approach to assist researchers, program implementers, policy-makers and other HIV/AIDS-focused communities.

[A Functional Framework for HIV/AIDS Behavioral and Social Sciences Research]

Strengthening social and behavioural data collection and analysis

TUPED349

Novel measures of personal and cultural themes likely to affect HIV risk when large-scale economic or sociopolitical change occurs

S.R. Friedman[1], E.R. Pouget[2], M. Sandoval[3], G.K. Nikolopoulos[4], P. Mateu-Gelabert[5], D. Rossi[6,7]
[1]National Development and Research Institutes, Institute for Infectious Diseases Research, Highland Park, United States, [2]Brooklyn College, Biostatistics, New York, United States, [3]Brooklyn Legal Services Corporation A (BKA), New York, United States, [4]University of Cyprus, Medical School, Nicosia, Cyprus, [5]National Development and Research Institutes, Institute for Infectious Diseases Research, New York, United States, [6]Intercambios Civil Association, Buenos Aires, Argentina, [7]University of Buenos Aires, Social Work, Buenos Aires, Argentina

Background: Social and cultural groups differ cross-sectionally and over time in the extent to which people make decisions based on altruism, solidarity and the necessities of daily survival. We developed measures of these cultural themes as part of ongoing research on how large scale sociopolitical and economic change affects HIV epidemics. We have previously published these measures' reliability and validity for people who inject drugs in New York City. Here, we study their reliability and validity among high-risk heterosexuals (HRH) and men who have sex with men (MSM).
Methods: 298 HRH and 256 MSM, recruited by referral from an RDS study and by chain recruitment by study participants, were interviewed in New York City in 2013 - 2015. All were 18 years old or older and provided informed consent. Questions and scales on cultural themes and related behaviors were based on two years of qualitative research. Scale reliability is assessed with Cronbach's alpha and construct validity assessed by Pearson's r with selected criterion variables.
Results:
Within the HRH sample, 49% were women. Cronbach's alpha for the cultural orientations were 0.86 for altruism, 0.70 for solidarity and 0.86 for survival orientation. Validation: Altruistic orientation correlated 0.45 with frequency of helping others; solidarity 0.52 with competitiveness (which included items for group solidarity to increase group competitiveness) but only 0.05 with helping others, survival cultural orientation -0.57 with traditional values.
Within the MSM sample, Cronbach's alpha for the cultural orientations were 0.77 for altruism, 0.80 for solidarity and 0.89 for survival orientation. Validation: Altruistic orientation correlated 0.42 with frequency of helping others; solidarity 0.49 with competitiveness and 0.33 with helping others, but survival cultural orientation was not correlated with traditional values.
Conclusions: In New York, the measures of altruistic cultural orientation, and probably of solidarity orientation, seem reliable and valid for both HRH and MSM, and survival orientation for HRH. Future research should determine psychometric properties of these measures in other locations and, particularly, should study their role in mediating between large-scale sociopolitical and economic change and changes in HIV risk behaviors, risk networks, and HIV incidence.

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Late Breaker Abstracts
Publication Only Abstracts
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Mixed methods, integrated approaches and synergies in HIV research and intervention

TUPED350

Effecting change in research and policy for women living with and vulnerable to HIV through the women's research initiative on HIV/AIDS (WRI)

D. Averitt[1], J.D. Auerbach[2], G.M. Brown[3], J. Conley[1], L. Fitzpatrick[4], J. Kates[5], C.R. Wira[6], K. Martel[1]
[1]The Well Project, Brooklyn, United States, [2]University of California, San Francisco, United States, [3]Office of AIDS Research, NIH, Bethesda, United States, [4]George Washington University School of Public Health, Washington, United States, [5]Kaiser Family Foundation, Washington, United States, [6]Geisel School of Medicine at Dartmouth, Department of Microbiology and Immunology, Lebanon, United States

Background: The WRI was founded by The Well Project in 2003 in response to the historic exclusion of HIV-positive women from clinical trials and the overall lack of focus on women in HIV prevention and treatment research. Since its inception, the WRI has employed a unique model of stakeholder engagement to elevate, enhance, and expedite research on women and HIV.
Description: The WRI hosts a small (< 40) annual meeting on a salient topic (e.g., HIV cure, U=U, the HIV care continuum) focused on women. By bringing together key stakeholders from clinical care, research, advocacy, policy, government, and the pharmaceutical industry, as well as women living with HIV, the WRI comprehensively identifies research and policy gaps in treatment and prevention for women. Invited presentations and moderated discussions yield a series of action items that WRI members commit to undertake in their respective sectors. A summary report from the WRI deliberations is disseminated through The Well Project's website and by WRI members to their networks.
Lessons learned: The WRI has been instrumental in effecting change in research for women and HIV. Efforts include the development and successful implementation of the GRACE Study and the *Women Living Positively* Survey, the FDA meta-analysis of HIV clinical trials funded by the Office of Women's Health, and input by WRI members in the annual development of the NIH Plan for Women and Girls. Additionally, WRI members have formed collaborations, implemented fellowships, developed protocols to address novel basic science questions, created multidisciplinary teams for enhanced study hypotheses and design, mentored young investigators, and worked with policymakers to ensure that the needs of women living with HIV are consistently addressed.
Conclusions/Next steps: The WRI has created a uniquely multidisciplinary model of engagement for work in HIV among women. This model has successfully built relationships, influenced research, policy and advocacy efforts, and affected the direction of HIV treatment, prevention and cure research. The WRI model has the potential to be replicated across diseases and demonstrates the value of bringing diverse voices and perspectives together to address complex issues.

TUPED351

Trade and health. Emergence of local drug markets, HIV and injected drugs in Hermosillo, Sonora México. Results from a mixed study

A.M. Ospina Escobar[1], C. Magis Rodriguez[2]
[1]UNAM. Programa de Becas Posdoctorales en la UNAM, Becaria del Instituto de Investigaciones Sociales, Asesorada por la Doctora Marina Ariza, Instituto de Investigaciones Sociales, Mexico City, Mexico, [2]Centro Nacional para la Prevención y el Control del SIDA (CENSIDA), Atención Integral, Mexico City, Mexico

Background: Hermosillo, a middle-sized city in Northern Mexico has become an important site for drug-trafficking (DT) in the last decade. Official data show unprecedented expansion of heroin and methamphetamine use and HIV among people-who-injected-drugs (PID) in this city. We aim to identify characteristics of local drug market that could explain the emergence of injected drugs (ID) and HIV in Hermosillo.
Methods: This is a mixed study design. We analyzed quantitative data from a survey conducted in 2012 in sites where PID gathered in Hermosillo. We described patterns and contexts of drug use and risk behaviors. To understand the emergence of ID and HIV among PID, we conducted ethnographic work in 2014 and collected 13 biographies of drug use among PID from three different generations (1960, 1980, 1990). We trace generational changes in patterns, dynamics and context of drug use and trafficking in this city.
Results: 392 PWID were recruited. Their HIV prevalence was 5.2%. Most participants were polydrug users, 53% 42% of participants declared using methamphetamine and cocaine and 40% declared using china-white-heroin. Patterns of drug use reveal faster transition to injected drug use (5 years since the onset of drug use) but a relatively lower prevalence of syringe sharing (31%). Ethnographic findings revealed limited harm reduction programs and the arrival of criminal groups who boosts local drug market by promoting methamphetamine and china-white heroin use, controlling drug use dynamics and using violence in the neighborhoods. Younger drug users initiated with more addictive drugs (heroin and meth) and showed more compulsive patterns of drug use. PID are encouraged to work for criminal groups to pay debts which enhance risky practices for HIV.
Conclusions: Emergence of drug injection and HIV among PID is contingent with the arrival of criminal groups to Hermosillo. Mixed research design, combining quantitative data, ethnographic data and documentary research, allowed us to understand how changes in drug trafficking dynamics, along with an insufficient institutional increase HIV risks and injected drug use. Relationship between local drug markets and risk injection practices need to be contextually understood and has to be addressed in the debate of drug policy reform.

Qualitative and ethnographic methods in HIV research

TUPED352

Mapping the intersections of space, place, and health: Geo-narratives of living with HIV in San Francisco, California

A. Martinez[1], X. Liu[2]
[1]San Francisco State University, Center for Research and Education on Gender and Sexuality, San Francisco, United States, [2]San Francisco State University, Geography, San Francisco, United States

Background: The use of geographic information systems (GIS) to visualize the HIV/AIDS epidemic have produced maps and statistics that inform programmatic and policy efforts to reduce the burden of new infections in both resource limited and resource rich settings. Integrating GIS into qualitative methods opens up new possibilities for interpreting and understanding the treatment and care experiences of people living with HIV. This study seeks to advance qualitative GIS methodologies and contribute geo-narratives of managing treatment and accessing health care among persons living with HIV (PLWH) in San Francisco.
Methods: We conducted 30 qualitative interviews with PLWH who lived in San Francisco, California. We purposively recruited participants from clinics and hospitals between 2015 and 2017 by targeting neighborhoods with lower rates of viral suppression in San Francisco. We used the HIV continuum stages of care to structure our interview guide and elicit geographic data on the experiences of managing treatment and accessing care. After interviews were transcribed and integrated into GIS software, narrative analysis was used to produce geo-narratives of being HIV positive in San Francisco and managing treatment.
Results: PLWH in our sample were 75% men, 20% women, and 5% transgender. Three-quarters of the sample reported being LGBTQ and one-quarter reported a history of substance use. 100% of the sample reported being linked to care and currently receiving anti-retroviral therapy. Housing emerged as a theme that adversely impacted engagement in care, especially for those who lived in neighborhoods perceived as chaotic sites of violence, drug use, heightened police activity, and lack

of empathy for those living with HIV. Participants also highlighted a perceived reduction in availability of non-HIV related goods and services essential to overall well-being.
Conclusions: Integrating GIS into qualitative research is useful for illuminating how our PLWH participants´ experiences of particular spaces and places impact their engagement in HIV care. San Francisco is a health resource-rich city in which participants reported receiving excellent care for their HIV, yet struggled to remain engaged in care due to changes in the availability of housing, food, and community in a wealthy city with shrinking spaces for those on the social and economic margins.

TUPED353

Critical reflections on the use of repeated collages to understand the experiences of young women living with HIV in urban Zambia

C.R.S. Mackworth-Young[1,2], A. Wringe[3], A. Stangl[4], K. Sievwright[4], V. Bond[2,5]
[1]London School of Hygiene and Tropical Medicine, London, United Kingdom, [2]Zambart, Department of Social Science, Lusaka, Zambia, [3]London School of Hygiene and Tropical Medicine, Department of Population Health, London, United Kingdom, [4]International Center for Research on Women, Washington, United States, [5]London School of Hygiene and Tropical Medicine, Department of Global Health and Development, London, United Kingdom

Background: Participatory and art-based research methods, including collages, can be an effective tool to involve young people living with HIV (LWH) in generating data. However, critical reflections on using arts-based methods with young people are lacking.
Methods: 24 young women LWH aged 15-19 years were recruited from two health facilities in Lusaka, and participated in two workshops in January 2015. Another participatory workshop was held in November 2017 with 7 participants purposively sampled from the original group.
In each workshop, participants were given A3 card, magazines, pens, scissors and glue to create a collage telling a story about themselves (n=31). Participants described their collages in participatory workshops (n=3), and subsequent in-depth interviews (n=17) and participant observations (n=46). The collages were analysed visually, alongside inductive analysis of transcripts from the IDIs and observation notes.

[Collage by 18-year old young woman living with HIV, created in workshop in November 2017, revealing optimism, high ambitions and importance of family]

Results: Participants enjoyed the opportunity to physically construct their stories, recognising that collages "*held meaning*". Collages captured expressions of optimism and ambition, regardless of their HIV status, such as: "*HIV will not stop me from achieving my dreams*". This contrasted with in-depth interviews that typically captured stories of adversity.
Collages allowed visual representation of participants' lives, including demonstrating the importance of family and beauty. However, this was limited by the magazines provided, on fashion, travel, food and home. Participants noted that "*more [material] on aspirations for career and for the future*" would have enabled them to better express their aspirations.
Comparing collages with the same participants at two time points presented a progression from the central importance of school to college and careers, reflecting participants transitioning life stages. Some participants made direct before-after comparisons. One participant expressed: "*I now have so much confidence in myself*", which helped with disclosure.
Conclusions: Collages provide a feasible, engaging and effective method to involve young people in the production of data to understand their experiences LWH. They allowed participants to express more optimism, and, for repeated collages, transitions over time. Collages need to be used reflectively, including understanding how materials provided influence the representations presented. Collages can be an important tool, for research and beyond, in engaging young people LWH to visually tell their stories.

TUPED354

Online focus group discussions with transgender women in the Eastern and Southern United States: An emerging qualitative method for HIV research

E. Cooney[1], S. Reisner[2,3,4], D. Pardee[4], A. Wirtz[1]
[1]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [2]Harvard Medical School, Pediatrics, Boston, United States, [3]Harvard T.H. Chan School of Public Health, Epidemiology, Boston, United States, [4]The Fenway Institute, Boston, United States

Background: Technology-based methods are increasingly common in survey research. Qualitative research, however, has been slower to embrace technology frequently used by its target populations. The LITE American Cohort is a multi-site cohort examining HIV outcomes among transgender women in the eastern and southern United States. We examined the utility of using computer-mediated technology for formative, qualitative research (i.e. "online focus groups") to inform recruitment, marketing, and survey development for the cohort.
Methods: Seven online focus group discussions („online FGDs"; 5 English, 2 Spanish) were conducted between August 2017 and January 2018 using a secure web-conferencing platform (Zoom). Participants joined via landline, mobile phone, mobile application, or web browser and were given the option of using a pseudonym and to turn on/off video conferencing. Electronic gift cards were emailed to participants at the conclusion of each online FGD.
Results: Overall, 70 adult transgender women were eligible and scheduled for an online FGD; 41 attended (see Table 1). The most common reason for non-attendance was forgetting or having a scheduling conflict. Online FGDs facilitated geographic diversity, perceptions of anonymity, and flexibility in scheduling by eliminating challenges related to traveling to a data collection site. Several issues with traditional in-person FGDs remained with online FGDs such as overlapping conversations, variable audio quality, and prior connections between participants. Online FGDs raised additional considerations of technological literacy, acceptability of non-cash incentives, feasibility of distributing incentives, and imperceptibility of non-verbal communication. Participants with limited technological literacy, inconsistent access to a phone and/or cellular data/service, and circumstances necessitating immediate cash incentives may require additional support and accommodation.

	Attendees (n=41)	Non-Attendees (n=29)	Total Eligible (n=70)
Age: Mean (Range)	39.3 (21-59)	40.1 (22-65)	39.6 (21-65)
Race			
White	34%	10%	24%
Black	34%	55%	43%
Asian	5%	0%	3%
More than one race or other	27%	34%	30%
Hispanic/Latina	29%	34%	31%
City			
Atlanta	17%	14%	16%
Baltimore	22%	14%	19%
Boston	10%	14%	11%
New York City	12%	10%	11%
Miami	12%	14%	13%
Washington, DC	27%	34%	30%
Reasons for not attending			
Forgot or scheduling conflict	n/a	55%	n/a
Technological Challenge	n/a	14%	n/a
Unknown	n/a	31%	n/a

[Table 1: Eligible Participant Demographics]

Tuesday 24 July
Wednesday 25 July
Thursday 26 July
Friday 27 July
Late Breaker Abstracts
Publication Only Abstracts
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Conclusions: This study highlights several considerations for technology-enhanced qualitative research. Online FGDs with multiple secure phone or Internet access options have the potential to improve the feasibility of conducting research with hard-to-reach populations and to meet participants "where they are" in terms of their use of technology without significantly affecting data quality. In the context of HIV research, it is important to continue to find ways to ensure that individuals with inconsistent cellphone access, inability to utilize electronic gift cards and varying levels of technological literacy are included in research.

TUPED355

Construction of HIV-infected Lithuanian female drug users' identity in biographical narratives

G. Aleksaitienė
Vytautas Magnus University, Department of Social Work, Kaunas, Lithuania

Background: Most of PLHIV in Lithuania are injecting drug users suffering from psychosocial stress, stigma and discrimination. People with HIV infection, often experience multiple stigmatization because they use drugs, provide sexual services, have criminal record (Čaplinskas, 2010). Due to dominant Catholic faith in Lithuania the most stigmatized are drug-dependent women living with HIV. Assistance for PLHIV in Lithuania is medicalized, there are no dedicated psychosocial programmes guaranteed by the state (Sultan, 2013).
To improve the state programme for psychosocial work with women it is necessary to understand how drug-dependent HIV-infected women construct identity in the past, present and future.
Methods: The objective is to disclose how HIV-infected female drug users construct personal identity in biographical narratives.
The study is based on constructivist, existential and critical feminist theories and on interpreted constructive-ontology and subjectively-interpreted epistemology. 16 drug-dependent HIV-infected Lithuanian women between the age of 28 and 52 were interviewed in the format of biographic narrative and "life line" visualization. Data analysis was carried out using Creswell (2007) analysis.
Results: Construction of identity among survey participants unravelled as reconstruction of past events and social bonding reflecting the present and projecting the future with moments of impact throughout the entire "life line." As children women suffered distress due to unformed safe sense of attachment and trying to avoid suffering and loneliness started using drugs. This led to personality destruction subsequently leading to "breakdown in the biography" at the time of hearing the HIV diagnosis. This crisis has become the starting point for positively-oriented recovery of identity. Women not using drugs anymore and those still using drugs project the present and the past differently. Abstinence is a vital factor allowing women to create more close social relationships, who are highly significant for all survey participants. Psychosocial assistance at the time of hearing the HIV diagnosis was very helpful.
Conclusions: Reconstruction of life has vital positive impact on reconstruction of identity, HIV treatment and consumption/non-consumption of drugs. This method can be used in social work with drug-dependent, HIV-infected women and has already been proposed by the author to the Ministry of Health for the Programme to work with PLHIV.

TUPED356

A qualitative analysis of sexual communication and uncertainty management among participants in Taiwan CDC PrEP demonstration project

P. Huang[1], H.-J. Wu[2], F.-M. Jan[3], L.-W. Mao[4], N.-Y. Ko[5], C.-W. Li[4], C.-Y. Cheng[6], C. Strong[2], S.W.-W. Ku[7]
[1]University of California San Diego, Department of Communication, La Jolla, United States, [2]National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Department of Public Health, Tainan, Taiwan, Province of China, [3]Taipei Veterans General Hospital, Department of Medicine, Division of Infectious Diseases, Taipei, Taiwan, Province of China, [4]National Chang Kung University Hospital, Department of Internal Medicine, Tainan, Taiwan, Province of China, [5]National Cheng-Kung University, Department of Nursing, College of Medicine, Tainan, Taiwan, Province of China, [6]Taoyuan General Hospital, Ministry of Health and Welfare, Department of Internal Medicine, Taoyuan, Taiwan, Province of China, [7]Taipei Veterans General Hospital Hsinchu Branch, Taiwan, Department of Medicine, Division of Infectious Diseases, Hsinchu, Taiwan, Province of China

Background: In 2017, the Taiwanese CDC recruited 321 individuals in a national PrEP demonstration project to assess key populations' acceptance. However, little is known about how PrEP users - predominately men who have sex with men (MSM) - incorporate PrEP in communicating with their sexual partners. This paper reports the result of the interviews with participants enrolling in the demonstration project.
Methods: Based on the framework of Dale Brashers's Uncertainty Management Theories, this research aims to determine whether being „On-PrEP" decreases MSM's perceived uncertainty in communicating with their sexual partners. Through online flyers and snowball sampling methods, we conducted in-depth, semi-structural interviews with 40 MSM. We accessed their: motivations of taking PrEP; perceived barriers of maintaining in PrEP regime, inclinations of specifying "on PrEP" on their online profiles, and strategies for applying PrEP into their communication with sexual partners.
Results: Among the interviewees who are currently on PrEP, only less than 20% reported being willing to reveal their On-PrEP status either to their sexual partners or on smartphone apps. Reasons of not-disclosing On-PrEP status include "protecting one's privacy" and "avoiding awkwardness," suggesting that social stigma around AIDS remains the biggest barriers for PrEP's rollout. While the interviewees had better health awareness, having more prevention tools paradoxically increased their perceived uncertainty. We have categorized four types of uncertainty regarding their biomed matching and strategies for safe sex.

1. Uncertainty about one's literacy in interpreting scientific data and jargons;
2. Uncertainty about one's skills in negotiating condoms use with sexual partners;
3. Uncertainty about sexual partners' awareness, attitudes, and acceptances about PrEP;
4. Uncertainty about the cultural gap and language barrier, such that how the idea of *prophylaxis* should be properly represented in the local context.

Conclusions: PrEP is an effective prevention tool for HIV infection. However, during its initial rollout in Taiwan, MSM reported increasing perceived uncertainty regarding their literacy, skills of negotiating condom use, sexual partners' awareness, attitudes, and acceptance, as well as the cultural and language barrier regarding translation. To facilitate its implementation, we suggest policy makers, PrEP providers, potential PrEP users, and AIDS advocates focusing on above uncertainties and tailoring messages in the future campaigns.

TUPED357

Psychosocial barriers to HIV care in Uganda

S. Lofgren[1,2], L. Atuymbe[3], N. Nakasujja[4], P. Kirumira[2], R. Rajasingham[1], D. Meya[2], D. Boulware[1]
[1]University of Minnesota, Medicine, Division of Infectious Diseases and International Medicine, Minneapolis, United States, [2]Makerere University, Infectious Disease Institute, Kampala, Uganda, [3]Makerere University School of Public Health, Kampala, Uganda, [4]Makerere University, Psychiatry, Kampala, Uganda

Background: Despite success of HIV treatment roll out in sub-Saharan Africa, 20-25% of patients still present with advanced HIV disease. These late presenters experience higher morbidity and mortality. To better understand the reasons for late presentation, we conducted a qualitative study in Kampala, Uganda.
Methods: People living with HIV (PLWH) who had newly presented to HIV clinic within the last 3 months and healthcare workers (HCW) from the same clinics performed in-depth interviews. Patients were grouped as:
1) antiretroviral therapy (ART) defaulters,
2) ART naïve CD4 count< 100 cells/uL "late presenters" or
3) ART naïve CD4 count>350cells/uL "early presenters".
Interview topics included:
a) barriers for HIV care,
b) facilitating factors,
c) mental illness,
d) drugs and alcohol,
e) stigma, and
f) social support.
Themes were grouped by category.
Results: Between May and August 2017, 58 PLWH and 21 HCW were interviewed at 5 HIV clinics. HCWs reported stigma as the primary barrier for HIV testing and care. Denial of diagnosis, time-consuming clinic appointments, or lack of transport funds were other barriers. The HCWs noted alcohol abuse contributed to men not engaging in care. HCWs noted fear of abandonment or domestic abuse contributed in women. Barriers around clinics being inefficient and lacking privacy were also themes.
Among ***early presenters*** themes included incidental HIV testing during febrile illness, after a partner develops AIDS or partners are non-monogamous. Many noted a friend/family member who encouraged them to engage in care. A few tested for HIV to check on the status of their health. ***Late presenters*** nearly all waited until they were ill/symptomatic. A major theme among men and some women was alcohol abuse. Themes among ***defaulters*** include denial, stigma, and alcohol use. Most had a major life event, which interrupted their care such as travel, incarceration, or neighboring country civil wars.
Conclusions: Our findings suggest interventions to reduce stigma, educate the community, and reduce alcohol abuse would reduce late presentation. Efforts to do contact tracing and partner disclosure would be of value. Improving clinic efficiency and privacy would be useful. Finally encouraging healthy individuals to have periodic HIV tests would likely help reduce late presentation of HIV.

TUPED358

AIDS in action: Researching a new movement led by Canadians living with HIV

C. Hui[1,2]
[1]Ryerson University, School of Social Work, Toronto, Canada, [2]Canadian Positive People Network (CPPN), Toronto, Canada

Background: Utilizing an anti-oppressive and intersectional approach to qualitative research, a co-founder of the Canadian Positive People Network (CPPN), a new network formed by Canadians living with HIV and HIV co-infections, conducted a GIPA-centerd graduate level social work study aimed at exploring
1) the challenges and opportunities faced by this peer-led group as they reassert PLHIV back to the forefront of the Canadian national HIV response; and
2) establishing key factors to inform the strengthening the young network.
Methods: The study developed an original theoretical framework, the "Positive People Centred Perspective", by combining GIPA with theories on anti-oppressive social work practice, citizenship and rights, and social movement to comprehensively ground the HIV response. To ensure the views and needs of key populations are not left behind, the study utilized purposive sampling and conducted qualitative one-on-one "activist dialogue" interviews with 5 key Canadian activists living with HIV representing an intersection of MSM, sex worker, drug user, migrant, transgender people, incarcerated people, and Indigenous people. Interviews were audio-recorded and transcribed.
Thematic analysis was performed with N-Vivo. Results were member-checked with interviewees for accuracy.
Results: Challenges and barriers facing the Canadian PLHIV movement include the shifting of the epidemic to marginalized key populations groups and the professionalization of the sector. Key themes include the importance of the network to champion the right agenda that is informed by all affected communities, and to proactively challenge and resist structural violence and oppression, colonialism, racism, whiteness, and neo-liberalism to create transformative change. Institutional considerations include making a proactive commitment and create policies on equity, inclusion, anti-oppression, and non-discrimination. For minoritized groups, true equity means working in culturally-safe ways and supporting their specific goals and objectives within the network´s broader agenda.
Conclusions: An anti-oppressive, positive-people centered, intersectional approach to research has informed a nascent Canadian PLHIV network the importance to break systemic and structural barriers for PLHIV and key populations and proactively build bridges to support the changing needs of PLHIVs. The HIV sector, including PLHIV networks and organizations serving PLHIV, must proactively commit to equity, inclusion, anti-oppression, non-discrimination, cultural-safety, decolonization, and resist neo-liberalization to end the epidemic for all.

TUPED359

'Being healthy' as a factor for both accepting and refusing to initiate ART: A cross-sectional qualitative study in the era of *Test and Treat* in Mozambique

A. Magaco[1,2], K. Dovel[3,4], F. Cataldo[5], P. Nhassengo[2], J. Tique[6], A. Couto[6], R. Hoffman[4,7], L. Nerua[2], M. Saide[2], E. Samo Gudo[2], S. Chicumbe[2]
[1]National Institute of Health, Health Systems Program, Maputo, Mozambique, [2]National Institute of Health, Maputo, Mozambique, [3]Partners in Hope, Lilongwe, Malawi, [4]University of California, Los Angeles, United States, [5]Institute for Global Health and Development, Edinburgh, United Kingdom, [6]National STI, HIV and AIDS Control Program, Maputo, Mozambique, [7]Research Department, Partners in Hope, Lilongwe, Malawi

Background: In mid-2016, Mozambique began phased implementation of the "Test-and-Treat" (T&T) approach, which enrols HIV positive clients into antiretroviral treatment (ART) immediately, regardless of clinical stage. The aim of this study was to describe perceived barriers and facilitators to the implementation and uptake of T&T. We examined the relationship between the lived experience of patients initiating ART in the context of T&T and how 'good health' influences their perception of care.
Methods: A cross-sectional qualitative study was conducted across 10 health facilities in 4 provinces in Mozambique that initiated the implementation of T&T. Data were collected through in-depth interviews with HIV+ clients (n=60 initiated/20 did not initiate ART within T&T) and 9 focus group discussions with health care workers (n=53). The analysis used a deductive and inductive approach to develop analytic categories and transcripts were coded using NVIVO-11.
Results: Feeling 'healthy' functions both as a barrier as well as a facilitator for ART initiation. Clients in „good health" found it hard to believe a positive HIV diagnosis and, if they believed in the validity of the test, did not understand why they were asked to start ART right away. Patients also reported concerns about ART side effects, fear of inadvertent HIV disclosure, as well as discrimination, limited privacy at health facilities, and long waiting times as barriers. In contrast, being in „good health" was also a key motivator for clients to remain healthy, maintaining responsibilities and caring for their families, and avoiding unwanted disclosure. Other facilitators included being well enough to take care of dependents as well as the positive perception of the quality of ART services.

Conclusions: Our study provides an in-depth understanding of the complexity and dynamics of the perception of 'health' among newly diagnosed HIV positive clients and how individual perceptions of 'being healthy' may influence ART initiation in T&T. Engaging with the priorities and experiences of individuals in relation to the notions of health and illness are key to improving future HIV interventions especially in the era of T&T.

TUPED360

Understanding motives for initiating PrEP amongst adolescent girls and young women (AGYW) in South Africa and Tanzania

S. Lees[1], F. Scorgie[2], E. Mashauri[3], N. Khoza[2], L. Ramskin[2], D. Baron[2], S. Delaney[2], S. Harvey[1]
[1]*London School of Hygiene and Tropical Medicine, PHP, London, United Kingdom,* [2]*University of the Witwatersrand, Wits Reproductive Health and HIV Institute, Johannesburg, South Africa,* [3]*Mwanza Intervention Trials Unit, Mwanza, Tanzania, United Republic of*

Background: Very few studies have been conducted with AGWY in Tanzania and South Africa on motives for initiating PrEP. We conducted a qualitative sub-study as part of the EMPOWER study, which evaluates the feasibility and acceptability of offering oral PrEP alongside an HIV and violence prevention package for AGYW in South Africa and Tanzania.
Methods: In-depth interviews were conducted with participants 3 months after accepting PrEP in Johannesburg (n=25) and Mwanza (n=14). Data were transcribed and translated into English and coded in QSR Nvivo taking an inductive thematic approach. Key themes relating to participants' motives for PrEP-use were elicited.
Results: In Mwanza, participants were working in bars or as local food vendors where sexual transactions are common. They acknowledged the higher HIV risk of their work environment but also were concerned about regular partners' infidelity. Initial concerns about PrEP safety were assuaged following receipt of product information from study staff. Motives also focused on 'being safe', and that using PrEP would offer them reliable HIV protection in contrast to condoms.
Participants in Johannesburg were students in the inner-city, a social context where multiple concurrent partnerships are the norm. Virtually none trusted their partners, who were considered promiscuous and at high HIV-risk. Most participants recognised their risk was heightened by low condom use and cited fear of sexual assault. In both sites, experiences of family living with HIV and dying of AIDS also motivated women to use PrEP.
Conclusions: In both sites, motives for initiating PrEP reflected a desire to protect their health and future. In Mwanza, the main narrative was one of 'safety'; PrEP was considered a safe drug with high efficacy, reflecting trust in the research study context and confidence that HIV could be conquered. In Johannesburg, PrEP aligned with the 'independent, urban woman', an aspiring image in this setting; participants understood PrEP does not guarantee efficacy in preventing HIV and had some safety concerns, but awareness of their heightened personal risk was greater.
Our study confirms the high acceptability of PrEP among two contrasting populations of African AGYW, but cautions that repeated messaging about multiple protection methods are still needed.

TUPED361

Person-focus analyses of resilience among newly diagnosed HIV positive men who have sex with men: Results from an ethnographic study in China

H. Li[1], E. Holroyd[2]
[1]*Shandong University, Jinan, China,* [2]*Auckland University of Technology, Auckland, New Zealand*

Background: Limited studies have examined the dynamic interplays of risk and resilience in the context of HIV-infected men who have sex with men (MSM), and very few studies have examined this issue within a Chinese cultural context using a longitudinal research design. This study aims to explore resilience-related experiences among newly diagnosed HIV positive MSM in a Chinese cultural context.
Methods: Longitudinal in-depth interviews at two time points in a 3 months interval were conducted within a lager ethnographic study in Shenzhen, China. Purposive sampling was used to recruited 31 participants with diverse social economic status. Inclusion criteria were 18 years of age or older, received a diagnosis of HIV infection within the last 6 months, identified as a MSM. A person-focus approach and cross-case analysis were adopted in data analysis.
Results: At time point one, most participants (29/31) reported symptoms of depression and/or anxiety when they were diagnosed HIV positive. At time point two, most participants (17/31) expressed resilience, with eleven participants being back to normal functioning and six participants even experiencing growth. This group of participants integrated negative experiences and recovered in both cognitive and activity levels, using resources such as social support and optimism. However, three participants (3/31) still reported severe symptoms of suicidal ideation, major depression, and anxiety. Other participants (11/31) reported being resilient to some degree while encountering such problems as not accepting their diagnosis, rejecting available healthcare services, and practicing unsafe sex. These were seen to be related to their original psycho-social wellbeing further deteriorating with an HIV diagnosis, such as being put into the centre of gossips and threatening, lack of hope for the future, perceiving increased living pressure, in conflict with CDC/hospital, etc.
Conclusions: Resilience was seen to be created from positive person-situation interaction. Resilience and setbacks concurred in tandem, switching back and forth, and only participants who continued to make an effort to deal with their setbacks could grow continuously. In order to facilitate the development of resilience and personal growth among these HIV positive MSM, community developments, including increased social support, routine mental health services, stigma reduction and intentional activity campaigns, are needed.

TUPED362

HIV: Once a crisis, now undetectable? An ethnographic study of ageing gay men´s long-term experience of HIV

C. Zraunig[1], E. Moyer[2]
[1]*University of Amsterdam, Medical Anthropology, Amsterdam, Netherlands,* [2]*University of Amsterdam, Anthropology, Amsterdam, Netherlands*

Background: The psycho-social wellbeing of men-who-have-sex-with-men (MSM) is increasingly recognized as vital to public-health interventions, however little research has been conducted on how aging gay men's views on current HIV-interventions are shaped by history and memory.
This qualitative study examines how memories of the AIDS-crisis, i.e. the era before HAART (highly active antiretroviral therapy), shape the contemporary emotional states of self-identifying gay men in New York City and questions what the consequences might be for public health interventions.
Methods: Data was gathered in New York City between August and December 2017 through ethnographic research methods with 43 respondents born between 1945 and 1965. Methods included participant-observation, focus-groups, interviews and walk-along-discussions focusing on the urban landscape and HIV/AIDS related memories and memorials. Additionally, a discourse-analysis of contemporary HIV prevention campaigns was completed, focusing on the NYC Health Department's conceptualization of HIV, both as a pathogen and a historical event of crisis.
Results: The findings from the ethnographic methods show that memories about the AIDS crisis become *present* in informants' relations with their urban surrounding: As bearers of personal memory, buildings of friends lost to AIDS and commemoration sites evoke melancholia and thereby influence people's present-day emotional states. The discourse-analysis focused on the public health department's strategy "EtE" (Ending-the-Epidemic) with interventions such as PrEP (Pre-Exposure-Prophylaxis) or U=U (Undetectable=Untransmittable). These interventions render HIV invisible, both as a biological presence and as a historical event of crisis. Informants' experiences and ongoing relation

with their memories inscribed in the urban landscape transcend the timeline of HIV as "crisis" (the era before HAART) and an "ending epidemic" (contemporary discourse). As a result, informants often experience feelings of alienation in the context of public health interventions.
Conclusions: Reflecting on the results, an assemblage approach to memory is proposed. Conceptualizing memory as assemblages of material and immaterial components (the urban landscape and personal biographies) can enable public-health strategists to better understand how emotional states of ageing gay men are shaped by their experiences of the multiple temporalities of HIV and how this can lead to feelings of alienation in the context of contemporary public-health interventions.

Knowledge translation and dissemination of research and programme outcomes

TUPED363

The Dance4Life youth empowerment model: A catalyst to foster the role of young people in promoting sexual lives and relationships

S. Adhikari[1], A. Mishra[2]
[1]Restless Development, Programme, Kathmandu, Nepal, [2]Dance4Life, Business Development, New Delhi, India

Background: Nepal has been able to make some substantial progress in HIV and AIDS response from the period 1988, when the first case of HIV infection was identified. In line with the SDGs, Nepal Government has set a national target of reducing HIV prevalence among men and women aged 15-24 years to 0.01 (by 2030) from 0.03 (2015). Government of Nepal has also acknowledged the role of civil society organizations in this substantial decrement of HIV prevalence in the country.
Being one and only international NGO working in Nepal, Restless Development has focused its' activities for harnessing the leadership of young people and to engage them as 'Young Leader' to change their community by giving right information at right time, by providing counseling and psychosocial support and to guide the young people for positive transformation of society.
Methods: As a partner of Dance4Life, Restless Development works in Nepal to capacitate young people as leaders and develop platforms to engage them to empower community. It pilots the 'Youth Empowerment Model' among the young people since November 2017. In this course, Restless Development has been piloting the 'Journey4Life' (18 sessions curricula) to impart socio emotional competencies, SRH Knowledge, gender equal attitudes, awareness and willingness to change harmful norms to foster behavior change among young people. The curriculum is delivered by 'champions4life' (peer leaders) among 600 young people. Rigorous monitoring and evaluation has been in-built during this process to capture the learning and best practices so as to build the model to empower millions of young people.
Results: Empowerment model, builds with the critiques that knowledge only is not sufficient to change the behavior and scientific SRHR education is not enough to challenge the deep rooted SRHR taboos and increase confidence, gender equality and desire to challenge harmful norms. Hence, empowered young people lead the journey that starts from the self 'me' (building confidence), pass through the 'me & you' (relationships) and goes to 'me & society' (challenging norms).
Conclusions: Empowerment model has been effectively working to change young people for having healthy sexual lives and relationship.

TUPED364

Using archival materials, art and poetry to improve sexual and reproductive global health training and programs

K.A. Stewart[1], M. de Bruyn[2], R. Ingold[3], K.K. Swain[4]
[1]Duke University, Global Health, Durham, United States, [2]Independent Scholar, Chapel Hill, United States, [3]Duke University, Durham, United States, [4]Oxford University Museum of Natural History, Oxford, United Kingdom

Background: Since 2000, critiques of international clinical research have emphasized the need to prevent unnecessary duplication, reduce wastage of results and learn from the past. This also applies to global health research and work. A university course now trains global health students to use archival materials to avoid "re-inventing the wheel", while applying lessons on what works and identifying coverage gaps. Published and grey literature can identify how HIV and AIDS, gender, sexual orientation and reproductive rights have been tackled through behavior communication, education, training, activism. Insights gained lead to re-use and updating of successful approaches, inform new approaches and take into account the needs and desires of the people affected.
Description: Trainees apply „concrete poetry", an art technique best illustrated by Tom Phillips´ Humument project, to process materials from a sexual and reproductive health and rights (SRHR) archive, culminating in reflective writing and public presentations. After choosing a page from archival materials, participants use the word-based art technique, effacing most of the text using color markers, fabric, stickers, ephemera, etc.; they leave words, phrases, and letters on the page which flow together to create an entirely new story and artwork.

[Example: HIV and AIDS Archival Data After Humument Art Treatment]

Lessons learned: The course helps trainees learn the importance of archival material for the future of global health and SRHR. We offer a description of participant learning through an analysis of both the resulting Humument artwork and the written reflective essay. A common theme was transforming negative narratives associated with challenges related

to HIV, violence and stigma into messages of hope and increased agency on the part of affected persons. Participants also reflect on how the evolution of global health approaches can be seen through both successes and failures of interventions and health programs.
Conclusions/Next steps: We hope future trainees and workers in SRHR will incorporate successful past approaches into their programs, giving space to the perspectives of people affected. A new grant will develop training materials, such as a graphic novel, based on archival material showing how the treatment of women living with HIV has changed over the past three decades and how women have confronted HIV transmission in different parts of the world.

TUPED365

Listen to the experts; how policymakers and influencers like to receive evidence

J. Koch
Mott MacDonald, EHPSA, Johannesburg, South Africa

Background: Evidence points towards the importance of strategic approaches to communication for research uptake in policy, moving beyond simple "dissemination" models towards facilitating joint interpretation and dialogue. This abstract provides key insights into how policymakers like to receive evidence related to HIV prevention for key populations and vulnerable groups in eastern and southern Africa.
Methods: The study triangulated three sources of evidence: a knowledge synthesis of 63 published papers and 14 case studies on the role of evidence in health policymaking in the ESA region; survey responses policymakers (N=19), and interviews with key HIV policymakers (N=9).
Results:
· Policymakers prefer receiving evidence in face- to-face meetings, encouraging two-way engagement that allows for joint interpretation of results and identifying implications.
· Policymakers prefer a series of engagements and dialogues rather than a one-off event.
· Policymakers appreciate evidence briefs/policy briefs and PowerPoint presentations. These should be clear, brief, jargon-free, and provided as part of face-to-face interactions.
· The 'messenger' matters: policymakers showed sensitivity to the approach of individuals who present research results.
· Messaging around HIV prevention for key populations is particularly challenging and sensitive.
· There are risks involved in communicating evidence. These include misinterpretation of results and negative perceptions among policymakers about researchers' motivations.
· Mass media are influential in debates about HIV prevention for key and vulnerable populations. National TV, print and radio were the most popular sources of media. Misinterpretations by the media are a concern and media are sometimes seen as a more appropriate channel for influencing public opinion rather than targeting policymakers.
· Social media did not appear to be a significant channel of communication.
Conclusions:
· To have maximum impact, messages around HIV prevention for key populations should be practical and consider taking a health rather than a rights-based approach.
· Effective communication is about relationships. Start early and engage continuously and responsibly throughout the research continuum. Effective engagement is a series of dialogues in which policymakers and researchers work together.
· Poorly managed relationships with policymakers can not only damage research uptake from a specific programme, but also affect other researchers.

TUPED366

Setting the global research agenda on faith sector engagement for HIV service delivery and HIV prevention services

M.T. Teijema[1], M.O. Kok[2], S.L. van Elsland[1,3], D.R. Barstow[4], A.M. van Furth[1]
[1]VU University Medical Center, Department of Paediatric Infectious Diseases, Amsterdam, Netherlands, [2]Erasmus School of Health Policy and Management at Erasmus University Rotterdam, Department of Health Care Governance, Rotterdam, Netherlands, [3]Stellenbosch University, Paediatrics, Cape Town, South Africa, [4]EMPACT Africa, Corvallis, United States

Background: The faith sector is expected to play a crucial role organizing community based services and achieving the UN Fast Track goals to ending AIDS. While numerous reports and some empirical studies are available, robust primary research is needed to find the most effective and efficient strategies through which the faith sector can contribute in achieving these goals. The aim of this study was to set an inclusive global research agenda reflecting priority research questions from key international and national organizations and stakeholders at the intersection of HIV healthcare and religion.
Methods: To develop a socially robust research agenda, we combined the Delphi method and CHNRI methodology. Between March 2016 and January 2018, we interviewed 58 purposively selected key-informants, including leading policy makers, health care providers, faith leaders, academics, HIV activists and NGO and FBO representatives. Based upon these interviews a first list of main themes and priority questions was developed. This list was distributed as part of an online questionnaire to a large internationally representative group of 110 key-stakeholders. In addition, focus group discussions (2) served to prioritize emerging questions and themes and identify data gaps. Field notes and interviews were transcribed verbatim.
Results: Respondents to the questionnaire worked in 54 different countries, were mostly male (56%), had research experience (84%) and identified themselves as religious (79%). Nine research themes were filtered from the interviews: agenda setting, funding, evaluation of faith/health collaborations, stigma, advantage of faith initiatives, gender roles, specific populations, combined prevention, and counselling/disclosure. Improving engagement of faith communities in tackling stigma and addressing combined prevention (including sexuality), were prioritized for future research by most respondents. The prioritization of research aims and questions was related to stakeholder's professional experience, background, years of experience and work region.
Conclusions: A wide range of respondents participated in developing a research agenda, which represents a variety of international, national and local stakeholders. It is now important to implement this agenda together with researchers, funders and other key stakeholders. In order to align new research to the most urgent needs, enhance coordination, reduce research waste and increase the likelihood that results are being used.

Community engagement in research and research dissemination

TUPED367

"I'm doing something that matters, that might change the world we live in":cCommunity perspectives on advancing the HIV cure research agenda

A.K. Johnson[1], J. Pickett[2], J. Holliman[1], R. Fierro[2], G.J. Greene[3]
[1]Ann & Robert H. Lurie Children's Hospital of Chicago, Adolescent Medicine, Chicago, United States, [2]AIDS Foundation of Chicago, Chicago, United States, [3]Northwestern University, Medical Social Sciences, Chicago, United States

Background: Developing a cure for HIV requires a combination of innovative techniques and interventions, as well as the collaboration of multiple sectors and key stakeholders. It is imperative to gather input from

key populations living with HIV to advance a cure agenda. Early engagement of stakeholders is critical to navigating complex ethical issues, including risks and benefits, and ensuring proposed cure approaches are acceptable to target communities to promote future participation in cure research and therapies.

Methods: A series of focus groups were conducted with key stakeholders living with HIV in the United States to explore barriers and facilitators to participation in HIV cure research. Focus groups were conducted using a semi-structured script and were audio recorded, transcribed and coded using a directed approach to content analysis.

Results: A total of 18 people participated in 4 focus groups, all were living with HIV and represented diverse stakeholder groups: young men who have sex with men, men who have sex with men of color, trans and cis gender women. Participants, across populations, reported the need for concrete information about risks and benefits to participation in HIV cure trials as well as the need to have someone reliable to discuss options with (peer navigator, doctor). Facilitators included: incentives, helping others, and the possibility of being cured; barriers to participation included: health concerns, fear of disclosure, stigma and distrust of researchers/doctors. All participants expressed concern with experimental treatment and its impact on their current health and treatment options. Additionally, those who had been living with HIV for 10+ years discussed feeling like cure research was not for them.

Conclusions: Community perspectives should inform the advancement of an HIV cure research agenda. Our findings highlight areas of opportunity-particularly in addressing barriers to participation, as well as illuminate attitudes towards and interest in cure research from a community perspective. Increasing communication, transparency and collaboration between communities living with HIV and cure scientists is essential for the future of cure research and implementation.

TUPED368

Improving HIV cure clinical research engagement: Voices from stakeholders

A. Mathews[1,2], E. Valera[3], C. Harding[4], S. Day[2,5], M. Blumberg[2], S. Rennie[2,6], J. Tucker[7,8], D. Margolis[9]

[1]University of North Carolina at Chapel Hill, Institute for Global Health and Infectious Disease, Durham, United States, [2]University of North Carolina at Chapel Hill, Social Medicine, Chapel Hill, United States, [3]University of North Carolina at Chapel Hill, CARE Community Advisory Board, Chapel Hill, United States, [4]University of North Carolina at Chapel Hill, SCEED, Center for AIDS Research, Chapel Hill, United States, [5]University of North Carolina at Chapel Hill, Institute for Global Health and Infectious Disease, Chapel Hill, United States, [6]University of North Carolina at Chapel Hill, Center for Bioethics, Chapel Hill, United States, [7]University of North Carolina, Institute for Global Health and Infectious Disease, Chapel Hill, United States, [8]University of North Carolina at Chapel Hill, UNC-Project China, Guangzhou, China, [9]University of North Carolina at Chapel Hill, UNC HIV Cure Center, Chapel Hill, United States

Background: Clinical trials towards an HIV cure have begun in multiple sites around the world. Stakeholder engagement is essential for the ethical conduct of clinical trials. We define stakeholders as potential participants, medical professionals, community advisory boards, and researchers. Given that many cure studies have high individual risks and no individual benefits, this also presents a compelling rationale for strong community stakeholder engagement related to HIV cure research. This project identified stakeholders' priorities to improve HIV cure research engagement using a series of workshops.

Description: A collaboration of North Carolina researchers, community advisory board members, and a research engagement office members developed and conducted three stakeholder workshops (September to November 2017) lasting 4 to 6 hours each. A lead facilitator and two notetakers moderated workshop activities and reconciled detailed notes to identify overarching discussion themes. Workshops featured creative activities, didactic sessions explaining clinical research, invited speakers, small group brainstorming sessions, and larger group discussions. The overall purpose of the workshops was to improve informed consent processes for vulnerable populations, address stigma, and identify HIV cure communication strategies. Larger group discussions produced a consensus list of priorities for HIV cure research engagement.

Lessons learned: Thirty-seven stakeholders attended the workshop series, including community members (n=9), HIV cure community advisory board members (n=3), cure clinical trial participants (n=2), people living with HIV (n=10), healthcare providers (n=3), and researchers/university representatives (n=10). Participants prioritized ways to improve HIV cure research engagement:

1) use accessible language describing participant eligibility, study procedures, and risks/benefits
2) improve compensation mechanisms,
3) provide expanded mechanisms to file confidential complaints, and
4) provide access to wrap-around services for participants.

Many stakeholders noted a need for improved HIV cure literacy among people living with HIV and potential trial participants.

Conclusions/Next steps: Stakeholder workshops focused on HIV cure research are useful in understanding local concerns about clinical trial participation and setting priorities for improving engagement. Future work should focus on developing accessible materials that foster cure literacy among people living with HIV. Further stakeholder engagement is needed related to ongoing and planned HIV clinical trials towards a cure.

TUPED369

Women and the International AIDS Conference: Will anything change? An analysis of women living with HIV as abstract presenters at AIDS2016

M. Tholanah[1], M. Musiiwa[1], E. Bell[2], F. Hale[2], A. Welbourn[3]

[1]ICW Zimbabwe, Harare, Zimbabwe, [2]Salamander Trust Associate, London, United Kingdom, [3]Salamander Trust, London, United Kingdom

Background: The new WHO Guideline on the Sexual and Reproductive Health and Rights (SRHR) of women living with HIV (Section 6.2.1) calls for women living with HIV as equal partners in research. We sought to review data from AIDS2016 in this light.

Methods: The AIDS2016 Abstract Book was searched, containing keywords 'Women living with HIV'; 'WLHIV'; 'WLWH'. We discarded abstracts presented by academics and others only, and counted those (co) authored by a representative of an organisation of people/women living with HIV.

We also read all abstracts accepted for oral presentation sessions, to ensure inclusion of those co-authored by an organisational representative of people (including women) living with HIV and relevant to women living with HIV, even if they did not contain our keywords.

We triangulated this with International AIDS Society (IAS) data on AIDS2016 abstracts by women living with HIV.

Results: 43 abstracts contained our keywords, and of these the following were (co)authored by an organisational representative of people living with HIV: Poster Exhibition: 8 Poster

Discussion: 2 Oral Abstract: 1.

Further review of all oral abstracts revealed 4 additional abstracts co-authored by an organisational representative of people/including women living with HIV. None of these was explicitly gendered or women-focused.

IAS data showed that 2% of 1048 women presenters at the conference self-identified as HIV-positive. 142 self-identified HIV positive women submitted abstracts. Of these, 21 (15%) abstracts were selected, 120 (85%) were rejected, 1 (< 1%) accepted but withdrawn.

Abstracts from all 17 self-identified positive trans people were rejected (100%).

Of 137 invited women speakers. 15 (11%) identified as HIV positive.

Conclusions: Our review of all abstract co-authors mirrors the IAS data, which shows a marked scarcity of abstract presenters who self-identify as living with HIV.

Further, women living with HIV are almost completely absent from presenting research beyond a Poster Exhibition.

We will compare these findings with representation of all women living with HIV, including trans women, at AIDS2018. This will support the future improved involvement of women living with HIV in abstract-driven sessions presented at AIDS2020 and beyond, to uphold the recommendation in the new WHO Guideline.

TUPED370

Qualitative and community-based approaches to maternal disclosure in the pediatric HIV/AIDS cohort study (PHACS)

C. Berman[1], D. Kacanek[2], M. Nichamin[1], M. Reznick[3], K. Sanders[4], S. McCann[5], E. Chadwick[6]
[1]Harvard T.H. Chan School of Public Health, Epidemiology, Boston, United States, [2]Harvard T.H. Chan School of Public Health, Center for Biostatistics in AIDS Research, Boston, United States, [3]Westat, Rockville, United States, [4]Baylor College of Medicine, Houston, United States, [5]University of California San Diego, San Diego, United States, [6]Northwestern University Feinberg School of Medicine, Chicago, United States

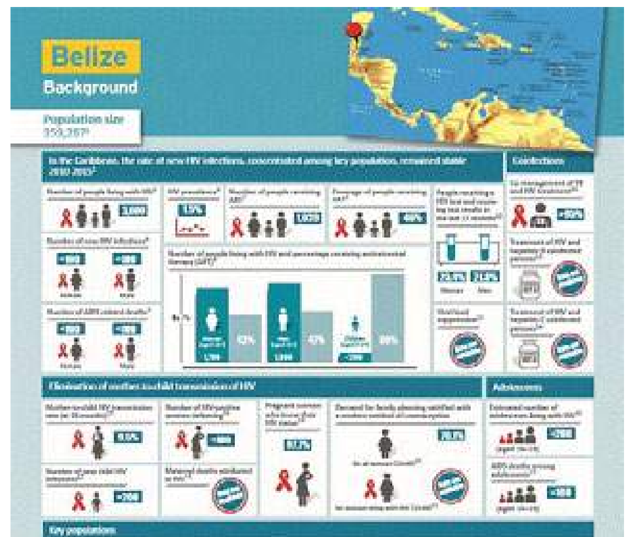
Background: In order to consent to participate in long-term research about their perinatal exposure to HIV and antiretrovirals, and to discuss these topics within their own health care, perinatally HIV-exposed but uninfected (PHEU) young adults (YAs) must be aware of their mother's HIV diagnosis. Understanding factors contributing to successful maternal disclosure is critical for this process. In the U.S.-based Surveillance Monitoring for ART Toxicities (SMARTT) protocol of PHACS, which studies long-term safety of in utero antiretroviral exposure, many PHEU participants are approaching adulthood, yet only 30% of participants ≥12 know their mother's HIV status. To identify and address families' needs around disclosure, we investigated caregiver and YA experiences of maternal HIV disclosure through qualitative and community-guided approaches.
Methods: In 2013-2014, at 8 PHACS clinical sites, we conducted in-depth interviews with 7 PHEU YAs who were 18-24 years old and aware of their mother's status (71% female, 57% Black) and 13 caregivers (75% female, 83% >40 yo, 50% Black) about their perceptions/experiences regarding participation and communication preferences in HIV research. Thematic analysis of coded transcripts using Atlas.ti revealed maternal disclosure to be a salient topic for both caregivers and YAs. Additionally, we engaged YA and Adult Community Advisory Board (CAB) members and PHACS clinical staff in facilitated interviews, story circles, and focus groups.
Results: Caregivers, CAB members, and clinical staff shared key factors regarding disclosure decisions, including HIV stigma as a primary barrier, disclosure as a process over time, the impact of disclosure on family units, and choosing age-appropriate information for children. They identified education, peer support, and culturally relevant resources as important tools for making informed disclosure decisions. PHEU YAs described varied responses to learning of their mother's diagnosis and attitudes towards connecting with peers affected by HIV. Disclosure comics to facilitate family discussions and staff guidelines were developed and have been positively received: https://phacsstudy.org/Education-Hub/HIV-Disclosure-Comics.
Conclusions: Results from qualitative and community-guided approaches to maternal disclosure can guide researchers and practitioners in supporting caregivers to make informed disclosure decisions. These approaches could positively impact research acceptance and retention to support a better understanding of the long-term safety of perinatal exposure to HIV and antiretroviral regimens.

TUPED371

Using robust, evidenced based infographics in 6 Caribbean countries to inform community advocacy, and illustrate the reforms necessary to meet UN sustainable development goals, and show the human rights challenges

J. Shepherd[1], W. Tannis-Abbott[1], S. Jiwan[2], J. Hows[3]
[1]Caribbean Regional Network of People Living with HIV (CRN+), Diego Martin, Trinidad and Tobago, [2]Global Network of People Living with HIV (GNP+), Amsterdam, Netherlands, [3]Development Research Advocacy Governance (DRAG), Amsterdam, Netherlands

Background: The Caribbean Regional Network of People Living with HIV (CRN+), supported by the Global Network of People Living with HIV (GNP+) and the Robert Carr Network Fund identified a need to show linkages in a clear way between all of the issues that impact upon the HIV response in countries in the Caribbean; to promote working between sectors, to support synergies for action, and to engage communities in a easily understandable way.
Methods: In 2016/7 we developed a series of environmental scans; they cover some 200 key indicators under 10 main page headings - fully referenced in a partner document.
These heading are: Population and demographics; Policies, strategies and laws; TB, viral Hepatis, and cervical cancer; Stigma, discrimination and gender based violence; Children and adolescents; Key Populations; EMTCT; HIV testing counselling and treatment; Human resources, service coverage, stock-outs and rapid assessments; Spending and funding.
Currently we have covered 6 countries - Belize, Dominican Republic, Guyana, Haiti, Jamaica, Trinidad and Tobago, The data was collected through desk review and Key informant interviews with National AIDS Programs, people living with HIV, key populations and partner organisations.
Results: A snapshot of the results for one country - one page:



[Belize environmental scan]

The wealth of data able to be displayed clearly and accessible to all by this method is incredible- especially when each graphic representation is fully referenced by footnotes showing the source of the information - with the appropriate links. The scans have been extensively used in countries by many agencies and sectors - as well as being invaluable as a tool in CRN+ and others in assessing the strategic needs and priorities for action at all levels of the response.
Conclusions: It is true that a picture is worth a thousand words- working in this way has made sometimes ´impenetrable´ data accessible; this has enhanced the response and allowed for synergies between sectors. The next steps are to develop more data scans - and put some of the key data that drives the infographics onto a searchable and publicly accessible and searchable database.

TUPED372

Community and provider attitudes towards treatment interruptions in HIV cure trials

J.S.Y. Lau[1,2], M.Z. Smith[3,4], B. Allan[5,6], C. Martinez[7], J. Power[8], S.R. Lewin[3,4], J.H. McMahon[1,2]
[1]The Alfred Hospital, Department of Infectious Diseases, Melbourne, Australia, [2]Monash University, Melbourne, Australia, [3]The Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [4]Melbourne University, Melbourne, Australia, [5]International Council of AIDS Service Organizations, Toronto, Canada, [6]Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine, Sydney, Australia, [7]National Association of People Living with HIV Australia, Sydney, Australia, [8]Australian Research Centre for Sex Health and Society, La Trobe University, Melbourne, Australia

Background: Analytical treatment interruption (ATI) is being used increasingly to assess effects of interventions aimed at curing HIV or achieving antiretroviral therapy (ART)-free HIV remission. While a critical outcome in cure trials, ATI poses potential risks. Understanding of ATI acceptability and how ATI should be conducted amongst people living with HIV (PLHIV) and their HIV healthcare providers (HHP) is limited.
Methods: Two online surveys for PLHIV and HHP assessed understanding and acceptability of different monitoring strategies during ATI (frequency of CD4, viral load (VL) and clinical assessment), potential risks of ATI and the prospect for HIV cure. The PLHIV survey also assessed motivation for enrolling in cure trials and the HHP survey assessed support for ATI trials for PLHIV in their care. Responses were collected from July 2017-January 2018. Survey results were compared using ^{2} test between PLHIV and HHP for ATI monitoring strategies and perceptions of cure research.
Results: 442 PLHIV completed the survey: 21% female, 61% ≤ 50 years old, 24% identified as heterosexual, 95% on ART and 83% reported undetectable VL. 55% believed an HIV cure would be achievable within 10 years. The commonest preferred frequency of CD4, VL and clinical monitoring during ATI was monthly (31%, 35%, and 39% respectively). 59% stated they would be more willing to undergo ATI if home based VL testing was available, 51% if nurses could perform home visits, and 54% if pre-exposure prophylaxis was offered for HIV negative partners. 144 HHP completed the survey: 72% practiced in Australia, 51% work in teaching hospitals, 24% in community based family practices and 15% in sexual health clinics. 19% HHP believed a HIV cure would be achievable within 10 years.
Responses from questions comparable in both surveys demonstrate: higher optimism for cure amongst PLHIV, higher awareness of ATI in HHP, decreased acceptability of sustained viremia in PLHIV and similar acceptability of changes in CD4 (Table).
Conclusions: PLHIV were more optimistic about the potential for HIV cure than HHP, but were less aware of ATI or willing to have periods of sustained viraemia. Clear education messages in relation to ATIs should be developed for both PLHIV and HHP.

Survey Question	People living with HIV (PLHIV)^ (n=442)	HIV Healthcare Providers (HHP)^ (n=144)	P-value*
HIV cure achievable in next 10 years	226/410 (55)	26/140 (19)	<0.01
HIV cure not achievable in lifetime	58/410 (14)	23/140 (16)	0.4
Ever participated/enrolled a patient in HIV cure-focused trial	21/412 (5)	25/140 (18)	<0.01
Aware of ATI	182/399 (46)	86/138 (62)	<0.01
Would not allow a sustainable period with a detectable viral load (recommence after a detectable viral load)	136/387 (35)	24/136 (18)	<0.01
Would allow ATI for long as necessary to test trial intervention if remained well	99/387 (26)	37/136 (27)	0.7
Want CD4 to remain >350 during ATI	286/359 (80)	120/137 (88)	0.04

NOTES: ATI, analytical treatment interruption
* compared using χ^2 test
^ proportion of participants who responded to the question (%)

[Table: Comparison of survey responses between People Living with HIV and their HIV Healthcare Providers]

TUPED373

The InvestiGAYtors program: Developing research capacity among young gay, bi and other men who have sex with men

S. Nam[1,2], D. Brennan[2], A. Ablona[3], F. Ibanez-Carrasco[4], B. Adam[1,5], M. Gilbert[6], A. Kroch[1], N. Lachowsky[7], O. Ferlatte[8], J. Morgan[9]
[1]Ontario HIV Treatment Network, Toronto, Canada, [2]University of Toronto, Toronto, Canada, [3]University of British Columbia, Vancouver, Canada, [4]St. Michael's Hospital, Toronto, Canada, [5]University of Windsor, Windsor, Canada, [6]BC Centre for Disease Control, Vancouver, Canada, [7]University of Victoria, Victoria, Canada, [8]University of Bristish Columbia, Vancouver, Canada, [9]Community Based Research Centre for Gay Men's Health, Vancouver, Canada

Background: The epidemiological monitoring of the sexual health of gay, bi, and other men who have sex with men (GBMSM) is often developed and implemented in a top-down manner, and results can be communicated in stigmatizing ways. Modelled after a program developed by the Community-Based Research Centre for Gay Men's Health in Vancouver, a diverse volunteer group of GBMSM youth (ages 18 to 29) were mentored in Toronto, Canada to do the formative work toward proposing a sustainable, community-led periodic sexual health monitoring survey for GBMSM.
Description: The InvestiGAYtors met weekly, and they received over 114 hours of instruction by a volunteer faculty of academics and community leaders. Curriculum included basics of HIV epidemiology, research methodology, qualitative interviewing, and presentation skills. They also learned about the history of GBMSM health research in Canada and basics of knowledge transfer and exchange (KTE). To apply research skills they learned, the InvestiGAYtors conducted 10 interviews with well-established HIV researchers around the world who are conducting major monitoring surveys of GBMSM, and analyzed the data to identify best practices to implement a periodic sexual health monitoring survey for GBMSM in Ontario.
Lessons learned: Seven InvestiGAYtors completed the program. Their learning and progress in acquiring knowledge and skills were measured at pre and post-training points using one self-reported instrument (ranging from "novice" to "experts") and one civic leadership skills measure. Two focus groups were also conducted to assess key features of the program. Most Investigaytors reported an increase in knowledge, skills and experiential areas (e.g., meeting diverse queers), an enhanced team spirit and increased engagement with the GBMSM communities. By learning about key aspects of research such as sampling, survey design, community input, the investigaytors reported having developed a critical lens towards GBMSM health research.
Conclusions/Next steps: Our program successfully engaged GBMSM youth in the fundamentals of sexual health surveys for GBMSM. The process of engaging communities affected by HIV became opportunities for community capacity building and development. Our graduates became enthusiastic proponents of queer sexual health and health research in their communities. Following the success of the pilot cohort, a new cohort of thirteen InvestiGAYtors has started in 2017.

TUPED374

Engaging young Tanzanian women in participatory research to understand structural drivers of HIV and disseminate results to the community

P. Balvanz[1], J. Wamoyi[2], A. Pettifor[1], K. Atkins[1], S. Maman[1]
[1]University of North Carolina, Chapel Hill, United States, [2]National Institute of Medical Research, Mwanza, Tanzania, United Republic of

Background: Young women in sub-Saharan Africa are disproportionately affected by HIV and their vulnerability is exacerbated by poverty and inequitable gender norms. With limited access to income, young women depend on partners, thus reducing their decision making power in relationships. Photovoice, a participatory research method, gives agency to vulnerable populations to describe problems in their own voices and to lead actions to promote change. We used Photovoice with young women to explore factors influencing their HIV risk, and voice these concerns to local leaders.

Methods: We engaged two groups of young women (rural n=7, urban n=8) aged 17-24 from Western Tanzania in a Photovoice project in October 2017. Across four sessions participants used photography to document the role, aspirations and challenges of young women in their community, and the impact of having resources. Based on the discussions that followed the photo elicitation young women described key factors that affect their vulnerability to HIV, as well as their ideas for how to combat HIV. Following the fourth session, rural and urban participants met to share findings and develop an agenda and an invitation list for a community forum to discuss their findings with community stakeholders. The young women invited local and regional government officials, NGO and development workers, community leaders, role models, and medical personnel.
Results: Young women identified the following structural factors driving HIV risk for women in their communities: limited access to education which increases dependence, cultural norms that minimize options for earning or borrowing capital, and laws that disproportionately punish girls for adolescent pregnancy. Community forum breakout sessions highlighted these key drivers of HIV risk. Key recommendations from participants included: involvement of men in sexual health programming and addressing gender norms that lead to adolescent pregnancy and cause young women to feel responsible.
Conclusions: Photovoice empowered young women to explore structural factors that put them at risk for HIV acquisition, and to discuss these factors with decision makers in the community. These young women highlighted the role of gender inequity and lack of access to professional development in increasing their HIV risk.

TUPED375

Data difficulties encountered in crowdsourcing information on legal & regulatory barriers to accessing HIV services (testing and care) for key populations across Europe

J.V. Hows[1], L. Power[2], S. Jakobsen[3], L. Sprague[4], A. Von-Lingen[5], M. Dutarte[5]
[1]DRAG, Development Research Advocacy Governance, Amsterdam, Netherlands, [2]HIV Justice Network, Amsterdam, Netherlands, [3]CHIP, Department of Infectious Diseases, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark, [4]GNP+ Global Network of People Living with HIV, Amsterdam, Netherlands, [5]EATG European AIDS Treatment Group, Brussels, Belgium

Background: Crowdsourcing information about service conditions can be a useful tool for both information gathering and community engagement. It is important to be aware of its uses and limitations.
Methods: Between 2015-2107 OptTEST researchers compiled a European country survey of legal and regulatory barriers to HIV services, in English and Russian. They solicited activist/NGO responses alongside governmental/legal ones through mailing lists and listservs. Responses were checked for internal consistency and against each other and external verified data sources where these existed. Most responses came from NGO and PLHIV organisations and a few individual activists. The website was published in 2017 and continues to be updated on an iterative basis.
Results: Initial responses were received from 32 countries. 18 had single respondents and others between 2 and 8. While all the responses were helpful and most were rigorous, 11/32 had identifiably inaccurate or contradictory responses e.g. 5 stated that treatment was free to all but subsequently reported not to some or all migrants. One country had 7 respondents, none of whom fully agreed with any other. As a result, all responses were subsequently checked by further research. Laws relating to migrants and sex workers had the least accurate responses, while regulations about who could test for HIV and access to HCV testing were frequently disputed between different respondents from the same country. Causes of variations included: federal systems with devolved healthcare and laws; disparities between national regulations and local practices; lack of familiarity with laws affecting some key populations.
Conclusions: While crowdsourcing data has many benefits, its drawbacks must be managed. Respondents should be encouraged not to offer helpful guesses and desk research should be used to cross check reliability. NGOs and community organisations aiming to help all PLHIV and other affected populations should be supported to increase their understanding and knowledge of laws which may impede access for some key populations to be able to act on it at the appropriate level.

Role of social and behavioural science in biomedical responses

TUPED376

Level of knowledge and attitude of medical students to the problem of TB and HIV

N. Kolisnyk
Dnepropetrovsk Medical Academy, Phthisiology, Dnipro, Ukraine

Background: Tuberculosis and HIV infection affect the most active, young part of the population, contributing to the creation of a serious threat to the demographic situation in Ukraine.The purpose of our study was to determine the degree of awareness students of Dnipropetrovsk Medical Academy in various issues on HIV / AIDS and tuberculosis.
Methods: 388 students of IV and VI courses aged from 20 to 30 of medical faculties in the Academy took part in our study, All respondents filled out a questionnaire, which included questions for assessing students' awareness about diagnosis, prevention, relevance of the problem of HIV / AIDS and tuberculosis.
Results: Most students (89.7%) consider the problem of TB and HIV infection very relevant.The most of the fourth and sixth year students were correctly oriented in relation to the risk factors for HIV infection, clinical manifestations of the disease. At the same time, students were not sufficiently knowledgeable about HIV, believing that the main mode of transmission is currently injecting (91.8% of fourth-year students and 96.3% of sixth-year students). About a quarter of respondents underestimated the likelihood of the spread of HIV infection during manipulations with the use of manicure, dental instruments. The overwhelming majority of students in courses 4 and 6 (92.7% and 87.1%, respectively) do not trust the means of mechanical contraception, as reliable, at sexual contacts.Students are also not sufficiently informed about the treatment of tuberculosis and HIV infection. More than a third of the students surveyed (38.5%) believe that tuberculosis can not be cured. Negative attitude to antiretroviral therapy was expressed by 89 (22.9%) respondents, considering it ineffective and dangerous due to adverse reactions.
Conclusions: Despite the fact that students note the relevance of TB and HIV infection to society, medicine, they are not sufficiently informed in the modern mechanisms of the spread of diseases, individual remedies, prevention and treatment of diseases.

Research data disaggregation by factors such as sex, age, race/ethnicity, sexual orientation, etc.)

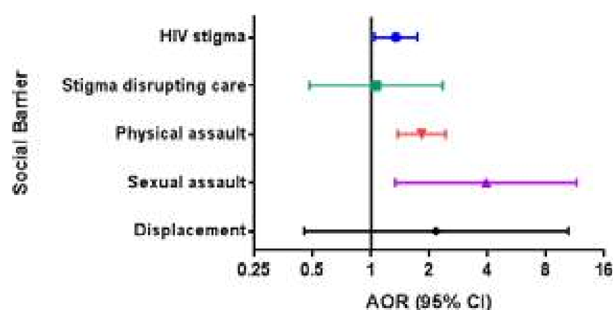
TUPED377
Gender based differences in clinical characteristics and social barriers to HIV care among HIV-infected participants in four African countries

K. Ganesan[1,2], A. Esber[1,2], T.A. Crowell[1,2], C. Polyak[1,2], E.H. Lee[1,2], P. Coakley[1,2], E. Bahemana[3], Y. Adamu[4], F. Kiweewa[5], J. Maswai[1,6,7], J. Owuoth[1,7,8], J. Ake[1]
[1]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [2]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [3]Mbeya Medical Research Centre, Mbeya, Tanzania, United Republic of, [4]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Abuja, Nigeria, [5]Makerere University-Walter Reed Project, Kampala, Uganda, [6]Henry M. Jackson Foundation Medical Research International, Kericho, Kenya, [7]Kenya Medical Research Institute, Nairobi, Kenya, [8]Henry M. Jackson Foundation Medical Research International, Kisumu, Kenya

Background: Gender-based differences in social barriers and clinical outcomes that affect HIV care can be attributed to strong cultural gender norms in Africa. We assessed gender-based differences in social barriers to HIV care among HIV-infected adults in Uganda, Tanzania, Kenya and Nigeria to identify and target gender-specific interventions.
Methods: AFRICOS is an ongoing cohort that enrolls adults at 12 PEPFAR-supported HIV care facilities. Clinical evaluations were conducted and socio-demographic data was collected using questionnaires at enrollment to evaluate social barriers for HIV-infected participants. Participants were asked to report any history of HIV-related stigma, HIV-related stigma disrupting HIV care, sexual assault, physical assault, and displacement due to violence in the home. Socio-demographic and clinical characteristics were compared across gender using Chi-squared and Kruskal-Wallis tests. Binomial logistic regression was used to estimate adjusted odds ratios (AOR) and 95% confidence intervals (CI) for each social barrier comparing men and women at enrollment, controlling for age and facility.
Results: Between January 2013 and September 2017, 2,683 HIV-infected participants were enrolled, including 1,579 (59%) women. The median age at enrollment for women was significantly younger than men (36.8 vs. 41.8 years of age). Women had a younger median age of HIV diagnosis, higher median enrollment CD4 counts, and lower frequency of advanced HIV disease (CD4< 200 or WHO stage 3 or 4) (Table 1). Women were more likely to have experienced HIV-related stigma (AOR 1.34, 95% CI 1.04-1.73), sexual assault (AOR 3.91, 95% CI 1.33-11.52) and physical assault (AOR 1.81, 95% CI 1.37-2.42) (Figure 1). The odds of stigma interfering with HIV care and displacement due to violence was not significantly different between men and women.
Conclusions: Both men and women are underserved in different aspects of HIV care. Despite experiencing more social barriers, women are diagnosed and engaged in care earlier in their disease process, which may be due to availability of women-centric services such as prenatal care. Implementation of targeted support services will be key in mitigating social barriers that may adversely impact clinical outcomes despite engagement in care. Targeted interventions to engage men in HIV care earlier are also needed.

	Male (N=1104)	Female (N=1579)	Total (N=2683)	P-value
Median Age (IQR)	41.8 (34.8-49.5)	36.8 (30.2-43.8)	38.7 (31.8-46.3)	<0.001
Median Age at Diagnosis (IQR)	38.1 (31.8-45.1)	32.7 (27.2-39.9)	35.0 (28.8-42.3)	<0.001
Median Viral Load, copies/mL (IQR)	49.0 (TND*-28679.0)	64.5 (TND*-19131.0)	56.0 (TND*-21977.0)	0.85
Median CD4, cells/mm³ (IQR)	326.0 (209.0-486.3)	434.0 (272.0-619.0)	388.6 (236.0-570.0)	<0.001
Advanced HIV Disease (n,%)	502 (45.5%)	541 (34.3%)	1043 (38.9%)	<0.001

*[Table 1. Demographic and Clinical Characteristics of HIV Positive Participants at Enrollment *Target Not Detected]*



[Figure 1. Adjusted Odds Ratio for Social Barriers to HIV Care Comparing Men & Women at Enrollment Controlling for Age and Facility]

Positive health, dignity, psychological well-being, and mental health

TUPED378
Trajectories of HIV-related internalized stigma and disclosure concerns among ART initiators and non-initiators in South Africa

B. Chan[1,2], B. Maughan-Brown[3], L. Bogart[4], V. Earnshaw[5], J. Dietrich[6], C. Orrell[7], G. Gray[6,8], D. Bangsberg[9], I. Katz[1,2,10]
[1]Brigham and Women's Hospital, Medicine, Boston, United States, [2]Harvard Medical School, Boston, United States, [3]University of Cape Town, Southern Africa Labour and Development Research Unit, Cape Town, South Africa, [4]RAND Corporation, Health Unit, Santa Monica, United States, [5]University of Delaware, Department of Human Development and Family Science, Newark, United States, [6]University of the Witwatersrand, Perinatal HIV Research Unit, Faculty of Health Sciences, Johannesburg, South Africa, [7]University of Cape Town Medical School, Desmond Tutu HIV Centre, Cape Town, South Africa, [8]South African Medical Research Council, Cape Town, South Africa, [9]Oregon Health & Science University-Portland State University School of Public Health, Portland, United States, [10]Massachusetts General Hospital, MGH Global Health, Boston, United States

Background: HIV-related stigma among people living with HIV (PLHIV) is associated with poor mental health and reduced adherence to anti-retroviral therapy (ART). Engagement in HIV care and ART initiation may attenuate stigma through ART-related counseling and improvements in health that restore economic viability and social connectedness. Most of the data supporting this hypothesis have been derived from qualitative studies. We used longitudinal data from a clinic-based sample of black South Africans to assess changes in stigma among PLHIV after engagement in care and whether ART initiation is associated with stigma reduction.
Methods: We administered the Internalized AIDS-Related Stigma Scale (IARSS, a six-item dichotomous scale questionnaire) at baseline, 3 months, and 6 months to newly diagnosed ART-eligible participants between 2014-2015. A confirmatory factor analysis indicated that the IARSS contained a four-item internalized stigma factor (=0.80) and a two-item disclosure concerns factor (=0.75). Thus, we examined the relationship between ART initiation and internalized stigma/disclosure concerns while adjusting for sociodemographic characteristics, using generalized estimating equations (GEE) to estimate model parameters.
Results: Of the 500 participants (187 men and 313 women) who were enrolled, 308 (62%) initiated ART. Internalized stigma declined over 6 months among both ART non-initiators (mean score, 1.1 to 0.8, p=0.02) and ART initiators (1.0 to 0.7, p< 0.01). However, disclosure concerns did not decrease over the study period, either among ART non-initiators (percentage endorsing either disclosure concern item, 76% to 71%, p=0.34) or ART initiators (79% to 80%, p=0.90). Using GEE regression models, we estimated a statistically significant positive association between ART initiation and disclosure concerns (b=0.13; 95% Confidence Interval [CI], 0.04-0.21) but not between ART initiation and internalized stigma (b=0.14; 95% CI, -0.02 to 0.31).

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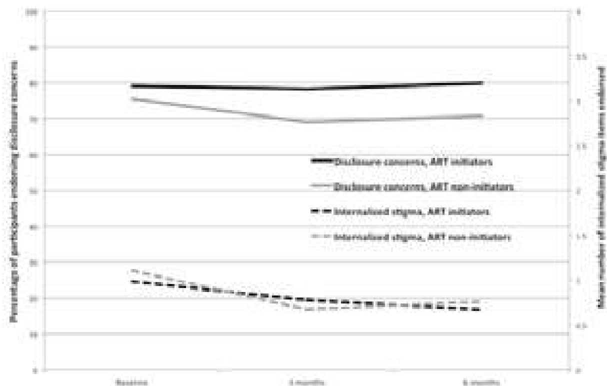
Conclusions: Among black South African PLHIV engaged in HIV care, internalized stigma modestly declined over time among both ART non-initiators and initiators. However, disclosure concerns persisted, with ART initiators more likely to have persistent disclosure concerns over time compared with non-initiators. Policymakers should consider interventions to create environments in which PLHIV, especially ART initiators, can safely disclose and obtain social support.



[Disclosure concerns and internalized stigma among ART initiators and non-initiators in South Africa at baseline, 3 months, and 6 months in care]

TUPED379

Health-related quality of life of people living with HIV in Spain

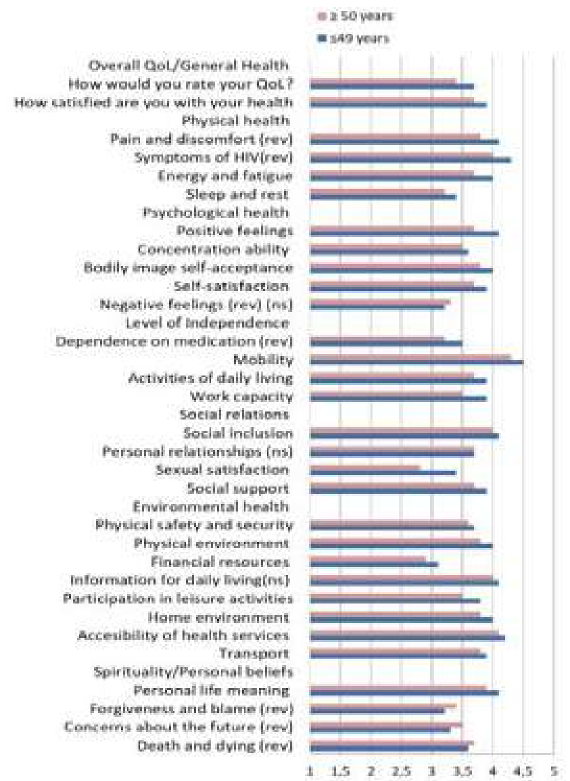
M.J. Fuster Ruiz de Apodaca[1], A. Laguia[2], J. del Amo[1,3], P. Arazo[4], D. Dalmau[5], R. Font[1,5], J.C. Lopez[1,6], F. Lozano[1,7], E. Negredo[1,8], M. Pastor[1,9], S. Cenoz[10], M.J. Galindo[1,11]
[1]SEISIDA, Madrid, Spain, [2]UNED, Madrid, Spain, [3]Instituto de Salud Carlos III, Madrid, Spain, [4]Hospital Miguel Servet, Zaragoza, Spain, [5]Hospital Mutua Terrassa, Barcelona, Spain, [6]Hospital Gregorio Marañón, Madrid, Spain, [7]Hospital Valme, Sevilla, Spain, [8]Hospital Germans Trias i Pujol, Badalona, Spain, [9]Bizcaisida, San Sebastián, Spain, [10]ViiV Healthcare, Madrid, Spain, [11]Hospial Clínico Universitario, Valencia, Spain

Background: Improving the health-related quality of life (HRQoL) of people living with HIV (PLHIV) has been proposed as an additional goal ('the fourth 90'), together with testing and treatment targets ('90-90-90'). This study aimed to examine how is HRQoL in PLHIV in Spain, describe which facets are more impaired, and identify those PLHIV with the most vulnerable profiles. Besides, associations between HRQoL with health-related questions were examined.

Methods: A total of 1462 PHIV participated in an observational cross-sectional study conducted between October 2016 and April 2017. Data were collected throughout 33 Spanish HIV centers (clinics and NGOs) through an online self-administered survey. HRQoL (WHOQOL-HIV-BREF), treatment adherence (CEAT-VIH), psychological well-being (GHQ-12), self-reported health status questions, and demographics were measured. Pearson's correlation, T-test, and one-way variance analyses were used to examine HRQoL differences and associations.

Results: Most participants were men (79.3%), and 52.5% were homosexual. Mean age was 45.0±10.2. The HRQoL facets showing lower scores were *financial resources, sexual satisfaction, sleep and rest, negative feelings,* and *forgiveness and blame*. Across domains, the Physical Health and the Level of Independence showed the higher scores while the Spiritual domain presented the lowest score. To be a woman ($p< .0001$), heterosexual ($p< .0001$), to have a low socio-economic ($p< .0001$) and educational status ($p< .0001$), having acquired HIV through injection route ($p< .0001$) and be living with HIV for a longer time ($p< .01$), were all related with poorer HRQoL. PLHIV older than 50 presented lower scores in several HRQoL facets (displayed in the figure), but the higher size differences were found in *sexual satisfaction* and *work capacity* (Cohen's d = 0.47 and 0.37 respectively). Those with higher CD4+ T cell counts showed significantly higher HRQoL scores in eight facets ($p< .05$). Positive correlations were found between all the HRQoL dimensions and treatment adherence ($p< .05$) and psychological well-being ($p< .05$).

Conclusions: This study presents the more recent data on HRQoL in PLHIV living in Spain. Long-term survivors, older adults, and women are key populations to pay more attention in research and interventions.



[Figure. Differences in WHOQOL-HIV-BREF facets scores according to age. Note. (rev): reverse item. All differences were significant at p<0.05 except (ns): no significant difference.]

TUPED380

Factors influencing quality of life of persons living with human immunodeficiency virus (HIV) infection in Almaty, Kazakhstan

B. Zhakipbayeva[1], Z. Nugmanova[2], M. Tracy[3], G. Birkhead[3], G. Akhmetova[2], J. DeHovitz[4]
[1]Asfendiyarov Kazakh National Medical University, Department of Epidemiology, Almaty, Kazakhstan, [2]Asfendiyarov Kazakh National Medical University, Division of HIV-infection and Infection Control, Almaty, Kazakhstan, [3]University at Albany, State University of New York, Department of Epidemiology and Biostatistics, Albany, United States, [4]Downstate Medical Center, State University of New York, Department of Medicine, Brooklyn, United States

Background: Health-related Quality of life (HRQoL) is recognized as a significant medical outcome measure for people living with HIV (PLWH) infection. Identification of potentially modifiable determinants of HRQoL could help target people in need of additional health care and social services in order to improve their HRQoL. The objective of this study was to determine the factors with the strongest impact on HRQoL in PLWH.

Methods: A cross-sectional study among adult PLWH registered at the Almaty City AIDS Center was conducted in 2013. HRQoL data were collected using the World Health Organization's Quality of Life HIV brief (WHOQOL-HIV Bref) questionnaire. Depression data were obtained using the Patient Health Questionnaire-9. Socio-demographic data were collected with self-administered questionnaire. Clinical data were retrieved from medical records. Multivariate logistic regression and Tobit censored regression were used to examine the relationship of socio-demographic, behavioral and clinical factors with overall quality of life and WHOQOL-HIV Bref domain scores.

Results: A total of 531 people participated, of whom 55.4% were male, 87% were with high school or lower education, 66.5% were unemployed, 48% had a history of injection drug use (IDU), 57.8% had CD4+ count < 350

cell/mm³, 53.9% were on antiretroviral therapy, 48.6% were diagnosed with hepatitis C. Mean age was 37.4±8.7 years. 35.8% had poor HRQoL. In the regression analysis, the following variables were identified as independent predictors of poor overall HRQoL: probable depression (adjusted odds ratio (AOR) 13.42, 95% confidence interval (CI): 4.56 - 39.52); history of IDU (AOR 2.10, 95% CI: 1.40 - 3.14); CD4+ T cell count < 200/mm³ (AOR 2.17, 95% CI: 1.30 - 3.62); previously married status (AOR 1.26, 95% CI: 1.16 - 4.28), and presence of co-infection (AOR 1.59, 95% CI: 1.06 - 2.39). Additionally, age ≥50 years, higher school or lower education, history of ART, more ≥1.5 year since HIV diagnosis, and HIV viral load ≥500 copy/mL were associated with poorer HRQoL at least in one domain.
Conclusions: HRQoL of PLWH in Almaty was independently influenced by several factors (psychological, clinical, social, behavioral). An interdisciplinary approach is needed in planning healthcare and social services addressing HRQoL improvement of PLWH.

TUPED381

Voluntary drug addiction treatment at community level in Viet Nam

D.T. Ninh Xuan
Center for Supporting Community Development Initiatives, Hanoi, Vietnam

Background: Center for Supporting Community Development Initiatives (SCDI) contributed to a national Programme on reviewing addition treatment through focusing on transferring drug addiction treatment since 2014. This is a completely new approach on drug addiction treatment in Viet Nam that drug users will voluntary go to the treatment settings and will not be discriminated and continue to receive services if they relapse.
Description: The pilot model has been implemented in 22 treatment settings in 22 districts of 5 provinces through two main interventions: capacity development for staff working in treatment settings and policy advocacy on voluntary treatment for drug users at community level with the operation budget allocated fully from the state budget at the district and provincial levels.
Lessons learned: After four years, SCDI strengthened the capacity of 200 staff working in the treatment settings (80% are female) through providing knowledge on addiction mechanism, detoxification period, basic mental health treatment, motivation interviewing, cognitive behavioral treatment, behavioral management... One advantage of this new model is the active participation of CBOs' drug users in providing treatment services. As a result, more than 2,000 clients have received services at community level; and they reduced using drug and have better jobs. The evaluation showed that the drug users have better family and social relationship, reduce number of violation cases related to drug addiction. The staff working in the treatment settings have more interest in their work because their contribution have changed lives of drug users and reduce the community's discriminatory attitude toward drug users. SCDI advocated successfully for related drug addiction policy to ensure the stability of this SDCI model at community. As result of SCDI efforts, these policies were approved at the provincial level in 2016 and now the government has considered as a role model in the national policy on drug voluntary treatment in the community.
Conclusions/Next steps: If this is accepted, the model will be implemented in the whole country of Viet Nam and it is estimated that at least 50,000 drug addicts will benefit from this initiative and save at least 80% of expenditure for the drug addicts compared with the compulsory treatment.

TUPED382

Effect of psychosocial group intervention on social support among depressed HIV infected perinatal women in Dar es Salaam, Tanzania: A cluster randomized controlled trial

M. Somba[1], E. Larson[2], H. Siril[3], A. Kaale[1], A. Minja[1], A. Mwimba[1], A. Komba[1], F. Ngakongwa[4], J. Kamala[1], Z. Aloyce[1], M.C. Smith Fawzi[5], S.F. Kaaya[4]
[1]Africa Academy for Public Health, Dar es Salaam, Tanzania, United Republic of, [2]Harvard T. H Chan School of Public Health, Global Health and Population, Boston, United States, [3]Management and Development for Health, Dar es Salaam, Tanzania, United Republic of, [4]Muhimbili University of Health and Allied Sciences, Psychiatry and Mental Health, Dar es Salaam, Tanzania, United Republic of, [5]Harvard Medical School, Global Health and Social Medicine, Boston, United States

Background: The prevalence of depression among HIV infected pregnant women in sub Saharan Africa is estimated to be 40%; much higher than in men living with HIV and in the general population. Low social support is among the major contributing factors.
Psychosocial support group interventions have been widely reported to increase social support and facilitate elimination of depressive symptoms.
We explore the effect of such an intervention on perceived social support among HIV infected depressed women.
Methods: A total of 16 public health facilities providing PMTCT services were randomly assigned to intervention and control groups in 2015 to 2016. A total of 742 HIV-infected depressed pregnant women were recruited using locally validated cut point of PHQ-9 tool to measure depression. Women were placed in structured psychosocial groups with problem solving (n=7 sessions pre-delivery), cognitive behavioral (n=8 sessions post-delivery) components, facilitated by lay providers. Enhanced Standard of Care (ESC) was offered to providers at all study sites. Data was collected at baseline, six weeks and nine months post-delivery. Social support was assessed using ten-item scale ranging 1-4; a score of "1" indicating receiving support "as much as I would like" and "4" "never receiving support". We compare average scores on social support in intervention and control groups using a linear regression model with robust standard errors to account for clustering.
Results: Among 742 women who participated in the study the average age was 29.6, ranging from 18-43 years. At baseline (13%) had less than basic education, 73% were married or living with sexual partners and 54% were employed. Average social support score at baseline was 2.9 (standard deviation (sd) 0.7) and increased to 3.3(sd=0.6) and 3.6(sd=0.4) at six weeks and 9 months post-delivery respectively; but there was no significant effect of the intervention on social support (P=0.27 and P=0.17) respectively.
Conclusions: The intervention did not have a direct association with social support among depressed HIV infected pregnant women. Although this could be in part related to the potential effect of ESC, which improves access to mental health care. More studies using other approaches of increasing social support in this key group should be considered.

TUPED383

Does stigma really impact health and well-being in persons living with HIV (PLHIV)?

M. Hamilton[1], K. Adams Tufts[2], K. Nokes[3], P. Chaiphibalsarisdi[4], W. Holzemer[5], J. Perazzo[6], P. Ortgon[7], C. Phillips[8], C. Dawson-Rose[9], E. Sefcik[10], R. Schnall[11], I. Corless[12], M. Kesterson[13], L. Davis[13], R. Musanti[5], A. Bagchi[14], K. Edmonds[2], L.A. Diggs[2], P. Haggerty[2], S. Jen[15], J. Martin[2], J. Wait[16], L. Koperna[2], J. Hoch[2], A. Pedrazoli[15], A. Webel[17]
[1]Texas A&M University-Corpus Christi, College of Nursing & Health Science, Corpus Christi, United States, [2]Old Dominion University, College of Health Sciences, Norfolk, United States, [3]City University of New York, Graduate Center, Professor Emerita, Stone Ridge, United States, [4]Saint Louis College, Faculty of Nursing, Bangkok, Thailand, [5]Rutgers, School of Nursing, Newark, United States, [6]University of Cincinnati, School of Nursing, Cincinnati, United States, [7]Durban University of Technology, College of Health Sciences, Durban, South Africa, [8]University of Ottawa, School of Nursing, Ottawa, Canada, [9]University of California, School of Nursing, San Francisco, United States, [10]Texas A&M University-Corpus Christi, College of Nursing & Health Sciences, Corpus Christi, United States, [11]Columbia University, School of Nursing, New York, United States, [12]MGH, College of Nursing, Boston, United States, [13]Texas A&M University-Corpus Christi, College of Education & Human Development, Corpus Christi, United States, [14]Rutgers, College of Nursing, East Brunswick, United States, [15]Old Dominion, College of Health Sciences, Norfolk, United States, [16]Old Dominion University, Biology, Norfolk, United States, [17]Case Western Reserve University, School of Nursing, Cleveland, United States

Background: HIV-related stigma is a phenomenon where PLHIV are viewed or view themselves as tainted by being HIV-infected. The Health Stigma Framework (HSF) posits that there are distinct HIV-related stigma mechanisms by which PLHIV experience and respond to stigma namely: internalized, enacted, and/or anticipated stigma. Although, there is evidence that HIV-related stigma has a negative effect on the health and well-being of PLHIV, less is known about how different stigma mechanisms affect specific health and well-being outcomes. We investigated whether internalized, enacted, and/or anticipated stigmas are associated with distinct physical (physical function, fatigue, pain), mental (anxiety and depression), and social (social health) indicators of health and well-being in PLHIV.

Methods: We recruited PLHIV (N=702) from seven geographically diverse sites in the United States and Thailand for a cross-sectional study on physical activity in PLHIV. Participants completed validated measures of physical, mental, and social health-related domains (PROMIS-29) and stigma (HIV Stigma Mechanism Scale). We used descriptive statistics to calculate mean PROMIS-29 t-scores (higher scores indicate greater levels of specific constructs, e.g. greater anxiety, depression, pain, etc.), and for internalized, enacted, and anticipated stigma (higher scores indicating greater level of stigma). Multiple regression was used to examine the relationship between stigma mechanisms and physical, mental, and social health indicators.

Results: The majority of participants resided in the US (14% in Thailand). Fifty-five percent identified as male (40% female and 4.5% transgendered/queer). All stigma mechanisms and health indicators were significantly associated. Specifically, internalized (r=.447, p=.000) and anticipated stigmas (r=.371, p=.000) were most closely associated with depression. Enacted stigma was most closely associated with pain (r=.293, p=.000). Regression analyses revealed that for PLHIV, internalized stigma was the most significant predictor and accounted for the most variance in all physical, mental, and social health indicators of health and well-being with the exception of pain.

Conclusions: Different stigma mechanisms are associated with distinct health outcomes in the study sample. Distinguishing between different stigma mechanisms and their impact on health outcomes is particularly important to informing the design and development of interventions that have potential for the effective mitigation of stigma and its effects on health outcomes.

TUPED384

Burden of HIV-related stigma and associated factors among prenatal women living with depression accessing PMTCT services in Dar es Salaam, Tanzania

A. Minja[1], E. Larson[2], A. Komba[1], A. Mwimba[1], A. Kaale[1], J. Kamala[1], M. Somba[1], Z. Aloyce[1], H. Siril[3], S.F. Kaaya[4], M.C.S. Fawzi[5]
[1]Africa Academy for Public Health, Programs, Dar es Salaam, Tanzania, United Republic of, [2]Harvard T.H. Chan School of Public Health, Global Health and Population, Boston, United States, [3]Management and Development for Health, Dar es Salaam, United States, [4]Muhimbili University of Health and Allied Science, Dar es Salaam, Tanzania, United Republic of, [5]Harvard Medical School, Global Health and Social Medicine, Boston, United States

Background: In Tanzania and similar resource-limited settings, the burden of HIV-related stigma is high and can have a significant impact on well-being and quality of life. The social isolation experienced with stigma can increase the risk of depression, which can also have a negative effect on survival and prognosis of HIV disease. The aim of this study is to assess the level of HIV-related stigma among women living with HIV and depression accessing PMTCT services and examine factors associated with stigma in this context.

Methods: We administered a questionnaire for prenatal women with depression accessing PMTCT services in Dar es Salaam that included measures of HIV-related stigma, depression, social support, and related factors. Women's exposure to stigma was assessed using a questionnaire with a five-point Likert scale ranging from one to five, with one indicating no stigma and five representing a high level of stigma. We conducted univariate analyses and linear regression models to examine factors associated with HIV-related stigma.

Results: A total of 742 women were enrolled in the study with an average age of 26.9 years old (range 18-43). Over one-third of the women indicated having problems with food security in the past six months (33.2%) and 27.3% reported owing money at shops where they buy food. The average value on the HIV stigma scale was 2.07. HIV-related stigma was positively associated with food insecurity (= 0.24, 95% CI: 0.02, 0.46) and negatively correlated with hope (= -0.20, 95% CI: -0.30, -0.10).

Conclusions: Our study demonstrated a significant level of stigma among perinatal women living with HIV and depression. Socioeconomic factors, such as food insecurity, increased the risk of HIV-related stigma, whereas hope demonstrated a protective effect. This suggests a need to account for economic stressors when addressing HIV-related stigma among high risk groups such as perinatal women living with depression and HIV in resource-limited settings. A more holistic approach addressing psychological, such as hope, as well as economic characteristics should be considered when developing interventions to enhance well-being in this vulnerable population.

TUPED385

Determinants of mental health problems among children living with HIV in Malawi: A cross-sectional study

F.W. Kalembo[1,2], G.E. Kendall[2], M. Ali[2]
[1]Mzuzu University, Nursing and Midwifery, Mzuzu, Malawi, [2]Curtin University, Nursing and Midwifery, Perth, Australia

Background: Approximately 10% of people living with HIV in Malawi are children under the age of 15 years. Although the survival rate of children living with HIV in Malawi has increased due to the increased availability of antiretroviral medications, these children continue to experience numerous challenges negatively impacting on their physical and mental health. These challenges include: high levels of poverty, stigma, discrimination, bullying, and the loss of one or both parents. This study was conducted to investigate the prevalence and determinants of mental health problems in children aged between 6 and 12 years living with HIV in Malawi.

Methods: A random sample of 429 primary caregivers of children living with HIV drawn from the three main administrative regions of Malawi was recruited in a cross-sectional study. Reliable instruments translated

into the local Chichewa language were used to collect data on child's demographic factors, clinical factors, and emotional and behavioural problems as well as family socio-economic and psychosocial factors, including stressful life events, the impact of illness on the family, and caregiver support. Data were analysed using descriptive statistics and logistic regression.
Results: Using the newer band categorisations of the Strengths and Difficulties Questionnaire (SDQ), parent version, 31 per cent of primary caregivers reported that their child had a slightly raised to very high level of total difficulties. Factors that independently predicted difficulties were primary caregivers' young age (aOR 3.6; 95% CI: 1.4-9.5), primary school level of education (aOR 2.6; 95% CI: 1.2-5.7), and lack of employment (aOR 2.7; 95% CI: 1.2-5.9), as well as impact of the illness on the family (3.1; 95% CI: 1.5-6.5) and a low level of functional support (aOR 2.0; 95% CI: 1.1-4.1). Neither non-disclosure nor any of the child demographic or clinical factors were significant in multivariate analysis (p>.0.05).
Conclusions: Close to one-third of children living with HIV in this study had high SDQ scores indicative of mental health problems. Mental health problems in children living with HIV are associated with some family demographic and psychosocial factors. Effective policies and programs that promote the mental wellbeing of children living with HIV in Malawi are indicated.

TUPED386

Working together to promote the physical and psychosocial wellbeing of children living with HIV through the safe and effective disclosure of HIV status: A qualitative study

F.W. Kalembo[1,2], G.E. Kendall[2], M. Ali[2]
[1]Mzuzu University, Nursing and Midwifery, Mzuzu, Malawi, [2]Curtin University, Nursing and Midwifery, Perth, Australia

Background: Approximately one tenth of people living with HIV in Malawi are children under the age of 15 years. While the World Health Organisation recommends that healthcare workers, teachers and community leaders should work with primary caregivers to disclose HIV status to children living with HIV. Research assessing the involvement of these adults in the disclosure process in Malawi is limited. This study was conducted to assess the involvement, practice, challenges, and support needed by primary caregivers, healthcare workers, teachers and community leaders to disclose HIV status to children aged between 6 and 12 years living with HIV in Malawi.
Methods: Focus group discussions and one-on-one interviews were used to collect data from primary caregivers, healthcare workers, teachers and community leaders across all three administrative regions of Malawi. Information regarding involvement, practice, challenges, and support needed to disclose of HIV status to children was collected. Data were analysed using thematic analysis.
Results: Twelve focus group discussions and 19 one-on-one interviews involving a total of 106 participants were completed. Three main themes namely talking about HIV disclosure, open communication, and shared responsibility were identified. The first theme 'talking about HIV disclosure' was identified through participants' expression of the need for all stakeholders to talk about HIV disclosure despite being constrained by the complexity and potentially negative consequences of the disclosure process. The second theme 'open communication' emerged after many participants emphasized the need for stakeholders to have an open communication regarding disclosure of HIV status to the child. Hierarchical relationships and misunderstandings were reported as barriers to open communication. The last theme 'shared responsibility' emerged after most participants expressed that each stakeholder had a role to play in the disclosure process. Nonetheless, many participants reported that there was little attempt to share responsibility for care. The three themes had a common concept of 'working together as most participants emphasized the need for them to work together to break down the barriers to effective disclosure.
Conclusions: Disclosure of HIV status to children is a complex issue that require all stakeholders to work together to meet the health, psychosocial and academic needs of children living with HIV.

TUPED387

We are much more than our HIV status: Uniting HIV+ women in Kyiv to address HIV-related stigma using immediate intervention model

V. Varyga[1], I. Nerubaieva[2]
[1]Positive Women of Ukraine, Kyiv, Ukraine, [2]ICF 'AIDS Foundation East-West' (AFEW-Ukraine), Program Department, Kyiv, Ukraine

Background: HIV-related stigma and lack of social support are crucial factors that undermine ART adherence among HIV-positive women in Ukraine. Self-help group proved to be a good method of overcoming stigma and improving the quality of life. Empowerment given in such groups increase the self-esteem and self-efficacy of its participants helping them to (re)build meaningful relationships in their life and better cope with the on-going life challenges. Using Immediate Intervention Model in 2014 several HIV-positive women created unique self-support and empowerment group for HIV-positive women in Kyiv now nationally well-known as "Kyianka+".
Description: Immediate Intervention Model used by "Kyianka+" is based on the principles of meaningful involvement of people living with HIV/AIDS and implies immediate support of women who have just discovered their HIV-positive status and those who struggle to accept their status by creation of small peer support networks.
The key components of this model:
- Phone hotline.
- Monthly meetings of self-help groups.
- Online counseling and peer support via facebook secret group "Kyianka+".
- Monthly joint events, such as master classes, trainings and leisure activities.
- Skill trainings and professional education with further assistance in employment.
- Informal meetings with doctors.
- Joint creative arts activities.

Lessons learned: The self-help group had an immediate positive effect on women´s health. During 2014-2017 "Kyianka+" provided support to 158 HIV+ women in Kyiv. The number of women who started ARV treatment during this period has significantly increased by 62% - 82 out of 131 participants on ART started treatment empowered by peers in "Kyianka+". There were additional 12 cases of those who re-started to take ART. 10 of 53 women with hepatitis C were supported to start and complete HCV treatment.
Conclusions/Next steps: Women from support group indicated that key unifying factor was not HIV-positive status of its participants, but their belonging to the female community, which demands specific gender-focused approaches in designing interventions. Most of HIV+ women also reported that round the clock peer support and regular informal meetings with doctors helped them the most to overcome the internal stigma. Currently it is planned to disseminate this experience from Kyiv to other regions of Ukraine.

TUPED388

The impact of social support on HIV care attendance and ART adherence in PLH social networks in St. Petersburg, Russia

Y. Amirkhanian[1,2], J. Kelly[1], A. Kuznetsova[2], A. Meylakhs[2], A. Yakovlev[2], V. Musatov[2]
[1]Medical College of Wisconsin, Psychiatry and Behavioral Medicine, Center for AIDS Intervention Research (CAIR), Milwaukee, United States, [2]Botkin Hospital for Infectious Diseases, Interdisciplinary Center for AIDS Research and Training (ICART), St. Petersburg, Russian Federation

Background: A wide body of research shows that social support is strongly associated with HIV care engagement indicators including medical care enrollment, adherence, and retention. In Russia—where ART uptake remains very low—there is a need to identify specific contextual issues related to ways in which social support impacts HIV care.
Methods: Seven egocentric social networks of PLH (n=40) were recruited in St. Petersburg Russia. Interested PLH responded announcements placed online and in service venues. PLH not treatment adherent

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or nonengaged in care were recruited as "seeds" (initial network access persons) and invited the participation of their PLH friends. Each network attended a focus group to elicit details of social support provided within the network as well as supports from outsiders such as parents, partners, HIV- friends, or service providers.
Results: Almost all participants (93%, n=37) indicated that other members of their PLH networks provided support for HIV care. Among other significant persons providing care-related supports were relatives (78%, n=31), treating doctors (50%, n=20), and others (53%, n=21). 25% (n=10) of participants indicated that they mostly rely on themselves to support their HIV care. The most common support types were:
(1) a variety of tangible supports,
(2) sincere interest shown in one's heath and to remind about care appointments or the need to take pills;
(3) emotional support;
(4) being a positive model and sharing personal experiences in overcoming care-related barriers; and
(5) motivational support that emphasizes one's personal responsibility to care for family, children, relatives, or themselves.
A set of supports types felt not to be helpful included inappropriate care recommendations, advice too direct and insensitive to one's lifestyle, and—finally—advice from AIDS deniers seen untrustworthy.
Conclusions: This study identified specific types of support that PLH perceive as helpful and those that are perceived negatively. Interventions to improve HIV care outcomes that increase support—both within PLH networks and among others—hold particular promise. While PLH may support one another as peers, supports for care from family members, care providers, friends, or sexual partners are important and can be mobilized and utilized to achieve HIV care-related goals.

TUPED389

A dyadic investigation of relationship dynamics and depression in HIV-positive couples from Malawi

A. Conroy[1], E. Tuthill[2], T. Neilands[1], M. Johnson[3], N. Mulauzi[4], J. Mkandawire[4]
[1]University of California, Center for AIDS Prevention Studies, San Francisco, United States, [2]University of California, School of Nursing, San Francisco, United States, [3]University of California San Francisco, Center for AIDS Prevention Studies, San Francisco, United States, [4]Invest in Knowledge, Zomba, Malawi

Background: Among HIV-infected individuals, depression is associated with suboptimal adherence to antiretroviral therapy (ART), worsening disease progression, lower CD4 counts, higher viral load, increased risk of comorbidities, and decreased quality of life. Primary partnerships such as marriage could be protective against depression through partner social support. Most studies have examined depression on the individual level, which ignores interpersonal dynamics such as interdependence between partners. In this study, we used a dyadic perspective to examine whether relationship dynamics (e.g. trust, unity, communication, social support) were associated with couple-level depression among HIV-affected married couples in Malawi.
Methods: Couples were eligible if they were in a non-polygamous relationship for at least six months, age 18 or older, and had at least one partner on ART for at least two months who had disclosed HIV status to their primary partner. Using validated scales, both partners were asked about relationship dynamics and symptoms of depression (CES-D). We computed couple-level means for all variables and constructed a dyadic dataset with one row per couple. We then fit linear regression models predicting couple-level depressive symptoms, controlling for relationship length, alcohol use, shared children, health status, couple HIV status (discordant or concordant positive), and other demographic covariates.
Results: All participants (211 couples) were married and most had a primary school education or less (81%). Approximately one-third were serodiscordant. Over one-quarter of participants (28%) had a CES-D score of 16 or higher, indicating probable depression. The mean CES-D score at the couple-level was 11 (range: 0-48). The adjusted models showed that couples with higher levels of intimacy, trust, equality, satisfaction, unity, and commitment had lower levels of depressive symptoms. In contrast, couples with higher levels of maladaptive communication had higher levels of depressive symptoms.

Measure of relationship quality (couple-level)	Unadjusted Coef. (95% CI)	Adjusted Coef. (95% CI)
Intimacy	-1.81 (-3.28, -0.33)*	-2.01 (-3.60, -0.44)*
Trust	-0.20 (-0.37, -0.03)*	-0.24 (-0.44, -0.04)*
Equality	-0.35 (-0.54, -0.17)***	-0.42 (-0.62, -0.22)***
Relationship satisfaction	-1.95 (-3.55, -0.34)*	-2.31 (-4.02, -0.61)**
Unity ("We-ness")	-1.72 (-2.61, -0.82)***	-1.87 (-2.83, -0.92)***
Relationship commitment	-1.99 (-4.08, 0.09)	-2.65 (-4.86, -0.45)*
Maladaptive communication (avoidant)	1.52 (0.48, 2.56)**	1.68 (0.60, 2.77)**
Adaptive communication (constructive)	-1.27 (-3.01, 0.46)	-1.83 (-3.70, 0.02)
Partner social support	-0.08 (-0.20, 0.04)	-0.12 (-0.24, 0.01)

*[Linear regression coefficients for relationship quality and depressive symptoms among couples with HIV in Malawi (*p<.05; **p<0.01; ***p<0.001)]*

Conclusions: High levels of depressive symptoms were reported by married couples with HIV, which has the potential to hinder optimal HIV clinical outcomes. Couples-based interventions that encourage positive relationship dynamics and couple communication could be key in the prevention and treatment of depression, particularly in settings with low access to anti-depression medications and mental health services. This may result in enhanced HIV treatment outcomes.

TUPED390

Does social support serve emotion regulation function in death anxiety among people living with HIV/AIDS?

J. Chukwuorji[1], C. Uzuegbu[2], C. Chukwu[2], C. Ifeagwazi[2]
[1]University of Nigeria, Nsukka, Department of Psychology, Nsukka, Nigeria, [2]University of Nigeria, Nsukka, Nigeria

Background: A growing body of research supports low social support quality as a key predictor of death anxiety, but knowledge of the underlying processes by which social support impacts death anxiety is limited. The major goal of this study was to examine whether social support predicts multidimensional death anxiety as a function of emotion regulation strategies (cognitive reappraisal and expressive suppression) among people living with HIV/AIDS (PLWHA).
Methods: Participants were 186 PLWHA (mean age = 34.16 years, SD = 11.16; 43.5% men and 56.5% women) drawn from the HIV/AIDS care unit of a tertiary healthcare institution in south-eastern Nigeria. Many of them (*n* = 108, 58.1%) had attended higher institutions. Data was obtained by means of self-report questionnaires containing the 17-item Death Anxiety Inventory - Revised (DAI-R), the 12-item Multidimensional Scale of Perceived Social Support, and the 10-item Emotion Regulation Questionnaire (ERQ). A serial mediation analysis for test of hypotheses was conducted using Model 6 of the Hayes' PROCESS macro for SPSS which applies two mediators for each single analysis in a regression-based, path-analytical framework.
Results: There were no gender, age and educational status differences in social support, emotion regulation and death anxiety. The indirect pathway from social support to death anxiety through the emotion regulation strategies were found to be significant for death acceptance and death thoughts, but not for externally generated death anxiety and death finality. Apparently, emotion regulation strategies, especially expressive suppression mediates the process by which social support is linked to reductions in death anxiety among PLWHA.
Conclusions: Findings support existing mental health research and theories elucidating core social mechanisms of emotion regulation in relation to psychopathology. Thus interventions for the improvement of mental health for PLWHA needs to recognise this link.

TUPED391

Psychosocial support for people living with HIV in Burkina Faso through SMS

M. Geldof[1], N. Wagner[1], B.A. Thiombiano[2]
[1]Erasmus University Rotterdam, International Institute of Social Studies, The Hague, Netherlands, [2]Univsersité Polytechnique de Bobo-Dioulasso, Institut du Développement Rural, Bobo-Dioulasso, Burkina Faso

Background: As part of a larger nation-wide study about the impact of SMS reminders on the ARV adherence by people living with HIV in Burkina Faso, a qualitative assessment of the impact of the SMS messages on beneficiaries was undertaken to complement the mostly quantitative data collected through questionnaires. The aim of the assessment was to better understand how the beneficiaries perceived the SMS reminders.
Methods: The qualitative inquiry was done through semi-structured interviews and focus groups with beneficiaries and surveyors taking part in the SMS reminder intervention in both 2016 and 2017 (a total of 37 interviews and 13 focus groups with 76 beneficiaries and 24 surveyors) across 10 different places across Burkina Faso about their experiences with the SMS reminders.
Results: The qualitative inquiry revealed some evidence that the SMS reminders are indeed leading to better ARV adherence, particularly when people are away from their homes and get reminded. However, more importantly the assessment provided strong evidence that the SMS messages were perceived as an important psychosocial support, even if beneficiaries couldn't read or understand them. Simply the fact that someone was thinking about them and making the effort to send a reminder, made people feel that there is someone caring about them and therefore that their life matters.
Conclusions: Typically interventions that use SMS messages for people living with HIV have a functional nature, such as to remind patients of appointments, taking medication or for communication. This qualitative study in Burkina Faso demonstrated that SMS messages can also play an important role in providing psychosocial support to patients, particularly in countries where people living with HIV still face stigmatization and isolation. Such psychosocial support can potentially have an indirect positive impact on health behaviour and ARV adherence, because patients feel more worthy and appreciated.

TUPED392

What do we know about reducing self-stigma among people living with HIV (PLHIV) and key populations affected by HIV? A systematic review of interventions from low and middle-income countries (LMIC)

M. Pantelic[1,2], J. Steinert[2], J. Park[3], F. Murau[4], S. Mellors[4]
[1]International HIV/AIDS Alliance, Secretariat, Oxford, United Kingdom, [2]University of Oxford, Department of Social Policy and Intervention, Oxford, United Kingdom, [3]University of British Columbia, Department of Experimental Medicine, Vancouver, Canada, [4]International HIV/AIDS Alliance, Brighton, United Kingdom

Background: Self-stigma is a major impediment to the UNAIDS 90-90-90 targets. Self-stigma can hamper HIV testing, treatment and prevention by compromising people's quality of life, mental health, healthcare use and adherence to anti-retroviral treatment (ART). We synthesized existing evidence of interventions aiming to reduce self-stigma experienced by PLHIV and key populations in LMIC.
Methods: Studies were identified through bibliographic databases, grey literature sites, study registries, back referencing, and contacts with researchers, following PRISMA and Cochrane guidelines. Two independent investigators screened abstracts according to inclusion criteria pre-specified in the study protocol https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=83972. The data extraction form was adapted from Cochrane Collaboration guidelines and forms used in previous relevant reviews.
Results: Of 5850 potentially relevant titles, 15 studies were included in the review. Represented in these studies were 7,131 people (67% women) from Ethiopia, India, Kenya, Lesotho, Malawi, Nepal, South Africa, Swaziland, Tanzania, Thailand, Uganda, and Vietnam. The vast majority (13/15) of interventions targeted adults living with HIV with four being evaluated in women only. Only two interventions specifically targeted key populations: young men who have sex with men (YMSM) in Thailand and female sex workers (FSW) in India. Approaches to self-stigma reduction included group and individual psycho-educational sessions (sometimes combined with poverty alleviation components), ART initiation with counseling or food assistance, ART adherence counseling (either through peers or community health workers) and food assistance. 11 interventions resulted in reductions in self-stigma. ART initiation and psycho-educational sessions with economic strengthening components consistently resulted in reduced self-stigma, but psycho-educational approaches that did not include economic strengthening had mixed effects.
Conclusions: Structural interventions such as scale-up of ART, prevention of medication stock outs and economic strengthening may help substantially reduce self-stigma among PLHIV, potentially by improving physical and mental health outcomes. It should be noted that only two tested interventions for key populations were identified, of which the one for YMSM did not appear to be effective in reducing self-stigma. More research is urgently needed to understand how to reduce self-stigma among young people and key populations particularly in contexts where they are heavily discriminated and/or criminalized.

TUPED393

The young people living with HIV stigma survey UK: Self-image related to an HIV diagnosis

I. Lut[1], C. Smith[2], A. Hudson[3], V. Delpech[4], C. Foster[5]
[1]Family Planning Assciation, HIV, London, United Kingdom, [2]University College London, London, United Kingdom, [3]Family Planning Association, London, United Kingdom, [4]Public Health England, London, United Kingdom, [5]Imperial College Healthcare NHS Trust, London, United Kingdom

Background: HIV-related stigma affects self-esteem and quality of life among people living with HIV. We report on HIV-related self-image among young people (YP) aged 15-24 living with HIV in the UK.
Methods: *The Young People Living with HIV* Stigma Survey UK was co-produced by a diverse range of young people living with diagnosed HIV (YPLWH), clinicians and researchers. A cross-sectional study was conducted, exploring stigma and discrimination experienced by YPLWH in the UK. Participants were recruited through cross-sector organisations supporting PLWH and HIV clinics. Descriptive and multivariate analyses are presented on positive and negative feelings over the past 12 months.
Results: Data from 300 YP was analysed; median age 20 years (IQR 17,22) with 47% aged 15-19 and 53% aged 20-24. 53% identified as male (including trans men) and 39% of sexually active participants were men who have sex with men (MSM). 79% of YP identified as Black, Asian or Minority Ethnic. 65% of YP acquired HIV at birth and 29% were infected sexually. 92% of participants were currently on ART, 70% self reported an undetectable viral load. Reported feelings in relation to HIV status are presented below:

N=300	No ART and/or detectable VL currently	ART & undetectable VL currently	p-value	Adjusted OR (95% CI)*
In control of health	66 (69.5%)	187 (91.2%)	0.012	3.36 (1.36-8.32)
As good as anyone else	70 (73.7%)	182 (88.8%)	0.008	3.24 (1.35-7.75)
Blame self	37 (39%)	53 (25.9%)	0.018	0.48 (0.26-0.88)
Blame others	31 (32.6%)	34 (16.6%)	0.005	0.43 (0.24-0.77)
Positive self-image	46 (48.4%)	133 (64.9%)	0.031	1.82 (1.06-3.1)

[Feelings and positive self-image score]

YP who are currently on treatment and undetectable (self-reported) reported feeling more in control of their health and as good as anyone else and less feelings of blame compared to others. They were also more likely to report a high positive self-image score.
Conclusions: YP on suppressive therapy report feeling significantly more in control of their health and feeling as good as anyone else while reporting less feelings of blame in relation to their diagnosis. Strategies that translate positive youth self-efficacy into improved health behaviours and reduced risk-taking require further exploration.

TUPED394

Influence of harmful alcohol drinking on anti-retroviral therapy adherence and health-related quality of life in HIV-positive people in Nepal: A community-based cross-sectional study

S. Pokhrel[1], V.D. Sharma[2], K. Gaulee[3], K. Pokhrel[4]
[1]*Integrated Development Foundation Nepal, HIV, Nutrition, and Mental Heatlh, Kathmandu, Nepal,* [2]*Institute of Medicine, Mental Health and Psychiatry, Kathmandu, Nepal,* [3]*Royal Tropical Institute, Public Health, Netherlands, Netherlands,* [4]*Integrated Development Foundation, Kathmandu, Nepal*

Background: HIV-positive people often endure alcohol use disorders resulting in their poor health and treatment outcomes. Little is known about the association of harmful alcohol drinking with their adherence to anti-retroviral therapy (ART) and health related quality of life (QOL) in low-resource settings. Additionally, such evidence is not available according to the gender differences worldwide. This study aimed to investigate the association of harmful alcohol drinking with adherence to ART and health-related QOL of HIV-positive people stratified by gender in Nepal.

Methods: A cross-sectional study was conducted among HIV-positive people on ART in Nepal from March to April 2016. Harmful alcohol drinking was measured using a validated AUDIT scale. Non-adherence to ART was measured using AIDS Clinical Trial Group questionnaires. We also measured their health-related QOL using WHOQOL-HIV BREF scale. The association of harmful alcohol drinking with non-adherence to ART was examined using multiple logistic regressions. Additionally, multiple linear regressions examined the association between harmful alcohol drinking and QOL.

Results: Harmful alcohol drinking was associated with non-adherence to ART among men (AOR: 2.48, 95% CI: 1.50, 4.11, p < 0.001) and women (AOR: 2.52, 95% CI: 1.32, 4.80, p = 0.005). Men were more likely to have lower score for psychological domain (= -0.55, p = 0.021) and level of independence (= -0.68, p = 0.018) domains when they had harmful alcohol drinking. Moreover, women were more likely to have lower scores for physical (= -1.01, p = 0.015), social relation (= -0.82, p = 0.033), environmental (= -0.88, p = 0.011), and spiritual (= -1.30, p = 0.005) domains of QOL when they had harmful alcohol drinking.

Conclusions: Harmful alcohol drinking was an overlooked threat to ART adherence and QOL of both HIV-positive men and women in Nepal. Screening for alcohol use disorders and community-based counseling services should be provided while delivering ART services to improve treatment adherence and QOL. Additional studies are warranted to explore the co-morbid effect of mental health and alcohol use disorders on treatment adherence.

TUPED395

Linking perceived stigma and mental health in adults living with HIV: The mediating effect of self-compassion and psychological flexibility

A. Martins, C. Chaves, M.C. Canavarro, M. Pereira
University of Coimbra, Faculty of Psychology and Educational Sciences, Coimbra, Portugal

Background: Stigma remains one of the biggest challenges for people living with HIV, and has been consistently related to poor mental health. Although scarcely studied in HIV context, self-compassion and psychological flexibility are psychological processes that have shown positive associations with psychological health. In an effort to identify the mechanisms to reduce perceived stigma and its negative consequences, the objective of this study was to assess the association between perceived stigma, self-compassion, psychological flexibility, and mental health outcomes (anxiety and depression); and examine the mediating role of self-compassion and psychological flexibility in the association between perceived stigma and mental health outcomes among adults living with HIV.

Methods: The sample of this cross-sectional study comprised 95 adults living with HIV (53.7% male) with a mean age of 41.65 years (range:19-65). Participants completed an online survey, between January 2016 and June 2017, which included a self-reported questionnaire on sociodemographic and clinical information, the Stigma Scale Revised, the Self-Compassion Scale, the Acceptance and Action Questionnaire-II, and the Hospital Anxiety and Depression Scale.

Results: Perceived stigma was positively correlated with both anxiety (r=.30, p< .01) and depression (r=.44, p< .001), and negatively correlated with self-compassion (r=-.43, p< .001) and psychological flexibility (r=-.47, p< .001). These processes were significantly associated with lower psychological symptoms (r range: -.60 to -.67, p< .001). A serial mediation model was tested. For both anxiety and depression, the total effect was significant, but the direct effect was not. All indirect paths (through each mediator and the two mediators sequentially) were significant. The model for anxiety explained 50% of the variance, F(3, 91) = 30.34, p< .001; and the model for depression explained 47% of the variance, F(3, 91) = 26.86, p< .001.

Conclusions: Our findings demonstrate mediating effects of self-compassion and psychological flexibility, sequentially or not. Adults living with HIV reporting higher levels of perceived stigma showed higher levels of psychological symptoms, especially when they reveal lower levels of self-compassion and psychological flexibility. These preliminary findings suggest that these processes may be important targets of psychological interventions to reduce the negative impact of perceived stigma on individual's mental health.

TUPED396

Emotional wellbeing, drug and alcohol use, and their relationship with adherence to anti-retroviral therapy among MSM living with HIV in Guatemala

K.M. Guzman Guevara[1], J.P. Alvis Estrada[1], R. Santa Luce[1], D.A. Davis[2], I. Loya-Montiel[1], C. Barrington[2]
[1]*Universidad del Valle de Guatemala, Centro de Estudios en Salud, Guatemala, Guatemala,* [2]*University of North Carolina, Department of Health Behavior, Gillings School of Global Public Health, Chapel Hill, United States*

Background: Emotional wellbeing and substance use can influence adherence to anti-retroviral therapy (ART) but little is known about these relationships in Guatemala. We assessed the association between emotional wellbeing, substance use, and ART adherence among men who have sex with men (MSM) living with HIV.

Methods: From January to May 2017, 397 MSM living with HIV participated in a socio-behavioral survey for the baseline assessment of a multi-level intervention in Guatemala City. Eligibility criteria included ≥18 years old, male, ever had sex with men, diagnosed with HIV, enrolled in HIV care, and spoke Spanish. We used the AIDS Clinical Trials Group measures of adherence and DSM-5 for alcohol use disorder. We also measured prevalence of illicit drug use and emotional wellbeing (anxiety, worry, depression). We used descriptive statistics and bivariate analysis to contrast groups and estimate odd ratios.

Results: Among participants who had started ART (88%, 350/397), 93% reported being adherent, defined as not having missed a dose in the last 4 days. However, only 59% reported always taking their medication as prescribed. Most reported anxiety (64%), worry (64%), and depression (62%) two weeks prior to the survey, though these symptoms were not significantly associated with adherence. Twenty-eight percent of participants met the criteria for alcohol use disorder; these participants were half as likely to be adherent to ART compared to those who did not (OR 0.42, 95% CI: 0.18-0.99). Twenty-nine percent reported having ever used drugs; of these, 23% had used drugs in the last 30 days most frequently marijuana and cocaine. Those who used drugs in the last 30 days were approximately a quarter as likely to be adherent to treatment than those who did not (OR 0.21, 95% CI: 0.04-1.02).

Conclusions: While overall adherence was high among participants in this study, there is a need to reinforce taking ART as prescribed. The negative association between substance use and adherence highlights the need to integrate referral and support services into HIV care to improve and sustain treatment outcomes and wellbeing within this vulnerable population. Future research should continue to explore the pathways between emotional wellbeing, substance use, and ART adherence.

TUPED397

Invisible no longer: Exploring the experiences of women living with and at risk of HIV in the UK through two national surveys and six workshops

J. Stevenson[1], E. Bell[1], F. Hale[1], L. Kwardem[2], D. Laycock[2], J. Lennon[2], F. Obadeyi[2], J. Shepherd[2]
[1]Sophia Forum, London, United Kingdom, [2]Terrence Higgins Trust, London, United Kingdom

Background: Around a third of people living with HIV in the UK are women and every year 25% of new diagnoses are in women. Yet women living with and affected by HIV have been mainly invisible in the narrative and response to HIV in the UK.
Methods: Two online surveys were used, one for women living with HIV, and one for women interested in HIV prevention. Both were open to any women (including trans women) living in the UK aged 18 and over. Six participatory workshops were also held, five attended by women living with HIV and one for women who do not identify as heterosexual.
Results: Data from 308 surveys and the output of six workshops attended by 32 women were taken forward for analysis.
Living with HIV: 27% of women felt health services missed an opportunity to diagnose their HIV earlier. 41% felt they had been diagnosed late. A third had no-one to turn to for support post diagnosis. 58% had experienced violence in their lifetime. 1 in 6 never or rarely had enough money for basic needs. 17 felt their immigration status had affected their ability to manage HIV. Over 40% felt HIV had affected their choice to have children and 54% felt their HIV status affected their sex lives. Awareness of U=U was high (96%) but many women did not believe or fully trust U=U.
HIV prevention: Women in stable relationships, women resident in London and women born outside the UK were more likely to worry about HIV. Three used blood donation to test for HIV. 46% would like to try online HIV testing services and 30% would like more opportunities to test within community settings. 48% had not been offered information about HIV prevention at their last HIV test. Women who do not identify as heterosexual felt HIV and sexual health services did not meet their needs.
Conclusions: There remains a lack of understanding of who women at risk of HIV are and what factors put women at risk of HIV. More research and service focus is needed to identify and meet the needs of women living with HIV.

TUPED398

'I know where my tribe is': An online social network for people living with HIV

N. Holas
Institute of Many, Fitzroy, Australia

Background: Accessing peer and social support is a key stage in the process of coming to terms with a HIV diagnosis for most people living with HIV (PLHIV). Traditionally, peer support has been delivered via facilitated groups meeting in physical space, however there is increasing interest in the use of digital technology to deliver social support programs.
Description: The Institute of Many (TIM) is a peer-run platform for HIV-positive people and their allies, founded in 2012. With a membership over 1700, TIM is the largest digital gathering space for PLHIV in Australia. The organisation focuses on social support for PLHIV, primarily through a Facebook group and social networking events in major Australian cities, as well as delivering innovative health promotion programs. Over a 3.5 month period, TIM averaged 6.5 posts, 38 comments, and 116 reactions per day. Its membership is diverse but, in line with other online services, tends to have greater uptake among younger people, newly diagnosed PLHIV, those disconnected from traditional services, and digital natives.
Lessons learned: In 2017, living with HIV online could be seen as just one aspect of what for many people is an increasingly online/digitised life. For digital-native PLHIV, accessing support via online fora comes as naturally as online banking, shopping and dating. While the traditional 'circle of chairs' model for peer support remains relevant for many PLHIV, online services complement and extend the accessibility of traditional services. The TIM Facebook group delivers social support via a digital medium that users are comfortable with and access frequently - it goes where people are rather than asking them to come to it. TIM users employ the service in diverse ways and report high levels of perceived support, a key building block of resilience.
Conclusions/Next steps: Despite operating without substantial funding, TIM has been enthusiastically adopted by Australian PLHIV as a source of social support, and has outperformed online initiatives delivered by traditional organisations. There is a role for independent social support services to operate alongside traditional models.

TUPED399

PozQoL - a short quality of life measure for people living with HIV

G. Mikolajczak[1], G. Brown[1], A. Lyons[1], J. Power[1], F. Drummond[2], A. Cogle[3], B. Allan[4,5], C. Cooper[6], S. O'Connor[7], S. Malhotra[8]
[1]Australian Research Centre in Sex, Health, and Society, La Trobe University, Bundoora, Australia, [2]ViiV Healthcare Australia, Abbotsford, Australia, [3]National Association of People with HIV Australia, Newton, Australia, [4]International Council of AIDS Service Organizations, Toronto, Canada, [5]Australian Society for HIV, Viral Hepatitis and Sexual Health Medicine, Surry Hills, Australia, [6]Positive Life NSW, Surry Hills, Australia, [7]Queensland Positive People, East Brisbane, Australia, [8]Living Positive Victoria, Southbank, Australia

Background: Advances in HIV medical treatment are driving major changes in HIV policy and practice, including the encouragement of uptake and maintenance of antiretroviral treatment by people living with HIV (PLHIV) for both personal and public health benefits. However, achieving these goals requires a concurrent focus on the broader quality of life (QoL) of PLHIV, including psychological and social wellbeing. Current QoL measures are either long, complex, restricted in their use, or expensive which makes it difficult to monitor QoL to inform strategic policy and program evaluation. To address these shortcomings, the PozQoL study aimed to develop, test and validate a short and freely available scale assessing QoL among PLHIV, that could be used by HIV community, support and healthcare services.
Methods: The initial pool of items was developed drawing on a literature review and consultation with PLHIV community groups across Australia. The items covered health concerns, psychological, social, and functional wellbeing. Testing involved a baseline and a follow-up online survey of 465 adult PLHIV. The survey included the pilot PozQoL scale and other validated measures of health and wellbeing.
Results: Guided by an Exploratory Factor Analysis and conceptual considerations, a 13-item scale was developed. The PozQoL scale demonstrated high levels of fit in a Confirmatory Factor Analysis ($^{2}_{(61)}$ =74.42, *p*=.116; CFI=.992, SRMR=.036, RMSEA=.034 [.000, .059]), very good internal consistency (: 0.82-0.94), test-retest reliability (ICC: 0.83-0.95), and concurrent validity with other measures that approximated different aspects of QoL (*r*: 0.45-0.87).
Conclusions: The PozQoL scale has been tested in a diverse sample of adult PLHIV living in Australia, demonstrating very good reliability and validity. The insights from PLHIV and other stakeholders supported the balancing of statistical rigour and conceptual accuracy. The scale is currently being field-tested by15 community, support and healthcare programs for PLHIV in Australia. The measure will make a significant contribution to the evaluation and enhancement of programs for PLHIV. The PozQoL scale is now being considered for a national indicator of QoL in the Australian National HIV Strategy and has been implemented in a national study in the US.

TUPED400

Relationship between perceived stress, depression and self-efficacy among female sex workers in Southern India

S.K. Patel[1], M. Battala[1], B. Mahapatra[1], N. Saggurti[2], Y. Atmavilas[3]
[1]Population Council, HIV and AIDS Program, New Delhi, India, [2]Population Council, New Delhi, India, [3]Bill and Melinda Gates Foundation, New Delhi, India

Background: Female sex workers (FSWs) in many countries are at elevated risk of reproductive and mental health problems, HIV/AIDS, and have low self-esteem due to the stigma and discrimination they experience. Further, psychological health issues have been a largely neglected issue among FSWs and have not been given proper attention, particularly in developing nations. This study examines the prevalence of perceived stress and investigates its relationship with self-efficacy for health service utilization and condom use, and mental health status among FSWs in southern India.

Methods: Data were drawn from the needs assessment study under Avahan-III program, conducted among FSWs (N=694) during May-June 2017 in Karnataka, a southern state of India. The survey collected information on the FSWs' reproductive health needs, self-efficacy for service utilization and condom use, validated self-perceived stress scale, and depression (assessed using CESD-R10 scale). Descriptive statistics, frequency, bivariate and multivariate logistic regression techniques were used for analysis.

Results: About one-half of FSWs (55%) were found to have high perceived stress, while 67% were found to have at least one depressive symptom. About half (46%) scored high for self-efficacy of condom use and 25% scored high for self-efficacy for service utilization from a health facility. FSW's age, educational attainment, typology, living status and experience of sexual violence were associated with high perceived stress. FSWs, those who had high levels of perceived stress were eight times more likely to report any depressive symptoms (86% vs. 43%, AOR: 8.0, 95% CI: 5.4-12.0) than their counterparts. FSWs, who had high levels of perceived stress were less likely to have high self-efficacy for condom use (41% vs. 53%, AOR: 0.6, 95% CI: 0.5-0.9) as compared to others.

Conclusions: The study highlighted that greater stress is associated with lower general self-efficacy and lower mental health status among FSWs. The current HIV prevention activities in India require an integrated program approach to focus on addressing the psycho-social issues as well. To support this, mental health intervention programs and research-based evidence will be highly needed to ensure that mental health issues are properly addressed among high-risk groups.

TUPED401

The prevalence and correlates of depression in a cohort of HIV-Infected pregnant women in Kenya

L. Osborn[1], K. Ronen[2], D. Matemo[1], J. Unger[2], A. Drake[2], J. Kinuthia[1], G. John-Stewart[2]
[1]Kenyatta National Hospital, Research and Programs, Nairobi, Kenya, [2]University of Washington, Global Health, Seattle, United States

Background: Depression is the leading cause of disability globally and is associated with poor HIV clinical outcomes. Risk of depression is higher in HIV-infected individuals and in peripartum women, but few studies have characterized depression in pregnant HIV-infected women in sub-Saharan Africa.

This study evaluates the prevalence and correlates of depression in pregnant HIV-infected women in Kenya.

Methods: We conducted a cross-sectional analysis of enrollment data from participants in a trial evaluating mHealth strategies to improve ART adherence (Mobile WAChX, NCT02400671). Participants were age ≥14, HIV-infected, pregnant, and had daily access to mobile phone. Participants were recruited from 6 public MCH clinics in Nairobi and Nyanza region. Self-report questionnaires were administered, including assessment of depression (by PHQ9) and social support (by MOS). Correlates of depression were assessed by ^{2} test, univariable and multivariable logistic regression with standard errors clustered by clinic.

Results: Among 825 women enrolled, median age was 27 (IQR 23-31), median gestational age was 24 weeks (18-30), median time since HIV diagnosis was 2 years (IQR 0.08-5.00), and 452 (55%) had an intended pregnancy. Overall, 244 (29.6%) reported at least mild depression (PHQ9 score ≥5) and 71 (8.6%) reported at least moderate depression (PHQ9 score ≥10). Prevalence of ≥mild depression varied significantly by clinic site (range 7.8%-36.5%, p< 0.0001). Compared to women without depression, women with ≥mild depression had lower income, education, and were less likely to have had an intended pregnancy (p< 0.05 for each). In addition, women with ≥mild depression had a more recent HIV diagnosis (median 1 vs. 2 years, p=0.006), more enacted stigma (21.5% vs. 9.3%, p< 0.001), IPV (20.5 vs. 7.2%, p< 0.001) and less social support (58 vs. 66, p< 0.001). In adjusted analysis, depression remained associated with poor social support (aOR=0.98, 0.97-0.99), unplanned pregnancy (aOR=1.35, 1.07-1.71), less than primary education (aOR=1.45, 1.03-2.04), and IPV in the last 12 months (aOR=2.89, 2.45-3.40).

Conclusions: Prevalence of depression in HIV-infected pregnant women in Kenya was substantial, and was associated with pregnancy intention, IPV, education level and social support. The findings highlight the need for improved depression screening and treatment for pregnant HIV-infected women.

TUPED402

Understanding anxiety during sex among women living with HIV in Canada: A cross-sectional analysis of social, psychological, and relational factors

A. Carter[1,2], S. Greene[3], D. Money[4], M. Sanchez[5], K. Webster[2], V. Nicholson[2], L.A. Brotto[4], C. Hankins[6,7], M. Kestler[4], N. Pick[4,8], K. Salters[1,2], K. Proulx-Boucher[9], N. O'Brien[6,9], S. Patterson[10,11], L. Wang[1], L. Tiamiyu[1], A. de Pokomandy[6,9], M. Loutfy[12,13], A. Kaida[2], CHIWOS Research Team
[1]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada, [2]Simon Fraser University, Burnaby, Canada, [3]McMaster University, Hamilton, Canada, [4]University of British Columbia, Vancouver, Canada, [5]ViVA, Positive Living Society of British Columbia, Vancouver, Canada, [6]McGill University, Montreal, Canada, [7]University of Amsterdam, Amsterdam, Netherlands, [8]British Columbia Women's Hospital and Health Centre, Vancouver, Canada, [9]McGill University Health Centre, Montreal, Canada, [10]Simon Fraser University, Vancouver, Canada, [11]Wirral University Teaching Hospital, Birkenhead, United Kingdom, [12]Women's College Research Institute, Toronto, Canada, [13]University of Toronto, Toronto, Canada

Background: Sustained use of antiretroviral treatment (ART) with an undetectable viral load effectively eliminates risk of sexual HIV transmission. Awareness of the scientific facts about HIV transmission may reduce anxiety during sexual activity, although trauma and power inequity remain prevalent forces in the lives of women with HIV. We investigated what factors predict self-reported high sexual anxiety among Canadian women with HIV.

Methods: Data were drawn from the baseline questionnaire of the Canadian HIV Women's Sexual and Reproductive Health Cohort Study (2013-2015). Women who reported sex in the past month (n=478) were asked, "Overall, how frequently have you become anxious or inhibited during sexual activity with a partner?" Awareness of ART prevention benefits was measured via the question, "How do you think taking ART changes your risk of transmitting HIV?" and defined by the response "makes the risk a lot lower." Logistic regression identified factors associated with sexual anxiety.

Results: Median age of women was 39 (interquartile range: 32-45), with 5.7% identifying as trans, 14.2% lesbian/queer, 24.5% Indigenous, 27.0% African/Caribbean/Black, and 41.6% White. 72.4% were aware of ART prevention benefits. 58.6% reported feeling no anxiety during sex, while 26.8 % said that they "sometimes/seldom" and 14.6% said they "always/usually" became anxious during sex. Among women aware of ART prevention benefits, 13% "always/usually" felt anxiety compared to 18% of women not aware (p=0.508). Women reporting depression [AOR: 1.11 (95% CI: 1.05-1.16)], previous illicit drug use [2.32 (1.278-4.212)], and current sex work [4.89 (1.32-18.15)] had increased odds of sexual anxiety. Those reporting higher emotional closeness [0.31 (0.14-0.69)], more equitable relationship power [0.95 (0.91-1.00)], and greater ability to communicate

sexual desires to partners [0.52 (0.28-0.95)] had reduced odds. We found no association with being aware of ART prevention benefits [0.95 (0.45-2.01)].
Conclusions: Awareness of ART's HIV prevention benefits was not associated with lower anxiety during sex for women in this study. Instead, correlations were found with social status, mental health, and the quality of sex and intimate relationships. These results highlight a need to gender the HIV treatment as prevention paradigm and address complex social inequities in order to promote positive sexual health among women with HIV.

TUPED403

Psychological and socio-cultural effects of forced and coerced sterilisation on women living with HIV (WLHIV) in Namibia

K. Bakare, S. Gentz
University of Namibia, Human Sciences, Psychology, Windhoek, Namibia

Background: The forced and coerced sterilisation of women living with HIV (WLHIV) is one of the most serious forms of fundamental human rights violations. While, the litigation of Namibia's forced and coerced sterilisation cases has been successful for the women involved, aspects of their well-being have not been fully addressed. The aims of the study were to explore the negative psychological symptoms resulting from forced and coerced sterilization, to describe the socio-cultural effects of forced and coerced sterilization as well as to investigate the meanings that individuals attach to the circumstance of being forced and coerced into sterilization and how these influence coping.
Methods: This study was conducted in Windhoek, Namibia in 2017 using a qualitative research methodology. The target population for this study was the 40 WLHIV who were victims of forced sterilisation in Namibia. Convenience sampling was used to select a sample of seven research participants. The researcher made use of semi-structured interview schedules and content analysis was used to interpret meanings and derive themes.
Results: Results indicated negative psychological and socio-cultural effects on the lives of research participants succeeding forced sterilisation. The findings indicated negative psychological symptoms, particularly those associated with anxiety and depression. These symptoms include withdrawal, overthinking or ruminating, fear, sleep disturbance, change in weight, loss of interest, self-blame, shame, feelings of helplessness, hopelessness, worthlessness, sadness and anger. Additionally, themes of negative health effects, poor state health care services, gender based violence, discrimination, victimisation and unemployment emerged. It was noted that, cultural principles and values regarding reproduction, marriage and decision making also contribute to negative socio-cultural and psychological effects. Another finding was that coping has been difficult, with some psychological and socio-cultural challenges still significantly affecting the women's lives.
Conclusions: The findings of this research point to the need for a strong and sustained HIV support program for WLHIV, especially where human rights violations have occurred; in this particular case, WLHIV who were forced or coerced into sterilisation. It reveals that while financial compensation and policy reform maybe the immediate goals of advocacy efforts, the psychological, social, physical and financial well-being should be prioritised.

TUPED404

Hope in HIV infected depressed perinatal women participants of a psycho social group intervention in urban Tanzania

A. Mwimba[1], E. Larson[2], A. Komba[1], A. Kaale[1], A. Minja[1], J. Kamala[1], M. Somba[1], Z. Aloyce[1], M.C. Smith Fawzi[3], S.F. Kaaya[4]
[1]Africa Academy for Public Health, Program, Tanzania, Tanzania, United Republic of, [2]Harvard T.H Chan School of Public Health, Department of Global Health and Population, Boston, United States, [3]Harvard Medical School, Department of Global Health and Population, Boston, United States, [4]Muhimbili University of Health and Allied Sciences, Department of Psychiatry and Mental Health, Dar es Salaam, Tanzania, United Republic of

Background: Facilitating hope may be important in the provision of comprehensive care for persons living with HIV (PLHA); yet little is known about levels of hope in this population. The purpose of this paper is to describe levels of hope in perinatal women accessing PMTCT-plus services and identify factors associated with hope.
Methods: .A cluster randomised trial was conducted in 16 PMTC-plus providing facilities in urban Dar es Salaam, which recruited perinatal depressed women using a locally validate cut point of the PHQ-9. A total of 742 women with HIV and comorbid depression were enrolled at baseline and 87.5% (n=649) and 86.6% (n=643) followed up at 6 weeks and nine months post-partum respectively. A composite indicator of hope was developed as the average of responses for 20 locally derived idioms of hope from narratives with PLHA in Dar es Salaam from a previous study. Each item had a 4-point response scale from "definitely false" to "definitely true" with lower scores indicating less hope and higher scores more hope. We assessed the level of hope at each survey time point. We used linear models with standard errors clustered at the facility level to assess the association between hope and correlates of interest at baseline.
Results: Women had mean age of 29.6 years (sd 5.42), and most (65.2%) had completed primary education. The average score at baseline on the hope scale was 3.51 (range 1.55-4.00) compared to 3.72 (range 2.10-4.00) at follow-up 1, and 3.78 (range 2.05-4.00) at follow-up 2; this increase in hope over time being statistically significant ($p< 0.001$). At baseline, older women were more hopeful than younger women (=0.01, 95% CI; 0.00, 0.01). Women with high scores on a general self-efficacy measure, also showed higher scores on the hope scale (=0.25, 95% CI; 0.16, 0.33).
Conclusions: Using locally derived idioms signifying hope, perinatal women had above average scores for hope at baseline, that significantly increased with follow-up. The positive correlation with self-efficacy suggests the utility of the hope measure in future analysis.

TUPED405

Risk factors for relapse of depressive symptoms after a psychosocial group intervention for depressed perinatal women attending PMTCT-plus services in Dar es Salaam, Tanzania: A cluster randomized controlled trial

A. Komba[1], E. Larson[2], A. Mwimba[1], A. Kaale[1], A. Minja[1], J. Kamala[1], M. Somba[1], Z. Aloyce[1], M.C. Smith Fawzi[3], S. Kaaya[4], H. Siril[5]
[1]Africa Academy for Public Health, Programe, Dar es Salaam, Tanzania, United Republic of, [2]Harvard T.H. Chan School Public Health, Global Health and Population, Boston, United States, [3]Harvard Medical School, Global Health and Social Medicine, Boston, United States, [4]Muhimbili University of Health and Allied Sciences, Psychiatry and Mental Health, Dar es Salaam, Tanzania, United Republic of, [5]Management and Development for Health, Programe, Dar es Salaam, Tanzania, United Republic of

Background: Depression is common in women living with HIV/AIDS attending antenatal care-based services for preventing mother-to-child transmission of HIV (PMTCT-plus). While relapse of depressive symptoms after treatment may occur, few interventions have identified risk factors for relapse in a low-income country context.
Methods: A cluster-randomized controlled trial compared a psychosocial group intervention utilizing problem solving (PS) and cognitive behavioural (CB) components facilitated by lay community-based health-

care workers to standard of care among women with elevated PHQ-9 depressive symptom scores comparable with major depressive disorder. In addition to baseline, follow-up assessment was at six weeks (T1) and nine months (T2) post-delivery. Relapse of depression was defined as a woman who was not depressed at first follow-up and depressed at second follow-up as determined by a PHQ-9 score of nine or above. We first conducted univariate analysis of depression at each time point, then assessed potential predictors of relapse using generalized estimating equations with a log link and standard errors adjusted for clustering at the facility level.
Results: We enrolled 742 women at baseline, interviewed 649 (87.5%) at T1 and 643 (86.7%) at T2. At baseline women were on average 29.6 years old (range 18-43) and 72.5% were married or living with their partner. At T1 25.2% of women were depressed, compared to 10.2% at T2. Of the 429 who were not depressed at T17.2% relapsed and had an elevated depression score at T2. Women who were younger or single were more likely to relapse; however, higher levels of hope at baseline reduced the risk of relapse by 57% (RR=0.43; 95%CI: 0.23-0.79). Intimate partner violence and HIV-related stigma increased the risk of relapse. In particular, women who reported food insecurity were 3 times more likely to relapse compared to those who did not report this risk factor (RR=3.29; 95%CI:1.62-6.69).
Conclusions: Psycho social support groups utilizing PS and CT components have proven effective in treating depression however, a number of factors can increase the risk of recurrence. In order to sustain the reduced risk of depression related to treatment, contextual factors such as intimate partner violence and food insecurity need to be addressed.

TUPED406

The Young People Living with HIV Stigma Survey UK: An intergenerational comparison of self-image related to an HIV diagnosis

I. Lut[1], C. Smith[2], A. Hudson[1], V. Delpech[3], C. Foster[4]
[1]*Family Planning Association, London, United Kingdom,* [2]*University College London, London, United Kingdom,* [3]*Public Health England, London, United Kingdom,* [4]*Imperial College Healthcare NHS Trust, London, United Kingdom*

Background: HIV-related stigma affects self-esteem and quality of life among people living with HIV. We report on the intergenerational differences in HIV-related self-image among adults and young people (YP) living with HIV in the UK.
Methods: *The People Living with HIV* Stigma Surveys UK were co-produced by a range of people living with diagnosed HIV (PLWH), clinicians and researchers. Two cross-sectional studies [adults (18+) and YP (15-24)] were conducted, exploring stigma and discrimination experienced by PLWH in the UK. Participants were recruited through cross-sector organisations supporting PLWH and HIV clinics. A composite binary self-image score was created from responses to 9 questions on positive (4) and negative (5) feelings in the past 12 months. Descriptive and multivariate analyses are presented.
Results: Data from 1,450 adults and 300 YP was analysed; median ages 45 years (IQR 37,52) and 20 years (IQR 17,22) respectively. 76% and 53% identified as male (including trans men) and 67% and 39% of sexually active participants were men who have sex with men (MSM). 62% of adults identified as White British while 79% of YP identified as Black, Asian or Minority Ethnic. 65% of YP acquired HIV at birth and 29% were infected sexually. 92% of participants in both studies were currently on ART. Reported feelings in relation to HIV status and positive self-image scores are presented below:

	Adults (N=1,450)	Young People (N=300)	p-value	Adjusted OR (95% CI) YP vs Adults
In control of health	900(62.1%)	223(74.3%)	<0.001	1.57 (1.08-2.29)
As good as anyone else	857(59.1%)	220(73.3%)	<0.001	1.75 (1.2-2.58)
Shame	710(49.0%)	65(21.7%)	<0.001	0.29 (0.21-0.39)
Guilt	670(46.2%)	50(16.7%)	<0.001	0.29 (0.21-0.4)
Positive self-image	720(49.7%)	211(70.3%)	<0.001	2.95 (2.11-4.12)

[Feelings and positive self-image score]

Conclusions: YP report significantly more feelings of control over their health and feeling as good as anyone else while reporting less feelings of shame or guilt about their diagnosis compared to older adults. They are more likely to have a positive self-image and better adjustment to their diagnosis. Strategies that translate positive youth self-efficacy into improved self image for older adults require exploration.

TUPED407

Prevalence and factors associate with common mental health problems among people living with HIV/AIDS in Dar es Salaam, Tanzania

S. Likindikoki[1], V. Fonner[2], E. Steven[1], F. Chiwanga[3], J. Mbwambo[1], M. Sweat[4]
[1]*Muhimbili University of Health and Allied Sciences, Psychiatry and Mental Health, Dar es Salaam, Tanzania, United Republic of,* [2]*Medical University of South Carolina, Psychiatry and Behavioural Sciences, Charlestown, United States,* [3]*Muhimbili National Hospital, Internal Medicine, Dar es Salaam, Tanzania, United Republic of,* [4]*Medical University of South Carolina, Division of Global and Community Health, Charlestown, United States*

Background: People living with HIV/AIDS (PLWHA) are at risk of getting mental health problems such as depression, alcohol and tobacco use. These conditions can negatively impact on the disease progression and overall quality of life (QOL). This study aims to determine the prevalence and risks factors for depression, alcohol and tobacco use among people currently receiving care for HIV in Tanzania.
Methods: A total of 359 adult HIV-positive patients were recruited and interviewed between August and October 2017. We sampled every third HIV Care and Treatment Clinic (CTC) client receiving care at the Muhimbili National Hospital situated in Dar es Salaam. Patients Health Questionnaire-9 (PHQ-9) was used to assess for depression, WHO-STEPS survey to assess tobacco and alcohol use. Structured questionnaire was used to assess predictors of interest like social support, social demographic status and anti-retroviral (ART) adherence. Frequencies and percentages were used to describe the prevalence, chi-square test to examine differences in prevalence and bivariate logistic regression for depression and predictors of interest.
Results: Participants were predominantly female 277/359 (77.2), the mean age was 45.8 (SD=9.8) more than half of the participants had primary education 207 (57.7%) and a majority reported clinic attendance for the past five years (71.8%). Of 359 participants, 9 (2.5%) were classified as having depression (phq9 score>=10). Rates of depression were similar comparing males (2/82, 2.4%) and females (7/277, 2.5%), chi-square=0.96. 36/359 (10%) and 18/359 (5%) reported to ever use tobacco products and current tobacco use, respectively. As for alcohol use, 217/359 (60.5%) and 70/359 (19.5%) reported to ever drank alcohol and having drunk alcohol in the past 12 months, respectively. Men were found be more likely to have ever used tobacco (OR=17.4, 95% CI: 7.5-40.3, p< 0.001) and alcohol (OR=2.6, 95% CI: 1.5-4.7). Alcohol use was also associated with receiving no family support related to HIV (OR=2.1, 95% CI: 1.0-4.2, p=0.05).
Conclusions: Alcohol and tobacco use are common among PLWHA and despite the reported low prevalence of depression, it is imperative to screen for common mental health problems at CTC to be able to intervene and reduce comorbidities as well as improve QOL for PLWHA.

	Overall (n=359)	Males (n=82)	Females (n=277)	Chi-Square
Depression (PHQ-9>=10)	9(2.5%)	2(2.4%)	7(2.5%)	0.96
Current Tobacco use	18(5%)	12(14.6%)	6(2.2%)	<0.001
Ever Tobacco use	36(10%)	28(34.2%)	8(2.9%)	<0.001
Current alcohol use (In past 12 months)	70(19.5%)	21(25.6%)	49(17.7%)	0.11
Ever alcohol use	217(60.5%)	63(29.0%)	19(13.4%)	0.001
ART adherent	350(97.5%)	79(96.3%)	271(97.8%)	0.45
ART non adherent	9(2.5%	3(3.7%)	6(2.7%)	
Family support for HIV care - YES	316(88%)	73(89.0%)	243(87.7%)	0.75
Family support for HIV care - NO	43(12%)	9(11%)	34(12.3%)	

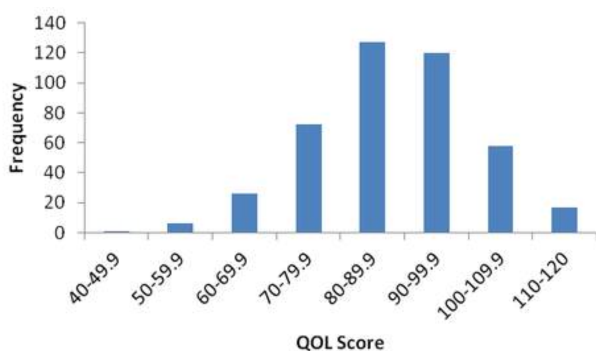
[Table 1. Prevalence of depression and risk factors, stratified by sex]

TUPED408

Cross-sectional study of Quality of Life (WHO HIV-QL31) of HIV patients in the Philippines

C. O'Connor[1,2], K. Leyritana[1], H. Elsayed[3], S. Cox[2,3], J. Lewis[2], E.M. Salvana[4]
[1]*Sustained Health Initiatives of the Philippines (SHIP), Madaluyong City, Philippines,* [2]*London School of Hygiene and Tropical Medicine, London, United Kingdom,* [3]*Nagasaki University, Nagasaki, Japan,* [4]*National Institute of Molecular Biology and Biotechnology National Institutes of Health University of the Philippines Manila, Manila, Philippines*

Background: Philippines has the fastest growing HIV/AIDS epidemic in the Asia Pacific region. In the past six years the Philippines has seen a 140% increase in the number of new infections, and 83% of new cases are in men who have sex with men (MSM). As the burden of HIV increases, assessing the quality of life (QOL) of PLHIV is important in order to provide appropriate care and treatment. Currently, no data are available regarding the QOL in HIV patients in the Philippines.
Methods: A cross-sectional analysis was conducted using data from the baseline visit of a cohort study of patients at a nonprofit private clinic in Metro Manila. Data were collected from October, 2016 to December, 2017. Patients completed the World Health Organization HIV QOL questionnaire (WHO HIV-QL31) in English. Data were entered into Excel and descriptive analysis was conducted in STATA 14.
Results: The study enrolled 463 patients, 91% were MSM. 427 completed HIV-QL31 questionnaires. The range, IQR, mean, and standard deviation for each of six domains and the total score are detailed in the Table. The distribution of total QOL scores is detailed in the histogram in the Figure. The mean QOL score in the cohort was 88.3 (maximum possible total = 120, max possible per domain = 20). The domain with the lowest mean QOL was Environment (13.4) followed by Spirituality (14.3).
Conclusions: The QOL scores of our cohort are somewhat higher than those of cohorts from Thailand and from India, suggesting that QOL for PLHIV in the Philippines may be somewhat better than it is in other countries throughout the Asia Pacific region. The cohort in our private clinic is of higher socioeconomic status than the average Filipino, however, so these data may not be representative of QOL for most Filipinos living with HIV.
Further analysis should be conducted to examine the independent predictors of QOL and also to determine how QOL impacts outcomes. Understanding which domains patients have poorer QOL may help officials to plan targeted interventions to improve patient outcomes.



[Quality of Life Score Distribution (WHO HIV-QL31)]

QOL Domains	Minimum Observed	IQR 25%	IQR 50% (Median)	IQR 75%	Maximum Observed	Mean Score	Standard Deviation
D1 Physical	7.0	13.0	15.0	17,0	20.0	15.1	2.7
D2 Psychological	6.4	13.6	15.2	16.8	20.0	15.0	2.4
D3 Level of independence	6.0	14.0	16.0	17.0	20.0	15.4	2.5
D4 Social Relationships	6.0	13.0	15.0	17.0	20.0	14.3	3.5
D5 Environment	8.0	12.0	13.5	14.5	17.5	13.4	1.9
D6 Spirituality/ Religion	4.0	12.0	15.0	17.0	20.0	14.3	3.5
QOL Total	47.9	80.4	88.7	97.0	116.7	88.3	12.5

[Quality of Life of HIV Patients by Domain (WHO HIV-QL31)]

TUPED409

Is the PHQ-8 an efficient screening tool for depression among HIV positive pregnant women attending antenatal and postnatal care?

L. de Vos[1], D. Olivier[1], M. Mudau[1], C. Bezuidenhout[1], J. Klausner[2], K. Lovero[3], M. Wainberg[3], A. Medina-Marino[1]
[1]*Foundation for Professional Development, Research Unit, Pretoria, South Africa,* [2]*Global Health David Geffen School of Medicine, Division of Infectious Diseases, Los Angeles, United States,* [3]*Columbia University, Department of Psychiatry and New York State Psychiatric Institute, New York, United States*

Background: South African primary care guidelines stipulate that all pregnant women should be screened for depression at every antenatal care visit (ANC). Previous studies have shown high depression levels among HIV-infected pregnant women. Depression contributes to various adverse maternal health outcomes, supporting the need for a feasible and validated screening tool for detection at PHC-level in South Africa. We aimed to determine the reliability of the 8-item Patient Health Questionnaire (PHQ8) and quantify depressive symptoms among this population.
Methods: From June 2016 to September 2017, HIV-infected pregnant women attending ANC at three primary healthcare facilities in Tshwane were recruited. Participants were screened for symptoms of depression during pregnancy, after delivery and six weeks post-delivery. Scores were categorized into depression levels: none (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), severe (20-24). A cut-off score of 10 for depression was used in accordance with previous studies. Women with high symptoms of depression were referred for further care. An inter-item scale reliability analysis was conducted to demonstrate internal consistency of the PHQ-8.
Results: We recruited 845 women. Twenty-eight percent (N=236) experienced mild to severe depressive symptoms; 6.9% (N=58) were classified as depressed. Fifty-one percent (N=430) of participants were attending first ANC. Of those, 37% (N=159) were newly diagnosed with HIV. Women diagnosed with HIV on day of enrolment showed higher levels of depression than women previously diagnosed (OR=2.6, CI 1.49-4.6). Higher symptoms of depression (score ≥ 10) were positively associated with younger age, education level and multiple partners during pregnancy. Only 1.3% (N=6/461) were classified as depressed after delivery and only one participant at six weeks post-delivery. The Cronbach alpha for the PHQ-8 was 0.72 in ANC, 0.72 after delivery, and 0.68 at six weeks post-delivery.
Conclusions: Higher depression rates among those newly diagnosed shows the importance of early screening and ongoing mental health support. Internal consistency rates were acceptable when administering the PHQ-8 during pregnancy. However, it should be validated against a gold-standard to confirm depression rates found here.

TUPED410

Associations between HIV-related stigma and socioemotional competencies: Evidence for psychosocial and psychotherapeutic interventions

P.D. Radusky[1,2], I. Aristegui[2,3], V. Zalazar[2], O. Sued[2], I.M. Mikulic[1]
[1]*University of Buenos Aires, Department of Psychology, Buenos Aires, Argentina,* [2]*Fundación Huésped, Buenos Aires, Argentina,* [3]*Universidad de Palermo, Buenos Aires, Argentina*

Background: HIV-related stigma has a negative emotional impact on people living with HIV (PLH), ranging from emotional distress to depression and anxiety disorders and ultimately leading to adverse outcomes on health and well-being. Socioemotional competencies (SEC) can be resources to adequately perceive, express and manage these negative emotions, reducing their adverse impact. The purpose of this study was to explore the association between stigma (internalized, anticipated and enacted) and SEC and to analyze the existence of predictive relations between these variables.
Methods: A cross-sectional study was conducted between June-November 2017. The Socioemotional Competencies Inventory (SECI) and the HIV-Related Stigma Inventory (EI-HIV) were administered. The

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analysis included Pearson correlations, to identify associations between SEC and dimensions of stigma, and regression analysis, to test predictive relations between variables.

Results: The final sample consisted of 83 PLH (66% men, 34% women). Mean age was 41 years (SD=13.40). Half were MSM and half were heterosexual men and women. All significant correlations between SEC and HIV-related stigma were negative. Emotion regulation and optimism were the only SEC significantly associated with the three dimensions of stigma. Having experienced stigma and discrimination (enacted stigma) negatively affected the levels of self-efficacy (R^2=.11, F(1,81)=10.75, p< .01, ß=-.34, p< .01), optimism (R^2=.12, F(1,81)=11.25, p< .001, ß=-.34, p< .001) and emotion regulation (R^2=.11, F(1,81)=10.07, p< .01, ß=-.33, p< .01). These last two SEC significantly predicted internalized (R^2=.22, F(2,80)=11.58, p< .001) and anticipated stigma (R^2=.18, F(2,80)=8.82, p< .001).

	IS	AS	ES	IS		AS	
				ß	p	ß	p
Emotional Regulation	-.32**	-.37**	-.33**	-.21	.046	-.30	.006
Optimism	-.43**	-.31**	-.34**	-.36	.001	-.22	.041
Self-efficacy	--	--	-.34**	--	--	--	--

*[Table 1. Pearson correlations and multiple regression analysis between SEC and dimensions of HIV-related stigma. Note: IS: Internalized stigma; AS: Anticipated stigma; ES: Enacted stigma; **p<0.01]*

Conclusions: Participants with higher levels of SEC exhibited lower levels of HIV-related stigma. Results support previous evidence showing that experiences of HIV-related stigma and discrimination negatively affect certain SEC, especially emotion regulation and optimism. This may contribute to the increment of internalized and anticipated stigma. These specific SEC might play a particularly important role in coping with the negative emotional impact of stigma. An integrative model including them should be tested in future studies. This evidence supports the relevance of promoting and developing SEC (focusing on emotion regulation skills and optimism) in psychosocial and psychotherapeutic interventions aimed at PLH, to enhance individuals' resources to cope with HIV-related stigma and reduce its negative impact on health and well-being.

TUPED411

A place to belong: Findings from a mixed-methods examination of housing as a health intervention for LGBT young adults age 18-24

S. Ali[1], M. Stanton[2], P. Andrews[2], V. Shubert[2], T. Ghose[3]
[1]University of Houston, Houston, United States, [2]Housing Works, Brooklyn, United States, [3]University of Pennsylvania, Philadelphis, United States

Background: Young age and housing instability independently predict virologic failure, driving heightened HIV risk among unstably housed lesbian, gay, bisexual, transgender and/or queer (LGBTQ) youth (18-24). Congregate, supportive housing can promote viral load suppression among marginalized groups. However, little is known about the impact of housing on health outcomes for LGBTQ youth, who are living at the intersection of social marginalization and late-adolescent development stage. The aim of this study is to examine a unique congregate, supportive housing program for young LGBTQ adults living with HIV.

Methods: A mixed-methods study initiated upon the housing program's opening was designed to assess the effect of the program on HIV management, mental health, substance use, sexual health, HIV stigma, and self-esteem. Data collected to date include descriptive statistics from baseline resident surveys (N=13) and in-depth semi-structured interviews (N=8) conducted approximately 3 months following program enrollment.

Results: Most residents (average age 21.8 years) identify as male (85%), black (69%) and unemployed seeking work (62%). 77% moved more than three times in the past two years, 62% experienced homelessness, and most were staying temporarily with a family member or friend (38%) or residing in emergency housing (23%) prior to program entry. Two-thirds (62%) have histories of incarceration, 54% have experienced intimate partner violence in the past year, and 100% report perceived HIV stigma. Interviews revealed that the housing program promotes medication adherence and viral load suppression among youth through:

1) shielding residents from the risk environment;
2) connecting residents to a range of culturally appropriate physical and behavioral health services; and
3) developing a sense of community which fosters mutual support, prosocial health norms and mitigates the negative effects of internalized stigma.

Conclusions: Lack of affirming, safe housing for LGBTQ homeless youth with HIV contributes to poor health outcomes. Quantitative findings reflect volatile residential instability and high internalized stigma. Qualitative data reveal how supportive, congregate housing can promote environmental predictability and foster positive peer relationships. These factors influence LGBTQ youth's development of sense of self and health and point to critical components of housing as a structural intervention with this group.

Adaptation to living with HIV for individuals, families, and communities

TUPED412

"It is our time": Confronting internalized stigma to empower young people living with HIV

B. Nanyonjo[1], B. Nabuuma[2], P. Senteza[3]
[1]Busega Adolescent Sexual Health Program (BUSHEP), Outreach, Kampala, Uganda, [2]Reproductive Health Uganda, Advocacy and Community Development, Kampala, Uganda, [3]Makerere Institute of Social Development, Research, Kampala, Uganda

Background: Young people living with HIV do not have access to resources required to keep them healthy, and to access HIV and sexual reproductive information. YPLWHA are further marginalized because of their status as HIV is linked to sex which is a taboo issue - creating a double stigma.

Description: Busega Adolescent Sexual Health Program (BUSHEP), an affiliate to the Reproductive Health Uganda (RHU) engaged 74 youth and adolescents living with HIV aged 18 - 25 in advocacy and empowerment training initiatives. Through funding from Ministry of Health, BUSHEP facilitated two programs in Kampala district between August 2016 and August 2017. YOU-STOP a health promotion and sexual education group for youth living with and affected by HIV, and YOU-CAN+ a private space for HIV+ youth. The programs address the misconceptions around HIV and sexual health, and also build capacity to respond to stigma and discrimination. Activities for the programs include radio talk shows, HIV testing campaigns, and life-experience sharing.

Lessons learned: After data analysis, it was reported that YLWHA were more proactive to confront internal fear and speak about against stigma. "It is our time to be part of the HIV response. Involve us at all levels to fight stigma and discrimination" one participant said. Empowerment was also seen with increased disclosure and building alliances with other groups (e.g., youth with disabilities) to collectively address stigma. In the one year of intervention, the 74 youth had also expanded their base to engage other community members to talk about HIV and sexual reproductive health.

Conclusions/Next steps: BUSHEP engaged YLWHA as a way of empowering youth to be active partners in HIV response. The project also empowered YLWHA to fight internal stigma, and to create networks for addressing stigma and improve wellness. This research recommends more involvement of YLWHA and allies to increase HIV knowledge and sexual health information.

TUPED413

The effect of social stigma on drug adherence for HIV positive secondary school teenagers in St. Kizito SSS Katikamu, December 2017

K.C. Richard, Secondary School Teenagers 13-19 years
St. Kizito S.S.S. Katikamu Kisule Wobulenzi, Guidance and Counseling Department, Kampala, Uganda

Background: Recent statistics show, 3.8 Million Youth are living with HIV globally, 76% of whom are in Sub Saharan Africa. In Uganda, HIV is still a national problem, especially among the youth. Alarmingly, with all the efforts made, prevalence has increased from 6.4 in 2004 to 7.4 in 2016. This study therefore, sought to find the extent to which Social Stigma affected drug adherence of Secondary School Teenagers in Katikamu Sub- County, Luwero District, Uganda. The objective was to ascertain whether the close interaction with the school community, does not significantly interfere with adherence to ART.
Methods: A sample of 45 teenage students, between the ages of 13 and 19, living with HIV, was selected for the study. A cross section survey design was adopted and data was collected through questionnaires. Data was analyzed quantitatively using the SPSS.
Results: Out of 45 students, 10 kept their situation in total concealment; they had a lot of difficulty taking their drugs since they did it in secrecy. Many times they missed their drugs. 30 had never disclosed their HIV status to any other student. These took their drugs under the supervision of the school nurse or counselor. They still some times missed their drugs. On the other hand, 4 had disclosed their status to at least one or two of their friends. These had the opportunity of taking their drugs in the company of those who knew, and they could even be reminded, they rarely missed their drugs. Exceptionally, one had publicly disclosed his HIV status and had overcome the stigma attached. He had the freedom of taking his drugs freely and he never missed.
Conclusions: It was therefore concluded that social Stigma was a big barrier in drug adherence among teenage youth in School, in Katikamu Sub County, Luwero District. The youth in schools should be encouraged to disclose their HIV status in order to fight stigma and be able to adhere to ART. Youth communities should be sensitized more on the need to give social and moral support to those living with HIV, and not to stigmatize them.

TUPED414

Filial piety as a risk factor for self-stigma and poor mental health among HIV-positive men who have sex with men (MSM) in China

R.C.H. Chan[1], A. Restar[2], R. Cheng[3], W. Mak[3]
[1]University of Hong Kong, Department of Social Work and Social Administration, Hong Kong, Hong Kong, [2]Brown University School of Public Health, Providence, United States, [3]Chinese University of Hong Kong, Hong Kong, Hong Kong

Background: HIV-positive men who have sex with men (MSM) face double stigma of being HIV-positive as well as having same-sex attraction and behavior. Such stigma may be particularly pronounced in traditional Chinese cultural context, with filial piety as its core value. Chinese people are obligated to fulfill the filial duty to their parents and bring grace to their family and ancestors. Under the influence of Confucianism, it is also important for people to have children to carry on their family name. These filial obligations may impose considerable psychological burdens on HIV-positive MSM. The present study examined the endorsement of filial piety among HIV-positive MSM in China, and investigated its effects on their self-stigma and mental health.
Methods: A sample of 234 mainland Chinese HIV positive MSM (mean age = 30.43, SD = 7.61) was recruited from a non-governmental organization providing services to people living with HIV (PLHIV) in Shanxi province, China. They were asked to fill in a questionnaire on filial piety, self-stigma of being PLHIV, self-stigma of being MSM, and mental health.
Results: Findings of structural equation modeling showed that filial piety was positively associated with self-stigma as PLHIV and self-stigma as MSM. Self-stigma as MSM was related to lower level of mental health. Filial piety was found to have an indirect negative effect on mental health via self-stigma as MSM, while the mediating effect of self-stigma as PLHIV was not significant.
Conclusions: Understanding HIV and sexual stigma within the Chinese cultural context are pivotal in controlling the HIV epidemic in China. Given the double stigma and the cultural norm of filial piety, HIV-positive MSM in Chinese societies are highly vulnerable to negative mental health outcomes. They face substantial pressure to manage the stigma surrounding their sexual desire and the sociocultural expectations. Self-stigma reduction intervention in China should always take cultural factors into consideration, supporting HIV-positive MSM to develop strategies for negotiating filial obligations.

TUPED415

Roles of employment status and emotion regulation in death anxiety among people living with HIV/AIDS

J. Chukwuorji[1], C. Chukwu[2], C. Uzuegbu[3], C. Ifeagwazi[2]
[1]University of Nigeria, Department of Psychology, Nsukka, Nigeria, [2]University of Nigeria, Nsukka, Nigeria, [3]University of Nigeria, Department of Social Work, Nsukka, Nigeria

Background: Death anxiety is one of the most commonly observed mental health sequelae of HIV/AIDS. However, there is limited research on contributions of employment status and emotion regulation strategies in death anxiety. This study examined the moderating role of emotion regulation strategies on associations of employment status and death anxiety among people living with HIV/AIDS (PLWHA). Death anxiety was operationalised based on its four dimensions - Death Acceptance, Externally Generated Death Anxiety, Death Finality, and Thoughts About Death. Cognitive reappraisal and expressive suppression were the emotion regulation strategies considered to be of interest in this study.
Methods: Participants were 186 PLWHA (mean age = 34.16 years, SD = 11.16; 43.5% men and 56.5% women) from the HIV/AIDS care unit of a tertiary healthcare institution in south-eastern Nigeria. Many of them (*n* = 108, 58.1%) had attended higher institutions. Employment status were as follows: Unemployed (n = 58, 31.2%), self-employed (n = 59, 31.7%) and currently employed (n = 69, 37.1%). They completed self-report measures of the variables and provided some demographic information including their employment status.
Results: Employed persons had lower scores on all death anxiety dimensions, than self-employed and unemployed persons. Self-employed persons did not differ from unemployed persons in any dimension. Cognitive reappraisal was not associated with any death anxiety dimension. Those with high expressive suppression were more accepting of death. Moderation analysis showed that unemployed and self-employed PLWHA were more vulnerable to higher thoughts about death when they adopt low and moderate expressive suppression than when they adopt high expressive suppression.
Conclusions: Findings underscore the benefits of formal employment and the utility of expressive suppression in effective interventions to reduce death anxiety and improve quality of life of PLWHA.

TUPED416

The impact of serostatus disclosure on the spousal relationship between wives and HIV-positive husbands who have sex with men in China: A qualitative study

W. Cao, H.M. Wong
University of Hong Kong, Hong Kong, Hong Kong

Background: Men who have sex with men (MSM) is classified as a key population in HIV epidemic, and the HIV prevalence among MSM was high. An overall of 38-70% of MSM enter into heterosexual marriage during the lifetime. Disclosure of HIV-positive status to wives is inevitable along with the disease progression and the necessity to test the wife's HIV status. However, acknowledgment of the husband's HIV-positive status may change the spousal relationship, which is rarely investigated in the literature. This study aimed to describe the impact of serostatus disclosure on the spousal relationship from the perspective of wives.

Methods: A qualitative study using semi-structured interviews was conducted among wives (n=31) who had known their husbands' HIV-positive status in China. Their husbands were infected by HIV through homosexual behavior. Participants were identified by a non-governmental organization and a Center for Disease Control and Prevention who provide routine services for people living with HIV and their family members. Qualitative data underwent a detailed content analysis.
Results: Both positive and negative impacts on the spousal relationship were expressed by wives. Six themes were identified:
(1) reduced sexual activities;
(2) changes in intimacy;
(3) limited communication on HIV-related issues but improved communication on other topics;
(4) increased instrumental support but decreased emotional support;
(5) developed spousal relationship resilience; and
(6) shared privacy management rules regarding HIV-positive status.
Moreover, the acknowledgment of the husband's homosexual behavior hurt the spousal relationship more serious than the HIV infection, and an irremediable marriage was observed among wives who knew both.
Conclusions: Disclosure of HIV-positive status had a great impact on the spousal relationship, and such impact varied across individuals. Tailored counselling is recommended to meet personal needs and contextual situations.

TUPED417

HIV-related stigma and proactive coping processes among HIV-positive clinic patients in Philadelphia, Pennsylvania

S. Meanley[1], B. Yehia[2,3,4], J. Hines[2], R. Thomas[2,3], D. Calder[2,3], B. Carter[2], B. Dube[5], J.A. Bauermeister[1]
[1]*University of Pennsylvania School of Nursing, Family and Community Health, Philadelphia, United States,* [2]*University of Pennsylvania Perelman School of Medicine, Department of Medicine, Philadelphia, United States,* [3]*Penn Medicine Program for LGBT Health, Philadelphia, United States,* [4]*University of Pennsylvania, Leonard Davis Institute of Health Economics, Philadelphia, United States,* [5]*University of Pennsylvania Perelman School of Medicine, Department of Psychiatry, Philadelphia, United States*

Background: Interpersonal HIV stigma continues to burden the well-being of people living with HIV/AIDS (PLWHA), often shaping their ability to cope and integrate disease management into their lives. Extant literature on managing HIV/AIDS stigma has focused primarily on engaged (e.g., social support seeking) and disengaged (e.g., denial) coping styles. Few research efforts have explored PLWHA's proactive coping, which refers to regulating one's behavior in anticipation of stigma to prevent/minimize its impact. Understanding proactive coping strategies are important for contextualizing the methods undergone to reduce PLWHA's HIV-related stress.
Methods: We conducted 19 in-depth, qualitative interviews with PLWHA recruited at a university-based HIV clinic in Philadelphia, Pennsylvania. Our sample was predominantly middle-aged or older (40+ years, 74%), racial/ethnic minority (74%), sexual minority (52%), cis-male (74%), and had 5+ years since diagnosis (74%). We conducted a thematic analysis guided by the *Stages of Proactive Coping* to understand participants' recognition of HIV-related stigma, perceived consequences of stigma, and proactive coping efforts.
Results: Anticipated stigma regarding HIV status disclosure remained the most commonly described stressor. Manifesting as anticipated rejection, participants assuaged these stigma-related perceptions through proactive coping strategies including selective disclosure and limited pursuit of romantic/sexual partnerships. Additionally, internalized stigma manifested as fear of transmitting the virus to others and subjecting them to similar stigmatizing circumstances. Participants discussed a variety of proactive coping strategies to mitigate internalized stigma, including sexual abstention, minimizing physical contact with others, and not sharing kitchenware and utensils.
Conclusions: Despite integrating HIV diagnoses into their daily lives, PLHWA endure on-going HIV-related stigma and seek proactive coping strategies to mitigate anticipated and internalized stigma as chronic stressors. Seeking to mitigate these experiences, PLHWA relied on avoidant behaviors as proactive coping strategies. Our findings provide implications for clinical practice, elucidating the importance of classifying PLWHA's health beyond metrics like viral load and CD4+ counts. Future efforts should seek to understand how proactive coping strategies impact the health and social well-being of PLWHA. Lastly, individual-level strategies that elicit alternative coping strategies to build resiliency in the contexts of stigma and disclosure may complement continued structural/interpersonal-level initiatives that directly address HIV-related stereotypes and misinformation.

TUPED418

Longitudinal efficacy trial of a disclosure intervention (TRACK) for HIV+ mothers

M. Schulte[1], L. Armistead[2], D. Murphy[1], W. Marelich[3]
[1]*University of California, Santa Monica, United States,* [2]*Georgia State University, Atlanta, United States,* [3]*California State University, Fullerton, Fullerton, United States*

Background: Mothers living with HIV (MLH) often do not disclose their HIV status to their young children due to concerns of burdening them and lack of confidence in their ability to disclose. However, concealment can negatively impact maternal health and child development. The Teaching, Raising, And Communicating with Kids (TRACK) program was a full-scale longitudinal efficacy trial of a previously successful pilot intervention aimed at assisting MLH with disclosure. Based on Derlaga's disclosure model and Bandura's theory of self-efficacy, the current study examined TRACK's impact on MLH disclosure.
Methods: MLH and their young children (6-12 years) were recruited in Los Angeles, California and Atlanta, Georgia (March 2013 to November 2017) and randomized to intervention or wait-list control (N = 175) conditions. Participants were assessed at baseline, 3-, 9-, and 15-month follow-ups regarding HIV disclosure, disclosure self-efficacy, and parenting practices. Growth curve modeling was used to examine differences between the TRACK and control groups across time.
Results: MLH (mean age = 39.3, SD 7.9) were 33.7% Latina, 56% African-American, 5.1% White, and 5.1% other/multiracial. Those in the intervention group were 4.27 times (1.9 to 9.5; 95% CI) more likely to disclose their status compared to the control group, with 34.52% disclosure in the TRACK group compared to 10.99% in the control group. Although the greatest proportion of disclosures happened within the first three months, the TRACK group continued to disclose at a much higher rate at all follow-ups. Based on growth curve modeling, intervention MLH showed a significant increase in disclosure self-efficacy, with increased self-efficacy associated with a greater likelihood to disclose. In addition, positive parenting significantly improved among the intervention TRACK mothers compared to controls.
Conclusions: TRACK helped MLH disclose their HIV status to their young children and increased positive parenting practices. By boosting confidence to effectively disclose serostatus, disclosure interventions can increase the likelihood of initial disclosure as well as improve mothers parenting skills for how to approach subsequent questions and conversations regarding HIV with their children. Increased positive parenting can serve as a protective factor that mitigates risk for psychological disturbance among children.

TUPED419

Can HIV counselors be supported to attain better outcomes for their child clients and their caregivers? The case of *Stepping Stones with Children*

E. Mkolokoti[1], A. Welbourn[2], S. Holder[2]
[1]*Pasada, Counseling, Dar es Salaam, Tanzania, United Republic of,* [2]*Salamander Trust Fund, London, United Kingdom*

Background: Children affected by HIV and their caregivers face many physical, psycho-social and material challenges, which can lead to poor health outcomes. Salamander Trust and PASADA developed transformative participatory workshop materials, to enable children aged 5-8 and 9-14 to realise and build on their strengths, and create happier, healthier and safer ways of being. We also developed a parallel guide to

counselling children affected by or living with HIV and their caregivers, and used it to train PASADA's counsellors, to improve their effectiveness.
Description: The materials were developed and tested during 2012-14 in Tanzanian coastal regions. Community workshops and counsellor training then took place during 2015. 185 people participated in the community workshops, comprising 23.8% children aged 5-8, 28.6% aged 9-14, and 47.6% caregivers. 56.7% of the children and 78.4% of the caregivers were female. 88.7% of the children were clients of PASADA living with HIV. 80.6% of the 31 counselors trained were female.
Lessons learned: Working with children and their caregivers *and* with the counsellors produced beneficial synergies:
§ Caregivers and counsellors learned the importance of and skills for listening to children and involving them in decision-making, and children became better at expressing their thoughts and feelings to others, including to their counselors. This led to improved relationships between family members and with the counselors (see table).
§ Caregivers and children learned about managing living with HIV, leading to greater willingness among caregivers to share their child's serostatus with them, while counsellors improved their skills in supporting decision-making around disclosure, and supporting caregivers and child clients in that process. The proportion of children knowing their status increased from 27% to 93%.
§ Greater understanding of HIV and increased attendance at counseling sessions linked to improved adherence to HIV treatment and statistically significant clinical outcomes.
§ All parties learned about puberty, sexuality and sexual abuse, and grief, and became less inhibited about discussing sexual matters and death.
Conclusions/Next steps: Working only with child clients or their caregivers or HIV counselors would likely be beneficial, but working with all parties produces important synergies that support and compound the outcomes.

Experiences and impacts of antiretroviral therapy

TUPED420

Partners of people living with HIV (PLHIV): Findings from the positive perspectives survey

D. Garcia[1], B. Spire[2], S. Marcotullio[3], M. Muchenje[4], A. Namiba[5], K. Parkinson[6], B. Young[7], B. Allan[8], Y. Punekar[9], A. deRuiter[9], F. Barthel[10], J. Koteff[11], A. Ustianowski[12], A. Murungi[9], V. Carr[9]
[1]European AIDS Treatment Group, Madrid, Spain, [2]French National Institute for Medical Research (INSERM), Paris, France, [3]Nadir Onlus, Rome, Italy, [4]Women's Health in Women's Hands Community Health Centre, Toronto, Canada, [5]Salamander Trust, London, United Kingdom, [6]Beacon Project, St Louis, United States, [7]International Association of Providers of AIDS Care, Washington DC, United States, [8]ICASO and Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine, Victoria, Australia, [9]ViiV Healthcare, Brentford, United Kingdom, [10]GlaxoSmithKline, London, United Kingdom, [11]ViiV Healthcare, Research Triangle Park, United States, [12]Pennine Acute Hospitals NHS Trust, Manchester, United Kingdom

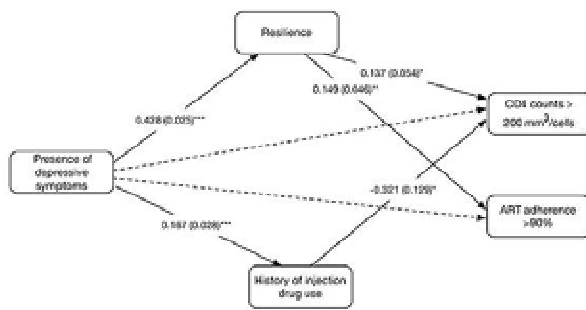
Background: While studies have been conducted to evaluate the psychosocial effect of treatment and the support available to People Living with HIV (PLHIV), there remains a gap in understanding their influence on partners. We conducted an international survey of partners of PLHIV to explore the support offered specifically to them and their partner's perception of their HIV management.
Methods: Qualitative in-depth interviews were performed with PLHIV and their partners to identify key hypotheses. A steering group developed the survey questions which were fielded online from November 2016 to April 2017 in 9 countries across North America, Europe & Australia. A mixed sampling/recruitment approach was used to ensure a broad cross-section of PLHIV, and partners of PLHIV were recruited where possible.
Results: 250 partners of PLHIV completed the survey from Europe (55%), North America (43%) and Australia (2%). 91% were male, 26% aged ≥50 years, 30% HIV+ themselves, and 77% lived with their partner. Results differed between HIV+ and HIV-ve partners: emotional support available to partners of PLHIV was rated as 'quite good' or 'very good' in 78% HIV+ partners but decreased to 53% in HIV- partners. Partners of PLHIV stated that they provided emotional support (87%) and encouraged their partners to raise concerns with their main HIV healthcare provider (80%), yet over half of partners would like to be more involved in these areas and 20% feel they sometimes lack the information needed for this role.
Of those whose partners were on ART (98%), 63% had helped their partner prepare for an appointment with their HIV HCP and had raised concerns about side effects (82%), strategies to reduce long-term impact of ART (62%) and the possibility of switching regimen (59%).
Conclusions: In this international survey, nearly two thirds of partners were involved in discussions on treatment and were most often concerned about side effects and the long-term impact of ART. Partners represent an important support system for PLHIV, and dedicated resources to inform partners could enable them to become more involved in the support of PLHIV.

TUPED421

A psychosocial approach to understanding pathways from depression to HIV care cascade outcomes among women living with HIV in Canada

C.H. Logie[1], C. Williams[1], Y. Wang[1], N. Marcus[1], M. Kazemi[2], L. Cioppa[2], A. Kaida[3], T. Conway[2], K. Webster[3], K. Beaver[2], A. de Pokomandy[4], M. Loutfy[2], Y. Persad[5]
[1]University of Toronto, Toronto, Canada, [2]Women's College Hospital, Toronto, Canada, [3]Simon Fraser University, Vancouver, Canada, [4]McGill University, Montreal, Canada, [5]519 Community Centre, Toronto, Canada

Background: Women living with HIV (WLWH) experience stressors, including stigma and discrimination, that may contribute to a higher prevalence of depression in comparison with HIV-negative women. Adaptive and maladaptive coping strategies for depression, and depression severity, may account for differences in HIV care cascade outcomes. Yet psychosocial approaches to understanding pathways from depression to cascade outcomes such as ART adherence and CD4 count are understudied. We examined pathways from depressive symptoms to ART adherence and CD4 count among WLWH in Canada, exploring resilience and injection drug use history (IDU) as mediators in this relationship.
Methods: Baseline survey data were analyzed for WLWH (≥16 years) enrolled in a community-based cohort study in British Columbia, Ontario, and Québec, Canada. Using the Center for Epidemiologic Studies Depression 10-item Scale, we assessed depressive symptoms (score: ≥10) and severe depressive symptoms (score: ≥15). Structural equation modeling using weighted least squares estimation methods was used to test the direct effects of depressive symptoms and severe depressive symptoms on ART adherence and CD4 count, and the indirect effects via resilience and IDU history, adjusting for socio-demographic factors.
Results: Most participants (n=1342; mean age: 42.77, IQR: 35-50) were currently taking ART (82.91%). Nearly half (48.61%) reported depressive symptoms and one-quarter (26.90%) severe depressive symptoms. Approximately one-third (31.55%) reported an IDU history. Resilience fully mediated the relationship between depressive symptoms and ART adherence (B=0.019, p<0.01). The combination effects from resilience (B=0.018, p<0.05) and IDU history (B=-0.219, p<0.05) fully mediated the relationship between depressive symptoms and CD4 count. The direct path from severe depression to ART adherence (B=-0.274, p<0.01) was significant, accounting for the mediation effects of resilience and IDU history. Resilience (B=0.015, p<0.01) and IDU history (B=-0.159, p<0.01) partially mediated the relationship between severe depression and ART adherence. Resilience fully mediated the relationship between severe depression and CD4 count (B=0.016, p<0.05).
Conclusions: Findings underscore the importance of a psychosocial approach to understanding how WLWH manage depressive symptoms, and how coping strategies may be associated with ART adherence and CD4 count. Harm reduction approaches, depression interventions, and strategies to foster resilient coping, have the potential to improve the HIV care cascade among WLWH.



[Figure 1. Final model for depressive symptoms and HIV care cascade outcomes among women living with HIV in Canada]

TUPED422

Barriers to linkage and retention in HIV care among adolescent girls and young women (AGYW) in communities around Lake Victoria in Western Kenya

Z. Kwena[1], K.R. Amico[2], K. Ngure[1], J. Mantell[3], R. Remien[4], N. Nguyen[5], B. Young[6], T.B. Masvaure[5,7], J. Zuniga[6], P. Ochwal[1,8], E. Stacey[6], D. Ochola[5], E. Bennett[5], T. Navalta[5], Z. Simpson[5], P. Ryland[5], P. Valente[5], J. Wallw[5], E. Bukusi[1]

[1]Kenya Medical Research Institute, Center for Microbiology Research, Nairobi, Kenya, [2]University of Michigan, Department of Health Behavior and Health Education, Ann Arbor, United States, [3]HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute, Psychiatry, New York, United States, [4]HIV Center for Clinical & Behavioral Studies, NYS Psychiatric Institute and Columbia University, Psychiatry, New York, United States, [5]HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute, New York, United States, [6]International Association of Providers of AIDS Care, Washington, United States, [7]College of the Holy Cross, Sociology and Anthropology, Worcester, United States, [8]Impact-IRDO, Nairobi, Kenya

Background: AGYW in sub-Saharan Africa experience delayed linkage to and poor retention in HIV care. Identifying and addressing specific barriers in HIV care programming is important in achieving the UNAIDS 90-90-90 targets and epidemic control. We sought to explore barriers to linkage and retention in HIV care among AGYW in communities aroung Lake Victoria in western Kenya.

Methods: As part of a larger qualitative study to identify drivers of HIV testing and HIV-care utilization in key populations, we conducted 103 in-depth interviews with HIV+ AGYW in and out of HIV care. We coded and analyzed resultant transcripts for theme and content using inductive methods.

Results: Barriers to linkage and retention in HIV care that emerged fell into five broad themes: confidentiality and privacy, stigma and discrimination, provider attitudes, antiretroviral treatment side effects and costs and distance to health facilities. Participants voiced concerns about disclosure of their HIV status to community members either by being seen at clinic or through breaches in confidentiality by clinic staff. Participants also highlighted pervasive fears of stigma and discrimination by friends and family, and particularly sexual partners. Participants reported being dismayed by poor quality counseling they received from providers who they said were often rude and not prepared to deal with patients´ issues. They cited cases where clinical staff ´punished´ patients for missed appointments by asking them to return on a different day for their clinic. Challenges with treatment included side effects (medications making them feel worse), especially if taken without food, the pills being too big and difficult to swallow, and daily routine of medication-taking being disruptive to their lives. Additionally, participants expressed concerns about the long distance to health facilities and associated transportation costs, and time spent at these facilities. They anticipated that these costs and time associated with their clinic attendance may pose challenges in the future since treatment is a lifelong commitment.

Conclusions: In these communities where concerns about confidentiality, stigma, provider attitudes, treatment side effects and costs associated with clinic attendance are still prominent, linkage and retention in care requires innovative approaches that are tailored to the individual needs and circumstances of patients.

TUPED423

Coping with antiretroviral therapy related stressors among HIV-positive men who have sex with men in China

C. Li[1], H. Jiang[2,3], G. Lei[4], W. Dong[1], E. Fisher[1], C. Golin[1,5], P.Y. Tang[1], K. Muessig[1]

[1]University of North Carolina at Chapel Hill, Department of Health Behavior, Gillings School of Global Public Health, Chapel Hill, United States, [2]Sichuan Provincial People's Hospital, Institute for Emergency and Disaster Medicine, Chengdu, China, [3]University of Electronic Science and Technology of China, School of Medicine, Chengdu, China, [4]Aibai Culture & Education Center, Chengdu, China, [5]University of North Carolina at Chapel Hill, Department of Medicine, Chapel Hill, United States

Background: In China, despite availability of free testing and treatment, the HIV epidemic is increasing among men who have sex with men (MSM), in contrast to stabilizing or decreasing prevalence for other key populations. Improving engagement in HIV treatment (e.g. antiretroviral therapy (ART) initiation and adherence) is critical for individual patient outcomes and preventing secondary transmission. We aimed to understand how Chinese HIV-positive MSM coped with ART-related stressors.

Methods: We conducted in-depth interviews and demographic surveys (PHQ-9 for depression) with HIV-positive MSM (n=30) recruited through clinics and a community-based organization (CBO) in Chengdu, China. Interviews focused on ART-related stress, coping strategies, social support, challenges, and well-being. Data were collected and analyzed by bilingual researchers. The Transactional Model of Stress and Coping informed thematic analyses of ART-related stress (primary stressor), identifying appraisals, coping efforts, resources, and outcomes.

Results: Average age was 31.5 years old. Length of time on ART was between 1 and 7 years (mean, 3.3 years). Over half of participants reported symptoms consistent with mild or moderate depression. Appraisals of ART-related stress included side effects, difficulty of daily adherence, and fear of developing drug resistance to free regimens. Coping efforts focused on improving physical health (e.g. increased exercise, regular physical exams) and actively seeking ART information (e.g. internet searching, querying providers), while also protecting privacy and social standing (e.g. concealing medications, limiting HIV status disclosure). While coping with ART-related stressors, participants faced challenges navigating contradictory information sources, experiencing stigma and discrimination within medical and non-medical settings, and managing financial concerns. ART initiation and continuity of HIV care was complicated by systems barriers such as required documentation (e.g. residency permit, CD4 results). Though several participants received support from family/friends after disclosing their HIV status, CBOs, peer support groups, and healthcare providers were more salient sources of social support.

Conclusions: Participants' narratives of stress and coping with ART-related stressors revealed multi-level intervention opportunities including at the individual (e.g. mental health services), institutional (e.g. provider anti-discrimination training), and policy (e.g. changing ART eligibility requirements) levels. CBOs are well-poised within China's gay community to expand and advocate for these interventions to meet existing needs of HIV-positive MSM.

TUPED424

Adherence misfits: Divergent perspectives on ART-defaulting among healthcare providers and HIV-positive adolescents

R. Hodes[1,2], L. Hatane[3], L. Gittings[4], A. Ronan[3], S. Malunga[5], L. Cluver[6], D. Mark[3], E. Toska[1,2], K. Bloch[3], R. Haghighat[2]
[1]University of Cape Town, AIDS and Society Research Unit, Cape Town, South Africa, [2]University of Oxford, Department of Social Policy and Intervention, Oxford, United Kingdom, [3]Paediatric Adolescent Treatment Africa, Cape Town, South Africa, [4]University of Cape Town, AIDS and Society Research Unit & School of Public Health and Family Medicine, Oakville, South Africa, [5]University of Cape Town, Department of Public Health and Family Medicine, Cape Town, South Africa, [6]University of Oxford, Department of Social Policy and Intervention, Oxford, South Africa

Background: HIV is the leading cause of death for young people (ages 10-24) in Africa. Adherence to antiretroviral treatment (ART) is commonly understood as the greatest healthcare challenge facing HIV-positive adolescents. Terms such as 'defaulting' and 'non-adherent' define the extent of non-compliance to ART, delinkage from care, and related clinical consequences. A growing literature identifies structural and clinical factors for ART non-adherence among adolescents. Less is known about how adolescents themselves understand non-adherence, and how this may differ from their healthcare providers.
Methods: This research combines the qualitative datasets of the Mzantsi Wakho study and Paediatric-Adolescent Treatment for Africa (PATA). Mzantsi Wakho is the largest longitudinal, community-traced study of ART adherence among adolescents living with HIV (n=1057). PATA constitutes a network of healthcare providers in 24 African countries, collecting data from health providers and HIV-positive peer-supporters within 289 facilities.
Different perceptions of the term 'defaulting' were explored through qualitative interviews with HIV-positive adolescents (n=56) and healthcare providers (n=13), and through clinic observations, in the Mzantsi Wakho study. PATA data constituted semi-structured interviews with peer supporters (n=6), health facility surveys (n=218) and programme reports with those providing adolescent services (n=289).
Results: Terms for non-adherence are used widely in research and programming for tracking and improving the health of young people with HIV. Within this diagnostic framework, the term 'defaulting' is used by healthcare providers to refer to patients with the worst adherence outcomes and the weakest retention in care. However, adolescents themselves do not use or identify with these terms (apart from youths working as treatment supporters). Instead, they understand non-adherence as temporary ('I'll go back') and necessary ('I need a break').
Conclusions: Combining qualitative datasets from research studies and HIV programming offers a valuable opportunity for triangulating findings across settings, and for critically evaluating research hypotheses and findings in relation to programming and implementation. Through integrating qualitative research between datasets, including with adolescents and healthcare providers, popular and practicable understandings of adolescent ART adherence emerge. To improve adolescent ART-related outcomes, it is crucial to address the disjuncture between adolescent and healthcare provider understandings of non-adherence.

TUPED425

Does involving people in treatment decisions reduce barriers to adherence to antiretroviral therapy? Results from the Positive Perspectives study 2016 - 2017

J. Guitart[1], V. Cooper[2], H. Lycett[1], T. Kenny[1,3], E. Raebel[1], J. Koteff[4], S. Barthel[5], Y. Punekar[6], A. de Ruiter[6], A. Murungi[6]
[1]Spoonful of Sugar Limited, London, United Kingdom, [2]UCL School of Pharmacy, Centre for Behavioural Medicine, London, United Kingdom, [3]Bournemouth University, Bournemouth, United Kingdom, [4]ViiV Healthcare, Research Triangle Park, Raleigh, United States, [5]GlaxoSmithKline, London, United Kingdom, [6]ViiV Healthcare, Brentford, United Kingdom

Background: Involving patients in decisions about their treatment has the potential to improve health outcomes, enhance the quality of care and reduce costs. The aim of this analysis was to determine whether people living with HIV (PLHIV) who perceive they are more involved in making decisions about their treatment have fewer perceptual barriers to adherence to antiretroviral therapy (ART) and are more satisfied with their treatment.
Methods: As part of the Positive Perspectives study 2016-2017, a cross-sectional, multi-country survey, PLHIV completed the Treatment-related Empowerment Scale (TES) which measures patients´ perceived degree of involvement in decisions about their medicines; the Beliefs about Medicines Questionnaire (BMQ) ART-specific version, which measures perceptual barriers to ART adherence and consists of two scales - ART-Necessity, which measures participants´ beliefs about their necessity of ART, and ART-Concerns, which measures participants´ concerns about side effects of ART; and questions about treatment satisfaction and whether participants had discussed concerns about side effects and long-term effects of ART with a healthcare professional (HCP). Spearman's rank correlation was used to determine the relationship between variables (TES, BMQ and treatment satisfaction). The Kruskal-Wallis test was used to compare TES scores between those who had discussed their concerns with an HCP and those who had not.
Results: 1078 patients (75% male, median age 45 years) from nine countries across Europe, North America and Australia completed the study questionnaires. There was a general perception of treatment empowerment as indicated by 86% of participants scoring above the TES scale midpoint, with no differences in scores by age, gender or sexual orientation. PLHIV who perceived a high level of treatment empowerment were more convinced of their necessity for ART (r_s=0.102; p< 0.001), had fewer concerns about side effects (r_s=-0.317; p< 0.0001) and were more satisfied with their treatment (r_s=0.238; p< 0.0001). Those who had discussed their concerns about side effects and long-term effects with an HCP had significantly higher TES scores than those who had not (H=9.621; p< 0.01).
Conclusions: The findings indicate that involving PLHIV in decisions about their treatment may reduce perceptual barriers to adherence to ART, facilitate discussions about treatment concerns and improve satisfaction with treatment.

Growing up with HIV: specific needs and interventions for children and adolescents

TUPED426

Community-health facility care system linkages increase beaming faces of children living with HIV: Findings of 'Towards an AIDS Free generation in Uganda' studies on paediatric HIV care

D. Bitira William[1], D.'. Hart[2], M. Musinguzi[3], J. Rujumba[4], Children Living with HIV, People Living with HIV
[1]Community Health Alliance Uganda, Monitoring, Evaluation and Learning Manager, Kampala, Uganda, [2]Aidsfonds, Programs, Amsterdam, Netherlands, [3]Aidsfonds, Programs, Kampala, Uganda, [4]Makerere University, Paediatrics and Child Health, Kampala, Uganda

Background: Even with Anti-Retro viral Treatment (ART) scale-up countrywide, 37% of children under 14 years living with HIV in Uganda miss life-saving treatment; few (25%) exposed infants receive ARV prophylaxis. 30% HIV positive children are lost to follow up before and more after enrollment in care. To address this gap, Aidsfonds and its partners in Uganda implemented a30-month (2015-2017) 'Towards an AIDS Free generation in Uganda' (TAFU) program in five rural districts.
Methods: Aidsfonds, implementing partners and Makerere University conducted TAFU baseline (2015) and end-line (2017) studies. Studies assessed changes in children enrolled in care between start and end of the program in all 22 target health facilities in Serere, Moroto, Napak, Mubende and Mityana program districts. Data on number of children in care were obtained from health facility health management information system while on project interventions were from program monitoring reports using check list. Further conducted 42 key informant interviews with health facility, district and program officials; and 53 focus group discussions with parents/caretakers. Quantitative data were analyzed using Epidata. Content thematic approach analyzed qualitative data.

Results: Overall, TAFU trained and engaged 1,378 community resource persons including Village Health Teams and expert clients. These conducted community sensitization on paediatric HIV, home visits and referred suspected children living with HIV to health facilities for HIV testing. Children who tested HIV positive or had been lost to follow-up were linked to care. Children in care increased from 459 at base line to 1,017 by end of the program. Trained community resource persons and health workers conducted dialogue meetings to increase community awareness on paediatric HIV. Sixteen peer support groups for children and 28 Village Savings and Loan Associations (VSLA) for their parents/caregivers were formed; and financially supported. These enhanced treatment adherence and retention of children in care.
Conclusions: TAFU strengthened community systems for tracing, referral and follow-up of children living with HIV.
.Number of children living with HIV enrolled and retained in HIV care significantly increased.
·Peer support groups for children and VSLAs for caregivers are key in meeting economic and real needs of children living with HIV and retaining them in care.

TUPED427

"These families did their research" a qualitative study of healthcare provider perspectives of US families who internationally adopt children with HIV

C. Fair[1], S. Alger[2]
[1]Elon University, Public Health Studies, Elon, United States, [2]George Washington University, Milken Institute School of Public Health, Washington, United States

Background: Emerging evidence suggests that an increasing number of US families are adopting children with HIV born outside the country. Little is known about the medical or psychosocial wellbeing of internationally adopted children with HIV (IACH), or experiences of their adoptive families. This exploratory qualitative study seeks to understand healthcare providers´ perspectives on international adoptee and family needs.
Methods: A purposive snowball sample was recruited from clinicians who attended a US think tank on adolescents with HIV and had experience caring for IACH. Eligible providers were asked to refer other experienced providers to participate. In 2017 we conducted hour-long, semi-structured, recorded interviews with 6 social workers and 5 medical providers representing 11 hospitals in 7 states. Providers were asked about adopted children's medical status and psychosocial wellbeing. Two researchers coded transcribed interviews guided by grounded theory to identify emergent themes.
Results: Providers had a mean of 14.9 years of experience in the field of HIV and followed an average of 18 children with HIV in their clinics adopted from 22 countries. Providers described considerable variation in the families who adopted children. Some had grown biological children while others pursued adoption due to fertility problems and several adopted multiple children with special needs. Most were connected to communities of faith which served as an inspiration to adopt and offered support. Medical issues included growth concerns, parasites, and other infectious diseases such as tuberculosis. International adoptees were typically treated for HIV before arrival in the US. HIV-related medical issues were uncommon. Psychosocial concerns were more common and included attachment, adjustment, sleep, and behavioral issues. Several participants noted that adoptive parents were well informed about HIV, but less prepared for cognitive delays and emotional challenges. Some providers experienced or expected to have challenges offering sexual and reproductive health (SRH) to adolescent adoptees due to their adoptive parents' religious beliefs on sexuality.
Conclusions: IACH are a growing population in the US. Our study provides initial documentation that this population has unique challenges. While serious medical issues were uncommon, adjustment and attachment issues emerged as pressing concerns. Additional support around SRH may be needed as IACH transition into adolescence.

TUPED428

Social-support needs of adolescents living with HIV in transition from pediatric to adult care: Findings from a cross-sectional study in Cambodia

S. Yi[1], G. Toth[2], S. Tuot[1], V. Khol[3], P. Chhoun[1], G. Mburu[4]
[1]KHANA Center for Population Health Research, Phnom Penh, Cambodia, [2]Touro University California, Public Health Program, Vollejo, United States, [3]National Center for HIV/AIDS, Dermatology and STD, Phnom Penh, Cambodia, [4]Lancaster University, Division of Health Research, Lancaster, United Kingdom

Background: Understanding the circumstances of adolescents living with HIV is critical in designing adolescent-friendly services. This study describes the different aspects of social support adolescents aged 15—17 living with HIV have and may need during the critical period preparing them to transition from pediatric to adult care in Cambodia.
Methods: A cross-sectional study was conducted among 328 adolescents, randomly selected from 11 antiretroviral therapy (ART) clinics across the country. Descriptive analyses were conducted to summarize their characteristics, access to social support, stigma experience and barriers to ART access. Gender differences were explored using Chi-square or Fisher's exact tests for significance. This study was approved by the National Ethics Committee for Health Research.
Results: Mean age of study participants was 15.8 (SD= 0.8) years. More than half (55.2%) were male, and 40.8% were living with parents and 49.3% with either grandparents or relatives. Almost half of them (48.4%) reported that their family had received social support for their health care, including food support (78.7%), school allowance (64.8%), transport allowance for going to ART clinic (55.6%), emotional counseling (32.4%), vocational training (25.9%) and home visit (10.2%). A third came from families with an ID poor card, and over half (55.0%) reported that their family had no ability to cover health expenses. Of these, 87.6% were covered by health insurance, and 38.4% had access to the health equity fund. About a third of respondents (13.7%) had been asked to come back earlier than their scheduled appointment, and 2.7% had been asked to purchase their own drugs. A third (32.0%) had experienced stigma, and 8.2% had been denied housing or food as a consequence HIV infection. Additionally, 16.8% had not attended school within the past month, and 22.9% reported having issues with school attendance.
Conclusions: Social protection mechanisms are reaching some adolescents in need, but the majority remain without aid due to significant discontinuities in health and social care. Multicomponent interventions, supporting school attendance, reductions in child employment, mitigation of stigmas associated with HIV infection, peer support groups and improve coverage of social protection interventions are required for successful transition.

TUPED429

Internationally adopted children with HIV in the U.S.: Exploring parent and provider views on anticipated sexual and reproductive health challenges in adolescence

S. Alger[1], C. Fair[2], E. Gibson[3]
[1]George Washington University, Milken Institute School of Public Health, Washington, United States, [2]Elon University, Public Health Studies, Elon, United States, [3]Orange County Department of Social Services, Hillsborough, United States

Background: The number of U.S. families pursuing the international adoption of children with HIV infection has steadily increased since 2010. The majority of internationally adopted children with HIV (IACH) are under the age of 12 and adopted by parents who commonly work with faith-based adoption agencies. Adopted children may have additional educational needs as they mature into adolescence, particularly related to sexuality.
Methods: We conducted hour-long, semi-structured, audio recorded interviews with a purposive snowball sample of 13 mothers of IACH and 11 providers who work with this population. Parents were asked about motivations to adopt their child, medical and psychosocial needs, and potential challenges that may occur as the child moves into adolescence.

Providers were asked about their current or anticipated experiences providing care to IACH. Interviews were coded for emergent themes using standard qualitative methods.
Results: All mothers identified as white (mean age 37 years) and 12 as Christian. Mean age of their adopted child with PHIV was 7 years (range 3-15, 9 females, 7 from African countries). Faith was a guiding factor that influenced most parents' decisions to adopt of a child with HIV from another country. Immediate adoption-related issues such as pre-adoption trauma, loss, and language barriers often took priority over HIV-related medical or psychosocial concerns. The majority of parents felt their religious beliefs would guide decisions to share sexuality-related information during adolescence. Several parents viewed sex before marriage as immoral and did not want their child to have access to comprehensive sex education as a teenager. Providers (6 social workers and 5 medical providers with a mean of 14.9 years of experience in the field of HIV) corroborated these findings and reported that some adoptive parents often sought to delay provider-initiated sexuality conversations including those focused on reducing HIV transmission and pregnancy risk. One provider noted, "I've had to be respectfully slower with some families about sex education."
Conclusions: All adolescents with HIV should be informed on ways to prevent HIV transmission and unintended pregnancy. Parents of IACH could benefit from the support of healthcare providers to better understand the importance of sexual and reproductive health during adolescence.

TUPED430

Closing the gap: Increasing the availability of child- and youth-focused antiretroviral therapy (ART) at non-state health facilities in Nairobi, Kenya

J. White[1], M. Bunyi[1], L. Kagasi[2], D. Kinuthia[3], E. Oywer[4], N. Gitonga[5], P. Mutua[6], D. Nyaboke[7], C. Karanja[8], S. Eagan[9], J. Pearson[9], D. Sullivan[10], J. Tayag[10], L. Weir[11]
[1]Abt Associates Inc., International Health Division, Bethesda, United States, [2]Independent Data Consultant, Nairobi, Kenya, [3]Kenya Pediatrics Association (KPA), Secretariat, Nairobi, Kenya, [4]Kenya Ministry of Health, Nursing, Nairobi, Kenya, [5]Insight Health Advisors, CEO, Nairobi, Kenya, [6]Abt Associates Inc, Nairobi, Kenya, [7]Independent Consultant, Nairobi, Kenya, [8]Healthstrat Data, Nairobi, Kenya, [9]JSI, Washington, United States, [10]USAID, Washington, United States, [11]Abt Associates Inc, Rockville, United States

Background: Despite significant investment in the Kenyan HIV response, the number of new HIV infections and treatment needs among children, adolescents, and young people (CAYP) continues to increase. Engaging non-state (private) health providers to deliver HIV testing services (HTS) and antiretroviral therapy (ART) targeted to CAYP could be an effective strategy to augment government efforts to reach this population.
Description: From 2016 to 2018, the USAID-funded Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project assisted a broad consortium of Kenya-based partners to create a public-private alliance (PPA) aimed at increasing the availability of high quality CAYP-focused ART services among private providers in Nairobi county. The PPA—which included the National AIDS and STI Control Programme, the Kenya Pediatrics Association, and the Kenya Healthcare Federation—trained more than 135 nurses and clinical officers representing 31 separate private clinics, facilitated government supply of HTS and ART commodities, and connected clinics to ongoing clinical mentorship.
Lessons learned: The project demonstrated that private providers in Kenya share a strong commitment to addressing HIV among CAYP. The alliance format addressed multiple public-private concerns in an open forum, facilitated dialogue among previously disconnected health stakeholders, and from January to April 2016, was able to quickly scale up government-supported pediatric ART services to more than 26 private facilities. From April 2016 to September 2017, PPA-affiliated clinics tested 15,755 CAYP (64% female) for HIV and initiated 203 (52% female) CAYP on treatment. The clinics also enrolled 197 CAYP in pre-ART care, indicating that continued efforts are needed to operationalize test-and-treat protocols at the facility level. Working through established partners, such as the Kenya Pediatrics Association, was critical in ensuring ongoing quality improvement of services throughout the monitoring period.
Conclusions/Next steps: Through collaborative public-private action, private providers can be capacitated as critical sources of HIV and ART care for CAYP. The model underscored the need for ongoing investment in clinical mentorship to build private provider confidence and quality while implementing pediatric ART services. Following AIDSFree investments in 2016 and 2017, the Kenya Healthcare Federation and Kenya Pediatrics Association now spearhead the partnership.

TUPED431

Whether and why caregivers adhere to oral lopinavir/ritonavir pellets: Lessons for scaling up an innovative pediatric HIV treatment in Kenya

C. Noestlinger[1,2], A. Nebot Giralt[1], O. Ouma[3], I. Nyamongo[3], O. Salami[4], M. Lallemant[4], J. Lee[4], B. Marchal[1]
[1]Institute of Tropical Medicine, Public Health, Antwerp, Belgium, [2]University of Vienna, Faculty of Psychology, Vienna, Austria, [3]University of Nairobi, Institute of Anthropology, Nairobi, Kenya, [4]Drugs for Neglected Diseases Initiative, Nairobi, Kenya

Background: Globally, only 43% of 1.8 million children living with HIV have access to antiretroviral therapy (ART), and few adequate pediatric formulations are available. Oral pellets containing lopinavir/ritonavir may be better accepted by infants and children than liquid formulations. They can be used with liquids/soft foods, taste better and do not require cool storage. Pediatric adherence is complex, involving daily supervision, practical skills and age-appropriate negotiations skills. It is also influenced by health-systems and contextual factors. To scale-up the use of the pellets, in-depth understanding of treatment initiation, adherence and underlying mechanisms is needed.
Methods: This extensive qualitative study adopted a realist evaluation approach. Nested in a clinical trial to assess the pellets' efficacy, caregiver-child dyads were purposively selected in three Kenyan settings (Kenyatta Hospital, Gertrude's Children Hospital, Nairobi; Faces Clinic, Kisumu). Between 01-09/2017, trained interviewers conducted in-depth interviews with care-givers (n=42), health care providers (n=12), and observations of pellet administration (n=17 at home; n=17 clinic observations). Data were analyzed in two stages with Nvivo 11: inductively, using a data driven code-book and employing retroductive inference according to realist approaches for drawing conclusions. Ethics approval was obtained.
Results: The pellets' taste and storage facilitated easy administration, simplifying initiation of treatment. While study staff gave standardized information, caregivers developed their own best way to deliver the treatment, particularly when specific problems occurred, e.g. just-weaned babies, food shortage linked to poverty. Visible treatment effects enhanced caregivers' motivation to continue. Tailored support by providers was perceived to improve adherence. Caregivers who had received support from providers, family and informal networks developed active coping strategies for creating a daily routine. This also enabled them to deal with HIV disclosure and (self-) stigma, contributing to better adherence. For many, stigma remained a barrier reducing access to social support outside the clinic setting.
Conclusions: The study setting was supportive for the initiation of and adherence to using pellets. Pellets may mark a major step towards better treatment for HIV positive children. When scaling up pellets, tailored support by clinic staff should consider the influence of contextual factors, such as HIV-related stigma, informal peer support networks and poverty.

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TUPED432

'In their shoes': Limited disclosure amongst young people living with HIV stifles their ability to contact others in the same situation, a qualitative cohort HPTN071 (PopART) study in Zambia

M. Mbewe[1], C. Mackworth-Young[1,2], D. Ziba[1], R. Ndubani[1], B. Chiti[1], M. Simuyaba[1], M. Gondwe[1], K. Shanaube[1], G. Hoddinot[3], V. Bond[1,2]
[1]*Zambart, Lusaka, Zambia,* [2]*London School of Hygiene and Tropical Medicine, Department of Global Health and Development, Faculty of Public Health and Policy, London, United Kingdom,* [3]*Desmond Tutu TB Centre, Faculty of Medicine, Stellenbosch University, Department of Paediatrics and Child Health, Cape Town, South Africa*

Background: Support for Young people aged between 16-24 years living with HIV (YPLHIV) is critical but remains limited in Zambia, partly because YPLHIV are often hidden within communities, having disclosed to very limited networks.
Methods: A qualitative cohort of 8 purposively sampled YPLHIV (4 women, 4 men) in four communities in Zambia. Over a 10-month period in 2017, each participant was involved in three research activities (carried out at three-month intervals), including participant observations, individual in-depth interviews and a participatory workshop. Within these methods, visual tools included social network diagrams that explored geographical and 'close in feeling' networks and how these linked to disclosure. Qualitative analysis carried out by a team of social scientists reviewed the data and identified disclosure, secrecy and desire to share experiences with other YPLHIV as inductive key themes.
Results: YPLHIV, like other participants, had a wide network of friends and family, but only an extremely restricted number of people (and largely close family members) knew their HIV status. Parents/guardians often actively and strongly discouraged disclosure, regulated who knew the adolescents' HIV status and rarely spoke about HIV within their homes. "Mum said I shouldn't tell them otherwise they will start using it against me, like they do to her", explained one young woman living with HIV, aged 19. However, YPLHIV expressed their desire to speak with, share experiences with, and get support from others who are "in their shoes". The weight of not telling others about their HIV status sometimes led to feelings of loneliness and fatigue, exacerbated by the continuous secrecy of taking their antiretrovirals in private. Fears about unintended disclosure (usually linked to ART), coupled with silence about HIV in their homes stifled opportunities to be connected with other YPLHIV. One participant had attended a support group and found this contact fulfilling, and supportive for adherence.
Conclusions: YPLHIV were isolated by limited disclosure and being 'hidden' by parents/guardians. Drawing on this research and literature, interventions targeting YPLHIV should address relationships in the home and the benefits, challenges and strategies for disclosure YPLHIV to allow them to share experiences, concerns and feel less alone.

TUPED433

"We decided not to tell him because he would tell everyone else." Care-giver and young people's experiences of disclosure in Kinshasa, Democratic Republic of Congo

E. Manziasi Sumbi[1], R. Harrison[1], E. Kanumay[1], J.L. Chalachala[2], M. Garcia[3], K. Iakovidi[3], G. Van Cutsem[3], E. Venables[3,4]
[1]*Médecins Sans Frontières, Kinshasa, Congo, Democratic Republic of the,* [2]*University of North Carolina, Carolina Population Centre, Chapel Hill, United States,* [3]*Médecins Sans Frontières, Southern Africa Medical Unit, Cape Town, South Africa,* [4]*University of Cape Town, Division of Social and Behavioural Sciences, School of Public Health and Family Medicine, Cape Town, South Africa*

Background: It is estimated that 42,000 children ≤15 are living with HIV in DRC (UNAIDS 2015). WHO recommends disclosure for HIV-positive children of school-going age, but the process remains challenging for health-care workers and care-givers. Non-disclosure is probably associated with poor outcomes during adolescence; including increased risk of poor adherence and retention, and treatment failure. Médecins Sans Frontières has been working in Kinshasa since 2002, providing treatment and support to children/adolescents living with HIV, and their care-givers. Children in DRC can only be informed of their HIV status with the approval of their care-giver, which, along with the age of consent for HIV testing being 18, can cause delays in disclosure.
Methods: Thirty in-depth interviews were conducted with care-givers (n=20) and HIV-positive children/adolescents (n=10) to understand their experiences of disclosure. Ten care-givers who had disclosed to their children and 10 who had not were purposively selected. Care-givers included biological parents, grandmothers, siblings and community members. Interviews were conducted in Lingala, translated, transcribed, then coded and analysed using NVivo.
Results: Several children suspected they had HIV before disclosure, commonly asking why they had to take medication or were '*always ill*'. Care-givers and children perceived benefits of disclosure to include improved adherence and improved behaviour at home. Care-givers who had not disclosed to their children wanted to protect themselves and their families from stigmatisation, and were fearful their children could tell others. HIV positive care-givers were reluctant to disclose to perinatally infected children because they felt guilty and did not want their children to blame them. There was also a perception amongst interviewees that there could be a risk of suicide relating to disclosure. Many children had more than one care-giver, often due to being orphaned, which delayed disclosure and made adherence support more challenging.
Conclusions: The fear of stigmatisation and not wanting to upset their children prevented several care-givers from disclosing. HIV-positive care-givers, particularly mothers, need additional support to overcome their fears and help their children understand their status. Attention should be given to non-primary care-givers involved in adherence support and disclosure as they also play a significant care-giving role for children living with HIV.

TUPED434

"New horizons" in taking care of perinatally HIV-infected adolescents and young people

V. Boscolo[1,2], C. Novello[1,2], O. Rampon[1], V. Ortolan[2], C. Giaquinto[1,2]
[1]*Hospital - University of Padua, Women's and Children's Health Department, Padua, Italy,* [2]*Penta Foundation, Padua, Italy*

Background: Since 1984 the Paediatric Department of Padua University has been following 180 perinatally HIV-infected children and families. In 1992 a multidisciplinary team was created to improve the quality of the children's life. Nowadays, HIV infection turned into a chronic disease. Children are now more likely to survive and to reach adolescence and adult age. Consequently, the focus moved from the centrality of medical therapies to ensure survival, to a growth oriented view, with its psycho-socio-educational complexity.
Description: Since 1992, the psycho-educational programs have involved 75 subjects in paediatric age. In the last few years, a deficit in the acquisition of self-efficacy has emerged and so in taking care of their own health.This was confirmed by an observational study on the psychosocial and behavioral features of 23 vertically HIV-infected adolescents followed by the site. In the questionnaire, the T-scores exceeded the cut-off for items concerning Activity competences, Social skills and Positive Qualities. Rather than a significant vulnerability to psychopathology, the data describes a clinical difficulty in recognizing one´s own skills and adapting to the social environment. These difficulties are also involved in the compliance. For these reasons, in 2016, an educational experimental project with formative features for young adult called „New Horizons" started. The first involved group was made by 10 young people. It was held by professional educators and volunteers appropriately trained. Every second month, it provided residential weekends where interactive workshops were conducted by extra-team professionals. The topics (self-esteem and self-efficacy, counselling about work/study, affective relationship and sexual behavior, pregnancy and reproductive health) were chosen considering the needs expressed by the attendees filling in a self-reported questionnaire.
Lessons learned: The recorded difficulties of HIV-infected adolescents in building their personal and relational autonomy, psychological distress and behavioral problems, have negative impacts on the infection

awareness, compliance and management of risky behaviors. The continuity of psycho-educational care has supported the implementation of proactive behaviors.
Conclusions/Next steps: Changes in the characteristics and treatment of HIV lead to changes in care of adolescents and young adults. The project aims to develop maturation from adolescence to adulthood as a basis for an effective transition from pediatric care to adult care.

TUPED435

Adolescent transwomen face additional barriers to ART adherence than cisgender peers

A. Edeza[1], M. Mimiaga[1,2,3], B. Grinsztejn[4], N. Fernandes[4], L. Kamel[4], K. Biello[1,2,3]
[1]Brown University School of Public Health, Behavioral and Social Health Sciences, Providence, United States, [2]Brown University School of Public Health, Department of Epidemiology, Providence, United States, [3]The Fenway Institute, Fenway Health, Boston, United States, [4]Instituto de Pesquisa Clinica Evandro Chagas-Fiocruz, Rio de Janeiro, Brazil

Background: Brazil has implemented a comprehensive HIV treatment program with broad access to ART, but challenges remain in addressing adherence challenges for adolescents, a group with poor adherence. Adolescents account for the largest number of incident HIV infections in Brazil. It is imperative to supplement current ART distribution efforts with medication adherence interventions.
Methods: We conducted three focus groups with 24 Brazilian adolescents (age 15-24) living with HIV in the Rio de Janeiro metro area, Brazil, separately for gay- or bisexual-identified cis-gender young men, heterosexual-identified cis-gender young men and women, and young transwomen (TW) of any sexual orientation. Thematic analysis identified key themes regarding barriers and facilitators to ART adherence.
Results: On average, participants were 22 years old (SD=2.3). One quarter had a less than a high school education. Five were perinatally-infected, and the remaining were infected via sex with an HIV-infected person. Twenty-two individuals were currently taking ART. All participants reported that transportation costs, understaffed clinics, and medication shortages impact their ability to fill an ART prescription. Additionally, they agreed that depression, complex medication schedules, and side effects discourage daily adherence. Motivations to remain adherent include a desire to be healthy, to look physically attractive, to meet life goals, and to protect partners. Compared to cisgender peers, TW expressed more gaps in HIV, AIDS and ART knowledge, higher uncertainty about disclosing HIV status to peers or family, and strong societal stigma as substantial deterrents. Additionally, unpredictable schedules, late nights, and concerns about interactions with recreational drugs were cited as barriers. There was a perceived lack of specialized clinicians that could meet the unique needs of TW, as well as a pronounced interest in medication adherence programs for adolescent TW exclusively led by a cis- or transwoman living with HIV.
Conclusions: All participants reported substantial barriers to ART adherence; however, TW face distinct barriers to ART adherence than their cisgender peers, which are not currently being addressed by the ART distribution system in Rio de Janeiro. These barriers limit HIV testing and ART medication adherence, and it is imperative to incorporate additional support systems into the current SUS framework which accommodate these unique needs.

Ageing with HIV: evolving and additional needs and responses

TUPED436

Sexual behaviors among older adults living with HIV in Chiang Mai, Northern Thailand

K. Srithanaviboonchai[1,2], K. Rerkasem[1,2], A. Tangmunkongvorakul[1], W. Sitthi[1], P. Masika Musumari[3], P. Kowal[1]
[1]Chiang Mai University, Research Institute for Health Sciences, Chiang Mai, Thailand, [2]Chiang Mai University, Faculty of Medicine, Chiang Mai, Thailand, [3]Kyoto University School of Public Health, Department of Global Health and Socio-epidemiology, Kyoto, Japan

Background: Worldwide, the number of older adults living with HIV (OALHIV), defined as HIV infected persons aged 50 years or older, is increasing due to effective antiretroviral therapy (ART) programs and ongoing HIV transmission in elderly. Little is known about sexual behaviors and HIV sexual risk behaviors among this population, especially OALHIV who reside in developing countries. The current study describes HIV sexual risk behaviors in OALHIV in Thailand.
Methods: This cross-sectional quantitative study was conducted between November 2016 and April 2017. Participants were enrolled from ART clinics at 12 community hospitals in Chiang Mai Province, Northern Thailand. Behavioral information was collected through face-to-face interviews and clinical data were retrieved from the medical records by trained researchers upon permission from the participants and the hospital staff.
Results: Of the 328 participants, 42.4% (139) were males, with an average age of 58.8 years (range: 51-84). The majority of participants 93.9% (308) had undetectable viral load (< 40 copies/µl). During the past 12 months, 31.4% of the participants (52.2% among males and 16.7% among females, $p < 0.001$) reported having had sex. Men had sex outside of stable relationships more than women (11.8% vs 0.5%, $p < 0.001$). All participants reported always using condoms during sexual intercourse that occurred outside of stable relationships while 91.4% reported doing so during sexual intercourse that occurred with their stable partners. Of the sexually active participants, 48.5% (54.9% among male and 34.4% among female) had sex with sexual partners who were HIV-negative or of unknown HIV status. Three participants, all of whom had undetectable viral load, had sex without a condom during the last 12 months with sexual partners who were HIV-negative or of unknown HIV status.
Conclusions: While having sex was common among OALHIV in Northern Thailand, risk of spreading the HIV virus through sexual intercourse was low due to effective ART programs and safe sex practices. The prevalence of condom use was very high regardless of the type and HIV status of the sexual partner. The situation might vary considerably in other locations and specific studies are needed to understand this issue in particular localities.

TUPED437

Younger age of HIV diagnosis correlated with early menopause among a cohort of canadian women living with HIV

G. Gao[1], P. Duff[2,3], M. Braschel[2], N. Pick[3,4], G. Ogilvie[3,4], K. Shannon[2,3], on behalf of the SHAWNA Study (Sexual Health and HIV/AIDS: Women's Longitudinal Needs Assessment)
[1]Queens University, Medicine, Kingston, Canada, [2]Gender and Sexual Health Initiative, Vancouver, Canada, [3]University of British Columbia, Medicine, Vancouver, Canada, [4]Oak Tree Clinic, British Columbia Women's Hospital and Health Centre, Vancouver, Canada

Background: As women living with HIV (WLWH) live longer and go through the aging process, healthcare considerations and priorities need to evolve to address WLWH's needs over the life course. Currently, there is limited evidence on age at menopause and correlates of early menopause in Canadian WLWH. The purpose of the study was to identify correlates of early menopause among WLWH in Metro Vancouver.
Methods: This analysis used baseline data (2014-2017) from the Sexual Health and HIV/AIDS: Women's Longitudinal Needs Assessment (SHAWNA) study, an ongoing community-based, open prospective co-

hort consisting of WLWH, aged 14+ who live and/or access HIV services in Metro Vancouver. Our analytic sample was restricted to cis-gender WLWH who reported being diagnosed by a physician as having undergone menopause. Bivariate and multivariable logistic regression were used to examine correlates of early menopause (≤45 years).
Results: In total, 101 women who have undergone menopause were included in the analysis with a median age of 49.0 (Interquartile ratio (IQR): 44.4 - 53.0). The median age of menopause was 45.0 years (IQR: 41.0-49.0), with 54.5% experiencing early menopause. In multivariable analysis, the odds of early menopause decreased by 9% for every year older a woman was diagnosed with HIV (Adjusted Odds Ratio= 0.91, 95%CI: 0.86 - 0.97), after adjusting for confounders.
Conclusions: In our study of WLWH within Metro Vancouver, older age at HIV diagnosis decreased the odds of early menopause. WLWH who are diagnosed with HIV at a younger age may be more progressed in their disease and exhibit HIV clinical factors (lower CD4 counts and CDC Class B or C disease) correlated with menopause. Our results suggest that changes to healthcare practice may facilitate more timely diagnosis, such as confirming menopause using biochemical markers which is not routinely done in the general population. The timely detection of menopause in WLWH is vital for appropriate care of peri-menopausal/menopausal health issues, such as treatment for vasomotor symptoms and prevention of osteoporosis and cardiovascular disease, leading to improved quality of life and longevity.

TUPED438

Women ageing with HIV: "I was not meant to be here, and I´m still here." How women have adapted to living long-term with HIV

J. Stevenson[1], J. Smith[1], E. West[1], P. Keogh[2]
[1]University of Greenwich, London, United Kingdom, [2]Open University, Milton Keynes, United Kingdom

Background: Women ageing with HIV potentially face a range of social, emotional and health challenges. Their experiences are relatively under-researched, yet as the population of people living with HIV ages, there is urgent need for greater efforts to understand their specific experiences. In the UK, over 34% of people accessing HIV care in 2015 were aged 50 and over. Many women in this age cohort have lived long-term with HIV, and were diagnosed in the pre-treatment era, creating a unique experience of living with HIV.
Methods: As part of a study exploring the experiences of women ageing with HIV in London, UK, 14 women aged over 50 participated in a life story interview. Participants were recruited to reflect the diversity of women living with HIV in the UK, and included 5 White British, 1 White Other, 1 Black British, 7 Black African. 12 were aged 50-60, 2 aged 60-70. 2 bisexual women, 1 trans woman. One diagnosed less than 5 years, 3 for 6-10 years, 1 11-15 years, 2 16-20 years, 2 21-25 years and 5 26-30 years. The interview was open and unstructured, with participants invited to tell the story of their lives however felt appropriate to them, with some broad prompts used to facilitate story-telling. A participatory data analysis workshop was held with four women living with HIV aged over 50, to analyse the life story data and identify key themes.
Results: Women shared a range of experiences, including both challenges and coping strategies for ageing with HIV. The particular experience of surviving a terminal diagnosis emerged as a significant theme, as both impacting on life choices and chances, and health and wellbeing, while also being a cause for celebration and gratitude. Participants in the analysis workshop described this phenomenon as 'survivor conflict', capturing the complex feelings associated with the challenges both physically and emotionally of unexpectedly reaching older age.
Conclusions: Women diagnosed before effective treatment became accessible have unique needs and experiences that are not adequately understood or addressed. Living with HIV is an ongoing, evolving experience that brings challenges that can be hard to reconcile with simple constructs of 'survival'.

Prevention interventions and their effects on the lives and relationships of people living with HIV

TUPED439

Determinants of antiretroviral adherence in Myanmar

S. Aung[1], J. Larkin[1], F. Zervou[2], A. Rana[3], N. Htun[4], A. Kyaw[5], M.S. Tun[6], K.W. Aung[4]
[1]Brown University Alpert Medical School, Infectious Diseases, Providence, United States, [2]Brown University Alpert Medical School, Internal Medicine, Providence, United States, [3]University of Alabama School of Medicine, Infectious Diseases, Birmingham, United States, [4]Pyi Gyi Khin, Yangon, Myanmar, [5]National AIDS Programme, Yangon, Myanmar, [6]Myanmar Positive Group, Yangon, Myanmar

Background: Antiretroviral therapy (ART) adherence ensures suppression of the HIV virus and reduces transmission. Determinants that influence adherence may vary by region and cultural norms. Such factors have not been formally assessed in Myanmar.
Methods: A crosssectional study was conducted utilizing questionnaires administered between May to October 2016 to 1,022 HIV-infected patients across four cities in Myanmar. Variables of interest included HIV knowledge, social support, structural barriers to care, enacted stigma, internalized stigma, and peer-to-peer HIV counseling (PC). The dependent variable was medication adherence. These variables were assessed using validated scales. A logistic regression analysis was used to determine the correlation between the above independent variables and ART adherence using total scores. The statistical significance threshold was 0.05.
Results: Among 1,022 participants, mean age was 38.6 years and 55% were females. Majority of patients (55%) reported heterosexual intercourse as their mode of transmission. The median CD4 count was 351- 500 cells/mm3, and 16% of participants had CD4 counts < 200 cells/mm3. Five hundred patients (49%) received PC and the remaining participants received standard counseling (HIV negative counselor). Enacted stigma (OR 0.87; 95% CI 0.82-0.94; p< 0.01), internalized stigma (OR 0.96; 95% CI 0.94-0.99; p< 0.01), and social support satisfaction (OR 2.19; 95% CI 1.10-4.38; p=0.03) were independently associated with medication adherence. With each increasing enacted stigma and internalized stigma score the odds of adherence was 13% and 4% lower, respectively. Participation in PC had a moderately significant association with adherence (OR 1.40; 95% CI 0.97-1.98; p=0.07) and increased the odds of adherence by 60%. Interestingly, participants with lower social support satisfaction had increased odds of adherence compared to other categories. Patients who identified doctors or nurses as their biggest source of support had higher odds of adherence (OR 1.72; 95% CI 1.03-2.86; p=0.04), but type of support was not an independent determinant. HIV knowledge and structural barriers to care were not independently associated with adherence.
Conclusions: Significant correlations were found between PC, enacted stigma, internalized stigma, and social support with ART adherence. The results overall promote reducing stigma and utilizing peer-to-peer counseling as a means to improve medication adherence in Myanmar.

TUPED440

Christain Marriage Counsellors practices relating to pre-marital counselling and HIV counselling and testing for intending couples in Ibadan, Nigeria

A. Adegbola[1], F. Oshiname[1], A. Ogunwale[1,2]
[1]University of Ibadan, Department of Health Promotion and Education, Faculty of Public Health, Ibadan, Nigeria, [2]Oyo State College of Agriculture and Technology Igboora, Department of General Studies, Igboora, Nigeria

Background: HIV Counseling and Testing (HCT) is a strategy for controlling HIV, an infection which constitutes a public health challenge in Nigeria. There are Church-based Marriage Counselors (CMCs) in most churches in Ibadan who prepare Intending Couples (IC) for marriage solemnization. These counselors can play pivotal roles in facilitating adop-

tion of HCT by IC. However, there is dearth of baseline information relating to their counseling practices. This study was therefore designed to explore practices of CMCs relating to HCT in Ibadan South-West Local Government Area (LGA), Nigeria.

Methods: The cross-sectional survey involved the use of a three-stage random sampling technique to select 660 CMCs from Christian Association of Nigeria districts, denominational categories and parishes in the LGA. Respondents' churches consisted of indigenous Churches and Non-Indigenous Churches. A pretested questionnaire was used for data collection. Descriptive statistics and Chi-square test were used to analyse data at p=0.05.

Results: Respondents' age was 45.0±8.6 years, 60.3% were males, 84.1% had tertiary education, 65.0% performed only CMC roles while 35.0% were pastors as well. Majority (81.2%) were members of indigenous churches. Many respondents (68.9%) performed at least one wedding ceremony per month and 87.9% stated that pre-marital courses for ICs, with infused elements of HIV, existed in their churches. The mean duration of their counseling related courses was 9.6±6.8. Majority (73.2%) of the respondents usually requested ICs to undergo compulsory HCT. Proportions of respondents in non-indigenous and indigenous churches who recommended mandatory HCT for ICs were 93.5% and 85.3% respectively (P≤0.05). Mandatory HCT for ICs was highest among those who had an average of more two weddings per month (100.0%) (P≤0.05). Respondents adopted different ways of handling HCT results when one of the intending partners is HIV positive. These included counseling ICs (33.5%), leaving ICs to decide on their own (32.1%) as well as cancellation of weddings (7.8%).

Conclusions: Mandating ICs to undergo HCT was common in churches especially in churches with high frequency of wedding programmes. Some CMCs indulged in the unethical practice of cancelling of ICs wedding based on HIV sero-postive. Training and other relevant health education interventions are needed to address these issues.

Sexual and reproductive health, fertility, family planning, pregnancy, and abortion

TUPED441

Breaking barriers and building bridges: Women living with HIV leading the way through the 4M+ peri-natal peer mentoring project, to complement clinical care in East Africa

A. Namiba[1], E. Bajenja[1], N. Osborne[1], A. Welbourn[2], T. Otieno[3], B. Ogolla[3], J. Alessi[4], R. Nalwanga[4], N. Niwagaba[4]

[1]Associate Salamander Trust, London, United Kingdom, [2]Salamander Trust, London, United Kingdom, [3]Personal Initiative for Positive Empowerment (PIPE), Nairobi, Kenya, [4]Uganda Network of Young People Living with HIV (UNYPA), Kampala, Uganda

Background: Through scientific advancements, vertical HIV transmission risk is potentially < 2%. However, pregnant women living with HIV face many complex issues. These are now recognised to act as key barriers to treatment access, affecting women and their children alike. To overcome this, three peer-led organisations conducted training workshops with Mentor Mothers (MMs). The training sought to build MMs' capacity to support their pregnant peers. 4M stands for *My Health My Choice, My Child My Life*.

Description: The 3-day training, led by a woman living with HIV, was practical and interactive. Held in 4 urban and rural areas, in East Africa, topics included pre-conception planning, ante- and post-natal care, safe motherhood, and creative writing. Participants created books based on their experiences, ideas and plans. A steering group of in-country healthcare professionals (HCPs), peers and staff shaped the programme.

Lessons learned: 65 MMs were trained. 24 (37%) were < 24 years. 12 (18%) were pregnant. Immediate pre- and post-training evaluation was conducted.

MMs in Nairobi continued sharing through a WhatsApp group. A 6 month post-training evaluation sampled MMs in both countries.

HCPs in both countries reported increased attendance and adherence by those supported.

Peer-led participatory training is key to establishing safe spaces for MMs to share without fear; and to understand what support can, and should, be offered to pregnant women, from community and HCPs.

Some MMs reported challenges from intimate partners, including lack of economic and decision-making autonomy and critical attitudes and behaviour.

Some MMs also reported challenging behaviour from HCPs in some facilities.

MMs' confidence to challenge negative behaviours from partners and HCPs was strengthened.

Wider awareness amongst HCPs of this programme's value is urgently needed.

Funding and geographic spread of the project also need improvement.

Conclusions/Next steps: Training Mentor Mothers to support peers proved to have a marked impact on skills, confidence and aspirations. It can also complement clinical care, improving health outcomes of young women/mothers living with HIV.

Engagement of men/partners is key to the success and continued engagement of MMs, many of whom felt restricted by limited financial and social autonomy.

Next steps also include raising awareness among HCPs regarding anti-discriminatory behaviours.

TUPED442

Successes and challenges within a safer conception intervention for men living with HIV in South Africa

M.N. Mathenjwa[1], L. Greener[1], H. Khidir[2], N. Mosery[1], C. Psaros[2,3], K. O'Neil[4], A. Harrison[5], D.R. Bangsberg[6], S.A. Safren[7], J.A. Smit[1], L.T. Matthews[2,4]

[1]MatCH Research Unit, Durban, South Africa, [2]Harvard Medical School, Boston, United States, [3]Behavioural Medicine, Department of Psychiatry, Massachusetts General Hospital, Boston, United States, [4]Center for Global Health, Massachusetts General Hospital, Infectious Disease, Boston, United States, [5]Brown University School of Public Health, Department of Behavioural and Social Sciences, Providence, United States, [6]Oregon Health Sciences University and Portland State University, School of Public Health, Portland, United States, [7]University of Miami, Psychology, Miami, United States

Background: Many men living with HIV (MLWH) want to have children. Safer conception strategies such as ART, PrEP, limiting condomless sex to fertility, and sperm washing allow men to meet reproductive goals while minimizing transmission to partners. We piloted an intervention to support MLWH to adopt safer conception behaviors. Exit qualitative in-depth interviews (IDIs) explored successes and challenges based on an ecologic conceptual framework.

Methods: Between 2015-2017 we enrolled MLWH in Ethekwini, KwaZulu-Natal, South Africa. Eligible men were 20-45 years old, with HIV-serostatus known ≥1 month, ART naive or on ART < 3 months, and planning to have a baby with an HIV-negative or unknown-serostatus partner in the next year. Men participated in a five-session safer conception intervention over 12 weeks. One-on-one counseling sessions provided HIV and safer conception education and cognitive behavioral therapy for behavioral change. A subset completed an IDI upon study exit to explore participant experiences with the intervention, and challenges and successes with implementing their safer conception plan. Translated transcripts were analyzed using thematic analysis.

Results: Eleven black South African MLWH with median age 32 years (range 27-37) completed exit IDIs. At intervention entry, 6 (54%) had completed secondary school, 5 (45%) reported multiple sexual partners, all reported a single desired pregnancy partner. Two (18%) had disclosed to pregnancy partner and five (45%) were employed.

Successes described at the structural-level included confidence in this clinic-based intervention and community-demand. However, employment made it challenging for men to attend clinic sessions. Men also described contradictory clinic counseling emphasizing condoms regardless of reproductive goals. At the individual-level, men learned the safer conception methods and tried adopting the strategies (principally ART, sex timed to peak fertility, and disclosure). At the dyadic-level, men

found it challenging to implement safer conception strategies without disclosure. While problem solving and role plays helped some, disclosure remained difficult for most.

Conclusions: MLWH are able to learn and willing to adopt safer conception strategies. Providing safer conception care at the community level during non-working hours may be necessary to meet demand for services. Creative approaches to promote disclosure are needed to support MLWH to safely meet reproductive goals.

TUPED443

Assessment of SRH needs of women living with HIV In Pakistan

K. Zahra
Association of People Living with HIV-Pakistan, Islamabad, Pakistan

Background: Women living with HIV [WLHIV] in Pakistan face significant challenges in accessing sexual and reproductive health [SRH] services. One of such challenge is the lack of sensitivities and skills among health care workers. The care workers are not trained in providing SRH services and address SRH needs of WLHIV. There is also widespread stigma and discrimination towards WLHIV in primary and secondary heath care settings. WLHIV are not well aware about their SRH Rights. This study aimed to establish their SRH&R needs in Pakistan.

Methods: This was a cross-sectional descriptive study. Structured questionnaire were used to document the needs of WLHIV, related to SRH&R. The study participants were WLHIV, who self-reported diagnosed with HIV infection prior to their participation in the study. The sample size of 120 women living with HIV was taken from four major cities of the country.

Results: Among the participants 96% identified the need of Integrated SRH/HIV services. The participants identified that gaps in training of HCPs prohibit them from providing sexual and reproductive health information and services; they expressed a desire for better access to respectful providers who are willing to care for their needs. All participants agreed that some level of service integration is necessary. Only 19.2% of the participants were aware of their sexual and reproductive health rights. Gynecological examination was prioritized as a need by 72.5% participants. Several of the interviewed women indicated that they were most comfortable receiving comprehensive services from NGOs. Almost all the participants identified that they fear being stigmatized or discriminated at a health care setting.

Conclusions: The Study recommends training of care providers on SRH along with capacity building of WLHIV, for improved leadership in addressing SRH&R needs. Strengthening of human resource through training, combating widespread stigma and discrimination and development of a national strategy and guidelines, backed with an operational plan for providing sexual and reproductive services at the ART clinics or at the linked primary health care facilities, within the same premises and through NGOs. Empowerment of WLHIV, education on their rights and bridging the communication gap through a NGO setting may provide a working solution.

TUPED444

The effect of fertility intentions on HIV clinical care attendance among HIV-positive women on ART in Johannesburg, South Africa

K. Rucinski[1,2], S. Schwartz[3], K. Powers[1], B. Pence[1], B. Chi[4], V. Black[2,5], H. Rees[2], A. Pettifor[1]
[1]University of North Carolina-Chapel Hill, Epidemiology, Chapel Hill, United States, [2]Wits Reproductive Health Institute, University of the Witwatersrand, Johannesburg, South Africa, [3]Johns Hopkins School of Public Health, Department of Epidemiology, Baltimore, United States, [4]University of North Carolina-Chapel Hill, Department of Obstetrics and Gynecology, Chapel Hill, United States, [5]Clinical Microbiology and Infectious Diseases, University of the Witwatersrand, Johannesburg, South Africa

Background: Poor HIV care retention impedes optimal treatment outcomes in HIV-infected women. Women trying to become pregnant may be motivated by horizontal transmission concerns and PMTCT to have a more consistent relationship with HIV care than women who are not trying to conceive. We estimated the effect of fertility intentions on clinic attendance over 12 months in non-pregnant, HIV-positive women.

Methods: 850 non-pregnant, HIV-positive women aged 18-35 on or initiating ART in Johannesburg, South Africa were enrolled into a prospective cohort study (2009-2010). We assessed both current and future fertility intentions at enrollment. Current fertility intentions assessed whether or not a woman was trying to conceive at the time of interview (yes/no). Future fertility intentions assessed whether or not a woman planned to conceive within the next 12 months (yes/no). Attendance was assessed dichotomously (any attendance vs. none) in 90-day intervals. We used generalized estimating equations to estimate the effect of current and future fertility intentions on the odds of attending clinic visits over the 12-month study period.

Results: At enrollment, 105 (12.4%) women reported they were already trying to conceive; 396 (46.6%) reported their intention to conceive in the next 12 months. The proportion of women attending a scheduled visit decreased from 93.2% in month 3 to 80.6% in month 12. Neither trying to conceive at enrollment (aOR: 0.92, 95% CI 0.56, 1.53) nor planning to conceive in the next 12 months (aOR 0.87, 95% CI 0.60, 1.26) was associated with clinic attendance (Table).

Conclusions: We found no association between fertility intentions and attendance at HIV clinical care visits in the pre-conception period. Integrating safer conception services with other HIV prevention, care and treatment services could offer opportunities to further improve care retention in HIV-positive women and their partners who are planning to conceive.

	Unadjusted OR % (95% CI)	Adjusted* OR % (95% CI)
Current Fertility Intentions		
Trying to conceive	0.82 (0.51, 1.31)	0.92 (0.56, 1.53)
Not trying to conceive	1	1
Future Fertility Intentions		
Plan to conceive, next 12 months†	0.78 (0.56, 1.09)	0.87 (0.60, 1.26)
No plan to conceive, next 12 months	1	1

Abbreviations. OR: Odds Ratio; CI: Confidence Interval

*Models were adjusted for a minimally sufficient set of confounders including age (continuous), relationship status (yes/no), time on ART (continuous), partner fertility intentions (no partner, partner does not desire a/another child, partner unsure, partner desires a/another child), any prior living children (yes/no), and provider discouraged future childbearing (yes/no).

†Women who were planning to conceive in the next 12 months comprised both those who were currently trying and those who planned to try in the next 12 months.

[Unadjusted and adjusted ORs for the effect of fertility intentions on attendance at HIV clinical care visits among HIV+ women on ART in Johannesburg.]

TUPED445

Unmet need for modern contraception: Challenges reaching female sex workers without a prior pregnancy in Swaziland

A. Rao[1], S. Schwartz[1], Z. Mnisi[2], D. Kochelani[3], M. Mavimbela[4], S. Baral[1]
[1]Johns Hopkins Universtiy, Department of Epidemiology, Baltimore, United States, [2]Ministry of Health, Mbabane, Swaziland, [3]Johns Hopkins Universtiy, Center for Communication Programs, Mbabane, Swaziland, [4]Swaziland National AIDS Program, Mbabane, Swaziland

Background: Female sex workers(FSW) are disproportionately affected by HIV and have sexual and reproductive health needs like other women. Family planning has the potential to mitigate risks to mother and child, especially in the context of high HIV prevalence and inadequate access to care. This study explores predictors of unmet need for modern contraception among FSW in Swaziland.

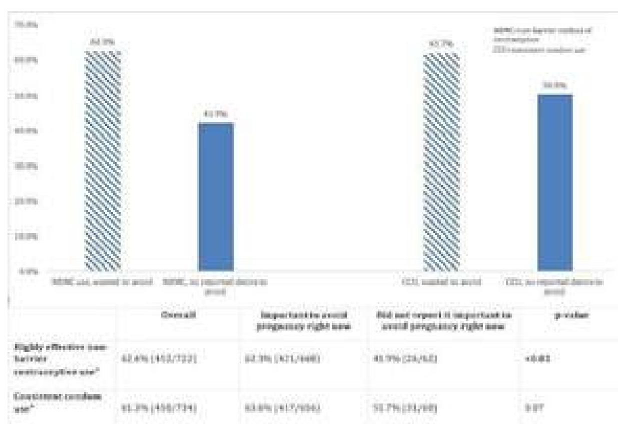
Methods: This is a secondary analysis of a study of FSW in Swaziland between Oct/2014-Dec/2014. Women were excluded if they were currently pregnant(n=9) or trying to get pregnant(n=28). Due to inconsistent condom use, women were classified as having unmet need for modern contraception if they

1)reported it important to avoid getting pregnant and

2)were not currently using a non-barrier method of contraception(e.g. oral contraceptives,intrauterine device). Log binomial regression models evaluated predictors of unmet need.

Results: The median age of the included women was 27(IQR 23-30) and FSW had a median of two children(IQR 1-2). Among the 744 eligible FSW, 676(91%) reported it was important to avoid getting pregnant now. One-third of women reported inconsistent condom use during vaginal sex in the past 12 months(270/722), and nearly 40% of those who reported it important to avoid getting pregnant had an unmet need for modern contraception(247/668). Never having been pregnant compared with attending ANC during last pregnancy was independently associated with higher prevalence of unmet need for contraception(aOR 1.48[1.19,1.84], p< 0.001). Older age(aOR 1.44[1.07, 1.94], p=0.02) and identifying with a non-Christian religion(aOR 1.40[1.01, 1.92], p=0.04) were also all independently associated with increased prevalence of unmet need for contraception, while education was not.

Conclusions: A large gap exists in effective family planning coverage for those FSW who wish to control and time pregnancy. Given the HIV burden among FSW in Swaziland, high unmet contraceptive need and inconsistent condom use contribute to increased risk for adverse maternal and child outcomes, including vertical transmission risk. Women with no previous pregnancy had a higher prevalence of unmet need compared to women attending ANC, suggesting a possible linkage to reproductive health services of a previous pregnancy. Finding strategies to promote and ensure access to reproductive services among FSW-including those without children-is crucial.



[Figure 1. Highly effective non-barrier contraceptive use and consistent condom use comparing female sex workers in Swaziland by how important it was]

	Prevalence Ratio(95%CI)	Adjusted Prevalence Ratio (95% CI)
Antenatal care attendance: Attended during last pregnancy; Did not attend; Never pregnant	ref; 1.40 [0.93, 2.11]; 1.36 [1.11, 1.67]**	ref; 1.51 [0.99, 2.29]; 1.48 [1.19, 1.84]***
Age: 18-24; 25-34; 35+	ref; 0.89 [0.73, 1.09]; 1.23 [0.96, 1.60]	ref; 1.05 [0.83, 1.33]; 1.44 [1.07, 1.94]*
Education: Primary or less; Some secondary; High school or more	ref; 0.76 [0.61, 0.95]*; 1.21 [0.99, 1.48]	ref; 0.80 [0.61, 1.06]; 1.06 [0.83, 1.35]
Number of living children: None; One; Two; More than two	ref; 0.81 [0.63, 1.05]; 0.77 [0.59, 1.02]; 0.84 [0.62, 1.14]	
Religion: Roman Catholic; Anglican or other; Christian; Other, including Baha'i	ref; 0.95 [0.77, 1.17]; 1.22 [0.96, 1.55]	ref; 1.16 [0.88, 1.53]; 1.39 [1.01, 1.92]*
HIV Status: Negative; Positive; Never tested	ref; 1.05 [0.85, 1.31] 0.85 [0.62, 1.16]	
Years selling sex	1.02 [1.00, 1.04]	
Prevalence ratios were generated using log binomial regression models. aTwenty-one women were excluded from analysis due to missing data on unmet need for modern contraception (n=12) or antenatal care attendance (n=9).*Statistically significant at p <0.05; **p <0.01; ***p<0.001. Bolded results represent results that are statistically significant at least at the p<0.05 level.		

[Table 1. Crude and adjusted prevalence ratios for unmet need for modern contraception among female sex workers in Swaziland, 2014(n=744)a]

TUPED446

Fertility desires, contraceptive preferences and practices of women living with HIV in the South West region of Cameroon: A qualitative study

L.H. Foglabenchi[1,2], V.N. Mbome[3], G. Halle-Ekane[4], A.M. Tebah[5], S.A. Ndeso[6]

[1]Cameroon Baptist Convention Health Services, AIDS Care and Prevention Program, Bamenda, Cameroon, [2]University of Washington, Department of Global Health, Seattle, United States, [3]Ministry of Health, Regional Delegation, Buea, Cameroon, [4]University of Buea, Research and Cooperation, Buea, Cameroon, [5]University of Yaounde, Sociology and Anthropology, Yaounde, Cameroon, [6]St Monica University, International Health, Buea, Cameroon

Background: With the rapid expansion of antiretroviral therapy (ART) and Prevention of Mother-to -Child-Transmission (PMTCT) of HIV programs in sub-Sahara Africa and Cameroon in particular, women living with HIV are desiring children to meet up with personal and societal expectations. Evidence on the extent and drivers of these desires is scanty. This study therefore, explores the extent and drivers of fertility desires and provides in-depth understanding on the contraceptive preferences and practices of women living with HIV in Cameroon.

Methods: A qualitative research approach through a combination of 4 focus group discussions (FGDs) and 29 in-depth interviews (IDIs) was used. Sampling was purposive and primary research subjects were HIV-infected women of reproductive age currently attending care in four facilities in the South West Region of Cameroon. The Thematic framework approach was used for data analysis and interpretation.

Results: Participants' narratives indicate that, a complex mix of personal (beliefs and motivation), medical (ART effectiveness) and societal factors (social validation and expectations) appear to influence the fertility desires of Cameroonian women living with HIV. Procreation in this sub-population is seen as a means for women living with HIV to normalize their social status, rebrand their identities and secure their marriages. We also found that desires for pregnancy are not moderated with family planning as majority of study-subjects reported the use of traditional and less effective methods like salt and whisky for family planning. The use of modern contraceptive methods among a minority of study subjects was influenced by myths, perceived side effects, ease and frequency of use.

Conclusions: Our findings suggest that for the sustained engagement of women of reproductive age in HIV care, the Ministry of Public Health in Cameroon needs to employ a comprehensive approach to PMTCT and target all prongs to ensure that every pregnancy is planned and timed to optimize maternal and infant health and to reduce the risk of HIV infection to infants and partners. Interventions should aim to integrate preconception counselling and family planning into HIV care services and reduce the operational barriers of accessing Family planning commodities.

Living with HIV and co-infections and/or co-morbidities

TUPED447

"Blood pressure can kill you tomorrow but HIV gives you time": Illness perceptions among HIV-infected individuals with hypertension

M. Hing[1], R.M. Hoffman[1], J. Seleman[2], F. Chibwana[2], K. Phiri[2], D. Kahn[1], K. Dovel[1,2], C. Moucheraud[3], EQUIP Innovation for Health

[1]David Geffen School of Medicine at the University of California, Los Angeles, United States, [2]Partners in Hope Medical Center, Lilongwe, Malawi, [3]University of California, Fielding School of Public Health, Los Angeles, United States

Background: Despite the rise in non-communicable diseases among individuals living with HIV, there is limited knowledge about the experience of patients with comorbid chronic illnesses in low-resource set-

tings. This study sought to investigate disease and adherence experiences among patients with HIV and hypertension (HTN).

Methods: Semi-structured interviews were performed between June-December 2017 at an urban, non-profit PEPFAR-USAID ART facility in Malawi. HIV-infected adults ≥18 years, and taking ART and ≥1 antihypertensive for at least 1 year, were interviewed about their experience with the two conditions and treatments. Interviews were recorded, transcribed and translated into English. A codebook was developed based on the interview guide; iterative codes were added as needed. Analyses used theories from the public health literature to identify themes related to disease perceptions and treatment adherence.

Results: Seventy-five participants were interviewed (64% female, median age 53). Median duration on antihypertensives was 4 years with participants taking on average 2 antihypertensives (range:1-4). Most (84%) participants had elevated blood pressure (systolic >140mmHg, and/or diastolic >90mmHg) at their most recent clinic visit. Although most respondents (63%) viewed HTN and HIV as equally important chronic diseases, nearly half (45%) reported having greater fear of HTN compared to HIV, mainly due to the perceived suddenness and severity of HTN complications versus the perceived slow and visible progression of HIV (Table 1). Despite increased fear of HTN, participants found adherence to antihypertensives more challenging than adherence to ART: 77% of participants reported missing ≥1 dose per week of their antihypertensive medicine(s) (versus 7% who missed ≥1 dose per week of ART). Barriers that uniquely affect HTN treatment included medication costs (mentioned by 61% of respondents) and lifestyle changes (30% of respondents) like diet and exercise required for HTN management.

Conclusions: Participants living with HIV and HTN recognized the importance of controlling HTN to prevent future severe complications, but barriers such as costs of medications and lifestyle changes impeded adherence to treatment. Areas of commonality and difference in perceptions of HIV and HTN may inform future efforts to improve outcomes in comorbid patient populations.

Construct	Variable	Quote
Capability Factors: [illegible]		
Social Support	Familial participation	[illegible]
Disease comprehension	Understanding of medications	[illegible]
Intention Factors: [illegible]		
Adherence incentives	Perceived threat of disease	[illegible]
		[illegible]
	Perceived benefits of treatment	[illegible]
		[illegible]
Adherence deterrents	Pill burden	[illegible]
	Dietary restrictions	[illegible]
	Forgetfulness	[illegible]
Health System Factors: [illegible]		
Access to care	Cost of care	[illegible]
		[illegible]
		[illegible]
	Distance to care	[illegible]
	Availability of care	[illegible]

[Figure 1: Factors affecting adherence to antihypertensives among HIV-infected participants on ART: theoretical constructs and study findings]

TUPED448

Improving care for people in Ukraine who have tuberculosis and HIV: Findings from a qualitative analysis of integrated services

Z. Charyeva[1,2], S. Curtis[1], S. Mullen[1,3], R. Teal[4], O. Zaliznyak[5], T. Senik[5], S. Eagan[3]
[1]*MEASURE Evaluation, University of North Carolina at Chapel Hill, Chapel Hill, United States,* [2]*Palladium, Chapel Hill, United States,* [3]*JSI, Washington, United States,* [4]*Consultant, Chapel Hill, United States,* [5]*IFAK Institut, Kyiv, Ukraine*

Background: Ukraine is one of the 10 countries with the highest incidence of multi-drug resistant TB; about a quarter of all TB patients are also infected with HIV. The USAID-funded Strengthening Tuberculosis Control in Ukraine project aims to improve the integration of TB and HIV services to reduce mortality through early diagnosis and treatment of TB- and HIV-coinfected clients. This study examined changes in the integration of TB and HIV services, and factors that facilitate or impede timely access to testing and treatment services for TB- and HIV-coinfected clients in project intervention regions.

Methods: We conducted 53 in-depth interviews with three stakeholder groups: 30 TB- and HIV-coinfected clients; 17 infectious disease and TB providers; and six coinfection specialists. We also conducted six focus group discussions with providers. All discussions were digitally recorded, translated, and transcribed. Using ATLAS.ti, we synthesized data based on key themes that were identified using deductive and inductive coding, and then presented results using direct quotes to support themes.

Results: The HIV-TB integration program affected several positive changes in the integration of services, especially around availability of diagnostic tests across facilities, training of providers, and improved communication and collaboration across services. However, client databases are not consistently shared across all TB and HIV services, which makes coordination challenging and further increases travel costs for patients, as they have to travel between TB and HIV clinics. Providers spoke of clients' inability to accept their HIV diagnosis and follow treatment instructions, short-staffed facilities, and infrastructure issues such as buildings that needed repair as key barriers. From the clients' perspective, barriers to accessing care included: dealing with HIV-related stigma; long lines at facilities; high out-of-pocket costs associated with travel, inpatient stay, laboratory work, and medications; confusion about where to go to receive treatment; and confusion about medication regimens and their debilitating side effects.

Conclusions: The study suggests that while improvements in diagnostic testing and coordination across TB and HIV facilities is well underway, factors such as stigma, emotional burden, adequate education to deal with the side effects of the medication, and high patient out-of-pocket costs still need to be addressed.

TUPED449

Countering double trouble - PLHIV community led intensified case finding of TB cases amongst PLHIV in India

M. Balani[1], R. Chauhan[1], V. Arumugam[1], H. Rosenara[1], U. Chawla[1], S. Mehta[1], R.S. Gupta[2], M. Barmotiya[2]
[1]*India HIV/AIDS Alliance, Program, Delhi, India,* [2]*National AIDS Control Organization, Ministry of Health and Family Welfare, Delhi, India*

Background: TB is the most common opportunistic infection among people living with HIV (PLHIV). TB being a major public health problem in India accounts for 20-25% of deaths among PLHIV. It is known that nationally about 5% TB patients registered under the Revised National Tuberculosis Control Programme (RNTCP) also have HIV infection. There is a need to scale up the early detection of TB presumptive cases amongst PLHIV and link them to treatment for effective management of HIV-TB co-infection.

Methods: The Global Fund-supported Vihaan care and support programme is implemented by India HIV/AIDS Alliance as a principal recipient. As a core component of India's national HIV strategy, 361 care and support centres (CSCs) have been established, most of them implemented by PLHIV networks (80%) and other civil society organisations (20%). CSCs promote treatment adherence, enhance positive living and create an enabling environment for an effective HIV response in India. Intensified case finding (ICF) for TB is one of the key activity carried out by the staff of CSCs who are mostly from the PLHIV community themselves. Through ICF, symptomatic TB cases are referred to ART centres from where TB testing is done and linked to if confirmed TB positive. Peer counselors and outreach workers from the PLHIV community provides follow up services to those identified HIV-TB co-infected. Some CSC provides nutritional support to such clients by mobilising locally available resources.

Results: Peer led ICF and follow up services is effective for early detection and linkage with TB treatment.1,025,304 PLHIV were screened for TB, of which 149,976(15%) PLHIV were found with at least one symptom are referred for TB testing, of which 10,075 (6.7%) PLHIV were diagnosed with TB and out of this 9,067(90%) were linked for TB treatment.

Conclusions: Complementing the national collaboration on HIV-TB activities, Vihaan care and support programme will continue strengthening the PLHIV led ICF and follow up of identified HIV-TB co-infected PLHIV

to treatment adherence and course completion. The program will also emphasise on tracing of family members of the PLHIV co-infected with HIV-TB.

TUPED450

"You change who you hang out with": Understanding hepatitis C risk behaviours and attitudes among HIV-diagnosed gay and bisexual men

S. Schroeder[1], M. Stoové[1,2], P. Higgs[1,3], A. Pedrana[1], M. Hellard[1,2,4], J. Doyle[1,2,4]
[1]Burnet Institute, Disease Elimination, Melbourne, Australia, [2]Monash University, School of Population Health and Preventive Medicine, Melbourne, Australia, [3]La Trobe University, Department of Public Health, Melbourne, Australia, [4]The Alfred Hospital, Department of Infectious Diseases, Melbourne, Australia

Background: Due to sexual and/or parenteral exposure, gay and bisexual men (GBM) are at increased risk of hepatitis C (HCV)/HIV co-infection. In Australia, the advent of subsidised direct-acting antivirals (DAA) for HCV treatment has made eliminating HCV among co-infected GBM possible; however, high reinfection rates could threaten this elimination goal. To gain an understanding of the factors influencing HCV reinfection risk and identify post-treatment support needs, this study explored HCV risk perceptions and attitudes among HIV-diagnosed GBM recently cured from HCV.
Methods: Fifteen in-depth interviews were conducted with HIV-diagnosed GBM in Melbourne post DAA-treatment success. Interviews focused on participants' experiences related to HCV risks and attitudes towards reinfection avoidance. Data collection, analysis and interpretation were guided by constructivist grounded theory.
Results: Three categories conceptualise participants' experiences:
Rejecting the junkie label
Contrary to feelings of inevitability associated with HIV seroconversion, a lack of HCV risk awareness coupled with perceived knowledge about safe drug use meant that HCV-diagnosis came as a shock to most participants. Despite high prevalence of injecting drug use, participants did not identify with populations typically at risk for HCV.
Risk environments and fear of social isolation
Interviewees implicated the micro-social environments in which they were socially and sexually engaged as risk environments, where sexualised drug use was perceived as ubiquitous. Removal from high-risk environments and sexual activity to avoid HCV reinfection resulted in disengagement from their communities, leaving many feeling socially isolated.
Beyond cure
HCV was experienced as highly stigmatising and many jumped at the opportunity to achieve cure. Treatment was identified as a catalyst for substantial lifestyle changes among those who had become critical of their use of methamphetamines. A key narrative was the commitment to avoiding HCV-reinfection; conceptualising reinfection as representing a personal failure and manifest of an inability to maintain their current, healthier lifestyles.
Conclusions: Tailored HCV prevention campaigns need to take account of the intersectionality between multiple stigmatised social identities. An understanding of HCV-infection as both behavioural and social should form the basis of treatment support. Establishing peer support networks could mitigate social capital loss following a commitment to behaviour change and contribute to avoidance of HCV reinfection.

TUPED451

Qualitative study on the experiences and perspectives of public sector patients in managing workload of demands of HIV and type 2 diabetes co-morbidity in Cape Town and Polokwane, South Africa

H. Onya, Health Promotion Group
University of Limpopo, Public Health, Polokwane, South Africa

Background: In South Africa, little is known about how chronic patients with multi-morbidities currently experience the (re)-organisation of health services as suggested by the Integrated Chronic Disease Model (ICDM); and what their perceived needs are in order to enhance the management of their conditions both at point of healthcare and in their daily lives. Shippee´s Cumulative Complexity Model (CCM) was used as a testing tool to explore patient workload and capacity to manage HIV and type two diabetes (T2D)] and how this impact on their capacity for effective self-management.
Methods: 28 qualitative in-depth interviews (10 Cape Town patients; 12 Polokwane patients; 6 Cape Town and 6 Polokwane patients' health providers were conducted) and health facilities document review in Khayelitsha and Mankweng hospitals. Convenience and purposive sampling (people living with HIV and T2D; and key informant health providers) were utilised in respondents 'selection. Grounded Theory method was used in the data analysis.
Results: Patients' Workload demands were transport challenges/costs to health facilities and frequent visits. Patients´ capacity to deal with burden of illness were physical and mental functioning challenges, financial resources, social support and problems with the health system. Facilities access barriers included long waiting periods and queues to consult and collect medication, health worker attitudes and confidentiality. Some patients were no longer using the facilities and receive their medication elsewhere or consult traditional healers. Prolonged waiting at outpatient departments in hospitals, creates problems for diabetic patients who cannot stay for a long time without a meal.
Conclusions: There is tremendous demand related to the amount of patients' workload (collecting medication, clinic appointments, medication intake, job demands, and self-management). As patients' physical, emotional capacity and other aspects deteriorate they are unable to cope with managing their conditions. Health education and counselling related to management of co-morbid conditions and adherence to treatment need to be intensified.

TUPED452

Outcomes of HCV treatment with DAAs in key groups HIV/HCV co-infected patients in Ukraine

S. Filippovych[1], O. Burgay[2], S. Antoniak[2], S. Antonyak[3], Z. Tsenilova[2], N. Ivanova[2], D. Marunko[2]
[1]ICF, TPSM, Kyiv, Ukraine, [2]ICF 'Alliance for Public Health', TPSM, Kyiv, Ukraine, [3]Gromashevsky Institute of Epidemiology and Infectious Diseases within the Academy of Medical Sciences of Ukraine, Viral Hepatitis and HIV/AIDS Department, Kyiv, Ukraine

Background: According to UNAIDS in 2016 Ukraine numbered 240 000 persons living with HIV; 346 000 people who inject drugs with HIV prevalence of 21.9%. Estimated hepatitis C virus (HCV) prevalence in Ukraine is 2-5% (~1-2 million people). 78% of newly registered with HIV were tested for HCV, 28.8% out of them had positive results.
Since 2015 Alliance for Public Health is implementing the Project aimed at scaling up accessible and effective HCV treatment with directly active antivirals (DAAs) for key populations (KPs) - people who inject drugs (PWID), men having sex with men (MSM), commercial sex workers (CSW). Among Project's main objectives are to develop and implement innovative community-based HCV treatment model for KPs in resource constrained Ukraine; to render intensified social support to the patients and integrated services.
Description: Project was implemented in 25 medical settings, located in 19 regions of Ukraine. 1400 HIV co-infected patients from KPs (73.5% of 1907 totally enrolled) received DAA-based HCV treatment, including 1360 (97.1%) on ART 70.3% (n=984) were men, median age 39 years (18-68).

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Treatment regimens included sofosbuvir+pegylated-Interferon+ribavirin 12weeks; sofosbuvir+ribavirin 12-24weeks; sofosbuvir+daclatasvir+/-ribavirin 12-24weeks; ledipasvir/sofosbuvir+/-ribavirin 12weeks.
Multi-disciplinary teams (MDT) consisting of doctor, nurse, social worker from local NGOs were operational at each Project site. Every enroller was covered with social support. Case managers served as a link to integrated services (HCV-HIV-TB diagnostics, treatment and opioid substitution therapy management, prevention of HCV re-infection).
Among 1400 HIV/HCV co-infected patients, 1373 completed full treatment course, 27 (1.93%) discontinued treatment (12 - adverse reactions; 8 - refused to continue treatment; 5 -non-related to HCV deaths; 8 - other). Treatment results are available for 1325 patients who were tested for HCV RNA at 12 weeks after end of treatment. 1261 (95.2%) patients achieved sustained virologic response (SVR12).
Lessons learned: KPs' high adherence to treatment is evidenced by few treatment discontinuations and high treatment success. Adherence indicator was conditioned by the patient-centred approach practiced by MDTs when delivering integrated services within community-based HIV/HCV treatment model.
Conclusions/Next steps: Implemented by Alliance innovative community-based HCV treatment model is regarded as paradigm of best practices and evidence-based solutions for HCV treatment policy decisions for HIV/HCV co-infected patients.

TUPED453

Understanding the burden of mental health among persons living with HIV in Northern Indiana, United States

H. Beidinger[1], A. Scott[1], D. Aragon[1], R. Ghiassedin[1], L. Hopper[2]
[1]University of Notre Dame, Eck Institute for Global Health, Notre Dame, United States, [2]AIDS Ministries/AIDS Assist, South Bend, United States

Background: Indiana has one of the highest rates of HIV and ranks as one of the worst states for mental health well-being. In collaboration with AIDS Ministries/AIDS Assist (AM/AA), HIV care organization, we need to determine the following in order to improve services:
(1) the prevalence of MHDx among PLWH,
(2) their mental health care seeking behaviors and
(3) the relationship between viral load status, mental health care seeking behaviors and type of mental health provider.
Methods: A cross-sectional, quantitative study was performed utilizing AM/AA's anonymized client database (N= 366). Variables included were: gender, race, ethnicity, MSM, viral load status (below 20 copies/mL of blood was deemed undetectable), MHDx, and mental health provider (was the client in the care of a licensed mental health provider).
Results: Of the 366 clients, 140 (38.3%) clients had a MHDx. Of the 140 clients, 110 (78.6%) clients sought mental health care (85 male; 25 female). A chi-square test revealed a significant difference in viral load status of those seeking mental health care and those who did not (p = .007). Those who sought care were more likely to have an undetectable viral load. There was also a significant difference in viral load status between those seeking care from a licensed mental health provider, seeking care from a non-licensed provider and those not seeking care (p=.028). Black MSM with a MHDx were more likely not to seek care (p = .037).
Conclusions: While many clients are seeking care for their MHDx, there remains a group that is not seeking care which may be negatively affecting their viral load status resulting in possible HIV transmission. However, because of the positive relationship between seeking care from a licensed mental health provider and an undetectable viral load, providing access to a licensed provider should be made a priority. The implications of this study are significant; access to a licensed provider is important for quality of life, more likely to achieve an undetectable viral load, and reduce HIV transmission.

TUPED454

First experience of viral hepatitis C screening, diagnostic and treatment in HIV-infected patients of the penitentiary sector

O. Burgay[1], E. Khaniukov[2], S. Filippovych[3], N. Nedashkovska[4], T. Gaborets[5], Z. Tsenilova[6], S. Antoniak[3], N. Ivanova[3], D. Marunko[3]
[1]ICF 'Alliance for Public Health', TPSM, Kyiv, Ukraine, [2]GFATM Head of PIU Center of Public Health Ministry of Health of Ukraine, Kyiv, Ukraine, [3]ICF 'Alliance for Public Health', Kyiv, Ukraine, [4]GFATM PIU Center of Public Health Ministry of Health of Ukraine, Kyiv, Ukraine, [5]The State Penitentiary Service of Ukraine, Kyiv, Ukraine, [6]ICF 'Alliance for Public Health', Treatment, Kyiv, Ukraine

Background: As of January 2018 prison population in Ukraine reached 57 456 with 6,7% HIV prevalence (3 830 HIV+ persons). No reliable data on the numbers of Hepatitis C virus (HCV)-infected patients in prisons in Ukraine was available till the end of 2017. HCV treatment was unavailable as well. With the support of the Global Fund to Fight AIDS, TB and Malaria HCV screening program in HIV+ prison population with further HCV diagnostic and treatment was first initiated in November 2017 by the Alliance for Public Health, Ukraine, and implemented in close cooperation with penitentiary sector.
Description: The main goal of the study was to create an algorithm of granting access to HCV screening, diagnostic and treatment to HIV-infected imprisoned patients. 1000 express tests were distributed to 23 penitentiary institutions. Screening was performed among HIV-positive prisoners by penitentiary service medical staff. 1000 HCV express tests gave 742 positive results (74,2%/). 139 random patients out of 742 with HCV positive antibodies results were further diagnosed for viral load (quantitive) and genotyping (G). Genotyping results distribution: 53 persons with G1a/1b; 6 persons with G2; 56 persons with G3, mixed G was detected in 2 persons, undetectable G in 22 persons. 50 available 12 weeks ledipasvir/sofosbuvir treatment courses were granted to the first 50 patients with G1a/1b in two penitentiary medical settings late December 2017. Treatment was prescribed and provided by the doctors from the hospitals mentioned, previously trained in HCV management.
Lessons learned: Results of the first ever HCV screening showed dramatic levels of HCV antibodies prevalence among HIV+ prison population in Ukraine. The model applied (HCV screening followed by HCV diagnostic and further HCV treatment) opened the window of opportunity for the prison population in Ukraine to get access to HCV testing, diagnostic and innovative short-course treatment with directly active antivirals.
Conclusions/Next steps: Implemented for the first time innovative model of HCV screening, diagnostic and treatment among HIV+ prison population of Ukraine is considered to be valuable evidence for filling in the challenging gap of the health care system in screening, diagnostics and treatment of HIV+ population co-infected with HCV in the penitentiary sector.

Human rights of people living with HIV and key and vulnerable populations

TUPED455

Accessing universal health care for all by 2030 - improving legal environments to ensure equitable access to HIV and SRHR services for young key populations (YKPs) in Africa

S.F. Ntshangase[1], M.G. Getahun[2], A. Saha[2]
[1]United Nations Development Programme, Health HIV Department (HHD), Istanbul, Turkey, [2]United Nations Development Programme (UNDP), HIV Health Department, Istanbul, Turkey

Background: Young key populations (YKPs) continue to face enormous challenges to access HIV and SRH services despite global and regional commitments. Data on YKPs remains limited resulting in poor planning

for YKP-oriented services including for HIV, STIs, teenage pregnancies, access to contraception, drug use, etc. and policies and legal frameworks for young people are not aligned with international and regional obligations.
Description: Recognising that a third of the population in sub-Saharan Africa are young people aged 10-24 years, the Government of Netherlands supports a project in 5 countries to
(a) harmonise their national laws and policies with international and regional commitments to enable them to improve access to HIV and SRH services for YKPs;
(b) strengthen capacity of YKPs as active participants in law and policy reform processes;
(c) assist SADC to develop inclusive guidelines to increase HIV/SRHR services among YKPs;
(d) create an environment conducive for legal reform; and
(e) to establish indicators to measure increased service uptake by YKPs in the region.
AMSHeR, HEARD and UNDP are implementing partners in this project in Angola, Madagascar, Mozambique, Zambia and Zimbabwe. Interventions include assessment of law, policy and national strategic plans, development of engagement scans for policy advocacy; capacity building of YKP groups on advocacy and policy change, and evidence-based research on access to SRH services for YKPs.
Lessons learned: Multisectoral advocacy approach resulted in the adoption of the SADC Key Population Strategy by Member States; SRH Scorecard developed to monitor KP interventions at national and regional level. Government, CSO and KP community capacitated on HIV, law and human rights resulting on a government led undertaking of Legal Environment Assessment; One LEA report finalised in Zimbabwe.
Conclusions/Next steps: Using a participatory multisector approach in the analysis of law and policies involving governments, key populations and CSOs is vital as it sensitises stakeholders on HIV/TB/SRH rights of YKP and builds national consensus on priority actions to be taken forward. Additionally, such approach creates a pace for dialogue and assists duty-bearers to change their perceptions on issues affecting YKPs and their access to services and justice.

TUPED456

Advancing human rights in the HIV response in Africa: The case of the report on HIV, law and human rights of the African commission on Human and Peoples' Rights

B.D. Nibogora[1,2], E. Durojaye[3,4], A. Bagona[4], P. Eba[4,5], H.-J. Kim[6]
[1]African Men for Sexual Health and Rights (AMSHeR), Law and Human Rights Advocacy Programme, Johannesburg, South Africa, [2]Global Fund to Fights AIDS, Tuberculosis and Malaria, Developing Country NGO Delegation, Geneva, Switzerland, [3]University of Western Cape, Dullah Omar Institute - Law Centre, Cape Town, South Africa, [4]African Commission on Human and Peoples' Rights, Committee on the Protection of the Rights of People Living with HIV and those at Risk, Vulnerable to or Affected by HIV (HIV Committee), Banjul, Gambia, [5]UNAIDS, Human Rights and Law, Geneva, Switzerland, [6]ARASA, Regional Advocacy, Windoek, Namibia

Background: Advancing human rights in the HIV response in Africa: The Case of the Report on HIV, Law and Human Rights of the African commission on Human and Peoples' Rights.
Methods: Following the adoption of Resolution 290, the Commission undertook a consultative process based on the terms of reference for the Study Report. Inputs were received from a wide range of stakeholders in a session held on December 1st, 2015 at the margin of the 18th International Conference on AIDS and STIs in Africa in Harare, Zimbabwe. The civil society voices emphasized that the study process needs involvement of civil society and other stakeholders. Between December 2015 and November 2017, five face-to-face consultations were held in Harare, Banjul, Durban and Abidjan, online submissions were opened for December 2016. Submissions of testimonies and technical inputs were received from United Nations experts, International NGOs and affected communities from all regions of Africa.
The report, with strong and unprecedented recommendations on human rights and key populations, was adopted on November 2017 by the Commission.
Results: The process demonstrated the potentials, benefits of a healthy collaboration between the Commission, the UN agencies, governments and civil society, including representatives of key populations in the development policy standards at the regional level. This multi-stakeholders' engagement model is commendable and allows for ownership, legitimacy and swift progress in policy formulation and implementation at all levels.
Conclusions: Through its inclusive and multi-stakeholder process, the report provides a strong model for engagement between African regional bodies, civil society and the UN on HIV-related issues. Country-focused initiatives were identified at the launch of the report to support the implementation of the bold recommendations to advance zero discrimination and rights for all in the HIV response.

TUPED457

Africa regional grant on HIV: Removing legal barriers - emerging results

D. Patel[1], D. Owolabi[2]
[1]UNDP, HIV and Health, Istanbul, Turkey, [2]UNDP, Istanbul, Turkey

Background: The Africa Regional Grant on HIV: Removing Legal Barriers aims to address human rights barriers faced by vulnerable communities in Africa, and facilitate access to lifesaving health care. The grant is the first of its kind and covers 10 countries, including Botswana, Côte d'Ivoire, Kenya, Malawi, Nigeria, Senegal, the Seychelles, Tanzania, Uganda and Zambia. The programme also works at the continental and regional levels with the African Union Commission and key Regional Economic Communities (SADC, ECOWAS, EAC) to promote alignment of national laws and policy with regional and international human rights commitments.
Description: The programme is supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria. UNDP is the Principal Recipient of the grant and implements in collaboration with four sub-recipients - the AIDS and Rights Alliance for Southern Africa (ARASA), ENDA Santé, KELIN, and the Southern Africa Litigation Centre (SALC) - with recognized expertise in documenting human rights violations, strategic litigation, advocacy and capacity-strengthening. The goal of the programme is to strengthen the legal and policy environment to reduce the impact of HIV and TB on key populations in Africa, including men who have sex with men, sex workers, transgender people, people who use drugs and prisoners.
Lessons learned: Now that the grant is in the third and final year of implementation, many results have been achieved. Sharing lessons across the 10 countries has proven invaluable in removing legal barriers. Specifically, the successes in strategic litigation in Kenya, Malawi, Botswana shows that integrated capacity strengthening of critical stakeholders (lawyers, judges, CSOs etc) in HIV/TB and human rights is key to preventing and addressing human rights violations of KPs; reinforcing the implementation of supportive laws and strengthening the evidence base for law reforms. Advocacy efforts have also resulted in integration of TG into NSPs, and adjudication for women living with HIV, and sex workers.
Conclusions/Next steps: To ensure sustainability, UNDP will follow up at both the regional and national levels including working towards institutionalizing such efforts in formal training institutes and curricula.

TUPED458

„Bringing science to justice": How advocacy in Sweden is resulting in modernising its HIV-related laws and prosecutions/sentences of people living with HIV

A. Berglöf
RFSU (The Swedish Association for Sexuality Education), Stockholm, Sweden

Background: Under the general criminal law of assault, people with HIV can be prosecuted for unprotected sex even when there was prior disclosure and when no transmission has occurred. Some shouldn't even have been prosecuted because of no risk of transmission. Especially so

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after the "Swedish statement" on infectiousness was published October 2013 that says that the risk of transmission of HIV from a well-treated person is minimal. With the Swedish statement the Supreme Court needs to come up with a new precedence.

Description: In 2010, RFSU partnered with RFSL and HIV-Sweden on a project that aimed to educate and inform politicians and the justice system on advances in HIV science, and the negative impact of overly broad HIV criminalisation on public health.

Since then we have kept fighting for that the unjust prosecutions and sentences of people living with HIV should stop. We have done so via debate articles in relevant papers and magazines. We have also had discussions with The Public Health Agency of Sweden, government officials and with people in the Parliament.

Lessons learned: In 2016 where a well-treated person with HIV was prosecuted despite no transmission, the person was acquitted in lower court and later on also in the court of appeal. For us it was very important to try and get this case all the way to the Supreme Court to get a new presedence. The Supreme Court eventually announced its decision to take the case. The case haven't been dealt with so far (February 2018) so we don't have the result from the Supreme Court yet.

Conclusions/Next steps: Even if the Supreme Court does come up with a new good and relevant precedence, we will keep on monitoring human rights for people living with HIV. The violations of people living with HIV takes place not only in court rooms, but also in society overall from time to time. Not least because there is still a lack of sufficient knowledge about HIV and how it is to live with HIV. It is getting better, but we are not yet there.

TUPED459

Utilizing African national human rights institutions in promoting and protecting the rights of key populations

N. Mokoena
ARASA, Cape Town, South Africa

Background: In most countries in the African region, the rights of key populations are often seen as
controversial. Key population groups often struggle to carry out their work because they work in criminalised settings. NHRIs can serve as key players in creating enabling legal environments to ensure access to affordable, accessible and quality HIV prevention, treatment and care services. NHRIs, due to their powers and mandates, have a duty to speak in defense of the rights of key populations.

Description: Recognising that National Human Rights Institutions (NHRIs) have a significant role to play in creating an enabling legal environment for HIV and TB prevention, treatment, care services for Key Populations, the AIDS and Rights Alliance for Southern Africa (ARASA) under the Africa Regional Grant on HIV: Removing Legal Barriers, has implemented a number of interventions and activities to strengthen the capacity of NHRIs in promoting and protecting the rights of key populations;

- Annual Regional Capacity Strengthening Meeting for NHRIs
- Media briefs for NHRIs focusing on the role of NHRIs in the HIV response
- National Advocacy meetings in Malawi and Kenya in collaboration with the NHRIs.

Lessons learned:

A. Regional Lessons learned: Key population groups were asked why they do not utilise complaint mechanisms put in place by NHRIs. A number of issues were identified:

(1) Lack of trust in government institutions
(2) Discriminatory attitudes by NHRI staff members
(3) Reluctance of NHRIs to speak out against human rights violations on key populations
(4) The (lack of) strength and influence of NHRIs

B. Collaborative partnerships: Two national meetings were organised by key population groups and NHRIs. The collaborative approaches formed a bridge between the NHRIs and the key populations, thus addressing the regional lessons stated above.

Conclusions/Next steps: NHRIs are perfectly placed to advise governments on laws and policies that serve as legal barriers to accessible HIV prevention, treatment and care. Strengthening the capacity of NHRIs, increases their capacity to advise governments on law review and reform. The Annual Regional Capacity Strengthening Meeting for NHRIs, will continue to increase the capacity and knowledge of NHRIs around HIV, TB and the law.

TUPED460

Facilitating access to justice for communities of people living with HIV in Kenya

T. Makokha[1], L. Ghati[2], A. Maleche[3], E. Makona[3]
[1]Kenya Legal and Ethical Issues Network on HIV & Aids, HIV & TB Thematic Area, Nairobi, Kenya, [2]Kenya Legal and Ethical Issues Network on HIV & Aids, Nairobi, Kenya, [3]Kenya Legal and Ethical Issues Network on HIV and Aids, Nairobi, Kenya

Background: Since 2012, Kenya Legal and Ethical Issues Network on HIV and AIDS (KELIN), with support from UNDP Kenya, has been implementing the project focusing on *Enhancing the legal environment for an effective HIV response*.

The project aimed at enhancing the legal environment for an effective HIV response in Kenya through:

(i) Strengthening capacities of legal professionals, law enforcement officers, judges, magistrates, healthcare workers, PLHIV, key affected populations, youth, religious leaders and traditional elders;
(ii) Improving access to justice and legal services by communities of PLHIV
(iii) Engaging in advocacy for change to HIV related law, policy and practices.

Description: Interventions of this project included:

§ Empowering lawyers on the link between HIV and human rights, and creating a pool of lawyers available to offer free legal services on HIV related cases. KELIN trained 233 lawyers in Kenya, 54% female and 46% male.

§ Development of a *compendium of cases* decided by the HIV and AIDS Tribunal as a documentation of HIV related cases, and raise awareness on violations facing PLHIV.

§ Sensitization of judicial officers on HIV since they are key players in the justice system through judicial dialogues and colloquium. A total of ninety one (91) judges and magistrates and one hundred and twelve (112) other judicial officers were sensitized through this project.

§ Public Interest Litigation to challenge government policies that violated human rights of PLHIV. One such case involved an unconstitutional presidential directive that would violate the right to privacy of children living with HIV.

Lessons learned: It is important to mobilize and empower communities of key and affected populations to ensure their direct involvement in influencing responses that address problems in the justice system.

Conclusions/Next steps: There is a need to support countries to take steps to strengthen legal frameworks to protect PL HIV and key populations. This is critical in promoting universal access to HIV prevention, treatment, care and support in keeping with international guidance and national human rights commitments.

TUPED461

Breaking the legal barrier for sex workers justice. Alternative dispute resolution grass root system for sex workers

S. Mwangi, J. Mtende, P. Mwangi
Bar Hostess Empowerment and Support Program, Program, Nairobi, Kenya

Background: Bar Hostess Empowerment and support program(BHESP), a woman led organization, being in the forefront in advocating for the human rights of sex workers in Kenya. Despite this effort, Sex workers continue to face significant layers of GBV/SGBV on account of repressive patriarchal structure, misogynist interpretation of law, culture and morality, stigma and discrimination, preventing them from accessing reproductive health service, HIV prevention and care and other social services.

One worrying report revealed by the Polling Booth Survey 2016 is that the proportion of FSWs who had experienced physical violence increased significantly from 44% to 48%.
Significant number of sex worker prefer giving of bribes rather than pursuing the case through litigation due to prolonged and tedious judicial processes in Kenya. With this fact BHESP started employing Alternative Dispute Resolution(ADR) which is a process for resolving disputes other than litigation.
Methods: BHESP has engaged the judicial service commission and government representatives from ministry of health in four progressive dialogues after presenting a proposal to them the urgency of strengthening the grassroots ADR system to reduce procedural delay of cases and assist speedily access to justice and support for SGBV survivors. These meetings were held with identified Judicial members, sensitized on special needs of sex workers as a means of lobbying. BHESP is making a case on GBV/SGBV response for sex workers in Kenya through breaking the legal barrier in ensuring that sex workers access justice.
Results: 27 incidences have been successfully resolved through grassroots Alternative Dispute Resolution (ADR) system. Members of Judicial service commission sensitized by BHESP have been very supportive in the effort of ensure that sex workers cases that are in court are handled without delay. Most sex workers have found this as the best option and sustainable way to address Human Rights Violations challenges they face day to day.
Conclusions: Removing legal barriers against sex workers in Kenya will be paramount to fully accessing of sex workers Rights. It is paramount to Creation of progressive jurisprudence which advances human rights for sex works. BHESP recommends that sex workers to seek redress for human rights violation in quasi-judicial bodies and courts.

TUPED462

Documenting sex workers' human rights violations in Kyrgyzstan Shah Ayim network

D. Bakirova, G. Sarybaeva
Shah-Aiym, Bishkek, Kyrgyzstan

Background: The goal of the project is to strengthen the advocacy platform of sex workers community and their allies to increase the effectiveness of counteracting violence, illegal law enforcement practices against sex workers and legislative initiatives that criminalize sex work.
Description: In Kyrgyzstan, adult sex work has been decriminalized since 1997. Based on the data of the first national survey „Observing the Human Rights of Sex Workers in the Kyrgyz Republic" 2012 supported by Soros Foundation Kyrgyzstan, Shah-Aiym network began documenting sex workers' human rights violations in 2013. Trained employees from the community and friendly lawyers were recruited for human rights violation documentation, counseling and support. The documentation data was used to prepare the Alternative Reports to the CEDAW Committee, to inform key agencies whose activities affect sex workers and are related to the implementation of international human rights obligations. Quarterly analysis of documented cases is distributed through e-mails to all NGOs in Kyrgyzstan, engaged in HIV, human rights NGOs, international organizations whose activities concern sex workers, rights and gender.
Kyrgyzstan´s experience in documenting sex workers' human rights violations is transmitted to members of Shah-Aiym network from other countries.
Lessons learned: Documented cases in Bishkek and Jalal-Abad:
In 2016 - 364 cases, in 2017 - 306 cases reported by 249 people (of which 11 are trans sex workers). Police officers are the main source of violence and human rights violations.
The main types of violations:
- arbitrary detention 89%
- money extortion 81%
- threat, blackmail and pressure 68%
- degrading and inhuman treatment 61%

Outcomes of detentions: sex workers who could not pay the police are registered on charges of petty misdemeanor or for disobeying police officers and are brought to court. Judges convict sex workers without reviewing the case.
Conclusions/Next steps: 1. Discriminatory application of administrative articles to sex workers represents the actual criminalization of sex work
2. To continue to document and collect data on violations and violence against sex workers in order to collect the evidence.
3. Advocate for the improvement of the legal status of sex workers in Kyrgyzstan at the national, regional and international levels.

TUPED463

HIV criminalization in California: Policing sex work and women´s bodies

A. Miyashita Ochoa[1], B.D.M. Wilson[2], A. Hasenbush[2], I.W. Holloway[1]
[1]UCLA Luskin School of Public Affairs, Department of Social Welfare, Los Angeles, United States, [2]UCLA School of Law, Williams Institute, Los Angeles, United States

Background: HIV criminalization laws target individuals living at the intersection of multiple oppressions. In California, women and people of color are disproportionately impacted by such criminalization. Additionally, almost all (95%) of those criminalized came under the felony targeting those engaged in sex work, or suspected of doing so, while living with HIV (Cal. Penal Code §647f). We sought to better understand whether trends in HIV criminalization were related to trends in the policing of sex work.
Methods: Data from 2005-2013 from the U.S. American Community Survey, California Department of Public Health, and California Department of Justice, including de-identified Criminal Offender Record Information (CORI), was analyzed. We compared CORI data for all individuals that were arrested under Penal Code §647f to general demographic data and frequencies of arrest for prostitution over the same time period. Inferential statistics were used to test differences between racial/ethnic subgroups.
Results: From 2005-2013, women made up 12 percent of the people in California living with HIV but accounted for 37 percent of those arrested for Penal Code §647f; Black women made up 4 percent of all HIV-positive women in California but accounted for an average 22 percent of the arrests for Penal Code §647f. Of all HIV-positive people living in California, Black women were the most overrepresented subgroup arrested under Penal Code §647f. Despite a decrease of overall number of arrests for sex work statewide, Black women made up an increasing proportion of those arrested in California. Across 2005 and 2013, Black women were arrested for prostitution at a rate of 11 to 14 times their rate in the general population.
Conclusions: Efforts of advocates led to the repeal of the felony solicitation law in California as of January 1, 2018. However, 30 U.S. states and over 70 countries still have criminal laws that target people living with HIV. Further attention must be paid to the impact of criminalizing HIV and sex work and the resulting policing of vulnerable communities. Understanding criminalization, and its role in underscoring societal bias and discrimination, is integral to understanding what may contribute to the rising rates of HIV especially among Black women.

TUPED464

Reacting to reality, using Rights-Evidence-Action (REAct) to support HIV response and take action on human right violations against KPs

R. Lusimbo[1], D. Wamala[2], P. Njanje[3], R. Paulo[4], C.D. Defferary[5]
[1]Sexual Minorities Uganda - SMUG, Research, Kampala, Uganda, [2]Icebrekers Uganda, Programs, Kampaa, Uganda, [3]ISHTAR, Kenya, Nairobi, Kenya, [4]Lambda, Maputo, Mozambique, [5]International HIV AIDS Alliance, Brighton, United Kingdom

Background: Human rights violations remain a harsh and persistent reality for KPs, including within the context of programmes for HIV and SRH. LGBTI communities face harassment, discrimination and violence, denying their fundamental rights and restricting their access to vital health services. Yet KP led organisations often lack a systematic and evidenced based way to document abuses, identify responses and advocate for change.

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Description: LGBTI organisations in Uganda, Kenya, Mozambique and Zimbabwe are using a Rights-Evidence-Action (REAct), a secure IT based human rights monitoring and response system owned by grassroots organisations. Focusing on the Ugandan experience, **Sexual Minorities Uganda and Icebreakers Uganda,** have since 2014 adopted safety and security measures in KP service delivery programming and used **REAcT to successfully** support and respond to community members affected right at the onset of the Anti-homosexuality act being passed. They documented evidenced-based human rights-related barriers, including gender violence, to accessing HIV and health services. SMUG has used the evidence generated to review and strengthen its human rights-based programming, such as with the introduction of *Know Your Rights* campaigns for LGBTI people. The data and case studies have also been critical for advocacy work. The ground-breaking publication *And That's How I Survived Being Killed,* was based on 264 violations conducted against the backdrop of the 2014 Anti-Homosexuality Act and on-going political and social oppression against community members.

Lessons learned:

· REACT has improved skills and human rights knowledge among KPs increasing their ownership to document and analyse to shape and demand action.

· REACT has generated an unprecedented body of evidence of the reality of human rights violations against LGBTI communities and its link to accessing HIV services, prevention, treatment and care.

· The importance of advocacy focused peer-to-peer support to LGBTI organizations in multiple African countries, offering a wealth of learning and practical experience.

· The importance of including safety and security on KP programming.

Conclusions/Next steps: REACT is a powerful and safe mechanism to empower KP led organisations, to inform human rights-based and HIV **programmes on treatment, care and support** as recommended by the UNAIDS. The REAct database provides a unique and powerful body of **evidence for advocacy.**

TUPED465

Provision of legal aid to key populations and people living with HIV in Eastern Europe and Central Asia - the case of the Regional HIV Legal Network

J. Macauley[1], R. Kumwenda[1], A. Mukanova[2]
[1]*United National Development Programme, HIV, Health and Development, Istanbul, Turkey,* [2]*Regional HIV Legal Aid Network, Kharkiv, Ukraine*

Background: Guided by work of the Global Commission on HIV and the Law, UNDP as UNAIDS co-sponsor works on protecting and promoting the rights of key populations at higher risk of HIV (KP). EECA is the only region that did not achieve MDG 6, and continues to experience a growing epidemic[1]. Only 28% are on treatment, and in many cases punitive laws and policies continue to fuel stigma towards KPs, driving them away from health seeking behaviors. The SDG-framework guiding principle to *"leave no one behind"* creates opportunities to re-invigorate the AIDS response.

[1] UNAIDS 2017 Factsheet Update - http://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf

Description: In 2012, UNDP supported establishment of the Regional HIV Legal Aid Network and its work to remedy the lack of legal services for PLHIV and KPs. It unites organisations, lawyers and activists to provide legal aid.

Lessons learned: The network serves as the umbrella organization for 36 members in 10 EECA countries. In 2017, through its online platform received 78 requests from KPs requesting legal support compared to 64 in 2016. Its website was visited 23,150 times compared to 22,979 visits in 2016. 71 strategic litigation cases were successfully supported by members in 2017.

The Network offers a range of legal services - from brief consultations to full legal representation. Many clients often require minor legal assistance and information about their rights. Many organisations provide training for legal professionals and healthcare workers on the effects of stigma, discrimination and rights violations towards PLHIV and KPs, and their consequences for public health. Members have different structural models and approaches. Some employ full-time legal professionals, others contract private firms/lawyers to provide services as needed. It is important to ensure that potential clients are made aware of these services to increase up-take.

Conclusions/Next steps: The Network is a novel platform, which contributed to the development of strategic litigation cases leading to precedents and further protection of the rights of PLHIV and KPs.

Scaling-up geographic coverage and thematic scope is important. Cross-regional discussions with legal-aid organizations in Africa and Arab States initiated in 2017, will open channels for inter-continental initiatives, activities and lessons learnt to leave no one behind.

TUPED466

Human rights barriers to access TB and TB/HIV perceptions by mine workers in 10 Southern Africa Countries (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zimbabwe and Zambia)

L. Busang[1], B. Fidzani[1], B. Mbambo[2], M. Ndhlalambi[3], J. Mafeni[4], F. Mwangemi[5]
[1]*ACHAP, DREAM, Gaborone, Botswana,* [2]*Aquity Innovations, Pretoria, South Africa,* [3]*World Bank, Pretoria, South Africa,* [4]*ACHAP, Administration, Gaborone, Botswana,* [5]*ACHAP, Programmes, Gaborone, Botswana*

Background: It is reported that "the mining industry is among southern Africa's largest employers. In such an environment, it is expected that Human Rights and Gender issues will be amongst the key challenges faced by this industry particularly concerning access to health. The objective of this Survey was to identify the human rights and gender barriers to accessing to TB, TB/HIV and occupational lung diseases by mine workers their families in ten (10) Countries of Southern Africa Region (Botswana, Namibia, South Africa, Swaziland, Lesotho, Zimbabwe, Zambia, Tanzania, Malawi and Mozambique).

Methods: This study was a regional cross-sectional survey of miners. Probability proportional to size criteria was used to distribute miners by country, mineral and mine size. The target sample size for current miners was 1,068. Data Management was done in CSPro while data analysis was done using SPSS. Clearance approval was applied for and received in each respective country Ethical Review Boards/committees except in Mozambique which was then dropped.

Results: Only 12.0% of miners were female. Lesotho had the highest proportion of females in mining at 22.6%, while Tanzania had the lowest (3.4%). Unavailability of comprehensive package of services (44%), was the main barrier followed by service providers' attitudes (38%), long waiting times (38%) and overcrowding (32%). In addition, where services were available, access became a barrier due to distances, costs, service acceptability and relevance. When respondents were asked if TB treatment is accessible, only 25.8% said yes.

Conclusions: Quality of services in general is a barrier to accessing TB, TB/HIV and occupational lung diseases services in the mines. This therefore requires that existing health care services to miners should be periodically assessed for availability, accessibility, acceptability and their quality. Governments should consider provisions for health insurance systems that would help decongest public facilities, but also affordable. Funders, Mine Unions and Civil Society Organizations in the region should recognize and prioritize TB in the Mining Sector as a critical gap that needs and deserves prioritization given that TB ultimately affects the general population.

TUPED467

Long overdue: HIV-related discrimination in immigration and the need to repeal the "excessive demand" regime

S.K.H. Chu[1], M. Tomlinson[1], M. Johnston[2], A. Smith[3], R. Elliott[1]
[1]Canadian HIV/AIDS Legal Network, Toronto, Canada, [2]HIV & AIDS Legal Clinic Ontario, Toronto, Canada, [3]Jordan Battista, Toronto, Canada

Background: Since before Confederation, Canada has excluded immigrants with disabilities, beginning with a prohibition on admitting persons with disabilities who were believed to impose financial burdens on the state or charities. Similarly, today's *Immigration and Refugee Protection Act* stipulates that foreign nationals are inadmissible to Canada if their health condition, or that of a family member, might reasonably be expected to cause an "excessive demand" on health or social services. Due to the high cost of HIV medications, people living with HIV are generally medically inadmissible.

Description: Human rights advocates, immigration and HIV organizations, and people with disabilities have long argued that the "excessive demand" regime is discriminatory, rooted in the outdated idea that people with disabilities are a burden on Canada, and unjustifiably violates the human rights of newcomers with disabilities. This prompted Canada's Parliamentary Committee on Citizenship and Immigration to study the law, during which advocates for people living with HIV described the regime as a complex and dehumanizing process that reduces people living with HIV to the cost of their medications. Advocates also questioned the government's cost-savings estimates and described how HIV-related discrimination in immigration violates Canada's obligations under international human rights law.

Lessons learned: During the study, the Immigration Minister acknowledged that the excessive demand regime "simply does not align with our country's values on the inclusion of persons with disabilities in Canadian society." Committee members also learned that numerous countries do not have any laws or policies that deny migration based on health status, the excessive demand regime undermines many of the objectives of Canada's immigration legislation, and the regime is rife with operational flaws.

Conclusions/Next steps: In December 2017, the Committee released its study recommendations, in which it emphasized "the dignity and human rights of those applying to enter Canada play a central role in the selection of a policy path forward" and recommended an historic repeal of the excessive demand regime. While the recommendation is a tremendous first step, a repeal of the discriminatory provision is long overdue and advocates must continue their work to ensure parliamentarians heed this recommendation.

TUPED468

When health systems collapse: Strengthening the advocacy and accountability role of people with HIV in Venezuela

A. Nieves[1], M. Torres[2]
[1]Acción Ciudadana Contra el SIDA (ACCSI), Caracas, Venezuela, [2]ICASO, Toronto, Canada

Background: In the last five years, Venezuela has lost 1/3 of its GDP and inflation rates have reached 1,600%. Economic collapse has made accessing medicines impossible for most. As a result, the number of AIDS-related deaths has risen nearly 75% since 2011. In this context, with support from ICASO and UNAIDS, a project was launched to strengthening the leadership of the Venezuelan Network of Positive People (RVG+), increase the evidence-base of Venezuela's health crisis, and improve advocacy for health service delivery.

Description: The 1-year project had three phases:
(1) Training;
(2) Monitoring;
(3) Advocacy.
In the Training Phase, multi-stakeholder consultations assessed the state of the crisis (including human rights violations). During the Monitoring Phase, tools were designed and implemented in 39 health centers across 12 states, gathering information on health infrastructure, human resource gaps, and ARV stock-outs. The results were analyzed and published. During the Advocacy Phase, RVG+ discussed the reports with high-level health authorities and UN-agencies. A social media campaign was targeted at the Minister of Health. Technical and financial support was leveraged from a network of international NGOs.

Lessons learned: The project enabled activists living with HIV to be leaders in the process of building peer knowledge, identifying problems affecting HIV services, and developing evidence-based reports and advocacy strategies. Activists revealed a 100% stock-out rate of ARVs, OI medicines, HIV test-kits, and viral load monitoring reagents. Health infrastructure is in critical condition, staffed with insufficient personnel. But, the project is also a success story. Linked to the project's data-driven advocacy, short-term supply of ARVs for 15,000 people was secured through the international community. The resilience of communities working in challenging operating environments was also highlighted. They faced and overcame fears of constant attacks, reprisals and threats from the government, ultimately achieving progress for their community.

Conclusions/Next steps: This project revealed that the Venezuelan government continues to violate human rights of people living with HIV, rooted in its persistent denial of the collapse of the public health system and refusal to receive aid. In this context, it is imperative that international agencies and organizations continue to invest in community-led solutions.

TUPED469

After the repeal: Prosecution of HIV exposure after the removal of specific offences in Colorado, USA and Victoria, Australia

J. Manwaring[1], P. Kidd[2,3]
[1]Department of Health and Human Services, Melbourne, Australia, [2]HIV Legal Working Group, Melbourne, Australia, [3]La Trobe University, La Trobe Law School, Melbourne, Australia

Background: The use of HIV-specific criminal offences to prosecute people living with HIV (PLHIV) has been extensively criticised, and achieving repeal of such laws has been a target of sustained advocacy in many countries. Following extensive grassroots advocacy campaigns, HIV-specific criminal laws were repealed by the legislatures of the Australian state of Victoria (2015) and the US state of Colorado (2016). PLHIV still face possible prosecution in both jurisdictions under other, unrepealed, laws however, which raises the question of the degree to which these repeals have alleviated the burden of HIV criminalisation.

Methods: The repeal of HIV-specific criminal laws is argued to be a significant step in reducing HIV stigma as well as having practical benefits for people who might otherwise face criminal prosecution. We compared the frequency of charge/prosecution and the range of sentences in the pre- and post-repeal environments in the two jurisdictions.

Results: A review of pre-repeal prosecutions shows the laws were in fact infrequently charged or prosecuted. When compared to prosecutions that have occurred since reform, under substitute offences, there appears to be no significant change in the frequency of charge or prosecution. Our analysis suggests police and prosecutors may instead be increasing prosecutions of HIV-related cases under general provisions that were previously unutilised. In Victoria, there has been a problematic increase in prosecutions under a provision that criminalises procurement of sexual penetration by fraud.

Conclusions: The repeal of HIV-specific offences, while a worthwhile goal, may have little practical utility beyond stigma reduction. It may have the perverse effect of increasing prosecution under substitute offences, as penalties are less than before. It may also see prosecutors utilising other provisions that are difficult to monitor in regard to HIV because they are not specific to the virus. Continued monitoring of arrests and prosecutions under the new provisions should continue, to provide an accurate understanding of the long-term impact of law reform.

TUPED470

Advocacy for preventing violence against PLHIV and PWUDs among law enforcement, civil society, religious leaders and family members

W. Muhammadi
OHRA, Hardm Reduction & HIV Prevention, Chelsetoon, Afghanistan

Background: Afghanistan is among one of the countries that produces more than 90% of the world's opium, that shows it is also among the countries that are more likely at the high risk of HIV and BBDs. Drug use and crime both have a direct relationship which cannot be avoided, although it is a crime to manufacture, distribute and possess drugs in Afghanistan, but due to high demand of drugs by PWUDs and the high rate of drug production, it is almost impossible to prevent the drug use, directly resulting on user's negative behavior by generating illegal activities that causes people and members of communities performing violence against them.
Methods: A research conducted by OHRA's advocacy team in 2017, concluded the violent cases performed on PWUDs by people in Kabul hotspots, mostly in (Pol Sokhta, District #6). A number of 100 questionnaire distributed and interviews were conducted with PWUDs by outreach team. The aim of the following interviews was to collect the data of violence acted on PWUDs in one month.
Results: The collected data from 100 questionnaires showed 40% of different types of violence against PWUDs acted by community members, religious leaders, Law enforcement and family members. OHRA conducted regular awareness raising campaigns throughout 2 months for 400 individuals from community members, law enforcement, family members, religious leaders etc.
After the campaigns, OHRA team distributed another Questionnaires and collected data from 100 more PWUDs on the same target area which shows a result of 28% violence against PWUDs, resulting a 12% decrease in violence cases comparing to the data collected before the campaigns.
Conclusions: The surveys finding shows that by conducting awareness raisings and advocacy campaigns for the rights of people who use drug, could be an effective tool for preventing violence against PWUDs and PLHIV.

TUPED471

"Global advocacy to end Duterte's war on people who use drugs in the Philippines" - the first won battle

B. Gurung, A. Chabungbam, R. Kafle
Asian Network of People who Use Drugs, Bangkok, Thailand

Background: In June 2016, the world witnessed the beginning of the Philippines war on people who use drugs under President Duterte's regime. In a year, over 13,000 people - many of them children - ostensibly suspected of using or selling drugs were brutally killed. It destroyed millions of lives of people who use drugs, including thousands who are imprisoned and the families and children of those who were killed.
Amid such crisis, numerous games were made available through Apple App Store that promoted the war on people who use drugs in the Philippines. Some of the games had over a million download. The Asian Network of People who Use Drugs (ANPUD) led a global petition demanding Apple Incorporation's CEO to urgently perform a formal review and remove all the apps.
Description: A call for sign-on page was developed on the ANPUD website and extensive use of social media and other online platforms was made. The petition aimed for a global coverage. ANPUD coordinated with the global, regional and national networks/organizations in the whole process. On October 10, 2017, the letter was submitted to the Apple CEO and made public in a media release.
Lessons learned: The petition was endorsed by 131 organizations, including community, human rights and drug policy reform organizations from across 35 countries globally. The media release was featured by CNN Philippines, BBC, Philstar, Reuters, Inquirer, ABS CBN News and many others, with global coverage.
Apple removed most of the games from their app store. A case study of the advocacy effort was developed and disseminated to inform and inspire more community-led advocacy at different level. The case study recaptured attention of wide range of online media.
Conclusions/Next steps: The petition was one of many advocacy efforts against Dutere's war. It brought the Philippines human rights crisis back into the attention of the global community. The achievement was more than the removal of apps in that this collaborative approach made by ANPUD brought the activists, organizations and media from around the world together. The Philippines drug war continues and only global unity can put an end to it.

TUPED472

Organizing PLHIVs on ART for collective advocacy: Assessing its impact on the human rights, participants and the environment in urban India

R. Singh[1], P. Varma[1], P. Prabhughate[1], R. Verma[1], S. Schensul[2]
[1]*International Center for Research on Women (ICRW), Navi Mumbai, India,* [2]*University of Connecticut, Community Medicine, Hartford, United States*

Background: Interventions to change knowledge, attitudes and behavior that negatively affect the health and mental health status of persons living with HIV (PLHIV) have largely focused on providing individual education, counseling, group mobilizations and clinical care. This paper describes the testing of a less utilized approach; the organization of PLHIV to collectively address structural barriers and issues of human rights.
Methods: The research and intervention described in this paper is drawn from a US National Institutes of Health-funded study (2014-2019) focused on male PLHIV treated at five ART Centers in greater Mumbai who have habit of consuming alcohol. Three centers were randomly selected for experimental interventions that consist of individual counseling, group interaction and collective advocacy with two centers as controls; a total sample of 940 (188 from each center) was recruited. The collective advocacy intervention consisted of six, two-hour sessions conducted on monthly basis with a group of 10-15 PLHIV on ART and CST centers. The curriculum covered the benefits of collective action, promotion of human rights, selection of a structural issue of stigma and implementation approaches to collective advocacy.
Results: An extensive survey instrument was administered at baseline and follow-up in year gap to assess the impact of collective actions on the participating PLHIV. In comparison with the PLHIV in the two control centers, those who participated in collective action showed improve reported alcohol drinking frequency, less reasons for drinking ($p < .001$), less experiences with external stigma ($p = .01$) reduced self-stigma ($p < .001$) improved CD4 count, reduced viral load and risky behavior. Qualitative process data showed better response from public service sector on PLHIV rights, expanded social networks, improved relationship with spouse and family and a greater sense of collective capacity to affect change.
Conclusions: The results indicate that collective advocacy not only play a complimentary role in human rights, but also promote environmental change and individual empowerment.

TUPED473

Study of the key open national data aimed at improving the quality of programs for PLHIV / PWUD, CSW and MSM implemented jointly by NGOs and government authorities

S. Uchayev[1], E. Korotkova[2], D. Mahmudova[3]
[1]*PLWH|/PWUD, NGO Ishonch va Hayot, Tashkent, Uzbekistan,* [2]*WLH, NGO Ishonch va Hayet, Tashkent, Uzbekistan,* [3]*Sociologist, Tashkent, Uzbekistan*

Background: As of 01 January 2016, 32 967 people living with HIV (PLHIV) and 13 186 under ART were registered in Uzbekistan. Less than half of PLHIV reached viral suppression, half of PLHIV are not covered by treatment.
To reach the 90-90-90 objectives a transition plan has been approved to implement ART for all patients regardless of the immunosuppression

level by 2018. For the plan to be effectively implemented a quality analysis of regulatory framework and the needs of key groups is required.
Methods: Overview of secondary data - laws, national plans, protocols, resolutions, etc. in HIV/AIDS context. Five in-depth interviews (20 persons) and 2 focus groups (10 persons each) with representatives from communities of PLHIV and key groups (KG) from government institutions, specialists and key informants.
Results: Present day legislation on HIV/AIDS prevention generally complies with international standards. The state declares involvement, transparency and responsibility of political resolutions on HIV problem through coordinated efforts of all society spheres. However international standards change rapidly and new Uzbekistan laws fail to keep up. Low tolerance towards PLHIV is still observed in the society in general as well as within professional communities. This is due to generally low level of population awareness about HIV. Such key needs of KG as syringe/needle exchange points, distribution of alcohol wipes and contraceptives, information materials, express testing, counselling, referrals are not satisfied.
Conclusions: Owing to the survey of PLHIV/KG community we were able to identify dimensions for development of Strategic Action Plan.
1. Change of regulatory framework through direct participation in the dialogue with decision makers.
2. Acknowledgement of existence of special needs of PLHIV and key groups and alignment of standards for services to PLHIV and KG with WHO recommendations.
3. Ensure tolerant treatment of PLHIV and KG through implementation of de-stigmatization programmes with the general public and professional community.
Programmes for prevention, harm reduction, care and support need to be reinforced through the Makhalley network public fund financed by the state and involved in prevention activities and services at all levels with involvement of key groups.

TUPED474

Women, ART and the criminalization of HIV non-disclosure (WATCH): Mapping criminalization's creep into the health and social care of women living with HIV in Canada

J. Cotnam[1], S. Greene[1], A. Ion[1], L. Birungi[1], K. Dunn[1], M. Frank[2], S. Glum[3], R. Gormley[2], M. Muchenje-Marisa[4], V. Nicholson[2], J. Odhiambo[1], K. Shore[1], A. Symington[5], A. Kaida[2]
[1]McMaster University, Hamilton, Canada, [2]Simon Fraser University, Vancouver, Canada, [3]Saskatoon Health Region, Positive Living Program, Saskatoon, Canada, [4]Women's Health in Women's Hands Community Health Centre, Toronto, Canada, [5]Pro Bono Students Canada, Toronto, Canada

Background: People living with HIV in Canada are legally obligated to disclose their HIV status to sexual partners in specific circumstances under the *Criminal Code*. In Canada, the criminalization of HIV non-disclosure falls under sexual assault law and consequently stigmatizes people living with HIV while disregarding the realities of women's lives. The WATCH study explored how the socio-legal context in which women can be criminalized for not disclosing their HIV status to sexual partners impacts their sexual and familial relationships, and their interactions with legal, health, and social services.
Methods: WATCH is a participatory arts-based research study. Seven Body Mapping workshops with 48 women and trans women across 4 Canadian provinces were co-facilitated by peer researchers (women living with HIV). Utilizing a variety of art materials, women visually expressed experiences of the impact of the criminalization of HIV non-disclosure on their everyday lives. Sharing circles were co-facilitated for the purpose of sharing and recording each women's unique criminalization of HIV narrative. Narratives underwent a process of participatory thematic analysis.
Results: Women expressed concerns about the criminalization of HIV non-disclosure in the context of historical and current experiences of HIV stigma and other marginalized social positionings. Women identified concerns about how the law characterizes them as sexually deviant and does not account for their commitments to cultural, personal and social responsibilities. Connections were made between the stigma inherent in the criminalization of HIV non-disclosure and other experiences of HIV stigma including access to health and social services. Concerns about having a sexual relationship raised fears about how the law could be applied in circumstances outside of the current legal precedent.
Conclusions: WATCH illuminates how legal obligations to disclose one's HIV status uniquely impacts the lives of women living with HIV in Canada. Importantly, the law positions women living with HIV as irresponsible, which perpetuates stigma and increases surveillance in all aspects of their lives. Canadian women living with HIV and their advocates require global support for legal reform.

TUPED475

Thorny track to teens' wellbeing: findings from an HIV and SRHR baseline study conducted among adolescents most affected by HIV in Uganda

D. Bitira William[1], G. Caswell[2], C. Kihara[3], E. Dyke[4], M. Cassolato[5],
Adolescents Selling Sex, Living with HIV, Using Drugs
[1]Community Health Alliance Uganda, Monitoring, Evaluation and Learning Manager, Kampala, Uganda, [2]International HIV/AIDS Alliance, Programs, Cape Town, South Africa, [3]International HIV/AIDS Alliance, Programs, Brighton, United Kingdom, [4]Advisem, Consultant, Edmonton, Canada, [5]International HIV/AIDS Alliance, Programs, Brighton, United States

Background: Adolescents most affected by HIV face many barriers accessing healthcare. 44-54% adolescents 15-19 years old ever tested for HIV. New HIV infections, lifelong ill-health, AIDS-related deaths higher among teenagers.
READY Teens project empowers adolescents most affected by HIV to make healthier life choices and demand their sexual and reproductive health rights. The abstract presents findings from baseline study that informed and shaped READY HIV and SRHR programming in Uganda.
Methods: CHAU, Advisem, International HIV/AIDS Alliance conducted quantitative and qualitative baseline study in two rural Ugandan districts between January-May 2017. Purposively selected four health centers, six hotspots as study sites.
Survey obtained quantitative data from 190 adolescents (10-19 years) living with HIV, selling sex, using drugs; employed cluster and systematic sampling; structured questionnaire.
Conducted 15 key informant interviews, 8 focus group discussions with adolescents, parents, health workers, community leaders. Stata and Nvivo used for data analysis.
Results: 78.9% respondents attained upto primary school education. 54.7% adolescents have comprehensive knowledge about HIV prevention; lower proportion (43.4%) among 10-14 than (59.1%) 15-19 year. 59.8% adolescents satisfied with HIV/SRHR information they received; less (54.2%) among girls than (66.7%) boys; 10-14 (47.2%) than (78.1%) 15-19 year. 71.6% adolescents are confident and hardly influenced on HIV/SRHR issues; lower (70.7%) proportion of girls than (72.5%) boys, half (41.5%) among 10-14 as (83.2%) 15-19 year.
Community leaders' perceptions of teenagers, parents' beliefs about adolescent sex education; health workers' attitudes towards teens' right to HIV treatment information are negative. Health workers' lack of confidentiality and privacy were barriers to adolescents accessing health services.
Conclusions:
· Half of adolescents have comprehensive knowledge about HIV prevention. HIV and sexuality education needs to be tailored to especially most affected adolescents with little education.
· Negative beliefs and perceptions impede adolescent HIV/SRHR programs. Dialogues to promote positive HIV/SRH influence in families, communities and facility level are required.
· Adolescent-friendly services are key for teenagers' security and satisfaction. Need for sustainable adolescent-friendly integrated HIV/SRHR services at family, youth support group, health facility, school levels.
· Adolescents should be more empowered to increase their confidence and resilience on HIV/SRHR issues, adopt healthier choices, practices, behaviours and to demand for their rights.

TUPED476

Preserving human rights through involvement of the community, judicial system and law makers

A. Karisa, T. Abdulrahman
Reachout Centre Trust, Harm Reduction, Mombasa, Kenya

Background: Most People Who Use Drugs (PWUDs) in Kenya have been discriminated and stigmatized hence have been living in an isolated areas e.g. Streets, drug dens and parks and involve in criminality and sex work as their primary means for survival. Hence have been the targets of neglect, arrests by county Inspectorate and national police service units, harassment and mob justice by the community.
Description: It's estimated that Mombasa has 3000 People Who Inject Drugs (PWID) who contributes 18.3% HIV prevalence for PWIDs in Kenya. 70% of all cases reported yearly at the county Law courts are related to drug use, 225 cases of violence, 41 cases of mob justices& 8 cases of death as a result of mob justice were reported at Reachout since 2016 to November 2017. From January 2016 to November 2017, Reach out Centre Trust (RCT) engaged the judicial system through a Justice Actors conference where 70 Judges, magistrates, lawyers, law enforcers, probation and civil society organizations were brought together under the theme clemency for social justice for PWUDs.140 Law enforces and 20 members of the county Assembly on Health were sensitized on Harm Reduction and social inclusion Health rights. RCT raised community awareness through 96 radio talk shows, 5public bazaras, and 40health workers, 15 religious leaders and 230 family members on Human rights for PWUDs. RCT organized Media Awards, where 23 media fraternity participated in Positive reporting on Harm Reduction and Drug Policy reform.
Lessons learned: Through the training and sensitization of law enforcers and the judicial system, 600 cases of petty crimes related PWUDs were given alternative sentence through the community service order.100(both MAT clients &PWUDs) cases were intervened by RCT Paralegals and released at the police cells. RCT has a representation at the Court Users Committee and Discharge Board Committee in prison .All sentenced MAT clients access MAT services and treatment without hindrance Media fraternity partnered with RCT in advocating for Harm Reduction and drug policy reforms in Mombasa.
PWUDs accesses heath care with minimal assistance.
Conclusions/Next steps: There need to change the narcotic drugs and psychotropic substances act 1994 and the existing by- laws of the Mombasa county.

TUPED477

Assessment of the protection needs of key refugee populations in access to health and other services

K. Ordek[1,2,3], Y. Selcuk[4], C. Harmanci[5], S. Ilaslaner[1], G. Yildirimkaya[6], F. Hacioglu Saridag[6]
[1]Red Umbrella Sexual Health and Human Rights Association, Ankara, Turkey, [2]SWAN Foundation for the Rights of Sex Workers in Central-Eastern Europe and Central Asia, Budapest, Hungary, [3]International Committee on the Rights of Sex Workers in Europe, Amsterdam, Netherlands, [4]Social Policies, Gender Identity and Sexual Orientation Studies Association, Istanbul, Turkey, [5]Positive Living Association, Istanbul, Turkey, [6]UNFPA, Ankara, Turkey

Background: Key refugee populations (KRPs); namely LGBTI people, sex workers and PLHIV in Turkey, experience high levels of stigmatisation, discrimination and violence which hinders their access to all forms of services;such as, health, protection, housing, justice/redressal, etc. Protection needs of KRPs are invisibilised and not served by public or other institutions.This situation increases the risk of HIV and other STIs against KRPs. Health as well as human rights situation of KRPs are negatively impacted on.
Description: UNFPA Turkey, in collaboration with Red Umbrella, SPoD and Positive Living Association, carried out a joint project between January - December 2017, to assess the needs of KRPs and to provide services to them. Outreach work in Istanbul and Mersin was carried out towards LGBTI, sex worker refugees and refugees who live with HIV in order to share information on the services they need, to refer them to services and to further gather data on their needs especially in relation to SRHR. Within the scope of this project, partners have reached out to 1000 KRPs members, through outreach work, legal counseling and psychosocial support.
Lessons learned: - KRPs are systemtically excluded from all forms of services, including SHR services.
- KRPs do not have Access to information on specific health services; such as HIV/AIDS and STIs testing, counseling and treatment.
- KRPs have higher burden of HIV in comparison to the host community. Therefore, programs must be designed in accordance with the specific sensitivities and needs of KRPs.
- Advocacy intervention programs must be designed and implemented through direct involvement and ownership of KRPs members in order to better the overall human rights and health situation.
Conclusions/Next steps: Partners have decided to empower KRPs through service provision, outreach and advocacy in order to strengthen their capacities to access to information and services in 2018. As next steps, the partners will establish 5 service units in Istanbul, Ankara, Eskisehir and Mersin where legal counseling, PSS support, HIV counseling, SGBV counseling, referrals will be provided to beneficiaries (11000 refugees in total in 2018). Advocacy workshops with local stakeholders (health service providers, public officials, local administrations, NGOs, etc.) will be organized.

TUPED478

Migratory status, gender and HIV/AIDS Continuum of Care Navigation Experiences among Hispanics immigrants in Puerto Rico

M. Rivera Diaz[1,2], A. Suarez[3]
[1]University of Puerto Rico, Social Sciences Research Center, San Juan, Puerto Rico, [2]University of Puerto Rico, Clinical & Translational Research, San Juan, Puerto Rico, [3]City Math de Puerto Rico, San Juan, Puerto Rico

Background: Longer delays in the diagnosis of HIV, treatment interruptions, and lack of health care access could influence AIDS disease progression and increase new HIV infections. There is lack of research to understand barriers that keep Hispanics immigrants from successfully navigating the HIV/AIDS continuum of care, specially in the US owned territory, Puerto Rico (PR). This is the first research on the Continuum of Care outcomes among the growing immigrant population living with HIV in this Caribbean island.
Methods: The aims are: To identify and characterize differences in the HIV/AIDS continuum of care experience between Dominicans of varying migratory status and genders. Specially differences on:
a. HIV/AIDS diagnosis and link to care;
b. retention/engagement in HIV/AIDS care;
c. access to prescribed HIV/AIDS antiretroviral therapy &
d. achieved viral suppression.
An exploratory and descriptive national cohort study on data from immigrants receiving HIV/AIDS services through Department of Health, Ryan White Program (RWP) in HIV/AIDS Clinics of PR during the period of January 2010 to December 2016 was conducted. Data was obtained from the PR HIV/AIDS Surveillance System, and matched with RWP, Part B database of patients in care and validated with the case management component to analyze the navigation's outcomes at each step of the continuum of care and late diagnosis. Associations with gender and migratory status were applied.
Results: Among 77 Dominican immigrants diagnosed with HIV/AIDS during the period of 2010 to 2016, 62% were linked to care, 71% of those were retained in care, 97% of those were on ART, of whom 88% achieved suppression of VL (< 200 cp/ml). For non-authorized immigrants diagnosed, only 53% were linked to treatment and 27% achieved viral suppression. Statistical significances differences suggest that non-authorized Dominican immigrants show lower success linking to care (p=0.03), retaining in care (p=0.01), in ART (p=0.00) and achieving viral suppression (p=0.01).
Conclusions: No statistical significance difference was observed between gender and the different phases at the continuum of care. Despite USA federal government efforts to link Hispanic immigrants to their HIV/

AIDS continuum of care, immigrants still show lower success navigating the HIV continuum of care in PR, especially for non-authorized Dominican immigrants.

TUPED479

Showing the problem in Perú: We create an app to complaint the lack of antitetroviral drugs

M. Castillo Castro[1,2], J.L. Ppati Izaguirre[1]
[1]Sí, da Vida, Lima, Peru, [2]GIVAR, Lima, Peru

Background: Since 2004, peruvian goverment offers HIV´s treatment for free in several national hospitals. Today, this service benefits around 47,000 people living with HIV. However, during last years, the lack of medicines for this illness became a great problem, due the patient´s fear to complaint about that. So, in 2010, we created the group of organization named GIVAR, as a response of this crisis, picking up information in order to probe the lack of antiretroviral medicines.
The result was a better relationship between the authorities and the society´s organizations. Also, the population´s mind about complainting was changed, due the patients now have a real knowledge about their rignts.
Description: Because of the increasing number of cell phones and the low cost of internet service in my country; last year, GIVAR developed the app called DENUNCIA GIVAR, as a support tool that improves the website for complaints. This app is free and can be downloaded to android cell phones. The users have 4 ways to complain, according to the nature of their case. On the other hand, DENUNCIA GIVAR allow them to probe the outrage by showing pics or videos, recorded by the acusser.
So far, it has been reported around 700 complaints by Givar. Twenty of them were possible thanks to the app.
Also, DENUNCIA GIVAR have a virtual pill box that provides the users a schedule for monitoring the antiretroviral dosis.
Lessons learned: The revelation of the shortage, based on arguments and statistical data, alows the society negotiate with goverment and improve the supply of medicines. Society´s Watchfulness and goverment attention, must be supported by technologic tools, mobilization of society and media campaigns in order to diffuse the patient´s rights.
Conclusions/Next steps: DENUNCIA GIVAR is the only enterprising action from the society to watch the complet and real supply of antiretroviral medicines in Perú. One of the achievements is the benefit of 61 babies, whose mothers are living with HIV. So, they could obtain infant formula milk, after a regulation of the goverment denies them that product. The achievement alows the mothers to save 400 dollars per month to feed their children.

TUPED480

Delivering legal interventions for key populations in Nigeria through HIV prevention and treatment programs

T. Jaiyebo[1], A. Yusuf[1], G. Emmanuel[1], O. Olabosinde[1], C. Nwofor[1], B. Ochonye[1], C. Trout[2], P. Umoh[1], A. Kalaiwo[3]
[1]Heartland Alliance International, Programs, Abuja, Nigeria, [2]Heartland Alliance International, Programs, Los Angeles, United States, [3]United States Agency for International Development, Abuja, Nigeria

Background: Men who have sex with men (MSM), female-sex-workers (FSW) and people who inject drugs (PWID) - key populations (KPs) are highly affected by HIV in Nigeria. They are subject to acts of violence due to discriminatory laws criminalizing their behavior, and further face barriers to accessing legal services for redress. Barriers such as the fear of reprisal and prosecution can play a role in heightening their vulnerability to HIV by driving them further underground and limiting their access to HIV care and support services. This paper appraises legal intervention services under the Integrated MARPs HIV prevention project (IMHIPP) implemented by Heartland Alliance in Nigeria.
Methods: IMHIPP provides legal intervention services to KPs who have suffered violations as part of its comprehensive HIV package in Akwa Ibom, Benue, Cross River, Lagos, Nasarawa and Rivers states and the FCT. Quantitative data was collected using the standardized violation reporting tools across the program states. This paper accessed the types of violations suffered that necessitated legal intervention, provided between July and December 2017.
Results: 29% (419) - (FSW: 249, MSM: 102, PWID: 68) of KPs who reported violence (1435 KPs - FSW: 959, MSM: 335, PWID: 141) needed and were provided legal intervention services between July and December 2017. A majority-75% of violations were related to police raids, arbitrary arrest and detention, and this trend cuts across all KP groups, but highest numbers from female-sex-workers who suffer from frequent brothel raids and arrests.

[Graph 1: Breakdown of violations requiring legal intervention]

As shown in table 1 and consistent with the violations suffered, facilitated release from police custody made up the majority of legal interventions provided. Other interventions include legal and human rights education with safety and security counselling to avoid recurrent violations, and support to file police reports as many feared further reprisals by the law enforcement agencies.

Type of intervention	Total #	Total %
Facilitated release from custody	271	64.7%
Legal education/ safety and security counselling	39	9.3%
Litigation	32	7.6%
Support to file police report	32	7.6%
Other legal support	24	7.6% 5.7%
Alternate dispute resolution e.g. mediation	21	5%

[Table 1: Types of intervention provided]

Conclusions: Findings show an alarming average of 2 KPs in HIV programs per week needing some sort of legal intervention, most likely arising from the law enforcement agencies meant to provide redress. Engagement of law enforcement agencies in the HIV response is therefore essential to improving access of KPs to HIV services.

Gender equity

TUPED481

Results of the community efforts in mitigating violence and discrimination among TG/Hijra community in Lahore, Pakistan

Z. Kadirov, B.P. Dahal, K. Achebe, C. Tara, I. Mohammad, T. Ur Rehman, M. Ali
Save the Children International, Global Fund Program, Kathmandu, Nepal

Background: Lahore, a city in Pakistan is home to nearly *4455 Hijras**[1]***. This socially stigmatized community faces abuse from their families, clients, male sex partners and public. The abuse and violence are the main cause of emotional distress and mental agony among the *Hijras*. Despite gaining the legal identity from Pakistan Supreme Court in 2009, the legal environment supporting the co-existence of *Hijars* in the society is ill-defined due lack of domestication of law, internalization of rights law enforcement instrumentation and access to legal remedy. Theses non

supportive circumstances compel almost 80% of *Hijras* to earn from sex work making them vulnerable to HIV. Save the Children and Khawaja Sira Society through Multi Country South Asia Global Fund HIV program has implemented an HIV advocacy project to minimize the cases of perpetration and also providing the key HIV prevention services in Lahore.
[1] Official figures on size of Hijra population in Pakistan are yet to be counted as Hijras has been included into the national census in 2017 only, for the purposes of the abstract author used draft IBBS report (dated April 2017).
Methods: The project adapted a multi-faceted approach to mitigate the challenges of violence reduction using a comprehensive advocacy strategy that included mass media sensitization, community activist motivation and public awareness to protect and promote the rights of *Hijras*. Data from routine monitoring of the project advocacy activities was analyzed quantitatively.
Results: After the intervention made under MSA Grant/Global fund since 2012, substantial decrement in number of perpetration is notably observed. Latest reading shows that number of rape cases decreased from 1774 in 2013 to 160 cases in 2016. Empowering *Hijra* on their rights and voicing their need for health services induced conducive environment to secure the rights of Hijra community.
Conclusions: The participatory approach involving government, religious scholars and parliamentarians along with media mobilization contributed significantly in conquering violence against *Hijras* in Lahore. Neatly tailored community-based HIV programs with emphasis on capacity building and advocacy contribute to the quality of life of them, thereby facilitating their access to health and legal services and reducing their HIV vulnerabilities.

Sexual and reproductive health and rights

TUPED482

Improving the access to sexual and reproductive health and rights among women who use drugs in Ukraine. Where are we now?

S. Tkalya[1], A. Basenko[2,3], P. Skala[2], M. Andruschenko[2], M. Kasianchuk[4], G. Kornienko[1]
[1]Charitable Foundation 'Hope and Trust', Kyiv, Ukraine, [2]Alliance for Public Health, Policy and Partnership, Kyiv, Ukraine, [3]PITCH Program, Country Focal Point, Kyiv, Ukraine, [4]ECOM, Talin, Estonia

Background: Ukraine has the second-largest HIV epidemic in Eastern Europe and Central Asia. The epidemic is closely associated with injecting drug use. The estimated number of injecting drug users are 346,000 people, of whom 75% are men and 25% are women. In Ukraine, HIV prevalence among people who inject drugs was estimated at around 21.9% in 2016. HIV prevalence was higher among women who inject drugs (23.6%) than men who inject drugs (20.8%).
Methods: The assumption is that WUD are constantly faced with stigma and discrimination by medical personnel and have a number of problems in obtaining reproductive health services. Within the PITCH project the CBO of WUD carried out the intelligence study (in-depth interviews) on sexual and reproductive health rights of women who use drugs including OST patients in Ukraine. The main points of the questionnaire were the accessibility of medical services (in particular, gynecologists), medical registration and access to women consultation during pregnancy, cases of patients´ interaction with the police and social services, as well as cases of violence.
Results: 77 women from five regions of Ukraine aged 26 to 55 were interviewed, mostly have secondary education with a predominantly low average monthly income and a long (over 5 years) experience in the use of psychoactive substances. It was shown that 80% had problems with registering in the case of pregnancy and only a quarter received completely satisfactory medical services in case when doctor knew that the patient was taking drugs and had a positive status for hepatitis C or HIV. 63% were faced with a refusal to provide medical care. 33% used drugs during pregnancy. The majority of interviewed women indicate problems when applying for assistance to the National Police of Ukraine. One third has experience of domestic violence, physical, psychological or economic.
Conclusions: Due to stigma and discrimination, women are not registered in the women´s consultation, and as a result, only during the birth will learn about existing infections and accordingly do not undergo vertical transmission. Wider range of NGO services is necessary. There is a need of national campaign to protect sexual and reproductive health rights.

TUPED483

Awareness-raising on sexual and reproductive health and rights among school-going adolescents for services access in Tanganyika province, Democratic Republic of Congo

N. Eliya Nduelib
Sauve la Femme et la Jeune Fille du Katanga, SAFEKA, Senior Management, Kalemie, Congo, Democratic Republic of the

Background: Based on the 2016 report from the Tanganyika Provincial Educational Division, 25% of adolescent girls dropped out of schools between 2013 and 2016 due to reproductive health problems. 35% of cases were due to risky sexual behavior while 65% were caused by SGBV in school settings and communities. Prevailing social norms sustain the disregard of SRHR and condone SGBV among adolescent boys and girls. Our project aimed at empowering the latter with appropriate knowledge and skills on SGBV and SRHR in order to respectively enable them to manage such violence and make informed choices regarding their sexual life.
Description: Funded by AmplifyChange, the project (May 2016- April 2018) started with the creation of 50 secondary school-based SRHR/SGBV youth clubs, each consisting of 25 members (13 girls; 12 boys or vice versa) aged 12-16. Then, 250 were trained as trainers in SGBV management, SRHR promotion and Participatory Theatre. Under SAFEKA coaching, trainees taught back their 1000 peers before all of them engage in mass sensitization in both schools and communities from November 2016 to date. Last August, a provincial conference brought together 250 adolescents to amplify voice for advocacy around SGBV and SRHR.
Lessons learned: From routine data we found out that 625 young boys are currently supporting girls' SRHR and acting as role models; 792 persons (495 female; 297 male) believe that women and girls are equal to men and boys; estimated 66 282 sensitized community members are aware of comprehensive sexual education benefit for young girls and boys; reported cases of SGBV from school settings have gone up; and the number of adolescents accessing such services as HIV testing, ART, contraceptives and legal support has increased respectively in 30%, 5%, 15%, and 25%. A Provincial SRHR/SGBV Youth Network was created as well. Yet, shifting social norms that undermine SRHR and condone SGBV still remains a big challenge because adolescents' reference networks have been overlooked.
Conclusions/Next steps: The project has created a space for dialogue around SGBV and SRHR among Tanganyika adolescent girls and boys whose participation is increasingly high. Project extension is needed with additional focus on norms change and reference networks.

TUPED484

Health, rights and well-being: A practical tool for HIV and sexual and reproductive health programmes with young key populations in Eastern Europe and Central Asia

J. Butler[1], J. Baer[2], I. Zhukov[3], N. Zakareishvili[4], C. Egeshova[5], L. Luyckfasseel[6], D. Kalajdjieski[7], D. McCartney[8]
[1]UNFPA, Bangkok, Thailand, [2]Consultant, Boston, United States, [3]UNFPA, Guttenberg, United States, [4]UNFPA, Tbilisi, Georgia, [5]UNFPA, Bishkek, Kyrgyzstan, [6]IPPF, Brussels, Belgium, [7]UNFPA, Skopje, Macedonia, The Former Yugoslav Republic of, [8]IPPF, London, United Kingdom

Background: The Tool is based on the experience of young key populations in eight countries in the region who participated in focus group discussions organized by UNFPA and IPPF in 2015. Key publications underpinning this tool are the four technical briefs on young key populations and HIV (UNAIDS Interagency Working Group on Key Populations, 2015), and the four key populations implementation tools (the SWIT, MSMIT, TRANSIT and IDUIT) published by WHO, UNFPA, UNDP and UNODC in 2013-2017.
Description: This tool contains practical advice on implementing HIV and sexual and reproductive health and rights (SRHR) programmes with young key populations—sex workers, men who have sex with men, transgender people, people who inject drugs and people in detention (prison or other closed settings)—in Eastern Europe and Central Asia. Health, Rights and Well-Being is designed to support UNFPA, IPPF and their partners in the region in developing rights-based and evidence-based programmes for HIV prevention and sexual and reproductive health for young key populations. It is intended for use by public-health officials and managers of HIV and SRHR programmes; nongovernmental organizations, including community and civil-society organizations; and health workers. It may also be of interest to international funding agencies, health policy-makers and advocates.The tool describes the context of young key populations and HIV in Eastern Europe and Central Asia and outlines the importance of sexual and reproductive health and rights; discusses community empowerment, participation, rights and social inclusion, and the importance of comprehensive sexuality education; and explores the legal and policy environment for young key populations, including issues of parental consent, stigma, discrimination and violence. The comprehensive package of services for HIV and SRHR is described, and issues of effective service delivery are discussed. Examples from programmes in the region and further afield are given to show how challenges may be addressed.
Lessons learned: The tool became possible only due meaningful participation of young key populations throughout the development of this tool and in the development of country-level action plans: their experiences inform much of the text.
Conclusions/Next steps: The global tool will be developed in 2018 based on this regional one.

TUPED485

Using legal and policy mapping for advocacy, by women with HIV in Latin America (LAC)

M. Arends[1], A. Cano[2]
[1]Hivos Latin America, San Jose, Costa Rica, [2]ICW Latina, Managua, Nicaragua

Background: Since 2016 the International Community of Women Living with HIV in Latin America (ICW Latina) and Hivos have been implementing a Global Fund grant aimed at strengthening the participation and advocacy of women with HIV in regional and national decision making processes, in order to achieve political, legal and regulatory changes that improve their quality of life.
Description: ICW Latina commissioned a mapping of the legal and policy framework regarding HIV, gender violence, gender inequality and SRR&H for women with HIV in Latin America. The mapping analyzes 37 criteria, and has been the basis for the development of an online tool (http://mapeo.icwlatina.org/map) that shows a comprehensive legal and policy landscape, with a human rights perspective, in 18 countries: Bolivia, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, Dominican Republic, Argentina, Chile, Brazil, Cuba, Mexico, Uruguay and Venezuela.

[ICW General MAP LAC]

The mapping has served as input for the development and implementation of national advocacy plans in 11 countries. The mapping also served for the development of a regional political agenda that prioritizes actions to comply with human rights of women with HIV in LAC (http://icwlatina.org/wp-content/uploads/2018/02/Documento-Estrategico-ICW.pdf).
Lessons learned: A clear picture of the gaps in legislation and policies has been useful to focus the political and advocacy agenda of women with HIV in LAC, both regionally and nationally.
During the process alliance building with the feminist movement has been key to include the needs of women with HIV in regional documents on SRR&H and VAW and to further national policies.
However, the capacity of the women in the network to analyze, use and monitor the SRR&H and VAW rights framework effectively, is limited to few of them, which is a limitation to defend the demands of the network.
Conclusions/Next steps: The mapping is an important but not sufficient tool to ensure the defense and monitoring of women with HIV´s health and rights. Individual and collective training of HIV+women about their SSR&H rights and VAW, alongside with training about the national and international human rights framework, is needed to traduce the information into effective and sustained advocacy efforts and civic monitoring by women with HIV.

TUPED486

The importance of harmonizing laws and policies to fulfill adolescents sexual and reproductive health rights: Good practices, gaps and opportunities in 23 countries in Africa

R. Tallarico
UNFPA, East and Southern Africa Regional Office, Johannesburg, South Africa

Background: UNFPA with the University of Pretoria conducted an analysis of the legal and policy environment that affects adolescents' sexual and reproductive health rights (ASRHR) in 23 countries in Africa. The study focused on 10 main rights such as:
1. Age of consent to sexual activity;
2. Age of consent to marriage;
3. Criminalization of consensual sexual activity;
4. Age of consent to health services, including HIV and contraception;
5. Access to sexual and reproductive health services, including abortion;
6. Sexual and reproductive health rights of adolescents and youth;
7. Criminalization of HIV transmission;
8. Harmful cultural, religious or traditional practices;
9. Learner pregnancy and re-entry laws and policies and
10. Comprehensive sexuality education.
Methods: The assessment includes:
1. a review and analysis of the laws and policies in place in each one of the 23 countries that influence directly or indirectly ASRHR;
2. An in-depth analysis of the laws and policies and how they affect young people and adolescents' sexual and reproductive health rights and access to services in six countries (Malawi, South Africa, Swaziland, United Republic of Tanzania, Uganda and Zambia).

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Results: The study indicated the existence of overall disjuncture between the relevant policies and laws in the majority of the 23 countries while identifying some good practices. It demonstrated that many countries' laws do not comply with international and regional commitments. A particular challenge in the region is the co-existence of customary law and civil law. The harmonisation of these legal systems on the issues under review is a difficult task, but essential for the fulfilment of ASRHR. The field study also demonstrated that adolescents, young people, medical practitioners, teachers and counsellors generally lacked knowledge about laws pertaining to ASRHR both from a right holder and a right bearer perspective. The rights bearers were unaware of their rights, and the service providers - while often working diligently - also did not work within the law.
Conclusions: Efforts need to be made to go beyond piece-meal actions but look at adolescents' sexual and reproductive health rights in a holistic manner in order to harmonize national legislations and policies accordingly while ensuring their implementation.

TUPED487

Linking HIV and gender based violence: A critical analysis of the dis-proportionate burden on Kenyan women and girls

T. Saoyo
Kenya Legal and Ethical Issues Network on HIV, Sexual and Reproductive Rights, Nairobi, Kenya

Background: In 2016, UNDP Kenya, in collaboration with KELIN conducted a baseline survey titled '*common forms of gender based violence against women living with HIV*'. The study revealed that whereas approximately 1.6 million people are living with HIV countrywide, a larger proportion of this population, 58%, constitutes women. Women living with HIV regularly face discrimination and are more likely to experience violence as a direct result of their HIV diagnosis. Living with HIV exposes women to new sites of violence, not only from partners, family members and the wider community, but also within institutional settings, particularly health care institutions. Further compounded is the area often given less attention, particularly women from key populations, such as female sex workers, and drug users, who are even more likely to experience violence.
Description: In 2016, premised on the above findings, UNDP, in collaboration with local partners including KELIN and the Network of people living with HIV, NEPHAK, embarked on a one year long campaign to sensitize duty bearers such as police, judiciary and court users committees on their role in safeguarding the rights of women living with HIV. The overall aim of the trainings was to create an understanding of the linkages between sexual violence & HIV, ensure revamped, professional, and accountable duty bearers with the primary mandate to institute and undertake prosecution of criminal matters and all other related incidents occasioned against women living with HIV in an aim to foster justice.
Lessons learned: This rights based approach model of trainings was crucial in not only advancing the rights of women but also ensured that stigma generally associated with HIV was addressed by combining informative lectures with case studies, experience sharing, statistics, practical exercises and group work that enriched the learning experience of duty bearers to be able to see the real life issues in practice.
Conclusions/Next steps: KELIN aims to continue working with the Employment and Labour Relations Court as well as the HIV Tribunal to address the common forms of violence meted on women living with HIV as well as develop IEC materials that heighten awareness on SGBV and HIV.

TUPED488

The HIV epidemic among young women: Overcoming human rights violations and gender inequality to achieve the SDGs

T. McGovern[1], J. Fine[2], C. Crisp[3], E. Battistini[3]
[1]Mailman School of Public Health, Columbia University, Heilbrunn Department of Population and Family Health, New York, United States, [2]Center for Reproductive Rights, New York, United States, [3]Mailman School of Public Health, Columbia University, New York, United States

Background: Global efforts to curb the HIV epidemic among young women and girls are persistently challenged by gender inequality and human rights violations. In 2015, women in Sub-Saharan Africa accounted for 56% of new infections among adults over the age of 15. Lack of sexual and reproductive health services, economic insecurity, and limited educational access contribute to the high prevalence of HIV. The SDG 5 - to achieve gender equality and empower all women and girls - promises to address these determinants of health.
Description: We analyzed the progress towards and current challenges in achieving the SDG 5 through a legal framework. We described the links between gender inequality, policies, and health outcomes, and reviewed the state of national, regional and global policies that support women and girls' rights. We discuss the human rights barriers that must be addressed to achieve the SDGs and aim to generate action and accountability around women and girls' human rights.
Lessons learned: There are widespread gaps in implementation of comprehensive sexuality education, access to safe and legal abortion, and the development of special protection measures for adolescents and youth regarding their sexual and reproductive health. States with plural or multiple-legal systems, which allow customary, religious and tradition or practice to rule, present a challenge in measuring the SDG 5.6. Ensuring that data collection and validation incorporates relevant laws and commentaries by human rights bodies and civil society organizations will be necessary to achieve the SDG's promise. An integrated human-rights approach to assess compliance with human rights obligation and measures key issues areas in sexual and reproductive health and rights and their implementation is necessary to overcome these challenges.
Conclusions/Next steps: Improving access to sexual and reproductive health services is necessary to achieve the SDGs. The provision of these services fundamentally relies on the fulfillment of human rights. A human-rights based approach is needed to adequately document and address the political barriers individuals face in plural and multi-legal systems, correctly measure our progress towards the SDG 5, ensure compliance with SDG commitments, and reduce the burden of HIV in women in Sub-Saharan Africa.

TUPED489

Leveraging social media as a tool to promote SRH/HIV information among visually impaired persons in Lagos State, Nigeria

E. Okotie[1], A. Familua[2], O. Akanni[3], D. Ayinla[3]
[1]Nigeria Association of the Blind, Lagos, Nigeria, [2]Nigerian Association of the Blind (NAB), Lagos, Nigeria, [3]Journalists Against AIDS (JAAIDS) Nigeria, Lagos, Nigeria

Background: Negative myths and misconceptions continue to impact on the sexual and reproductive health rights (SRHR) of Persons with Disabilities (PWDs). These state that PWDs are asexual, not sexually active and unable to contract HIV/ STIs; PWDs engage in sexual activity by chance, not by choice and women with disabilities who are pregnant must have been impregnated as a result of abuse. Thus, PWDs often shy away from discussions about their SRH needs.
Description: Journalists Against AIDS [JAAIDS) Nigeria in collaboration with Nigeria Association of the Blind (NAB) with support from the AMPLIFY CHANGE is working on a project titled *Voices for Change: Promoting increased uptake of SRH services among PWDs in Lagos State* which seeks to equip PWDs with SRH knowledge and skills to enable them make informed SRH decisions. After training the leadership of the

PWDs clusters in Lagos State on SRHR issues in June 2017, trainees were required to conduct step down trainings among members. The NAB cluster opted to utilise their existing WhatsApp and Facebook platforms to share SRH information. Since September 2017, NAB leadership has been training group members at a dedicated hour every weekend. SRH topics are posted on the WhatsApp group, NAB Lagos and Southwest Facebook pages. The sessions are interactive and the SRH series reaches 461 members weekly. Topics addressed have included: Basic concepts of SRH; Sexuality, Gender; SRH as a Human Right; Menstrual hygiene, Ovulation, Fertilization, STIs and Family Planning.
Lessons learned: Based on the series, individual members have reached out to the moderators for guidance on dealing with personal SRH challenges ranging from poor erection, irregular menses to coping with a HIV positive partner in a discordant relationship. Using social media has created the space for members within and outside Lagos to better understand their SRH rights, and discuss their SRH concerns in a non-threatening space.
Conclusions/Next steps: PWDs can be better equipped to make informed SRH decisions. Stakeholders need to explore innovative ways of reaching PWDs with appropriate and user friendly information in formats that will support their uptake of SRH services.

TUPED490

Prevention of pediatric HIV/AIDS and AIDS orphans: Celebrating 35 years of hope, fear, innovation and courage among women living with HIV in the early years of the pandemic

K. Beckerman[1], R. Denison[2]
[1]Icahn School of Medicine at Mt Sinai Medical Center, Obstetrics & Gynecology, New Rochelle, United States, [2]Redwood Day, Oakland, United States

Background: Pediatric HIV/AIDS was first reported in New York City in1983. Ten years later, HIV/AIDS had become a "Health Care Crisis of Women and Families" increasing at "alarming" rates. During those years, effective HIV prevention and treatment were absent, and in this absence, even HIV testing of women of reproductive age, pregnant or not, was greeted with fear, ambivalence and ignorance. For those infected, recommendations were clear: no woman with HIV should have children.
Description: Twenty-five to 30 years ago, most women living with HIV did so in isolation, and did not know whether they would live to see their children go to kindergarten. Their providers had limited resources: Until 1994 zidovudine was the only available antiretroviral. Until 1996 viral load testing, even when available, had a limit of detection of 10,000 copies/mL. Women all over the world demonstrated courage and determination to protect their families. We present four women who exemplify the courage and determination of women all over the world to confront their own family's health care crisis.
Personal Stories:
Mom #1: Taking on the United States Congress and FDA.
Mom #2: Rebecca's story: Creating WORLD and a family.
Mom #3: I never gave up on myself or my family. Today I'm a grandmother.
Mom #4: Surviving genocide to fight for health.
Lessons learned: We celebrate here heroic pioneers who lived with the virus in the 1980s and early 1990s, dared to assert their human rights, and fought the long, hard fight for their own health and the health of their families. In so doing, these women changed the course of the pandemic. Today, the right of women living with HIV to found a family has been incontrovertibly established, and the rights of children to receive life-saving health care is part of a broad, if imperfect, national agenda.
Conclusions/Next steps: None of these achievements came easily. The HIV/AIDS innovations of health care advocacy at community and personal levels must be acknowledged and remembered. Those of us who lived through those years have a duty to celebrate one of the great victories of 20th century medicine, so that these lessons are not forgotten.

TUPED491

Facilitating access to sexual and reproductive justice for orphaned and `vulnerable adolescent girls

N.A. Were[1], J.A. Oluoch[2], G. Otieno[3]
[1]KELIN, Sexual and Reproductive Health and Rights, Nairobi, Kenya, [2]KELIN, Women, Land and Property Rights, Kisumu, Kenya, [3]KELIN, Sexual and Reproductive Health and Rights, Kisumu, Kenya

Background: Young people (15-24) contribute significantly to Kenya's HIV burden accounting for 51% of all the new infections with adolescent girls and young women (AGYW) accounting for a disproportionate amount of this burden.The intrinsic connections between HIV and sexual and reproductive health and rights (SRHR) are well established given that HIV is a predominantly sexually transmitted or associated with pregnancy.
Informed by this, the Kenya Legal and Ethical Issues Network on HIV and AIDS (KELIN) is implementing a project: "*facilitating access to sexual and reproductive justice for orphaned and vulnerable adolescent girls*", aimed at securing sexual and reproductive justice as an avenue to reduce the HIV prevalence among AGYW.
Description: The two-year project which begun in 2016, is being implemented in Homa-Bay and Kisumu counties,[1] is structured to address individual and societal barriers of access to health, information and justice through:
a) Increased knowledge and understanding on SRHR, HIV and women land and property rights by AGYW.
b) Addressing structural barriers of access to services and justice through engagements with key stakeholders including: elders and widows; the Judiciary and its structures; and policy makers and legislators.
c) Nurturing AGYW through sports and drama. One of the foundational discussions in this project is "realising your dreams" and dismantling stereotypes on what spaces AGYW should or ought to belong in.
[1] Rationale for counties: HIV burden, 26% and 21%; rates of unintended pregnancy; and KELIN's existing relationships in the region through its Cultural Structures Project.
Lessons learned:
a) Programmatic interventions for HIV fail to explore the intrinsic connection with SRHR leaving a gap in information for AGYW.
b) Limited understanding on the SRHR component and its relation to HIV.
c) Empowerment of AGYW without cognizance of their societal contexts may not yield intended results because structural and cultural barriers have an overarching impact on their vulnerability to HIV.
Conclusions/Next steps: There is a need to replicate intervention models that seek to address both structural and individual barriers. Interventions solely aimed at addressing the individual needs of AGYW fail to address the societal contexts in which AGYWs come from and the areas of vulnerability that individual empowerment cannot shift.

Children's rights and HIV

TUPED492

Findings from violence against children survey in Nigeria: Inferences for HIV programme for abused children and young people

A.P. Okorukwu[1], Y. Falola-Anoemuah[2], M. Egemba[1], A. Okorukwu[3], Gender and Human Rights Team Study Group
[1]National Agency for the Control of Aids, Programme Coordination Department, FCT, Nigeria, [2]National Agency for the Control of Aids, Directorate of Community Prevention and Care Services, FCT, Nigeria, [3]National Agency for Control of AIDS (NACA), Directorate of Community Prevention and Care Services, FCT, Nigeria

Background: Globally, Nigeria ranks second in the number of people living with HIV/AIDS. Although more than 90% of Nigeria's 15-to-24 years old had heard of AIDS, only 24.2% females and 33.5% males had a comprehensive and correct knowledge of HIV/AIDS while an estimated

325,900 of them are living with HIV in the country. A National Survey on Violence Against Children was conducted in 2014 by National Population Commission, in collaboration with FMWASD, NACA, UNICEF Nigeria and United States Centers for Disease Control and Prevention. The study provided strong justification for improved HIV programmes for young people.

Methods: A multi-stage cluster design was used for the Nigerian Violence Against Children Survey (VACS). Data collection included interviews with 1,766 girls and young women and 2,437 boys and young men. The survey examined the link between exposure to violence in childhood and subsequent sexual risk-taking behaviours of males and females aged 18-24 who had experienced sexual violence in childhood. Data from this population provides estimates of the prevalence of violence ever experienced in childhood, while data from 13-17-year olds estimate the prevalence of violence experienced in the 12 months prior to the survey.

Results: According to the VACS findings, violence against children is highly prevalent in Nigeria, 1 in 4 females and 1 in 10 males between the ages of 18-24 reported ever experienced sexual violence in childhood. Almost half of females and males who experienced sexual violence reported that their first incident of sexual violence occurred before the age of 16. A majority of females and males who experienced sexual violence in childhood reported never having been tested for HIV (51% of females and 60% of males).

Conclusions: Based on the findings of the Nigeria VACS, priority actions were developed through a consultative and participatory approach by the Technical Working Group on VACS. The TWG developed and is implementing a comprehensive, holistic and multi-sectoral response which focused on adopting and implementing laws and policies that prevent and respond to violence, encouraging children to speak out and enhancing access to youth-friendly HIV Testing Services and other services for young people.

Stigma and discrimination regarding people from key populations

TUPED493

Reaching key populations within the East African Community: Rhetoric unsupported by policy

A. Gatome[1], M. Costa[2]
[1]Swiss Tropical and Public Health Institute of Basel, Basel, Switzerland, [2]Abt Associates Inc, 10 Fawcett Street, Cambridge, United States

Background: The East African Community (EAC) partner states-Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda, have approximately 13% of the global people living with HIV (PLHIV) population. Significant resources mobilized for HIV prevention and treatment services in the EAC have contributed to a decline in HIV prevalence and access to antiretroviral therapy for 48% of PLHIV. Spread of HIV in these countries is concentrated among key and vulnerable populations particularly criminalized groups: commercial sex workers, men who have sex with men, and people who inject drugs. Therefore achieving 90-90-90 will require interventions focused on key populations and a supportive legislative and policy framework.

The EAC HIV and AIDS Prevention and Management Act 2012, provides a harmonized framework to guide HIV responses in partner states and provides protection for key and vulnerable populations. This study sought to identify if partner states' legislation is consistent with the objectives of EAC legislation, specifically protection of key populations.

Description: USAID funded Cross-Border Health Integrated Partnerships Project conducted a desk review in 2016 of EAC and partner states´ HIV related legislations, policies, and strategies focusing on points of convergence and divergence, and fundamental issues affecting key populations.

Lessons learned: In summary, the EAC and partner states have substantive HIV laws, policies and strategies. The legislation across countries aspire to a rights based approach, and include constitutional provisions to guarantee access to health and HIV services. However, some partner states' laws are regressive with regards to key populations which limit progress towards epidemic control.

Among partner states' laws, positive elements include mandating provision of HIV services and prohibiting discrimination in employment and admission to academic institutions based on HIV status. Regressive elements include disclosure to third parties without consent; criminalization of intentional transmission; criminalization of key populations; and mandatory testing of some populations which contradicts EAC legislation.

Conclusions/Next steps: Strides have been made to align country legislation to EAC legislation, but gaps remain. To reach 90-90-90, lobbying and advocacy to address decriminalization, stigma and discrimination challenges facing key populations is needed. Otherwise, available services may not be used and impact on the HIV concentrated epidemic among key populations will not be realized.

TUPED494

A qualitative study of intersectional stigma and discrimination of transgender women living with HIV: Implications for HIV vulnerability and access to HIV-related care

A. Lacombe-Duncan[1], Y. Persad[2,3]
[1]Factor-Inwentash Faculty of Social Work, University of Toronto, Toronto, Canada, [2]The 519 Community Centre, Toronto, Canada, [3]Women's College Hospital, Toronto, Canada

Background: Transgender (trans) women experience a disproportionate HIV prevalence relative to cisgender women, due to social and structural contexts of inequity, including intersectional stigma and discrimination. Scant stigma literature has focused on trans women as a unique key population, separate from women or LGB populations. Studies have also failed to document the strengths of trans women in navigating intersectional stigma. This exploratory study sought to understand:

(1) How does intersectional stigma influence HIV vulnerability and access to HIV-related care for trans WLWH?

(2) How do women exhibit resiliency and empowerment in relation to intersectional stigma?

Methods: Semi-structured in-depth individual interviews lasting 30-90 minutes were conducted with 10 trans WLWH purposively sampled based on HIV-related healthcare access, transition situations, and intersecting identities from 3 Canadian cities (Toronto, Montreal, Vancouver) between May 2017 and January 2018. Interviews were audiorecorded and transcribed verbatim. Qualitative data analysis was conducted using framework analysis, a qualitative content analysis method, which includes line-by-line coding using an inductive approach to develop themes, development of an analytic framework, application of the analytic framework to subsequent transcripts, charting of the data, and interpreting the data with key stakeholders. Data analysis was supported through the use of NVivo10.

Results: Women's narratives highlight intersectional stigma and discrimination, including transphobia, gender non-conformity stigma, and HIV stigma, among others experienced by trans WLWH. These intersecting stigmas resulted in pervasive violence which increased HIV vulnerability and decreased access to HIV-related care. However, findings also suggest that trans WLWH exhibit resiliency and empowerment through multiple mechanisms, such as setting boundaries (e.g., refusing care), becoming self-advocates (e.g., informing providers of how/why their actions or words are discriminatory), supporting each other in accessing competent, stigma-free care (e.g., sharing experiences with other trans women), and becoming public advocates for the rights of trans women living with/affected by HIV
(e.g., volunteering at AIDS service organizations).

Conclusions: Future research should develop/adapt, implement, and evaluate stigma reduction interventions to address HIV vulnerabilities and healthcare access disparities for trans WLWH, which take into context the lived realities of trans women's daily lives and acknowledge their many strengths as individuals and as a community.

TUPED495

Stigmatization of HIV and barriers to health service use for men who have sex with men with HIV in Manila, Philippines: A qualitative study

A. Adia[1], M. Callahan[2], A. Restar[1], L. Hernandez[3], R. Imperial[3], D. Operario[1]
[1]Brown University School of Public Health, Providence, United States, [2]Hofstra University, Hempstead, United States, [3]University of the Philippines, Manila, Manila, Philippines

Background: The Philippines currently has one of the fastest growing HIV epidemics in the world. Despite recent expansions in free testing and treatment services for PLHIV, the growth of the epidemic continues to increase. In other settings, HIV-related stigma has proved to be a substantial deterrent to accessing health services.
The objective of this study was to describe experiences of stigma among HIV-positive men who have sex with men (MSM), a subpopulation that accounts for the vast majority of sexually transmitted cases of HIV.
Methods: Using purposeful sampling, 21 in-depth interviews with MSM with HIV (n=15) and with NGO workers (n=6) were conducted in Manila. Data were analyzed using a thematic analysis framework to illustrate the ways stigma influenced health service use-related behavior for participants both pre- and post-diagnosis.
Results: Drivers of stigma included connotations with injection drug use, extramarital sex, homosexuality, and sex work, leading to a "dirtiness" attached to MSM with HIV. Perceived and indirect experiences of stigma drove participants´ fear of HIV more than any direct experience of stigmatization. The deep-rooted collectivism and Catholic culture in the Philippines heightened participants´ awareness and internalization of stigma. Overall, these stigma-related fears created reluctance to get tested, often leading to late diagnoses. Post-diagnosis, participants discussed fears of accessing treatment, despite the fact that it was free, because of the stigma attached to potentially being seen at clinics and hospitals that treat HIV patients. Medication adherence was also challenging because of the fatalistic attitudes regarding health created by internalization of HIV stigma.
Conclusions: Overall, this study illustrates the ways in which stigma can play a role in decision-making regarding health service use for MSM with HIV in the Philippines. Despite awareness of free testing and treatment services, stigma provides a substantive deterrent to access. This effect may be particularly strong in the Philippines, which has deep-rooted cultural factors like strong Catholic traditions and collectivism that may exacerbate the impacts of stigma. As such, programs designed to specifically target the drivers of stigma and mitigate the impacts of stigma on the lives of PLHIV are needed in the Philippines.

TUPED496

Reporting, prevention and response of gender based violence against key populations in Côte d'Ivoire

A. Ambeu[1], M. Ouedraogo[1], C. Trout[2]
[1]Heartland Alliance International, Abidjan, Cote D'Ivoire, [2]Heartland Alliance International, Chicago, United States

Background: Men who have sex with men (MSM) and female sex workers (FSW) in Côte d'Ivoire have HIV prevalences that are 3 to 5 times higher than the general population. They are also frequent victims of gender-based violence (GBV). The experience of GBV has been associated with higher vulnerability to HIV among key populations (KP) in the scientific literature. To prevent GBV and mitigate its effects on HIV outcomes and to promote well-being of its KP participants, HAI has implemented GBV activities within a large-scale HIV prevention, treatment and care program in Côte d'Ivoire since 2013.
Description: HAI's GBV reporting, prevention and care program component promotes a dynamic of empowerment of KPs and debate in various community fora based on the transformative justice model. First, we use psychosocial education and legal listening sessions to strengthen KP's knowledge of the Ivorian legal environment in the fight against GBV as well as de-normalize the violence that they experience frequently. KPs who have been victims of GBV receive medical and psychosocial services and are assisted to report and prosecute if they wish. KP leaders hold advocacy sessions with authorities.
Lessons learned: From 2013- 2017, 617 cases of physical, sexual, social and emotional GBV were reported by KPs: 53 against MSM and 564 against FSW (Figure 1). In 2017, 187 persons of authority participated in advocacy sessions and 660 and 570 KPs participated in legal listening sessions and psychoeducation, respectively. Also, a new strategy "Circles against violence" was rolled out in 2017 and 133 FSW participated. (Table: 2017 GBV Services offered)

Table: 2017 GBV Services offered		
Services	Number of session/Sites	Number of participants
Advocacy sessions	13	185 authorities
Legal "Listening sessions"	42	630 KP
Psycho-education	38	570 KP
Circles against violence	20 Sites	133 FSW

[Table: 2017 GBV Services offered]

A FSW from Santa Maria de Gagnoa confided in a "circle against violence" that: „now when a violent client comes, we blow in our whistles and he leaves".
Conclusions/Next steps: Unfortunately GBV continues to be a barrier to HIV prevention and treatment for KPs in Côte d'Ivoire. In 2018, HAI plans to extend the "Circles against Violence" to all sex work sites of the project for a better reference of GBV survivors to medical, legal and social support services and to promote the systematic documentation of violence to nourish local, national and even international advocacy.

TUPED497

Determinants of HIV and substance use stigma among people with a history of substance use who are living with HIV in Russia

K. Lunze[1], S. Lodi[2], N. Gnatienko[3], C. Lloyd-Travaglini[2], S. Bendiks[3], M. Vetrova[4], O. Toussova[4], N. Bushara[4], E. Blokhina[4], M. Ekstrand[5], J. Luoma[6], E. Krupitsky[4], D. Lioznov[4], J. Samet[1]
[1]Boston University School of Medicine/Boston Medical Center, Boston, United States, [2]Boston University School of Public Health, Boston, United States, [3]Boston Medical Center, Boston, United States, [4]First St. Petersburg Pavlov State Medical University, St. Petersburg, Russian Federation, [5]University of California, San Francisco, United States, [6]Portland Psychotherapy, Portland, United States

Background: Persons with substance use and living with HIV are affected by stigma. Although stigma related to HIV and substance use is considered to be widespread in Russia, little is known about individual and contextual factors that influence its severity.
Methods: We used data from a cohort study of HIV-positive people who reported a lifetime history of substance use in St. Petersburg, Russia. We focused on two outcomes: perceived HIV stigma (10-item Berger Stigma Scale) and substance use stigma (score on 21 questions). Multivariable linear regression was used to examine the cross-sectional association of each stigma outcome with the following potential risk factors: perceived level of social support, gender, recent (past month) substance use, depressive symptoms (CES-D score ≥ 16), alcohol dependence, and ever selling sex.
Results: Participants (n=249) had the following characteristics: mean [standard deviation (SD)] age 34 [6] years; 168 (68%) male; 113 (46%) depressive symptoms (CES-D); 137 (55%) alcohol dependent; 97 (39%) recent substance use; and 149 (60%) low social support. Mean (SD) HIV stigma score and substance use stigma score were 21 (6) and 55 (16), respectively. Alcohol dependence and presence of depressive symptoms were associated with increased HIV and substance use stigma (Table). Recent substance use was associated with higher substance use stigma, but not with HIV stigma. We did not detect an association between social support and either stigma outcome.

	HIV stigma score		Substance use stigma score	
Risk Factor	β (95% CI)	p-value	β (95% CI)	p-value
Social Support	0.35 (-1.06, 1.76)	0.6272	-1.97 (-5.61, 1.67)	0.2870
Male vs. Female	-1.18 (-2.62, 0.27)	0.1107	2.14 (-1.68, 5.95)	0.2716
Depressive Symptoms	3.87 (2.49, 5.25)	<.0001	7.03 (3.44, 10.62)	0.0001
Alcohol Dependence	1.34 (-0.05, 2.73)	0.0598	5.46 (1.83, 9.10)	0.0034
Ever Selling Sex	2.16 (-0.41, 4.74)	0.0987	5.95 (-0.69, 12.58)	0.0786
Recent Substance Use (past month)	-0.33 (-1.74, 1.09)	0.6509	9.89 (6.18, 13.60)	<.0001

[Analysis of risk factors of HIV and substance use stigma. Estimated using multivariable linear regression in Russian cohort.]

Conclusions: Stigma related to HIV and substance use continues to affect people with a substance use history living with HIV in Russia. Depressive symptoms and alcohol dependence were associated with both HIV and substance use stigma. Further research, including qualitative studies, needs to examine whether these associations are causal and to explore further sources of stigmatization of HIV and substance use in Russia, such as provider stigma or public attitudes around HIV and substance use.

TUPED498

Getting to the root: Addressing the barriers to HIV service access among the LGBT community in Lesotho

L. Mohasoa
Phelisanang Bophelong, Programs, Hlotse, Lesotho

Background: The right to health is considered universal. However, in countries like Lesotho, exclusion of minority groups, such as Lesbians, Gays, Bisexuals and Transgender (LGBT), continues to affect health access. LGBT-led organisation Matrix are aware of approximately 315 LGBT people in Leribe district and report that many avoid or delay care because of perceived or real homophobia and discrimination by health care providers, impacting on their general and sexual health. Against this backdrop, in 2015, national NGO Phelisanang Bophelong began focusing on empowering LGBT people to access HIV services and have their rights recognized through Bocha Ke Palesa youth project.
Description: The project took a two-pronged approach (2015-2017):
Improving self-efficacy to encourage HIV service take-up: Two safe spaces established in Hlotse / Maputsoe for LGBT members to share information, talk about their sexual health and rights, and encourage HIV service access. Groups are led by trained peers to provide a mutually supportive environment.
Building social capital to improve the context for LGBT service access: Building relationships with influential stakeholders (e.g. District Administration, Police, community leaders, health staff) to improve social relations at community level and promote inclusion of LGBT members. This included gender and sexual diversity training to raise awareness and allow open dialogue with LGBT community. LGBT members were empowered to share information and be more visible in the community to reduce social stigma, through community sensitization and awareness events. This included a training of trainers on key population stigma reduction.
Lessons learned: There is a general community shift in attitude towards LGBT people, they have improved self-worth, reduced self-stigma and feel able to come forward for services.
- 268 LGBT reached through safe spaces
- 20 health providers sensitized to provide LGBT-friendly HIV services
- 28 stakeholders trained on gender and sexual diversity
- 25 community leaders engaged in discussions and awareness events.
- First Pride event held in Hlotse
Conclusions/Next steps: The interventions have improved the general environment for LGBT people in Leribe district. The project will build on progress to date, taking learning to enhance interventions to change mindsets and create a more conducive environment for LGBT people to access services.

[LGBT pride event 2017]

TUPED499

Stigma is still a problem: Experiences of HIV and gay-related stigmas and coping among young HIV+ GBMSM in Puerto Rico

S.M. Malavé-Rivera[1], R. Vargas-Molina[1], E. Santiago-Rodríguez[1], C.E. Rodríguez-Díaz[1], S.D. Rhodes[2]
[1]*University of Puerto Rico, Graduate School of Public Health, San Juan, Puerto Rico,* [2]*Wake Forest University, Social Sciences & Health Policy, North Carolina, United States*

Background: Despite significant advances in biomedical and socio-behavioral sciences to improve the health outcomes of people living with HIV (PLWH), HIV and gay-related stigmas still persist. Both types of stigmas negatively impact HIV prevention efforts, linkage and retention in care, and quality of life of PLWH. Young gay, bisexual and other men who have sex with men (YGBMSM) are at increased risk for HIV in the United States and Puerto Rico (PR). In 2015, youth 13 to 24 y/o accounted for 22% of new cases and 81% of those were GBMSM. Latino GBMSM are among the most vulnerable and disenfranchised from care.
Methods: We conducted a qualitative study in PR to understand how YGBMSM experience stigmas and how they cope with those experiences. We conducted 5 focus groups with n=29 HIV+ YBGMSM ages 18 to 29. Audio files were transcribed and organized in NVivo v11 for content analysis.
Results: Results suggest that HIV+ YGBMSM in PR experience enacted, perceived and internalized HIV and gay-related stigmas, and intersections between stigmas exist. Accounts of enacted HIV stigma include experiences of discrimination at work and healthcare settings. Participants also perceive that many Puerto Ricans are uninformed about the routes of HIV transmission; thus, they act negatively towards PLWH. Participants also perceive that other GBMSM have negative opinions about those with HIV, based on notions of personal responsibility of infection and "slut shaming", which foster exclusion. Feelings of shame about being GBMSM and being HIV+ were also found. Active and passive coping strategies to deal with stigmas were identified, including confronting stigmatizers and concealing one's HIV status and/or sexual orientation/behavior.

Conclusions: In the era of PrEP, undetectability, and LGBT rights, HIV and gay-related stigmas still hinder HIV prevention and care globally. It is important to understand current manifestations of HIV and gay-related stigmas and the effects on wellbeing and health outcomes. Developing interventions to address stigmas must acknowledge the complex intersections between various forms of stigmas. In addition, it is important to incorporate the voices from younger generations into the development of responses to eliminate stigmas.

TUPED500

Impact of social stigma on the mental health outcomes of female sex workers and men who have sex with men in Cameroon

O.M. Olawore[1], S. Ketende[1], S. Zadrozny[2], I.M. Njindam[1,3], G. Fako[3], A. Rao[1], C. Lyons[1], G. Turpin[1], U. Tamoufe[3], A. Bowring[1], G. Fouda[4], F. Ndoko[4], D. Levitt[5], A. Bissek[6], O. Ndoya[7], S. Billong[8], S. Baral[1]
[1]Johns Hopkins University School of Public Health, Epidemiology, Baltimore, United States, [2]University of North Carolina, Chapel Hill, United States, [3]Metabiota, Yaounde, Cameroon, [4]CARE Cameroon, Yaounde, Cameroon, [5]CARE USA, New York, United States, [6]Ministry of Health, Department of Operational Research, Yaounde, Cameroon, [7]University Hospital Center, Yaounde, Cameroon, [8]Group Technique Central (CNLS), Yaounde, Cameroon

Background: Social and sexual-related stigmas affecting key population (KP) have been shown to limit engagement in care including through their impacts on mental health. Here, we assess the association between stigma, self-reported HIV status and the mental health status of men who have sex with men (MSM) and female sex workers (FSW).
Methods: 2255 adult FSW (median age 28 years) and 1323 adult MSM (median age 23 years) were recruited by respondent-driven sampling in five urban centers of Cameroon and completed a structured instrument and biological testing. A positive depression screen defined as a Patient Health Questionnaire (PHQ-9) score of 10 or greater. Social stigma experienced, perceived or anticipated as a result of being a FSW or MSM was measured by asking the study participants a series of validated indicators. Logistic regression models stratified by population were used estimate the odds of depression associated with any experience of stigma and self-reported HIV status with adjustments for demographic, social and behavioral factors.
Results: The prevalence of depressive symptoms was 70.4% among FSWs (aPr= 71.8%, 95% CI: 69.5-74.0) and 71.2% among MSM (aPr=79.1%, 95% CI: 76.4-81.6). Stigma was significantly associated with depression in both the crude and adjusted analysis for both FSW (OR=1.58, 95% CI: 1.28-1.96, aOR= 1.34, 95% CI: 1.04-1.72) and MSM (OR=2.85, 95% CI: 2.22-3.67, aOR= 1.63, 95% CI: 1.21-2.19). For FSW, however, the significance of the association was negated after adjusting for RDS sampling. In these analyses, self-reported HIV status did not appear to be associated with depression. Among FSW, disclosure to a healthcare worker about KP membership and age remained significantly associated with depression after all adjustments. Finally, transgender women were found to have higher levels of depression as compared to cis-gender MSM
Conclusions: There are consistent relationships observed between mental health and stigma among key populations in Cameroon. Currently, HIV and stigma mitigation programs offer limited mental health services and existing mental health services offer limited HIV prevention and stigma mitigation services suggesting the need for better integration of these services as a means of providing comprehensive and evidence-based services for key populations in Cameroon.

TUPED501

Make us feel safe: Discrimination and disclosure of sex work status in healthcare settings and implications for HIV harm reduction strategies among US-based sex workers

J. Brown[1,2], B. Robinson[1]
[1]Call Off Your Old Tired Ethics Rhode Island (COYOTE RI), Providence, United States, [2]Brown University, Alpert Medical School, Providence, United States

Background: Sex workers (SWs) of all gender identities remain a key population that face disproportionately high rates of HIV in the US. The criminal status of sex work, many structural barriers to healthcare and support across other sectors, and widespread discrimination against SWs create an environmental in which it is difficult for SWs to obtain healthcare. Many harm reduction strategies target SWs but are often unsuccessful due to the many intersecting forms of marginalization SWs face in the US. A nationwide SWs rights organization, COYOTE RI, carried out a study for four months in 2017 through which they looked to understand how healthcare systems and those attempting to conduct harm reduction programs with SWs could better connect with this key population.
Methods: This community-based research was carried out by organizations that have advocated for SWs rights for many decades. This study surveyed people working in various areas of the sex industry in all regions of the US [n = 1,496]. Analysis of the data utilized qualitative and quantitative methodologies and key findings were developed through the use of grounded theory.
Results: This study found that there are many ways in which clinicians, healthcare workers, and harm reduction programs can better serve US SWs. Retaining absolute confidentiality, eliminating moral judgments, showing respect, treating SWs the same way other patients are treated, listening to and inquiring for facts, avoiding assumptions about sex work, reading publications by SWs, and publicizing the fact that programs are SW-friendly would allow SWs to be less hesitant in seeking and continuing HIV care.
Conclusions: There is much work to be done in the US to remedy the discrimination that SWs face in healthcare settings. Understanding and taking into consideration the experiences and perspectives of SWs is key in connecting with and providing effective, long-term HIV care for this key population.

Stigma and discrimination in specific settings, including family, community, work place, education, and healthcare settings

TUPED502

Fear of workplace HIV transmission, an unrecognized and actionable driver of stigma and discrimination in health facilities

N. Skyers[1], R. McLean[2], L. Nyblade[3], S. McLeish[4], T. Clough[4], J. Knight-Johnson[5], I. Cruickshank[6], D. Chevannes-Vogel[7], C. Stewart[3]
[1]Ministry of Health, Jamaica, HIV/STI/TB Unit, Health Promotion and Protection Branch, Kingston, Jamaica, [2]University of the West Indies, HIV and AIDS Response Programme, St. Augustine, Trinidad and Tobago, [3]HP+/RTI International, Washington D.C., United States, [4]The Palladium Group, Health Policy Plus Project, Kingston, Jamaica, [5]USAID, Kingston, Jamaica, [6]Caribbean Vulnerable Communities, Kingston, Jamaica, [7]National Family Planning Board, Kingston, Jamaica

Background: Stigma and Discrimination (S&D) are barriers to uptake and retention in HIV prevention, care, and treatment programs and particularly damaging within health systems. Measuring key actionable S&D drivers is a critical first step to reducing S&D and improving access, linkage, and retention in HIV services. One key actionable driver is worry about HIV transmission in the workplace, which can lead to unnecessary

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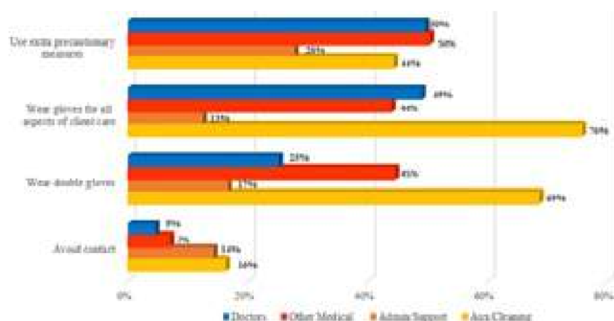
infection control behaviors. These are not only stigmatizing behaviors but can lead to breaches of confidentiality, signaling to others that a client is different in a dangerous way. The USAID-and-PEPFAR-funded HP+ project and UWI-HARP with the MOH and the National Family Planning Board are applying a total-facility approach to S&D-reduction. The first step in Jamaica was collection of baseline data that is informing tailored facility-based S&D-reduction activities and will support evaluation.

Methods: Quantitative survey data was collected in three facilities (July-Sept 2017) with all levels (medical and non-medical) of public sector healthcare workers (HCWs)(n=446) and 292 clients living with HIV. Data on key drivers (fear of HIV transmission/attitudes/health facility environment) and manifestations of S&D were collected from HCWs, while clients reported on experienced discrimination, anticipated stigma and its relationship to health seeking behaviors.

Results: When asked about worry of contracting HIV when conducting five routine activities within the purview of their occupational requirements, doctors (60%) and other medical staff (58%) reported concern/fear of at least one activity (Table 1). Self-reported routine uses of stigmatizing avoidance behaviors with clients living with HIV was high across all categories of staff (Figure 1). For example, HCWs reported using precautionary measures with clients living with HIV that are not used with other clients (48%). HCWs also reported high rates of training in infection control. Clients reported lower levels of experiencing double gloving (8%) in the past 6 months than staff reported using.

Conclusions: Data revealed that despite significant training or other knowledge building interventions, the attitudes or behaviors of key HCW towards PLHIV continue to reflect stigmatizing tendencies. Strengthening understanding and enforcement of the universal application of standard precautions can reduce one common type of S&D in facilities—stigmatizing avoidance behaviors.



[Stigmatizing Avoidance Behaviours Towards Clients with HIV by Staff Classification]

Areas of Concern		Doctors (N=108)	Other Medical (N=178)	Admin/ Support (N=43)	Aux/ Cleaning (N=88)	Total (N=417)
Touched the clothing of a client living with HIV	Worried	4.6%	6.2%	14.0%	20.5%	9.6%
Dressed the wounds of a client living with HIV	Worried	51.1%	42.1%	0%	0%	45.5% (N=242)
Drew blood from a client living with HIV	Worried	54.6%	55.8%	0%	0%	55.3% (N=217)
Took the temperature of a client living with HIV	Worried	0%	2.5%	0%	0%	1.6% (N=243)
Gave an injection to a client living with HIV	Worried	39.8%	50.3%	0%	0%	46.4% (N=239)
Composite Indicator:	Yes, to at least 1 of 5 applicable items	**60.2% (65/108)**	**57.9% (103/178)**	**14.0% (6/43)**	**20.5% (18/88)**	**35.9% (192/417)**

[Table 1. Areas of Concern about HIV Exposure by Job Category (Percentage)]

TUPED503

"Self-stigma is the worst kind of stigma": Internalised stigma and navigating HIV care amongst health workers living with HIV in Zambia and South Africa, the HPTN071 (PopART) stigma ancillary study

V. Bond[1,2], M. Mwamba[1], N. Vanqa[3], D. Ziba[1], D. Milimo[1], L. Vilijoen[3], T. Mainga[1], H. Ayles[1,4], M. Steinhaus[5], J. Hargreaves[6], G. Hoddinott[3], T. Nicholson[3], A. Stangl[5]

[1]Zambart, Lusaka, Zambia, [2]London School of Hygiene and Tropical Medicine, Department of Global Health and Development, Faculty of Public Health and Policy, London, United Kingdom, [3]Desmond Tutu TB Centre, Department of Paediatrics and Child Health, Faculty of Medicine and Health Sciences, Stellenbosch, South Africa, [4]London School of Hygiene and Tropical Medicine, Department of Clinical Research, London, United Kingdom, [5]International Center for Research on Women, Washington, United States, [6]London School of Hygiene and Tropical Medicine, Department of Social and Environmental Health Research, London, United Kingdom

Background: Sub-Saharan African health workers are looked up to as knowledgeable professionals and leaders. This assigned professional status may heighten feelings of shame, guilt or worthlessness stemming from the acceptance, or internalisation, of negative attitudes about HIV, making it harder for this group to reveal an HIV-positive status. We explore the prevalence of internalised, or 'self', stigma amongst Zambian and South African health workers living with HIV (HW-LWH) and implications for accessing care.

Methods: Health facility (n=963), community health workers (n=281), and trial-specific community health workers (n=631) across 21 urban health facilities linked to a cluster randomised trial HTPN071 (PopART) completed a self-administered survey in 2015. Questions included self-reported HIV status, ART status, and reported internalised stigma for HW-LWH. Fifty HW-LWH were then interviewed about their experiences in 2016-17.

Results: Of all health workers, 87.8% self-reported their HIV status. Across the health worker cadres, reports of positive HIV status ranged from 15.3% to 28.5% in Zambia, and from 8.3% to 19.6% in South Africa. Compared to South Africa, all Zambian HW-LWH cadres reported higher internalised stigma, particularly health facility workers, with 25% agreeing with one of three internalised stigma items, and 10.5% reporting not taking ART.

In qualitative data, the term 'stigma' was often aligned with *'self-stigma'*. Health facility workers discussed fearing gossip, co-workers using their status against them, and client reactions. Community health workers (both types) were more open about living with HIV, drawing on their experiences to support clients. They were also more likely to access HIV clinic services at the local clinic. If health facility workers accessed ART at their workplace, they employed tactics to 'fast-track' care and avoid identification. Experienced stigma, youth and pregnancy heightened internalised stigma. Interviews evoked poignant stories of HW-LWH dying rather than risking their professional reputation. Participant strategies to navigate internalised stigma included "acceptance" of status, avoiding identification, covert social support, and sometimes public testimony and challenging stigma.

	Health facility workers n %	Zambia Community health workers n %	CHiPs n %	Health facility workers n %	South Africa Community health workers n %	CHiPs n %
Sample: Those who self-reported their HIV status Living with HIV	n = 620 95 15.3	n = 123 35 28.5	n = 377 105 27.9	n = 222 27 12.2	n = 112 22 19.6	n = 193 16 8.3
Sample: Those living with HIV Not currently taking ARV drugs	n = 95 10 10.5	n = 35 0 0.0	n = 105 4 3.8	n = 27 3 11.1	n = 22 4 18.2	n = 16 1 6.2
Sample: Those living with HIV who answered all three internalized stigma questions Agreed or strongly agreed with one of the three items reflecting internalised stigma	n = 88 22 25.0	n = 35 7 20.0	n = 102 19 18.6	n = 26 3 11.5	n = 20 2 10.0	n = 15 2 13.3

[Table. Internalised stigma and ARV drug adherence among health care workers living with HIV in Zambia and South Africa]

Conclusions: Most health workers reported their HIV status. HW-LWH reported concerning levels of internalised stigma, particularly Zambian health facility workers. Interventions are required to support those at the heart of HIV service delivery.

TUPED504

The good use of alternative modes of settlement of disputes in the fight against discriminations and stigma towards PLWHIV: Case of Cameroon

J.N. Tamekue Tagne[1], F. Fogue[2], C. Chemgne[3]
[1]Positive-Generation, Law and Human Rights, Yaounde, Cameroon, [2]Positive-Generation, Yaounde, Cameroon, [3]Positive-Generation, Research, Development and Communication, Yaounde, Cameroon

Background: Discriminations against PLWHIV is still numerous in Cameroon whether in urban or rural areas. POSTIVE-GENERATION, have conducted a survey among a sample of 560 person who sought the services of its legal clinic during the year 2017. According to the results of the survey, 90% of PLWHIV reported having been discriminated after disclosure of their status. Women were the most affected with 70%. Discriminations concern family, work place and hospital environment. The investigation carried out informs us that the victims prefer resign themselves than to seize the courts for fear of being more stigmatized and discriminated, the justice being on principle made public. It´s in this context in order to preserve the confidentiality of the victims and to encourage them to seek justice and improve their lifestyle and their state of health that the Legal Clinic of Positive-generation has set up a model of alternative dispute settlements.
Methods: - Reception and listening at the headquarters of the association - Registration and statement of facts on a tracking sheet - Transmission of the file to the legal clinic - Legal support by a team of lawyers and paralegals - Bailiff´s summons - Conciliation or mediation within the legal clinic - Approvals of the terms of the arrangement by the President of the competent court in closed session.
Results: -150 cases accompanied from January to December 2017
- 64 cases of mediation (discriminatory dismissal).
- 23 cases of conciliation (inheritancce, land and properties rights).
Conclusions: This alternative system of dispute resolution has the advantage of being fast, accessible, and concerned about the privacy of victims who fear the advertising encountered in the classic pattern of institutional justice. The latter is still not accessible because of its cost, its slowness and sometimes procedural requirements and techniques that almost always recommend the services of a lawyer, which is a luxury for most victims in financial vulnerability. We started with three regions of Cameroon: the center, the east and the far north. We aim to cover by 2025 the entire national territory with its ten regions.

TUPED505

The HIV stigma landscape in sub-Saharan Africa: Baseline findings of a mixed-method, comprehensive evaluation nested in the HPTN 071 (PopART) trial

J. Hargreaves[1], A. Stangl[2], G. Hoddinott[3], T. Mainga[4], S. Floyd[1], K. Sabapathy[1], H. Jones[1], L. Viljoen[3], T. Pliakas[1], S. Krishnaratne[1], C. Mubekapi-Musadaidzwa[3], V. Bond[4], HPTN (071) PopART Team
[1]London School of Hygiene and Tropical Medicine, London, United Kingdom, [2]International Center for Research on Women, Washington D.C., United States, [3]Stellenbosch University, Desmond Tutu TB Centre, Department of Paediatrics and Child Health, Faculty of Medicine and Health Sciences, Cape Town, South Africa, [4]University of Zambia, Zambart, School of Medicine, Lusaka, Zambia

Background: HIV stigma involves interactions between (at least) PLHIV, community members (CMs), health workers (HWs) and members of key populations (KPs). HIV stigma may change in prevalence and form over time, as might its impact on HIV prevention and treatment. However, evaluations of stigma that include these multiple perspectives are rare. We set out to comprehensively describe the stigma landscape in 21 communities in South Africa and Zambia at baseline in the HPTN 071 (PopART) trial.
Methods: Synthesis of baseline HIV stigma data from a large, mixed-method, longitudinal study. Quantitative data came from a representative population cohort (3859 PLHIV, a subsample of 5088 CMs not living with HIV, and 1558 HWs). Stigma was categorised into three domains using 11 items: experienced in communities, in health settings and internalised stigma (self-stigma). Qualitative data came from observations and key informant interviews.
Results: 1371/3859 (35.5%) of PLHIV reported at least one of 11 types of stigma. Reported stigma was more frequent in the community (22.1%) than in health settings (7.3%). Internalised stigma was common (22.5%). There was more internalised but less experienced stigma in health settings in Zambia than in South Africa. Structures and client-flow patterns identifying HIV status in clinics sometimes made PLHIV uncomfortable. Among PLHIV on treatment before the start of the trial, experienced community stigma was more commonly reported by those who had been non-adherent (aOR:1.52 95% CI:1.12-2.07). Stigma was experienced most acutely close to time of diagnosis.
Few CMs reported stigmatising attitudes, but many perceived that stigma was present. HWs rarely reported they would be ashamed if a family member was living with HIV (76/1439, 5.2%). In contrast, high proportions reported they would be ashamed if a family member were a man having sex with men (1065/1366, 80.0%), a woman selling sex (1100/1408, 78.2%) or a young woman falling pregnant before marriage (653/1432, 45.6%), especially in Zambia. However, HWs supported the rights of these groups to access health services.
Conclusions: HIV stigma remains a commonly experienced phenomenon for PLHIV. Going forward, it may be particularly important to address any negative effects of HIV stigma on treatment success, and to reduce stigma toward KPs.

TUPED506

'They are not responsible enough to use protection': The blind spot of stigma and discrimination towards young people in healthcare settings

D. Mark[1,2], K. Bloch[1], A. Ronan[1], H. Chorlton[1], L. Hatane[1]
[1]PATA, Cape Town, South Africa, [2]University of Cape Town, Psychology, Cape Town, South Africa

Background: Efforts to reach the 90-90-90 treatment targets in young people living with HIV (YPLHIV) are failing, with HIV testing, treatment and viral suppression rates worse than adults. UNAIDS warns that HIV-related stigma and discrimination in healthcare settings discourages YPLHIV from accessing HIV services. Confronting marginalisation in HIV care is critical to ensuring service access and positive treatment outcomes for YPLHIV.
Methods: In 2016-2017, Paediatric Adolescent Treatment Africa (PATA), a network of frontline health workers, conducted semi-strutured knowledge, attitudes and practices (KAP) surveys with 54 health providers from 29 health facilities across Kenya, Malawi, Uganda, Zambia and Zimbabwe, and 68 YPLHIV from Cameroon, DRC, Ethiopia, Malawi, Tanzania, Uganda, Zambia and Zimbabwe. Data were analysed using descriptive statistics and thematic coding to describe central tendencies and identify themes.
Results: Providers were most frequently nurses (41%), predominantly female (67%), and had a mean age of 38 years. Participating YPLHIV were predominantly female (59%), with a mean age of 22 years. Eighty-seven percent of providers reported training in care and support for YPLHIV, and most providers (85%) reported that YPLHIV do not receive inferior care. Ninety-eight percent of providers reported being comfortable talking about sexual and reproductive health (SRH) with YPLHIV, but 41% of YPLHIV reported fear discussing SRH with providers. While two-thirds of providers (76%) reported that they did not scold YPLHIV for requesting SRH services (76%), 41% of YPLHIV reported that they had been scolded.
Conclusions: Results indicate a discrepancy between health provider versus YPLHIV accounts of youth services. Providers seem to have little awareness of young people's experience of services as discriminatory. Fundamentally there remains a blind spot in providers' insight and willingness to provide services without judgement. To mitigate stigmatising health provider attitudes and practices, we recommend urgent and intensified health provider education, sensitisation and training on peo-

ple-centred healthcare and the rights of YPLHIV, as well as routinized engagement with YPLHIV. In particular, integration of YPLHIV as peer supporters within health facility teams and active YPLHIV patient feedback mechanisms build trust between YPLHIV and providers, improve YPLHIV service experiences and increase provider confidence.

TUPED507

Creating an enabling environment for equal employment opportunities at the workplace for sexual minorities and People living with HIV

T. Chopade, K. Roy, A. Kavi
The Humsafar Trust, Advocacy Unit, Mumbai, India

Background: Congenial employment conditions and fair working environments play an important role in determining a country's economic progress. Discrimination and non-inclusion of LGBTQ employees and People living with HIV (PLHIV) result in reduced job performance, employee disparity, lack of job security and limited access to health care services. The adverse legal environment in India also contributes to employment inequality, marginalization and socio-economic alienation for LGBTQ persons and PLHIV.
Description: The Humsafar Trust is a Community Based Organisation (CBO) and Sub-Recipient for Global Fund Round-9 funded Projects working in 27 states of India which focuses on sensitization of key policymakers and stakeholders. The advocacy initiative undertakes capacity building of organizations and emphasizes on having non-discriminatory policies in workplaces to curb violence and harassment faced by LGBTQ and PLHIV. Different methodologies including discussions, presentations, and theatre activities are employed to engage corporates and non-corporates into LGBTQ-friendly policy development and innovative initiatives to create safe workplaces.
Lessons learned: As a result of discussions with 38 corporates on the violence and discrimination at the workplace, crucial insights were obtained. There are very few corporates who have LGBTQ friendly policies in place. Those who have non-discriminatory policies do not proactively engage with LGBTQ and PLHIV inclusion due to the stigma attached to the subject. Furthermore, employees are not necessarily aware of existing policies and senior management is often not sensitive to LGBTQ issues. There were reports of instances of LGBTQ and persons living with HIV being denied access to health care, equal opportunities due to their sexual orientation and/or gender identity and HIV status.
Conclusions/Next steps: We need pro-active non-discriminatory and inclusive policies that specifically address issues around gender and sexuality. There is an urgent need for correct implementation of HIV AIDS law 2016 to maintain inclusivity that extensively addresses the varied dimensions of inequality. There is also a need for corporates, particularly multi-nationals who champion LGBTQ cause globally, to come forward and proactively advocate for LGBTQ-friendly policies through their Indian counterparts and franchisees.

Sr. No.	Methodology	Number of workshop	Number of stakeholders
1	Theatre performances	24	More than 800
2	Presentation & Film screening	10	165
3	Panel discussion & Talk	4	120
Total		38	1085

[Table Summary]

TUPED508

Fight for right: Discrimination response system in care and support programme in India

J. Kumar Nirmali, P. Pareek, D. Swami, N. Pathak, S. Agarwal
Hindusthan Latex Family Planning Promotional Trust, HIV/AIDS, Noida, India

Background: Hindustan Latex Family Planning Promotion Trust as the Sub- Recipient of Global Fund Round 4 RCC phase II grant through Alliance India is managing the Vihaan programme by establishing 30 Care and Support Centres (CSCs) and 1 Helpdesk in Punjab, Chandigarh, Haryana, Chhattisgarh and Rajasthan State as part of national effort with a key objective to improve the survival and quality of life of PLHIV including those who are members of high-risk groups, women and children.
Description: CSC is a comprehensive facility providing counseling, referral, outreach services and linkages to social entitlements and welfare schemes to the registered PLHIV. Addressing discrimination is a key aspect of reducing vulnerability as well as fostering quality life of PLHIV community therefore, every CSC has community led Discrimination Response System (DRS) to establish an effective and sustainable mechanism. Under this system, a Discrimination Response Team (DRT) created consist of representation of lawyers, journalist, DLN/CBO/NGOs, district officials, healthcare providers, etc.
A total of 29 DRT are functional and addressing issues in adequately to ensure fundamental rights of PLHIV. The total (282) discrimination cases are reported and resolved by DRT. A gender analysis of data reveals that female (58.51%) reported more stigma and discrimination compare to male (34.40%), and shows vulnerability of women and further followed by children (5%) and TG community (3%). Further from the total the majority of discrimination incidences were reported by Family Members (55.81%) and Health Facility (23.5%). The incidents are responded and resolved further documented to emerge the advocacy efforts for PLHIV.
Lessons learned:
· Disclosure plays immense role and related to Stigma and discrimination
· Sensitization meetings with community and families is needed utmost
· Regular interaction with clients and their family is very important to address issues at the earliest.
· Partnership efforts with CSO,CBO, DLN and Governments system to respond effectively.
Conclusions/Next steps: DRT and dwindling of stigma and discrimination are closely related and plays crucial role in reducing vulnerability as well as fostering quality of life of PLHIV. Hence, it should be a key component of all HIV related programme.

TUPED509

"Stigma and discrimination-free zones": An innovative approach to engaging the private and public sectors in creating more inclusive environments for key populations in Central America

S. Lungo[1], A. Cabrera[1], C. Pineda[2]
[1]Pan American Social Marketing Organization, Strategic Communication, Guatemala City, Guatemala, [2]Pan American Social Marketing Organization, Strategic Communication, San Salvador, El Salvador

Background: Central America's HIV epidemic is concentrated in key populations (KPs): MSM, transgender women (TW), and female sex workers (FSW). Despite existing HIV laws and policies that respond to KP's specific needs, there is evidence of widespread discriminatory attitudes and practices towards these populations, and stigma and discrimination (S&D) continue to be important barriers to accessing HIV services and care. In 2016, under the USAID Combination Prevention Program for HIV in Central America, the Pan American Social Marketing Organization (PASMO) designed an intervention entitled "stigma and discrimination-free zones" as part of a broader initiative known as Generation Zero, contributing to the goal of "getting to zero discrimination".
Description: PASMO developed guidelines and works with public and private sector institutions, companies, and other organizations to meet five criteria that would allow them to become "stigma and discrimina-

tion-free zones": 1) A commitment letter to complete the accreditation process, 2) An internal action plan and system for reporting cases of S&D, 3) An internal employee committee responsible for follow-up, 4) Training and sensitization of staff in human rights, sexual and reproductive rights, gender, masculinities, sexual diversity, HIV/AIDS, S&D and gender-based violence; and 5) An updated HIV, S&D workplace policy. PASMO provides the technical assistance to meet the criteria and facilitates the training and sensitization sessions in coordination with other Generation Zero partners, such as local National AIDS Programs.
Lessons learned: In 2017, PASMO successfully completed the "stigma and discrimination-free zone" process with three major public institutions in El Salvador: The Justice Sector's Technical Executive Unit, the Public Health Superior Council, and the Human Rights Offices of San Miguel and Santa Ana, in which a total of 267 administrative, operational, and other staff were trained and sensitized. In Guatemala and Panama, the initiative appealed to corporate social responsibility efforts aligned with local HIV laws, allowing PASMO to engange two private sector companies and their employees.
Conclusions/Next steps: The "stigma and discrimination-free zone" initiative allows PASMO to engage private sector partners and important public institutions to create sustainable, long-term efforts to reduce S&D towards KPs and persons living with HIV in Central America and to operationalize existing HIV laws and policies.

TUPED510

Experiences of discrimination increase the risk of depression and suicidal ideation among men who have sex with men and transgender in Nepal

K. Deuba[1], U. Shrestha[1], B. Rawal[2], R.P. Khanal[3], R.K. Bhattarai[4], B.D. Pandey[2], R. Shrestha[5], A.M. Ekstrom[6]
[1]National Center for AIDS and STD Control/Global Fund Programs, Kathmandu, Nepal, [2]National Centre for AIDS and STD Control, Ministry of Health, Kathmandu, Nepal, [3]National Centre for AIDS and STD Control/ Global Fund Programs, Kathmandu, Nepal, [4]Save the Children, Kathmandu, Nepal, [5]Public Health and Environment Research Center, Lalitpur, Nepal, [6]Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden

Background: Experiences of discrimination may act as a stressor and result in adverse health outcomes. Still, the extent to which experiences of discrimination increase the risk of depression and suicidal ideation among men who have sex with men (MSM) and transgender people (TG) remains unknown in low-income countries. We examined the prevalence of discrimination experiences on the basis of sexual orientation in different situations among MSM and TG in Nepal, and assessed the association between discrimination and depression including suicidal ideation.
Methods: In this quantitative study, 740 MSM and TG 16 years of age or above were recruited using respondent driven sampling (RDS) between May 2017 and July 2017 from four districts of Nepal. Face-to-face interviews were conducted to collect the information. A modified version of the Experience of Discrimination (EOD) tool developed by Krieger and Center for Epidemiological Studies Depression (CES-D) scale was used. MSM and TG were asked about discrimination in relation to their sexual orientation regarding eight different situations (school, getting hired, work, getting housing, getting medical care, getting service in a store or restaurant, public settings, and to interactions with the police or other security personnel). The assessment of suicidality was based on three dichotomous items asking for lifetime prevalence of suicidal ideation, planned suicide, and attempted suicide. RDS-II estimates were used for the calculation of probability weights and RDS-adjusted prevalence. Statistically significant associations between independent variables and depression including suicidal ideation were computed using multivariable logistic regression.
Results: Experience of discrimination in at least one setting was reported by 47% of all participants (RDS-adjusted estimate: 47%; 95% CI: 42%-52%) and higher among TG than MSM (58% vs 42%). The prevalence of suicidal ideation (9%) and depression (35%) was also high. Experience of discrimination in at least one setting increased the likelihood of depression (4.6 adjusted odds ratio (AOR); 95% confidence interval (CI) =1.5-6.5) and suicidal ideation (3.1 AOR; 95% CI=2.9-7.2).

Perceived Discrimination	MSM (n=513)	TG (n=227)	Overall (n=740)	
	Frequency (%)	Frequency (%)	Frequency (%)	RDS-Adjusted % (95% CI)
At School (Yes)	34(5.5)	20(9.8)	54(6.9)	6.9(4.8-9.6)
Getting hired or Job (Yes)	20(2.3)	20(8.0)	40(4.1)	4.1(2.7-6.3)
At work (Yes)	83(18.3)	46(28.4)	129(21.6)	21.6(17.6-26.1)
Getting Medical Care (Yes)	37(5.0)	16(5.5)	53(5.2)	5.2(3.5-7.7)
In the street or in a public settings (Yes)	165(29.6)	72(40.8)	237(33.2)	33.2(28.7-38.0)
From Police Security Personnel (Yes)	87(6.9)	23(7.0)	110(6.9)	6.9(5.0-9.6)
Getting service in a store or restaurant (Yes)	117(20.4)	51(35.0)	168(25.1)	25.1(21.0-29.8)
Family Rejection (family force them to live outside of home because of their sexual orientation) (Yes)	47(10.6)	18(10.9)	65(10.7)	10.7(7.8-14.5)

[Table 1: Perceived discrimination on the basis of sexual orientation among MSM and TG in Nepal in 2017]

Conclusions: Experience of discrimination increases the risk of depression and suicidal ideation is common among MSM and TG in Nepal. Structural interventions need to be added to the existing HIV programs to mitigate the burden and consequences of discrimination.

TUPED511

Human Rights Violations in the Framework of Mandatory Health Checks for Sex Workers in Austria

C. Nagl
Projekt PiA, Salzburg, Austria

Background: In Austria, registered and voluntary sex work is legal, but regulated differently in each federal state. What is common for all states, however, is the fact that sex workers have to undergo mandatory health checks in order to get a permission to work. Austria is the last state within Europe, which did not abolish mandatory health checks for sex workers. The law is kept for the sake of "national health" (*Volksgesundheit*) and is a remnant of the Hitler-era.
Description: The fact is that these health checks are performed under inhumane conditions and women are neither informed about their health situation, nor do they get sufficient support about possible treatments. A sex worker forum in Vienna submitted a shadow report to the UNCAT (United Nations' Committee against Torture), describing the degrading conditions during the health checks.
Lessons learned: First of all, the health checks are not conducted under circumstances granting doctor-patient confidentiality. Often, women have to put down their trousers before they even enter the examination room and examinations can be heard by third party individuals. Sex workers complain about severe pain after the examinations, sometimes not being able to work for a certain amount of time. It happens that women "pass" the examinations albeit having issues like genital warts. On top of that, women are exposed, since it is known when these checks are performed, so anybody who is looking for specific women knows where to find them. Next to pain and exposure, women have to deal with degrading comments by the staff. Because of these health checks, owners of brothels advertise with "healthy girls", which encourages a lot of clients to ask for unsafe sex practices. In sum, this policy does not only fail in tackling sexually transmitted infections, but pushes women into high risk working conditions..
Conclusions/Next steps: In the framework of PiA, we try to lobby against this inhumane policy, but the state and administrative institutions are not willing to give it up. The main argument is „protecting" sex workers, while seriously putting sex workers in multiple kinds of dangers.

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TUPED512

Global trends in HIV criminalisation: Overview, analysis and country ranking

E.J. Bernard, S. Cameron
HIV Justice Network, Brighton, United Kingdom

Background: HIV criminalisation describes the unjust application of criminal law to people living with HIV based on HIV-positive status, either via HIV-specific criminal statutes or general criminal or similar laws. Such state-sponsored stigma and discrimination within the criminal justice system is a barrier to universal access to HIV prevention, testing, treatment and care, and a human rights issue of global concern.
Methods: A global audit of HIV-related arrests, investigations, prosecutions and convictions. Abstract covers October 2015 to September 2017, final data will be presented to April 2018. Despite changes to previous methodology including new regional hubs and use of multi-lingual staff with strong regional contacts, these data should be considered illustrative of a more widespread, undocumented use of criminal law against people with HIV. Countries were ranked based on the total number of cases per 1000 people living with diagnosed HIV during the audit period.
Results: Sixty eight countries have HIV-specific criminal laws. During the audit period, four new HIV-specific criminal laws were proposed (Cameroon, Malawi, Nepal, and Quintana Roo, Mexico); a new law was enacted in El Salvador; proposed problematic statutes were withdrawn in Brazil, Malawi and several United States (US) states; and in Kenya one of two HIV-specific criminal statutes was suspended after being ruled unconstitutional.
At least 69 countries have ever used HIV-specific or general laws to prosecute people with HIV for alleged HIV non-disclosure, potential or perceived exposure or non-intentional transmission. Norway modernised its non-specific law to allow for disclosure and ´treatment as prevention´ defences. Cases were reported for the first time in ten countries: Honduras, Kenya, Kyrgyzstan, Israel, Malawi, Northern Ireland, Nigeria, Paraguay, Somalia and Tajikistan.
The majority of reported cases occurred in the US, Belarus, Russia, Canada and Zimbabwe. Belarus, the Czech Republic and New Zealand had the greatest number of *per capita* cases, although several individual US states (Iowa, Tennessee, Ohio, Michigan, Indiana and Kentucky) ranked higher *per capita* than most countries.
Conclusions: Despite a more co-ordinated approach to national, regional and international advocacy, and to case montoring, HIV criminalisation does not appear to be diminishing fast enough, requiring further urgent attention, focus and funding.

TUPED513

The power of stigma: Experiences of HIV-positive MSM in healthcare services in Puerto Rico

E. Santiago-Rodríguez, R. Vargas Molina, C. Rodríguez-Díaz
University of Puerto Rico, School of Public Health, San Juan, Puerto Rico

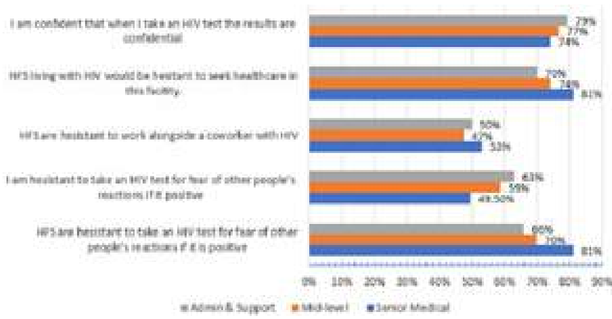
Background: Puerto Rico (PR) has a highly homophobic, patriarchal and extremely religious culture. More than 35 years into the HIV epidemic, stigma is still manifested by many, especially by healthcare providers (HCP). This causes detrimental social and medical implications for people with HIV. Stigma enacted as prejudice and discrimination in the context of healthcare have been associated with challenges in patient's care continuum. This is particularly true for HIV-positive men who have sex with men (MSM) who are otherwise disenfranchised in health services. Greater attention needs to be paid to stigma as a Social Determinant of Health for HIV. However, limited research has been conducted to understand how stigma impacts the retention in HIV care, particularly of HIV-positive MSM in highly-stigmatizing contexts such as PR.
Methods: A qualitative study was conducted using in-depth semi-structured interviews with 19 HIV-positive MSM. Participants were cis-gender males, at least 16yo, and sexually active during the three months prior to the interview. Interviews, conducted in Spanish, included three thematic areas: experiences with HIV testing and treatment, engagement in care, and experiences with HCP. Content analyses were performed using NVivo V-10.
Results: Both HIV stigma and Gay stigma were documented by participants. Issues with confidentiality, poor quality HIV services, disclosure of sexual orientation and HIV status, and linkage to care were among participants' main concerns. They emphasized on discriminating actions by HCP, citing ultraconservative cultural influences for their stigmatizing attitudes. Also, experiences of stigmatization by mental health providers based on their sexual identity was consistently mentioned by participants. The quality of the interaction between HCP and participants greatly influenced the willingness to disclose HIV status and sexual orientation and to choose providers and health care settings.
Conclusions: Experiences of stigma in healthcare settings prevent people with HIV from engagement and retention in continuum of care. Future interventions should invest in culturally-appropriate training for HCP to address stigma and how to provide appropriate services to gay, bisexual men and other MSM. This way we can move forward to eradicating stigma and assuring the quality of life of those affected by HIV/AIDS.

TUPED514

Measuring stigma and discrimination in health facilities in Ghana for intervention design: Fear of HIV status disclosure and lack of confidentiality are key actionable factors

N.A. Addo[1], K. Atuahene[2], E. Gyamera[1], C. Stewart[3], S. Jacinthe[4], E. Essandoh[4], P. Mingkwan[3], L. Nyblade[5]
[1]*Educational Assessment and Resource Center, Accra, Ghana,* [2]*Ghana Aids Commission, Accra, Ghana,* [3]*HP+/RTI International, Washington, United States,* [4]*United States Agency for International Development, Accra, Ghana,* [5]*HP+/RTI International, Global Health Division, Washington, United States*

Background: Health-facility stigma and discrimination (S&D) undermine access to and retention in HIV-services. Health-facility S&D data are essential to tailoring evidence-based S&D-reduction interventions and catalyzing action. In response, the USAID-and-PEPFAR-funded Health Policy Project has partnered with the Ghana AIDS Commission and the Educational Assessment Resource Center, with support from the Global Fund, to measure health-facility HIV-related S&D from the perspective of health facility staff(HFS) and clients. These data have informed the design of a tailored whole-facility HIV-S&D-reduction intervention that engages all levels of staff(medical and non-medical) in improving quality of care while also providing baseline data for an ongoing intervention evaluation.
Methods: Surveys in 20 high HIV caseload facilities in 5 regions with all levels of HFS(1841 female/990 male) and clients living with HIV(192 female/68 male). Key measures included:
1) S&D actionable drivers (fear/attitudes/facility environment) and observed discrimination among HFS;
2) anticipated/experienced S&D, avoidance/delay of health services, and perceptions of health-facility policies among clients.
Results: Fear of status disclosure and lack of confidentiality emerged as a key area to address for S&D-reduction. 36% of clients reported not using their closest HIV facility for HIV care. 74% reported at least one stigma-related reason for not doing so; fear of status disclosure was the most frequently cited(Table 1). 30%(33%female/23%male) of client respondents do not believe their facility keeps HIV records confidential. 7% of clients(female:9%/male:3%) reported that HFS at their regular HIV facility disclosed their HIV status without their consent in the last 6 months. 9% of clients and 27% of HFS reported observing HFS disclosing a client's HIV status without their consent in the past 6 months. Concern over S&D is relected in HFS' own hesitancy to seek HIV testing for fear of stigma, as well as their perception of co-workers' hesitancy to test for HIV, seek treatment if they were living with HIV, and work alongside co-workers living with HIV (Figure 1).
Conclusions: Data from this study were used to tailor whole-facility S&D-reduction interventions. Ensuring confidentiality is an essential part of this approach and critical to reducing anticipated and experienced S&D, and improving service access for and retention of clients living with HIV.



[Figure 1. HIV-related health facility environment for HFS]

	Female (n=192)	Male (n=68)	Total (n=260)
Do not use the nearest facility with HIV services for HIV care	34.9% (67/192)	38.2% (26/68)	35.8% (93/260)
Reasons for not using the closest facility: (n=93)			
1. Fear of HIV status disclosure	70.2% (47/67)	50.0% (13/26)	64.5% (60/93)
2. Fear of discrimination or poor treatment	47.8% (32/67)	30.8% (8/26)	43.0% (40/93)
3. Had a previous negative experience at this healthcare	16.4% (11/67)	7.7% (2/26)	14.0% (13/93)
4. Fear will be denied services	7.5% (5/67)	11.5% (3/26)	8.6% (8/93)
Composite indicator (at least one of the four stigma-related scenarios, items #1-4)	**76.1% (51/67)**	**69.2% (18/26)**	**74.2% (69/93)**
5. Logistical concerns	28.4% (19/67)	30.8% (8/26)	29.0% (27/93)

[Table 1: Percent of respondents not using nearest health facility for HIV services and reasons for not using closest facility, by sex]

TUPED515

"What is not measured is not managed" - implementing a routine technology-based patient feedback system to reduce stigma and discrimination in key population HIV services in Malawi

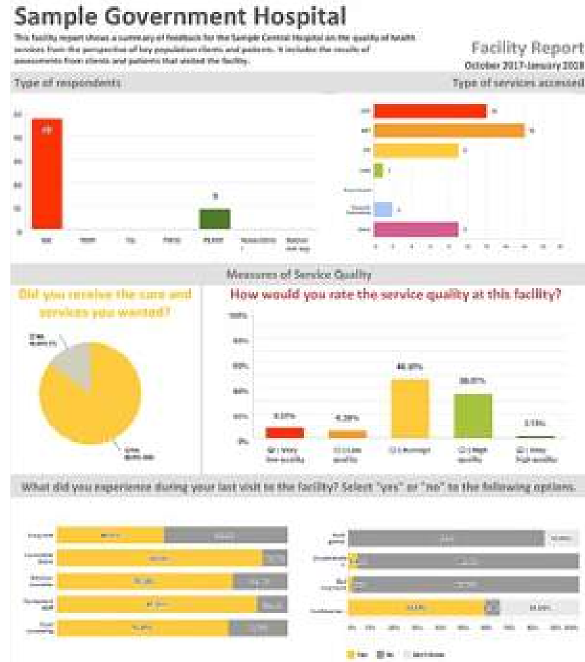
B. Eveslage[1], L. McManus[2], C. Banda[3], S. Kalyati[3]
[1]FHI 360, Global Health Population and Nutrition, Washington, United States, [2]IntraHealth International, Chapel Hill, United States, [3]FHI 360, Lilongwe, Malawi

Background: Stigma and discrimination (S&D) limit key populations' (KP) access to HIV and other health services. However, most HIV programs do not systematically monitor S&D in health settings and are therefore unable to manage and reduce it to improve services.

Methods: The USAID- and PEPFAR-supported LINKAGES project developed a technology-based service quality monitoring system called "SMS²" to routinely collect feedback from KP referred to health facilities. In October 2017, the LINKAGES project in Malawi implemented SMS² with 30 community outreach workers (ORW) in 6 districts using online assessments with Survey Monkey, smartphones, and mobile data packages to assess KPs' perceptions of health facilities or experiences of S&D and service quality issues during recent facility visits. Surveys were continuously implemented during routine outreach activities.

Results: From October 2017 to January 2018, KPs completed 1052 assessments (62% from sex workers, 34% from men who have sex with men [MSM], and 6% from transgender individuals). Nine percent of KPs reported living with HIV. Approximately 85% of assessments captured experiences during facility visits and 14% assessed KPs' perceptions of referral facilities they had not yet visited. Of 103 different health facilities assessed using SMS², 13 facilities accumulated 20 or more assessments that could be used to generate live facility-specific dashboards to inform quality improvement activities at those facilities (see Figure 1 for example). Facilities in Mangochi district received the highest average service quality rating (3.75 out of 5), while Lilongwe, Machinga, and Zomba had the lowest score of 2.9 each - but only in Zomba did this correspond with high rates of S&D experienced in facilities. Feedback from sex workers and KPs living with HIV reported the lowest service quality ratings. MSM and transgender people were most likely to report staff gossip and MSM were most likely to report being denied health services. Transgender respondents' perceptions of S&D were much higher than other KPs, however, actual experiences at facilities were comparable with other KPs.

Conclusions: Technology-based and community led-monitoring systems like SMS² can systematically monitor S&D in health settings, thereby allowing programs to manage and reduce S&D and increase patient satisfaction to increase uptake of services.



[Figure 1: Sample Facility Report from Anonymized Government Hospital in Machinga District, Malawi]

TUPED516

HIV related stigma and discrimination among health care providers and people living with HIV In Thailand

T. Siraprapasiri[1], L. Johnston[2], P. KhemNgern[1], K. Srithanaviboonchai[3], J. Chueayen[3], S. Chariyalertsak[4], P. Benjarattanaporn[5]
[1]Ministry of Public Health, Department of Disease Control, Nonthanburi, Thailand, [2]Consultant UNAIDS, Bangkok, Thailand, [3]Chiang Mai University, Research Institute for Health Science, Chiang Mai, Thailand, [4]Chiang Mai University, Faculty of Public Health, Chiang Mai, Thailand, [5]UNAIDS, Bangkok, Thailand

Background: Thailand is committed to zero stigma and discrimination against people living with or affected by HIV (PLHIV) and key populations. We present findings from surveys measuring stigma and Discrimination among Health Care Providers (HCP) and PLHIV.

Methods: Surveys were conducted in Bangkok and Chiang Mai using purposeful sampling of clusters, and in 16 other provinces using multi-level cluster sampling. Data from sampled provinces were extrapolated to unsampled provinces and weighted by HCP or PLHIV population sizes in all provinces (n=77) to calculate a weighted mean average for each indicator.

Results: In the past year, 24% of HCP observed stigma or discriminatory practices towards PLHIV and between 4.2% and 4.8% observed HCP unwilling to care for a patient who is or thought to be a man who has sex with men, transgender or female sex worker, 7.9% observed HCP unwilling to care for a patient who is or thought to be someone who injects drugs and 12.2% observed HCP unwilling to care for a patient who is or thought to be a migrant. 60.9% of HCP experienced personal fear of HIV infection and 53.1% reported using unnecessary precautions to avoid HIV infection from a PLHIV. 84% of HCP felt they stigmatized PLHIV. In the past year, 13% of PLHIV and 12% of females who became pregnant since learning of their positive HIV status avoided/delayed health care because of fear of stigma and discrimination. 5% of PHLIV were coerced/advised to terminate a pregnancy in the past year. 12% of PLHIV experienced stigma and discrimination in a health care setting and 24.5% reported HIV disclosure/non-confidentiality in a health care facility in the past year. 31.4% of PLHIV experienced internal stigma in the past year.

Conclusions: Thailand has been a global leader in formulating national monitoring systems to measure S&D and creating an evidence base for S&D reduction programs. By the time of the 22nd International AIDS Conference data from a larger number of locations using the same questionnaire conducted in late 2017 will be available and presented.

TUPED517

Double stigma affecting HIV-positive people who use drugs in Ukraine and care integration

T. Kiriazova[1], O. Makarenko[1], Y. Sereda[1], N. Rybak[2], A. Chybisov[3], F. Gillani[2], T. Flanigan[2], J.H. Samet[4], K. Lunze[4]
[1]Ukrainian Institute on Public Health Policy, HIV and Addiction Research, Kyiv, Ukraine, [2]Brown University, Warren Alpert Medical School, Providence, United States, [3]Brown University, School of Public Health, Providence, United States, [4]Boston Medical Center/Boston University, CARE Unit, Boston, United States

Background: Stigma related to both HIV and substance use (SU) affects HIV-positive people who use drugs (PWUD) in Ukraine. While integration of HIV and SU treatment improves access to care and care outcomes, its effect on internalized stigma is unknown. This study assessed HIV and SU stigma perceived by HIV-positive PWUD in addiction treatment, and associations of stigma with care integration in Ukraine.

Methods: We conducted a cross-sectional survey of HIV-positive PWUD, receiving opioid agonist treatment (OAT), in six regions of Ukraine, at 3 facilities providing addiction treatment only and 3 integrated facilities providing both SU and HIV care. Primary outcomes were total HIV and SU stigma scores measured with Berger Scale and Substance Abuse Stigma Scale, respectively. We assessed the facilities' user-friendliness and accessibility, on-site support from non-governmental organizations (NGO), regular HIV care visits, receiving ART, receiving OAT, and presence of depressive symptoms as predictors of stigma in linear and logistic regression models.

Results: Study participants (n=191) had the following characteristics: 75% male; mean age 40; 59 % unemployed; mean time in OAT 34 months; and 73% receiving NGO services at OAT site. Levels of HIV stigma (mean 0.39 out of 1; 95% CI:0.36-0.41) and SU stigma (mean 0.41 out of 1; 95% CI:0.38-0.43) were similar. Receiving integrated services was not associated with total HIV stigma (AOR=1.08; 95% CI:0.59-1.98) or SU stigma scores (AOR=1.16; 95% CI:0.60-2.25). SU stigma was the only predictor of HIV stigma (AOR=2.59; 95% CI:1.41- 4.85). SU stigma was associated with high HIV stigma (AOR=3.01; 95% CI:1.58;5.91), depressive symptoms (AOR=2.00; 95% CI:1.01-3.97), and being unemployed (AOR=2.10; 95% CI:1.04-4.32). Receiving NGO services on-site was associated with lower SU stigma (AOR=0.27; 95% CI:0.12-0.59).

Conclusions: In our study, integrated treatment was not associated with a significant decrease in substance use or HIV stigma. Findings indicate that targeted interventions are necessary at integrated and non-integrated care facilities to address both forms of stigma affecting HIV-positive PWUD. Reinforcing protective factors such as NGO support at addiction care facilities, including assistance with employment, might help mitigate the highly persistent stigma related to substance use and its potential interaction with HIV stigma in Ukraine.

TUPED518

HIV and substance use stigma among non-specialized medical care providers in Ukraine

O. Makarenko[1], T. Kiriazova[1], K. Lunze[2]
[1]Ukrainian Institute on Public Health Policy, Kyiv, Ukraine, [2]Boston Medical Center, CARE Unit, Boston, United States

Background: HIV-positive people and people who use drugs (PWUD) experience multi-level stigma in the community and in health services in Ukraine. Decentralization of services within current health care reform implies that HIV and drug addiction treatment (ART and opioid agonist treatment (OAT)) will be provided at primary care level. With this study, we explored the opinions of HIV-positive PWUD in OAT program and health providers at OAT sites about stigma faced by patients with HIV and addiction at non-specialized health care facilities.

Methods: In August-September 2017, we conducted six focus groups with HIV-positive OAT patients and 13 in-depth interviews with their health providers at six OAT sites in five regions of Ukraine. Interviews were transcribed verbatim, and a thematic analysis was performed.

Results: Forty-seven OAT patients (18 were women, 66% unemployed, aged 30-55 years) and 13 providers (7 narcologists, 3 infectious disease physicians, 2 social workers, 1 psychologist, aged 32-61 years) participated in the study. Across all sites, all participants described stigma towards HIV-positive PWUD, specifically at non-specialized care facilities. While stigma towards HIV-positive patients has been decreasing in Ukraine health care system, this is not the case regarding HIV-positive PWUD. Patients reported referring to their OAT physicians with all kinds of health problems, as providers at other facilities often "did not treat them like humans" and avoided providing services to them. According to providers, physicians of other specialties associate both people in active drug use and OAT patients with criminal behavior, seeing them as non-reliable, non-complient with treatment, and, most important, impecunious patients. However, all respondents admit, that if a PWUD can pay for the medical services, he will be treated differently.

Conclusions: Due to limitations of existing programs, providers at non-specialized health facilities are poorly informed about problems of HIV infection and drug addiction. Education on these diseases is necessary for physicians of all specialties to reduce stigma related with HIV and addiction. The attitude towards patients based on their financial capacity must be taken into account in the context of health care reform, when physicians will be paid depending on the number of patients and the quality of care.

TUPED519

Exploring the mediating effect of HIV-related stigma on the HIV counselling and testing service utilisation in Nigeria - A PLS-SEM approach

F.O. Adekunjo[1], R. Rasiah[1], M. Dahlui[2,3], C.W. Ng[3,4]
[1]University of Malaya, Department of Development Studies, Kuala Lumpur, Malaysia, [2]University of Malaya, Department of Social and Preventive Medicine, Faculty of Medicine, Kuala Lumpur, Malaysia, [3]University of Malaya, Julius Centre, Department of Social and Preventive Medicine, Kuala Lumpur, Malaysia, [4]University of Malaya, Department of Social and Preventive Medicine, Kuala Lumpur, Malaysia

Background: HIV/AIDS is a severe health problem in Sub-Saharan Africa. Globally, Nigeria is second in a number of people living with HIV/AIDS (3.2 million) after South Africa. HIV Counselling and Testing (HCT) is regarded as a critical entry point to other essential HIV/AIDS prevention and intervention programmes**.** However, HIV-related stigma pose severe threat to its success in Nigeria. Although many studies have been carried out on the role of stigma on HIV/AIDS programmes, but studies that explored the mediating impact of the HIV-related stigma on the relationship of willingness to do HIV test, perceived threats of HIV/AIDS and benefits of HCT, and HCT service utilisation in Nigeria is very scarce. The aim of this study is to assess the mediating impact of HIV-related stigma on the relationship of willingness to partake in HIV testing, perceived threats of HIV/AIDS, perceived benefits of HCT and HCT service utilisation in Nigeria using PLS-SEM approach.

Methods: We assessed latent construct of HIV-related stigma as a mediator on the relationship of perceived benefits of HCT, perceived threats of HIV/AIDS, willingness to do HIV test and HCT service utilisation using 768 respondents from cross-sectional survey data collected in three Local Government Areas of Lagos State, Nigeria. We employed Partial Least Square-Structural Equation Modelling (PLS-SEM) method to analyse mediation effects of the research model.

Results: Mediational analysis results revealed that HIV-related stigma was significant and fully mediated the relationship between the willingness to do HIV testing and HCT utilisation (= *0.007; p*=0.049), while on the other hand, it partial mediated the relationship between perceived benefits of HCT and HCT utilisation (=*-0.009; p*=0.018), and perceived threats of HIV/AIDS and HCT service utilisation (=-0.014; *p*=0.008).

Conclusions: In spite of the perception of individuals about the threat posed by HIV and the benefits accrue to having HIV test; fear, rejection, and stigma associated with being tested positive constitute severe hindrances to accessing HCT services in Nigeria. Therefore, for Nigeria to

achieve 90-90-90 HIV targets by 2020 and Sustainable Development Goals (SDGs) in health by 2030, efforts must be geared towards eradication of HIV-related stigma in the society.

TUPED520

The law alone cannot end HIV-stigma and discrimination: Lessons from the Kenya HIV Tribunal Kenya

N. Otwoma[1], P. Anyumba[2], J. Mwilu[3]
[1]NEPHAK, Coordination, Nairobi, Kenya, [2]Kenya Judiciary, HIV Tribunal, Nairobi, Kenya, [3]Ministry of Health, HIV Tribunal, Nairobi, Kenya

Background: Established under Section 25 of the HIV Prevention and Control Act of 2006, the HIV and AIDS Tribunal of Kenya is a HIV-specific statutory body with the mandate to adjudicate cases relating to violations of HIV-related human rights. The Tribunal commenced its work in 2009 and has since kept the promise to advance the human rights of people living with and affected by HIV in Kenya, notably through addressing barriers to access to justice, swift ruling, and purposeful application of the law.
Description: Between 2015 and 2017, the HIV Tribunal received 460 cases seeking redress through litigation based on its mandate to "hear and determine complaints arising out of any breach of the provisions of the Act". Of these, 340 applications met the legal threshold for full-fledged litigation. This means that 120 applications (26%) did not meet the legal threshold required by the Tribunal for litigation. Ten complaints were criminal in nature and referred to the Kenya High Court while 21 could not be litigated because the Tribunal cannot act retrospectively. Of the successfully litigated cases, 62% had to do with discrimination at workplaces, 12% with HIV malpractices that contravened the provisions of HAPCA and 5% with discrimination of young learners living with HIV within learning institutions. Cases stigmatization, verbal abuse and isolation, including by family members did not meet the threshold for litigation.
Lessons learned: Through its composition, mandate, procedures, and decisions, the Tribunal is emerging as a positive mechanism for enforcing HAPCA and for protecting the rights of PLHIV. The tribunal is able to address the challenges relating to access to justice and rights-based judicial decisions for people PLHIV, mainly because it´s sensitive to and knowledgeable on HIV issues, less cumbersome proceedings that protect confidentiality and privacy, and speedy rulings. A positive feature of the Tribunal is its effective referral arrangements to other bodies, including for psycho-social support
Conclusions/Next steps: HIV Tribunal is an excellent mechanism for protecting the rights of PLHIV. However, the high number of complaints received by it but not meeting the legal threshold is reminder that the law alone is not enough to eliminate HIV-related stigma and discrimination.

TUPED521

Status disclosure is closely associated with social HIV discrimination and self-stigma: Lessons learned from the implementation of the people living with HIV Stigma Index in Taiwan

Y.C. Chiu[1,2], T.-S. Wu[1], Y.-T. Lee[3,4], N.-C. Wang[5], W.-W. Wong[6], C.-E. Liu[7], C.-W. Li[8], J.-W. Liu[9], H.-S. Lin[10], Y.-H. Hsiao[1,2], Y.-H. Lin[2], N.-Y. Chen[1]
[1]Division of Infectious Diseases, Department of Internal Medicine, Chang Gung Memorial Hospital Linkou Branch, Chang Gung University College of Medicine, Taoyuan, Taiwan, Province of China, [2]Persons with HIV/AIDS Rights Advocacy Association of Taiwan, Taipei, Taiwan, Province of China, [3]School of Medicine, Chung Shan Medical University, Taichung, Taiwan, Province of China, [4]Chung Shan Medical University Hospital, Department of Internal Medicine, Taichung, Taiwan, Province of China, [5]Tri-Service General Hospital and National Defense Medical Center, Department of Internal Medicine, Taipei, Taiwan, Province of China, [6]Taipei Veterans General Hospital, Taipei, Taiwan, Province of China, [7]Changhua Christian Hospital, Department of Internal Medicine, Changhua, Taiwan, Province of China, [8]National Cheng Kung University Hospital, Department of Internal Medicine, Tainan, Taiwan, Province of China, [9]Chang Gung Memorial Hospital Kaohsiung Branch, Department of Internal Medicine, Kaohsiung, Taiwan, Province of China, [10]Chang Gung Memorial Hospital Chiayi Branch, Department of Internal Medicine, Chiayi, Taiwan, Province of China

Background: Disclosure of HIV positive status is important for getting appropriate medical or psychological supports and for secondary prevention. However, it is generally thought as a sequential decision making process that may involve many factors. The aim of this study is to delineate the relationship between status disclosure and self-, social stigma/discrimination.
Methods: A cross-sectional nationwide survey using the People Living with HIV Stigma Index was conducted in Taiwan in 2017. People living with HIV (PLHIV) who were willing to participate in the survey were referred from HIV-associated NGOs and treatment centers to trained interviewers for face to face private interviews. A total of 842 (3% total PLHIV population in Taiwan) valid questionnaires were collected. Demographic information, self-stigma and social discrimination events were extracted from the pooled data and analyzed.
Results: We found that during the early years of infection (1-4 years), a person was more willing to disclose his/her HIV status to social workers if there was less self-stigma ($p < 0.05$). A person with less self-stigma also tended to talk to his/her friend about his/her HIV infection. In contrast, among those living with HIV for 10-14 years, persons with higher self-stigma were less likely to have disclosed his/her status ($p < 0.05$). Importantly, social discrimination experiences from the partner, family, friends, co-workers, employers, religious leaders and medical staff were all in positive association with the extent of self-stigma ($p < 0.05$). A stronger self-stigma was also related to the fear of potential discrimination events ($p < 0.05$). Among the key populations, participants that used intravenous drugs were associated with higher extent of self-stigma ($p < 0.05$).
Conclusions: Our study showed that status disclosure is closely associated with social HIV discrimination and self-stigma. Building a supportive system without HIV discrimination may facilitate status disclosure of PLHIV and may assist in timely delivering of medical/psychological resources to those in need.

Representations of stigma: social attitudes, media, and public debate

TUPED522

Status of HIV/AIDS-related stigma and its relationship with the mental health of HIV-positive persons in Japan

Y. Inoue[1,2,3], S. Abe[4], T. Togari[1], G. Oshima[5,6], N. Katakura[7], A. Yamauchi[8], Y. Takaku[9], HIV Futures Japan Project
[1]Open University of Japan, Chiba, Japan, [2]Nationcal Cancer Center Japan, Tokyo, Japan, [3]Accelight Inc., Tokyo, Japan, [4]TIS Inc., Tokyo, Japan, [5]Hitotsubashi University, Kunitachi, Japan, [6]Japan Society for the Promotion of Science (JSPS), Tokyo, Japan, [7]Kobe City College of Nursing, Kobe, Japan, [8]Ryotokuji University, Urayasu, Japan, [9]Japanese Network for People Living with HIV/AIDS, Tokyo, Japan

Background: HIV/AIDS-related stigma leads to the unfair, unjust treatment of HIV-positive persons based on discrimination against or biased views on them. Previous quantitative studies in Japan rarely examined their frequency of perceiving or experiencing such stigma. The present study examined the status of HIV/AIDS-related stigma, including changes in its pattern, as well as its influence on the mental status of HIV-positive persons, through 2 online questionnaire surveys separately conducted in Japan.
Methods: Two anonymous, self-administered online questionnaire surveys were conducted by the HIV Futures Japan Project. The first survey (T1) was conducted between 2013 and 2014, and 913 responses were valid for analysis. The second survey (T2) was conducted between 2016 and 2017, and 1,038 responses were valid for analysis. HIV/AIDS-related stigma was quantitatively compared using 3 scales to measure: stigma perception scale (4 items, range: 4-16), stigma-related fear scale (8 items, range: 8-32), and stigma-related behavioral self-restriction scale (6 items, range: 6-24).
Results: At T2, the rate of answering the statement: "I become very cautious when I disclose my HIV-positive status to others" with "Yes" reached 92.8%. The rate was 85.7% for "In general, people reject me after learning that I am HIV-positive", 65.9% for "I am careful to keep my HIV-positive status a secret from others", and 62.9% for "I may lose my position if my employer or superior learns about my HIV-positive status".
In T1 and T2, the mean stigma perception scale scores were 9.40 (SD: 3.28) and 9.69 (3.43), respectively, mean stigma-related fear scale scores were 24.45 (5.33) and 25.32 (4.75), respectively, and mean stigma-related behavioral self-restriction scale scores were 19.63 (5.63) and 19.52 (5.55), respectively.
Using survey data at T1, multiple regression analysis, with scores from the Hospital Anxiety and Depression Scale as a dependent variable, stigma-related behavioral self-restriction scale scores as an explanatory variable, and the gender, age, frequency of perceiving LGBT-related stigma, and stigma perception scale scores as control variables, revealed a significant positive correlation with the explanatory variable (=0.248, p=0.005, R2=0.157).
Conclusions: The results emphasize the necessity of creating detailed plans to implement HIV/AIDS-related stigma reduction measures as a domestic issue to be urgently addressed.

TUPED523

Open conversations on reducing stigma and discrimination in Botswana by using cultural values to foster support to end stigma and discrimination

O. Mosweu
Men For Health and Gender Justice, Policy Advocacy and Project Management, Gaborone, Botswana

Background: Of recent there has been an increase in visibility of Gay Men and Male Sex workers in African countries, and this has been coupled with conversations to decriminalize both same sex sexual activity and sex work done at International level with little work done in country in fear of harassment by law enforcement officials, This has led to gay and male Sex work turning in a burning issue in Africa countries including Botswana. The gay and sex work community has been systematically silenced and face abuse, rejection, stigma and discrimination with the local leaders urging that Gay men and Male Sex workers are cultures adopted from the western culture and therefore "Un-African". This abstract aims to show how the Botswana gay and male sex workers communities' uses native values to foster support towards reducing stigma and discrimination.
Description: The international community often condemns African governments by writing petitions, threats to stop aid and these have often led to the local communities taking the wrath of these action by the Western activists. In Botswana, the gay men and Male sex workers group uses native Botswana culture and values. This approach has been implemented in 5 districts of Botswana through gathering traditional leaders, politicians, Police and using native styles of consultation and consensus - building, We have adopted strategies which are derived from Botswana norms and cultural values such as '*mafoko a kgotla a agelwa mosako*' (Every person's opinion must be respected without stigma). The main aim has been to lobby leaders to end stigma and discrimination in a language Batswana People can understand without referencing much to western arguments.
Lessons learned: This approached proved to work, in the 5 districts in which this was done through traditional consensus building and consultation in native languages and strategies. The dialogues through slow, are indeed building to a conducive environment where gay men and Male Sex workers can engage without discrimination and stigma in addressing issues of health and human rights and inclusion.
Conclusions/Next steps: Going forward, the aim is to continue evaluating these initiatives in-depth and find ways how other communities can implement them to their benefit.

TUPED524

Disclosure of HIV sero-positive status and linkage to care in remote rural and border settings of Mbeya, Tanzania: Qualitative findings of a mixed methods study

E.S. Sanga[1], F. Mukumbang[2], A.K. Mushi[3], C. Zarowsky[2,4]
[1]Mwanza Medical Research Centre, Clinical Research Program, Mwanza, Tanzania, United Republic of, [2]University of Western Cape, School of Public Health, Capetown, South Africa, [3]National Institute for Medical Research, Public Health, Dar-es-Salaam, Tanzania, United Republic of, [4]University of Montreal Hospital Research Centre, School of Public Health, Montréal, Canada

Background: Despite mobile/outreach testing models and anti-stigma efforts, the disclosure of HIV status remains a challenge and significantly impedes linkage to care. In our prospective 2-armed cohort study of 1,012 newly diagnosed individuals testing at mobile/outreach vs facility-based testing sites in remote and hard-to-reach border areas of Mbeya region, Tanzania; participants who disclosed their HIV status had a two and half times earlier rate of linkage to care than those who had not disclosed (p< 0.001). This study describes the reasons for failure to disclose HIV sero-status and its implications for linkage into HIV care.
Methods: We report on the embedded qualitative findings of our sequential explanatory mixed methods study. Between August 2014 and July 2015, eight focus group discussions and ten in-depth interviews were conducted with purposively selected participants from the cohort of 1, 012 newly diagnosed HIV positive individuals from 16 HIV testing sites, complemented by twenty individual interviews with healthcare providers. Data were transcribed verbatim and translated, then thematic content analysis was undertaken, supported by Atlas.ti software.
Results: The major reasons reported to influence individuals' decision not to disclose their HIV positive sero status, were fear of stigma related to HIV/AIDS, lack of trust and fear of intimate partner violence and/or divorce. New relationships or marriages after death of the first partner was also reported to interfere with disclosure to partners. HIV status disclosure to family/relatives was significantly associated with linkage to care (AHR=2.64; 95%CI: 2.05-3.39). They received both financial and moral support from their partners and other family members. Individuals testing at mobile/outreach sites were less likely to expect an HIV+ result and reported more concerns about disclosure and linkage to care.

Conclusions: Lack of disclosure was reported to impede successfully linkage to care and timely initiation of ART due to lack of both practical and emotional support from significant others. Mobile/outreach testing reaches new people but barriers to disclosure, notably stigma and fear of damaging relationships, must be addressed.

TUPED525

Media perpetuation of HIV fear and stigma: A content and textual analysis of coverage of an HIV criminal prosecution

C. Campbell[1], F. Rojo[1], N. Khanna[1,2], S. Dworkin[3]
[1]University of California San Francisco, Department of Social and Behavioral Studies, San Francisco, United States, [2]Positive Women's Network - USA, Oakland, United States, [3]University of Washington Bothell, School of Nursing and Health Studies, Bothell, United States

Background: Research shows that laws criminalizing HIV non- disclosure, exposure or transmission, which currently exist in more than 30 states in the U.S, are rooted in and perpetuate stigma. HIV stigma impedes HIV prevention, testing, engagement in healthcare, and adherence to medication. In 2015, Michael Johnson, a Black gay college student in St. Charles County, Missouri was tried and convicted based on allegations that he did not disclose his HIV status to multiple partners. Media coverage of the case was widespread. While media is known to shape public perceptions of people living with HIV, few studies have examined recent HIV criminalization cases to understand how the media produce conceptions about HIV disclosure, innocence, and guilt.
Methods: We conducted a content and textual analysis of 90 articles and five videos from local and national media sources. Open and axial coding were used to develop a code book. Once the code book was set, four coders coded the data. Inter-rater reliability was over 90%. This analysis focused on the descriptions of Michael Johnson's character and behavior.
Results: Findings revealed consistent framing of innocence and guilt based on cultural assumptions about black gay men who are living with HIV. Michael Johnson was described as dishonest about his HIV status; media frames draw on ideologies of homophobia and racism to present Johnson's sexuality as secretive and hypersexual, evidenced by discussions of secret sex tapes; engagement in consensual condomless sex was framed as deception, placing sole agency and responsibility onto Johnson; and Johnson was presented as lying to medical staff about his sexual behavior.
Conclusions: Media is a key disseminator of facts and ideologies about people living with HIV. Media coverage of this case contributes to racialized, gendered, sexualized notions of HIV fear and stigma. We examine how media can improve upon the accuracy of information presented in HIV related legal cases, discuss the role of media ideologies found in our study in bolstering an environment of HIV stigma and impede prevention efforts, and examine how media narratives promote ideas of HIV-positive people and Black gay men as deceptive and dangerous to broader society.

Experiences and impacts of homophobia and transphobia

TUPED526

Characterizing experiences of conversion therapy among midlife and older MSM from the Multicenter AIDS Cohort Study (MACS)

S. Meanley[1], R. Stall[2,3], O. Dakwar[4], S. Haberlen[5], J. Egan[2,3], M. Friedman[3,6], S. Shoptaw[7], L. Teplin[8], M. Plankey[4]
[1]University of Pennsylvania School of Nursing, Family and Community Health, Philadelphia, United States, [2]University of Pittsburgh Graduate School of Public Health, Behavioral and Community Health Sciences, Pittsburgh, United States, [3]Center for LGBT Health Research (UPitt), Pittsburgh, United States, [4]Georgetown University Medical Center, Department of Medicine, Division of Infectious Diseases, Washington, United States, [5]Johns Hopkins University Bloomberg School of Public Health, Epidemiology, Division of Infectious Disease Epidemiology, Baltimore, United States, [6]University of Pittsburgh Graduate School of Public Health, Infectious Diseases and Microbiology, Pittsburgh, United States, [7]University of California, Los Angeles, Family Medicine and Psychiatry and Biobehavioral Sciences, Los Angeles, United States, [8]Northwestern University Feinberg School of Medicine, Psychiatry and Behavioral Sciences, Chicago, United States

Background: Midlife and older men who have sex with men (MOMSM; 40+ years) in the US came of age during an era when same-sex attractions were stigmatized as pathological disorders amenable to being eliminated by conversion therapies (CT). Leading scientific organizations have denounced CT as harmful to the well-being of sexual minority individuals, yet it remains legally practiced in 41 states in the US. Little data exists regarding the prevalence of lifetime CT (LCT) among MOMSM; therefore, we aimed to describe and characterize LCT experiences in this population. We also examined whether being HIV+ serostatus was correlated with LCT.
Methods: 1,238 MOMSM in the Multicenter AIDS Cohort Study (mean age=61.5 [*sd*=8.56] years, 30% racial minority, 49% HIV+) in Baltimore, Chicago, Pittsburgh, and Los Angeles completed survey questions ascertaining LCT (type, age initiated, frequency, duration, and whether self-initiated) from 2016-2017. We determined the prevalence of LCT and using multivariable logistic regression to estimate the odds of LCT by HIV status, adjusting for age, race/ethnicity, MACS enrollment wave, and education.
Results: (N=219) of participants reported LCT, 58% (N=126) of whom were HIV+. The average age of CT initiation was 22.7 (*sd*=10.56) years. The most common CT types reported were psychotherapy (39%), group-based therapies (23.1%), and religion-based CT (18.4%). 25.8% reported undergoing CT for 6+ months and 37.7% indicated CT session frequencies of 1+ per week. 35.6% reported having little to no control over the decision to initiate CT. Although being HIV+ and older were positively associated with LCT, neither co-factor was statistically significant, however MACS enrollment after 2001 was. There was a statistically significant negative association with being white and having any college education with LCT (See Table).

Socio-demographics	Multivariable model Odds Ratio (95% CI)	p
Age, 10-year increase	1.18 (0.95, 1.47)	0.13
HIV status Negative Positive	 1(reference) 1.14 (0.83, 1.57)	0.41
Race/Ethnicity All other minority White	 1 (reference) 0.54 (0.38, 0.77)	0.0007
Enrollment Wave Pre-1987 Post-2001	 1 (reference) 1.96 (1.32, 2.90)	0.0008
Education Level High School or Less Any College	 1 (reference) 0.64 (0.43, 0.94)	0.024

[Odds ratios with 95% confidence intervals and P values of lifetime conversion therapy estimated with multivariable model]

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Conclusions: Lifetime CT was not uncommon among MOMSM in this sample. How CT shapes health and well-being over the life course among MOMSM independent of age, HIV status, race/ethnicity, and education remains unknown, warranting further investigation. Continued legislative efforts prohibiting CT may seek to benefit the well-being of future generations of MOMSM as they age into midlife and older adulthood.

TUPED527

Gender-based violence against men who have sex with men (MSM) and transgender persons in humanitarian settings and its impact on their access to health care

R.J. Figueiredo
APCOM Foundation, Bangkok, Thailand

Background: MSM and transgender persons experience humanitarian crises and engage with humanitarian action differently due to a number of reasons. While they may suffer sexual and gender based violence ordinarily in their daily lives, their vulnerability is heightening during man-made and natural disasters. In Asia, this vulnerability is exacerbated because of poor legal protections, blind spots in disaster preparedness and response mechanisms, inadequate training of service providers and responders and the unavailability of data related to MSM and transgender persons in these settings.
With an improved understanding, it will become possible to design responsive approaches to reach out to these communities, before, during and after crises and create an enabling environment for them to access services and articulate their needs.
Description: APCOM conducted an online survey called the Asia Pacific Survey on Gender Based Violence in Humanitarian settings. This survey was promoted through social media channels, community list-serves and through word of mouth. 145 respondents answered the survey from across the region. The majority of the respondents were MSM and transgender persons.
Lessons learned: Some of the key lessons learned from this survey are that transgender persons are more likely to suffer from sexual and gender based violence in humanitarian settings than men who have sex with men. Sexual expression and gender identity continue to pose the most risk to vulnerable communities accessing a broad range of services including health care. A majority of the respondents indicated that they were most likely to suffer from sexual and gender based violence from immediate family members and intimate partners during crises.
Conclusions/Next steps: APCOM in partnership with IPPF Humanitarian, UNWomen and EdgeEffect is hosting a Regional Consultation on LGBTIQ inclusion in Humanitarian Action in May 2018 in Bangkok. This consultation will build on the findings of this online survey to develop a broad based consensus among key stakeholders and stimulate dialogue on how inclusion of LGBTIQ communities in the DRR, response and resilience can reduce sexual and gender based violence when these communities access a broad range of services including healthcare.

TUPED528

Implication of punitive law on HIV/AIDS programming for men who have sex with men in Nigeria

T. Oke[1], A. Ogunbajo[2]
[1]University at Buffalo, State University of New York, School of Social Work, Buffalo, United States, [2]Brown School of Public Health, Behavioral and Social Sciences, Providence, United States

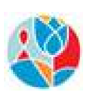
Background: Organizations in homophobic countries with anti-LGBT laws find it extremely difficult to reach an already hard-to-reach population such as men who have sex with men with HIV/AIDS services. In January 2014, the former president of Nigeria signed a same-sex marriage prohibition bill into law, further criminalizing any same-sex amorous relationship with a 14-year imprisonment, and a 10-year prison sentence for organizations who supports same-sex movements/activities. This draconian law made it almost impossible for gay/bisexual men and other men who have sex with men (MSM) to access HIV/AIDS services within the country, and made it particularly challenging for HIV service organizations to reach this key population.
Methods: A qualitative study was conducted to explore the impact of the same-sex marriage prohibition act (SSMPA) on HIV/AIDS programming for MSM in Nigeria. A convenience sampling of two nonprofit organizations working with key populations in Nigeria, and 20 LGBT-identified individuals were selected and interviewed for this study. In-depth interviews were conducted between October to December 2014 with the participants and service organizations, with questions focusing on what has changed since the anti-gay law was enacted. Interviews were transcribed verbatim and assigned into descriptive categories using a coding scheme.
Results: Findings from this study confirmed a significant reduction in HIV/AIDS services for MSM in Nigeria. MSM participants reported concerns to accessing HIV services at healthcare settings for fear of being handed to the police. Reports from the HIV service/LGBT-focused organizations indicate low turn-out of MSM to community events that promote HIV prevention, testing and treatment. Results also confirmed that MSM have been further driven underground, and would rather avoid places and/or services where they could be easily identified as LGBT.
Conclusions: It is pertinent to ensure that key populations regardless of sexual orientation and gender identity have adequate access to HIV/AIDS prevention, treatment and support services. Strategic advocacy is needed towards repealing specific portions of the anti-LGBT law in Nigeria, especially the part that targets HIV service organizations, as this will continue to inhibit HIV services to MSM. The UNAIDS goal of 90-90-90 seems impractical without addressing this issue at the local, national and international levels.

TUPED529

Experienced homophobia and HIV infection risk among U.S. men who have sex with men

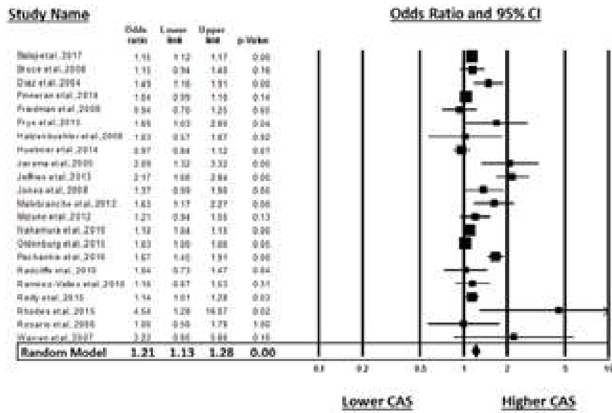
W.L. Jeffries IV[1], S.A. Flores[1], C.R. Rooks-Peck[1], R.J. Wolitski[2], D.J. Gelaude[1], L.A. Belcher[1], P.M. Ricks[3], G.A. Millett[4]
[1]Centers for Disease Control and Prevention, Division of HIV/AIDS Prevention, Atlanta, United States, [2]U.S. Department of Health and Human Services, Office of HIV/AIDS and Infectious Disease Policy, Washington, DC, United States, [3]Centers for Disease Control and Prevention, Field Epidemiology Training Program, Atlanta, United States, [4]amfAR, The Foundation for AIDS Research, Washington, DC, United States

Background: In the United States, men who have sex with men (MSM) compose 2% of the population, but they accounted for 70% of HIV infections diagnosed in 2016. Among MSM, HIV disproportionately affects African American and Latino men. Experienced homophobia—negative treatment that MSM encounter due to their sexual orientations—can promote psychosocial stressors that contribute to sex risk behaviors and antiretroviral therapy nonadherence, which promote HIV infection. Homophobia may be especially harmful for African American and Latino MSM, among whom homophobia interacts with other social factors (e.g., racism) that promote HIV vulnerability. We used meta-analytic techniques to examine experienced homophobia's association with HIV infection and factors that contribute to infection.
Methods: We searched EMBASE, PubMed, PsycINFO, and Sociological Abstracts to acquire data from U.S. studies published during 1992-2017. Studies examined experienced homophobia in relation to: condomless anal sex (CAS), HIV-discordant CAS, number of sex partners—which we combined into an index of sex risk behavior—antiretroviral therapy adherence, viral suppression, and HIV infection. We coded effects for study samples and separately examined samples containing >50% African American, Latino, or white MSM. Random-effects models yielded pooled odds ratios (ORs) and 95% confidence intervals.
Results: Thirty-seven studies provided 146 effect sizes. Experienced homophobia was associated with having CAS (OR=1.21, 1.13-1.28; k=22), HIV-discordant CAS (OR=1.66, 1.29-2.13; k=4), a higher number of sex partners (OR=1.16, 1.13-1.19; k=5), any sex risk behavior (OR=1.32, 1.25-1.40; k=35), and HIV infection (OR=1.34, 1.10-1.64; k=11). Experienced homophobia's association with having any sex risk behavior was stronger in samples containing >50% African American MSM (OR=1.55, 1.28-1.88; k=8) or >50% Latino MSM (OR=1.31, 1.16-1.49; k=13) than in samples containing >50%



white MSM (OR=1.09, 1.02-1.18; k=7). The number of effect sizes for antiretroviral therapy adherence (k=1) and viral suppression (k=1) was insufficient for analysis.

Conclusions: Experienced homophobia is associated with sex risk behavior and HIV infection among U.S. MSM. Its relationship with sex risk behavior is particularly pronounced among African American and Latino MSM. Future research is needed to understand causality in these relationships, the role of interventions to reduce homophobia, and homophobia's effect on antiretroviral therapy adherence and viral suppression.



[Association between experienced homophobia and condomless anal sex (CAS) among U.S. men who have sex with men]

Laws and policies regarding access to HIV treatment and medical devices, including Intellectual property and trade regimes, competition law, price regulation, etc.

TUPED530

Foreign nationals' access to HIV services in the Republic of Tajikistan: Achievements and challenges

R. Kurbonova
International Organization for Migration in Tajikistan, Migration Health Unit, Dushanbe, Tajikistan

Background: Tajikistan is country of origin, transit and destination for migrants. While research predominantly focused on Tajik migrants' access to HIV services abroad, foreign nationals in the country were left out. The study therefore aimed at analyzing the current practice, regulations and possible gaps concerning foreign nationals' access to HIV services in Tajikistan.

Methods: Data collection and analysis were carried out during 2012 to 2017. Desk research comprised the analysis of official reports, statistical data, international and national legislation, national healthcare programmes, scientific publications, and documents from UN agencies. The findings were supplemented by qualitative interviews with HIV experts, employers, foreign nationals, migration service, NGOs.

Results: Two discriminatory requirements had been abolished from Tajik legislation in the last decade: the deportation of foreign nationals living with HIV (2008), and compulsory HIV testing for migrants who apply for a visa valid for more than 3 months (2014). Moreover, foreign nationals living with HIV were granted access to free antiretroviral therapy (ARVT). The achievement of this policy is that foreign nationals use the services offered: 6,779 underwent HIV testing, 3 migrants from Kazakhstan and Russia receive free ARVT in 2017.[1] At the same time, the study revealed some gaps in applying policy into the practice: the requirement of HIV testing for obtaining a work permit, and the occasional requirement of HIV testing for a visa. Another challenge identified is the lack of knowledge among foreign nationals about their entitlement to use HIV services in Tajikistan, which can be attributed to the lack of cultural mediators and information materials on HIV prevention in the migrants' languages.
[1] Dilshod Saidi, Deputy of the Republic Center on Prevention and Control of AIDS

Conclusions: Tajikistan's policy of guaranteeing migrants' access to HIV testing and free ARVT ensures their right to health. Still, as the study shows, this commitment has to be accompanied by information and education measures and by a thorough application of a discrimination-free legislation on all levels. Moreover, the results suggest enhanced cross border cooperation between Tajikistan and migrants' countries of origin in order to be sure that referred patients continue ARVT at home.

TUPED531

Is it business unusual? Access to medicines for PLHIV in East Africa through using TRIPS flexibilities

M. Mulumba
Center for Health, Human Rights and Development (CEHURD), Human Rights, Kampala, Uganda

Background: The health systems in the East African Countries (EAC) continue to bear a heavy burden of diseases including HIV. A majority of people from these countries can barely afford to access essential medicines required for treatment. A low domestic production of pharmaceutical products within the region and non-willingness of local governments to commit adequate resources continue to frustrate availability of essential medicines to communities in need. Intellectual property rights (IPRs) protecting essential medicines have increasingly been highlighted as one of the factors affecting access to essential medicines including the much needed medicines for persons living with HIV. This paper seeks to highlight the current effort in utilizing the available policy space in IPRs for access to medicines.

Description: While the TRIPS Agreement and the EAC Regional Intellectual Property Policy provide an opportunity for flexibilities in which IPRs in pharmaceutical products can be exploited in public interest, there is very little evidence that the EAC countries are exploiting these flexibilities to improve access to essential medicines for people in their countries. Additionally, there is equally little evidence that stakeholders in the region are dialoguing on the issues which affect the use of flexibilities to promote access to pharmaceuticals. This means that while efforts may be going on to promote the use of trips flexibilities, the isolated manner in which they are being implemented has minimized their ability to create an impact both within their countries and their regions.

Lessons learned: Our past advocacy efforts have indeed confirmed the findings of the High-Level Panel on improving access to medicines, that numerous incoherencies and troubling practices have obstructed sovereign freedom of governments in using flexibilities to promote public health in the East-African Countries.

Conclusions/Next steps: This paper concludes that promoting Access to Medicines for PLHIV in East Africa through Using TRIPS Flexibilities has to move from business as usual to business unusual. This requires that EAC countries should urgently implement the EAC Regional Intellectual Property Policy, build consensus and empower stakeholders to advocate for the exploitation of the TRIPS flexibilities to ensure access to essential and better medicines in the region.

TUPED532

Going to law for PrEP: A case study from England

Y. Azad, D. Gold, K. Smithson
National AIDS Trust, London, United Kingdom

Background: PrEP implementation has been relatively slow in health systems around the world, with cost being a key consideration. In England the relevant decision-making body to commission the drug to be used for PrEP was understood to be NHS England, who have historically commissioned all anti-retrovirals, including for prevention purposes such as post-exposure prophylaxis.

Description: One reason for the argument in England on responsibility to commission PrEP is the separate organisational responsibilities for prevention and treatment in the English health system. Whilst treatment

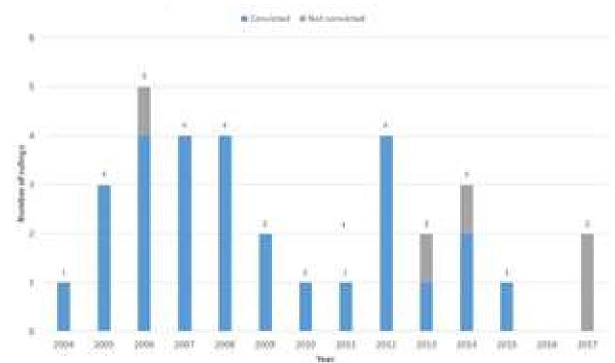
services may be relatively well funded, prevention very often is not. PrEP is therefore a challenge - a prevention intervention, but at treatment prices.
After two and a half years considering the case for PrEP, NHS England suddenly abandoned their process, stating that they did not have the legal powers to commission the drug for PrEP, because it is prevention rather than treatment. NAT took NHS England to judicial review and won. An essential element in this legal victory was the successful framing of PrEP as not only being a preventive intervention, but also treatment. NHS England were forced to recommence consideration of the case for PrEP. In December 2016 they announced plans for a large-scale implementation trial of PrEP as the first stage towards more general roll-out.
Lessons learned: Litigation was immensely effective in removing obstacles to PrEP implementation, when combined with community activism, political engagement and media work. The court case was a key opportunity to explain the effectiveness of PrEP and rebut opposition and HIV stigma across national media. It resulted in a surge in interest in PrEP uptake, in community and media discussion, and in parliamentary pressure. This activity associated with the court case created a political momentum which meant it was very difficult for NHS England not to agree to provide PrEP in some form or other.
Conclusions/Next steps: Advocacy will continue for a timely move from the trial to full roll-out of PrEP.

TUPED533

Did pattern of court rulings in Sweden regarding HIV as a criminal act change in Sweden since new recommendation from The Public Health Agency of Sweden?

E. Blandin, M. Rehn, P. Gröön
Stockholm County Council, Department of Communicable Disease Controle and Prevention, Stockholm, Sweden

Background: HIV infected persons are obliged to inform and protect any sexual partner[1]. It is a criminal offence to risk infecting someone with HIV, with intent „aggravated assault" and "negligence". In 2004, a ruling by the Supreme Court stated that unprotected sex conducted by an HIV-positive person should not be assessed as an act of intent unless the offender had knowledge of a high probability of transmission and/ or reckless behaviour or violence. The Supreme Court also stated that not using a condom should always be regarded as an unaccepted risk. In 2012 the recommendation from The Public Health Agency of Sweden was published regarding what should be defined as "well-treated hiv" with very low risk for transmission.
Methods: Court records for judicial decisions in HIV cases during 2004-2008 were compared with for judicial decisions during 2009-2012 and 2013-2017.We compared the court records from the three time periods with regards to verdict and the courts' analysis of
- well-treated HIV as defined in the recommendation from The Public Health Agency of Sweden
- deportation in the verdict
- concrete risk for transmission
- detention
Results: During 2004-2017 we identified 33 Court records for judicial decisions in HIV cases: 17 during 2004-2008 (mean: 3.4/year), 8 during 2009-2012 (mean: 2.0/year) and 8 during 2013-2017 (mean: 1.6/year). Twenty-eight were convicted and five where not. Four (26%) verdicts in 2004-2008, one (13%) during 2009-2012 and none during 2013-2017 included deportation. The corresponding figures regarding detention was ten (59%), five (63%) and three (38%). Concrete risk of transmission was discussed during all three time periods (71%, 75% and 88 % respectively). In two cases (not convicted) during 2013-2017 the defendant was defined as well treated according to the Public Health Agency of Sweden
Conclusions: Our analyses suggest that the recommendation from The Public Health Agency of Sweden regarding „well-treated HIV" has had a clear influence in court rulings after 2012. This also applies to the number of detainees, deported and convictions



[Court rulings regarding HIV as a criminal act, Sweden 2004-2017]

TUPED534

Safeguarding access to generic treatment: Experience of DNP+ in opposing TRIPS-plus measures in the Regional Comprehensive Economic Partnership Agreement negotiations

H. Shankar Singh[1], A. Royal[2], N. Jina Devi[2], A. Adhikari[2], Delhi Network of Positive People (DNP+) Study Group
[1]The Delhi Network of Positve People, Advocacy, New Delhi, India, [2]Delhi Network of Positive People (DNP+), New Delhi, India

Background: Regional Comprehensive Economic Partnership Agreement (RCEP) negotiations are taking place between 16 Asia-Pacific countries. Leaks of the RCEP intellectual property chapter show provisions that would undermine generic production and supply of HIV, hepatitis C, TB and other medicines from India.
Description: DNP+ has been working on overcoming patent barriers to affordable generic medicines since 2005 including advocacy on trade agreement negotiations such as EU-India FTA. DNP+ followed the RCEP negotiations concerned that it might include provisions in excess of those required by the WTO´s Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). TRIPS-plus measures are known to undermine access to generic medicines. DNP+ worked with legal experts to understand the implications of the leaked text of RCEP.
The analysis showed that demands by Japan and South Korea were TRIPS-plus including patent terms longer than 20 years, data exclusivity etc. DNP+ commenced advocacy with law and policy makers and negotiators and sensitisation of general public and media on the implications of RCEP negotiations on access to medicines. In 2017, DNP+ presented their concerns directly to the trade negotiators of RCEP countries at a stakeholder consultation and also courted arrest during a protest at the negotiating venue. The raising of key public health concerns with RCEP resulted in public commitments from the government of India that it would not agree to TRIPS-plus measures that undermine access to medicines.

[RCEP Protests by DNP+]

Lessons learned: People living with HIV are a critical stakeholder in trade agreement discussions as intellectual property demands in such negotiations can undermine access to treatment. Advocacy with law and policy makers is important as they are often unaware of the exact implications of such negotiations. Community advocacy has a strong impact on negotiators. Community literacy on treatment and intellectual property provides a strong foundation for sustained advocacy on trade agreement negotiations that take several years.
Conclusions/Next steps: RCEP negotiating countries have stated that they will sign the agreement in 2018. However, the text of the agreement has not been made public to allow for proper analysis and community consultation. Governments should not agree to any TRIPS-plus measures in RCEP to ensure continued generic production and supply.

TUPED535

Comparing compulsory and voluntary licenses in Brazil: Lessons from efavirenz and atazanavir cases

P.H. Marques Villardi Miranda[1], F. Fonseca[1], M. Vieira[2], C. Alves[1], C. Scopel[1]
[1]Associação Brasileira Interdisciplinar de AIDS, Grupo de Trabalho sobre Propriedade Intelectual, Rio de Janeiro, Brazil, [2]Independent Consultant, Rio de Janeiro, France

Background: Brazil has a public and universal health care system (SUS), that offers free of charge ARV medicines for all those in need. Since 1996 when Brazil changed its law and complied with TRIPS requirements the universal access policy sustainability is under threat. ABIA/GTPI is civil society organization working to reduce the impact of monopolies in public health. Issued in 2007, the compulsory license (CL) for the antiretroviral (ARV), efavirenz is a landmark for the pro-access to medicines policies. However, from 2008 the Partnerships for Product Development (PDP), a policy based on voluntary licenses, technology transfer and prices set in contracts dominated this field in Brazil. A PDP between BristolMyersSquibb (BMS) and Fiocruz to produce atazanavir was signed in 2011. After analyzing the contract's prices and timelines, we compared the two approaches in order to determine which one was the most effective from an access to medicines and guaranteeing the sustainability point of view.
Methods: ABIA/GTPI selected four categories to conduct the comparison: (a) savings to the public health system; (b) percentage of price reduction; (c) months to produce the ARV locally; and (d) royalties to the patent holder. The data used is from published works, public databases and BMS-Fiocruz contract.
Results: The efavirenz CL generated savings of US$ 104 million (2007 to 2011). The atazanavir voluntary license generated US$ 17 million. In relation to percentage of price reduction, efavirenz CL reduced the price paid by SUS in 58%, the reduction in the atazanavir case was 6%. Efavirenz was produced locally in 21 months. The national version of atazanavir was only available 26 months after the contract signature. Regarding royalties, Brazil paid to Merck in the efavirenz CL 1,5%, whereas the royalty paid by Brazil to BMS is set in contract in 4,5%.
Conclusions: The study showed that in the four parameters selected - savings, price reduction, months to produce locally and royalties paid -, the CL was more effective than the PDP. It is possible to say, therefore, that the efavirenz compulsory license was most effective in guaranteeing the sustainability of the access to medicines' policies in Brazil.

TUPED536

Does Brazil pays a fair price for TDF? Civil society struggle to guarantee the sustainability of access universal policies

C. Alves[1], P. Villardi[2], F. Carvalho[2], C. Scopel[2]
[1]Interdisciplinary Brazilian AIDS Association, Working Group on Intellectual Property, Rio de Janeiro, Brazil, [2]Interdisciplinary Brazilian AIDS Association, Rio de Janeiro, Brazil

Background: In 1996, two important legislative changes tool place in Brazil: the law 9.313 established universal access to ARVs and the law 9.276 that changed the intellectual property (IP) laws, allowing patents on pharmaceuticals. ABIA/GTPI is a civil society organization working to reduce the impact of monopolies in public health. Tenofovir (TDF) is a drug to treat HIV, incorporated by the Brazil under monopoly with high prices. ABIA/GTPI struggled in many ways to lower TDF price.
In 2012, the Brazilian patent office rejected the TDF's patent. In the same year, TDF became part the new policy to strengthen the Brazilian pharmaceutical industry by the Ministry of Health (MoH). A Partnership for Product Development (PDPs). A contract setting the API price was signed between a public (FUNED) and private laboratory (NORTEC) to produce TDF locally. After years in the public domain and local produced, ABIA/GTPI expected to see significant reductions TDF prices. That did not happened. Therefore, ABIA/GTPI investigated the composition of the national TDF price and compared it with other prices.
Methods: ABIA/GTPI calculated possible TDF prices, estimating the cost of production and with the different API prices. With this, we compare the prices actually acquired by the MoH with the prices that the medicines produced through the PDP should have and the lowest international prices.
Results: In 2014, the TDF price paid by the MoH was $580.81 ppy. This was 5.5 times higher than the price projected considering the costs and API price fixed in the FUNED-NORTEC contract; 3.4 times higher than the price calculated using the highest price of national available API in 2014; and 12 times higher using the costs and the international lowest generic API price.
Conclusions: The TDF price paid by MoH were at least three times higher than they should be. After all the efforts of civil society and other sectors to put TDF in the public domain in Brazil, even the generic price did not accomplished to contribute to the sustainability of the universal access policies. There is need for further debate on national generic prices from a human rights perspective.

TUPED537

The role of civil society in shaping the political environment for the incorporation of new technologies in Brazil: The cases of dolutegravir and TDF/FTC

F. de Carvalho Borges da Fonseca[1], P. Villardi[2], V. Terto Jr.[2], O. Cerqueira dos Santos[2]
[1]ABIA - Brazilian Interdisciplinary Aids Association, Project Management, Rio de Janeiro, Brazil, [2]ABIA - Brazilian Interdisciplinary Aids Association, GTPI, Rio de Janeiro, Brazil

Background: As Brazil has one of the oldest HIV patient cohorts in developing countries, it anticipates the need to access newer technologies as well as related challenges. However, since 2010, the internal political environment has been undermining the human rights perspective and the ability to confront monopoly powers over key technologies. As result, Brazil is unable to keep its protocols updated, in contradiction to its legacy of reducing the gap between rich and poor countries when it comes to access to the best treatment and prevention options. From 2014 onwards, civil society intensified efforts to reverse this scenario by adopting multiple strategies that involved campaigns, protests, events, patent oppositions, consultations, publications and advocacy. Such efforts lead to the successful incorporation of Dolutegravir as first line treatment for over 100.000 people, despite strong opposition by the government initially. Civil society has also ensured the incorporation of TDF/FTC as a prevention tool, including though the public consultation with the highest number of submission in the history of the National Commission for the Incorporation of Technologies (CONITEC).

Description: ABIA/GTPI championed and documented numerous efforts to promote policy change around treatment and prevention options. The documentation was organized to reveal the chronology of steps taken by civil society, relating them with policy milestones around the incorporation of Dolutegravir (2016) and TDF/FTC (2017).
Lessons learned: As regards to Dolutegravir, civil society efforts were essential for reversing the denial of incorporation and for the expansion in the offer from third-line to first-line through decree 35. Demand creation coupled with public pressure also resulted in price drop from U$ 9.88 per unit to U$1.53. In relation to TDF/FTC, campaigning has led to 3.543 submissions in the public consultation over the protocol for use of TDF/FTC as PrEP, enabling its approval despite opposition by conservative forces. Patent opposition filed by ABIA/GTPI in 2016 led to a patent rejection in 2017, which was instrumental to bring the price down from U$ 752 to U$ 276.
Conclusions/Next steps: Incorporation of technologies relies as much in technical debates as in political debates. Civil society ensures that a rights-based approach prevails in both levels.

Human rights programmes

TUPED538

Combating the great challenge/barrier of ignorance of fundamental human lights among sex workers in Nigeria as it makes them susceptible to violence, abuses, harassment, intimidation and STIs/HIV

A. Anonyuo[1], L. Amadi[2], C. Anidiobi[3], S. Haruna[4,5], C. Anonyuo[1]
[1]Renewed Initiative against Diseases and Poverty (RENAGAIDS), Abuja, Nigeria, [2]Mind Renewal Women Initiative, Lagos, Nigeria, [3]Advocates for Women's Health and Human Rights Initiative, Abuja, Nigeria, [4]Society for Women Development, Abuja, Nigeria, [5]Society for Women's Development, Abuja, Nigeria

Background: Criminalizing sex work/arresting sex workers in Nigeria is not in line with approved government policies to prevent HIV by promoting unfettered access to interventions to general population which includes sex workers who form a fulcrum of Key Affected Population. Nigeria is a signatory to human rights treaties such as Universal Declaration of Human Rights (UDHR), Convention on Elimination of Discrimination against Women (CEDAW) and others but ignorance of fundamental human rights by sex workers have exposed them to all manners of discriminatory and dehumanizing treatments in the hands of the Law enforcement agents, pimps, clients, brothel owners, etc. The ignorance of their Rights have led to law enforcement agents (LEA) continuous raiding and arresting of sex workers coupled with material, financial and sexual extortion which threatens sex workers capability to negotiate safe sex with their clients.
Methods: In a study, a cross sectional study of purposively selected 850 female sex workers working in Jos, Lafia, Makurdi, Lokoja and Kaduna. Data collection technique using InterPersonal Communication (IPC) and Focus Group Discussions (FGD). Their age ranges from 18 - 40. Mean number of years for which they had been in sex work was two years.
Results: Results showed that all of selected 850 sex workers were stark ignorant of their fundamental human rights, this ignorance have given LEA the audacity to carry out uncoordinated raids, arrests, extort money, confiscate valuables and sometimes rape them. They most times demand for unprotected sex even after they pay for their freedom. These raids and arrests have increased their vulnerability to HIV and other STIs. After such raids or arrests, about 80 percent of the sex workers reported having unprotected sex with clients to attract more money to be able to replace some of the lost properties and recover financial losses.
Conclusions: Ignorance of the fundamental human rights by sex workers is undermining HIV prevention efforts and other interventions such as assertive skills, safe sex messages and condom education and distribution. Nigerian Law enforcement tactics, respecting and protection of human rights and other guidelines must be brought into alignment with international best practices to prevent further spread of HIV.

TUPED539

Lesson learned from the global fund's removing legal barriers module in Indonesia

A. Larasati, F. Aotari, R. Gunawan
Lembaga Bantuan Hukum Masyarakat, Jakarta, Indonesia

Background: Key affected populations in Indonesia constantly face human rights violations, creating legal barriers to HIV services. Such barriers discourages and prevents key affected population to access the much needed-health services. Further, it fuels Indonesia AIDS epidemic, of which is already in a high HIV burden. In an effort to remove such barriers, a program was proposed under the Global Fund to Fight AIDS, Tuberculosis and Malaria's New Funding Model grant for Indonesia in 2016.
Description: The program strategy is to work bottom up - by raising human rights and legal awareness of key affected populations, healthcare workers, and legal apparatus; creating community paralegal system; as well as to inform national policy makers and wider relevant actors through some series of research and analysis, and recommendations for policy reform.
Lessons learned: As many as 362 people from key affected populations were trained on legal and human rights issues, where 196 of them were then further trained to be community paralegals. The program also delivered human rights sensitization training for 267 healthcare workers, whom praised the excellence of such initiative. A holistic legal review and documentation on human rights violations against key affected populations were conducted, where it is found that the majority of human rights violations occurred in healthcare settings.
Despite its success in delivering program expectations, challenges were present all the way from program development to the implementation. The negotiating process prior to grant signing lacks the understanding of the unique nature of human rights advocacy and programming, resulting in some key rights programming were deleted from the initial proposal. There was not many rooms created to enable community to address urgent legal issues arose throughout program implementation. The program implementation was also unsuccessful in widening national advocacy networks.
Conclusions/Next steps: Holistic understanding of how human rights advocacy works, the ability to integrate human rights programming with broader HIV program, and continuation of ongoing advocacy efforts are utmost important. When human rights programming within AIDS response is treated as business as usual, it would unlikely contribute in removing legal barriers to access to services for key affected populations.

TUPED540

Outreach legal services - completing the harm reduction response in Kenya

T. Wandera Odunga
KELIN, Key Populations, Nairobi, Kenya

Background: In Kenya, people who use drugs are marginalised, stigmatised and criminalised - negatively impacting upon individuals' ability to access essential health care services or claim their rights. In such environments, the full Constitutional guarantee of the right to the highest attainable standard of health for people who use drugs is impossible. KELIN lawyers believe empowered communities and better access to justice (via a lawyer or paralegal) are essential components of the harm reduction response in Kenya.
Description: Drug use in Kenya is concentrated in Nairobi, and along the coast. People who use drugs in these areas face legal issues including Violence, discrimination and arbitrary arrests. Lawyers tend to be inaccessible to people who use drugs - by virtue of cost, geography and stigma; and community paralegal capacity is nascent. Due to the fear of violence and stigma, persons who use drugs do not come out to report cases of human rights violations, seek legal assistance, and cannot freely access harm reduction services.
Lessons learned: In order to strengthen access to justice and access to harm reduction services for drug users - with the broader objective of improving health outcomes and upholding their rights; KELIN and

Nairobi Outreach Services Trust collaborate to support persons who use drugs. People who face human rights violations can report violations to the legal team, receive legal assistance and pro-bono representation in court where necessary. Monthly legal aid clinics are provided to people who use drugs in safe spaces, where they will be comfortable to open up and report cases of violations, including at the NOSET premises and drug dens.

Conclusions/Next steps: Establishing a referral mechanism between NOSET and KELIN for the purposes of providing legal services and advice to persons who use drugs strengthens access to justice for people who use drugs in Nairobi. Case examples include:

· Mr James Kamau* who had been disinherited by her siblings was able to acquire his rightful inheritance.

· Ms Irene Njeri* who had been assaulted by her neighbour was able to access justice after the perpetrator was arrested

TUPED541

"I feel so safe" flexible emergency support in Botswana for sex workers in case of violence

K. Shabane[1,2,3], U.A. Mashumba[4], I. Van Beekum[3], S. Hendriks[3], N. Jagessar[3]

[1]SISONKE Botswana, Programs, Gaborone, Botswana, [2]Botswana Network on Ethics, Law and HIV/AIDS, Gaborone, Botswana, [3]AIDS FONDS, Amsterdam, Netherlands, [4]BONELA, Programs, Gaborone, Botswana

Background: The Emergency Fund aims to provide more flexible financial support to (individual) sex workers in cases of emergency that are related to violence. The fund is part of the Hands Off! programme, aiming to contribute to the reduction of violence against sex workers in Southern Africa Violence is one of the most significant factors affecting the vulnerability of sex workers to HIV& AIDS. Due to their position in society and criminalizing laws, sex workers are vulnerable to physical, sexual and emotional violence from clients, police and the community.

Description: the rapid response system focuses on building mechanisms to respond to cases of violence for the protection of the sex worker community as a whole, the Emergency Fund is for individual cases of violence. It provides flexible financial support to sex workers through sex worker-led organisations, like shelter money in case of rape, urgent applications at court, post trauma counseling, funeral costs as a result of violence or hospital emergency - for example initial consultation During the implementation of previous sex work programmes,sex worker-led organization Sisonke often sent requests to donors for small funding to assist sex workers in need of emergency to no avail. Normally, these are never thought of as possibilities when developing proposals and workplans as they are not predicted. Through the Emergency Fund 9 sex workers received support .

Lessons learned: We learnt that with the emergency fund system it helps sex workers to be able to report cases as they know they will be helped with certain costs for redress or even help them with their costs at the hospital. This helps with fighting the spread of STI's and they can access services such as PEP. Furthermore it should be promoted more widely so that SW are better aware and less reluctant to report a case.

Conclusions/Next steps: In Botswana violence is aggravated by criminalization, as sex workers lack access to justice. Laws and policies, including those who criminalize sex work, leave sex workers very vulnerable to physical and sexual abuse. Decriminalization of sex work is necessary to increase access to justice for sex workers.

TUPED542

Changing the situation with human rights violations of people who use drugs. What is really needed

A. Basenko[1], A. Tolopilo[2], P. Skala[1], M. Andrushchenko[1], S. Tkalya[3], E. Kuvshynova[4], L. Hripkova[5], O. Dymaretskyi[6]

[1]Alliance for Public Health, Policy and Partnership, Kyiv, Ukraine, [2]Odessa Human Rights Group 'Veritas', Odessa, Ukraine, [3]CF 'Hope and Trust', Kyiv, Ukraine, [4]Convictus Ukraine, Kyiv, Ukraine, [5]CSO 'Our Help', Slovyansk, Ukraine, [6]CF 'Meridian', Poltava, Ukraine

Background: Ukraine has the second-largest HIV epidemic in Eastern Europe and Central Asia. The epidemic is closely associated with injecting drug use. Human rights violations and legal barriers for people who inject drugs are still the case. Ukraine is is one of the 9 countries in international advocacy program PITCH: Partnership to inspire, transform and connect HIV response.

Methods: To evaluate the actual situation with human rights violations of PWID including OST patients and to estimate the need in legal support there was carried out a investigative research based on tne next methods: questioning - 250 respondents (including 47 young IDUs); studying the registration journals of the OST and Druguse Hotline and other database materials; focus-groups (3 groups of PWID/OST), in-depth interviewing (25 community, NGO, medical national and local experts); studying of human rights violation cases.

Results: 92% of adult IDUs and 65% of young IDUs (15-24 years) feels the full absense of their human rights protection. 82% of OST patients reported the denial in access to medical services in public hospitals and clinincs. 86% of OST patients reproting the violations from law-enforcers. 73% of OST reprorted about the problems in employment and 60% have lost their employment as a result of receiving information by the employer about the OST or druguser registration. At the same time as a reply on the question „Where do they appeal in case of human rights violations?" 24% of adult IDUs and 25% of young IDUs respondents reported „nowhere because they don´t know where or don´t trust in help".

Conclusions: Actual legal protection of IDUs is extremely low; Most IDUs are confident that they do not have the actual opportunity to obtain qualified legal assistance; A significant problem is the lack of basic legal knowledge of the IDUs; there is a significant demand for IDUs in obtaining legal knowledge; highly demanded are such forms of legal assistance as legal advice, assistance in drafting legal documents, legal support in contact with the police and treatment in medical institutions, as well as representation in the court.

TUPED543

The Human Rights Defenders Program: Mobilizing cisgender and transgender female sex workers for advocacy, outreach and service delivery

S.B. Shianian, V.X.H. Ho, M. Siew, W.Q.A.b. Wan Daud, L.B. Musa

Project X, Singapore, Singapore

Background: According to WHO, community empowerment is an "absolutely necessary component" of sex worker interventions (WHO, 2012). Research further shows that empowering the community to take charge of HIV intervention programs can contribute to a reduction in HIV by 32% (Lancet, 2014). However, due to multiple intersecting reasons, it is a constant challenge to get sex workers involved in our community and advocacy work.

Description: We created a 16-session capacity building program after three years of research and one feasibility study. The program ran over four months and topics included Digital Storytelling, Human Rights and Feminism, Racial Justice, Sexual and Mental Health, Drugs, Counselling Skills, Suicide Intervention, Financial Literacy, Law, and Project Management. Each session functioned as a platform for participants to exchange ideas and opinions, as well as to increase their knowledge of the issue at hand.

We received sign-ups from 10 current and former sex workers.

The program culminated with participants forming groups to craft a mini project that addresses an issue they are passionate about. These projects were funded by us.

A key feature of this program is that participants were provided a scholarship to attend this program so as to lessen the opportunity costs required to participate.
Lessons learned: The scholarship was crucial to enabling our participants to attend the program. The need to provide for family or personal survival should not be undermined. At the end of the day, participants did not have to make the choice between advocacy or survival.
Most sessions allowed for participants open discussion about the topics and this helped to foster greater understanding between different types of sex workers.
The culmination in group work was crucial to ensure the long-term impact of the program as this provided yet another opportunity for people to work together towards a common goal.
Conclusions/Next steps: Human rights activism in Singapore is highly frowned upon. It is important to destigmatise human rights work and to show that it is multi-faceted. Advocacy is needed for long term change, and it is important to empower sex workers to be part of the fight. We will be running the program again in 2018.

TUPED544

Preserving human rights through involvement of the judicial system and law enforcers

L.A. Okello[1,2], A.K. Karisa[3,4], D.N. Ateka[5]
[1]Reachout Centre Trust, Mombasa, Kenya, [2]Anyones Child, London, United Kingdom, [3]Reach out centre trust, Mombasa, Kenya, [4]Anyones Child, Mombasa, Kenya, [5]HAKI Africa, Mombasa, Kenya

Background: People who use drugs work and live in complex environments dominated by power structures within family, community, workplace and state. They are highly stigmatized and categorized as immoral and a threat to the moral fabric of society. The Kenyan legal frame work and county by laws criminalize behaviours related to pwids exposing them to punishing acts.
Description: Mombasa is a drug trafficking route, making heroin readily available. It estimated that Kenya has 18,327 People Who Inject Drugs (PWID) who have 18.3% HIV prevalence. Over 1730 Cases reported since in the county courts are related to drug use,218 cases of violence,10 cases of mob justices were reported at Reachout since 2016 to November 2017.
From January 2016 to July 2017, Reach out Centre Trust (RCT) engaged the justice system through a Justice Actors conference where 70 Judge, magistrates, lawyers, law enforcers, probation and CSOs were brought together under the theme clemency for social justice for people who use drugs. 140 Law enforces were sensitized on Harm Reduction and social inclusion Health rights. RCT raised awareness through: radio talk shows, 15 religious leaders Muslim,Christian, and 230 family members of MAT client on Human rights for PWIDs.
Lessons learned: Through training and sensitization of law enforcers, judicial system many petty crimes related cases to the PWUDs have been given alternative sentence through the community services from the probation.
Law enforces have been engaging with the RCT paralegals officers hence MAT clients are released without being taken to court.
RCT has been included in the sitting in court users committee where it gives its views and suggestion.
All sentenced MAT clients are able to access treatment without hinderance.
Conclusions/Next steps: There is a need to advance legal protection of people who inject drugs and this can only be achieved through the support of the judiciary. Members of the judiciary should assert their crucial role in advancing justice through use of evidence-based judgments towards the said population. In putting into consideration, there is a need to have a common understanding of people who inject drugs by the judiciary hence the need to have a continuous engagement with the judiciary.

TUPED545

Collaborative efforts of partners through small grants to key population-led organisations on human rights protection

F.A. Iyamu[1], Y.F. Anoemuah[1], O. Ndubuisi[2], N. Turpin[3], M. Egemba[1], F. Esor[1], A. Okorukwo[1]
[1]National Agency for the Control of AIDS, Programme Coordination, Federal Capital City, Nigeria, [2]United Nations Development Programme, Governance & Peace Building, Federal Capital City, Nigeria, [3]ENDA Sante, Gender and Human Rights, Dakar-Fann, Senegal

Background: Legislations in general, particularly in Africa, strongly condemn the activities of Key Population - sex workers, men who have sex with men, and drug users. In the context of HIV, punitive laws in Nigeria penalize these groups, thus creating barriers to access to HIV/AIDS services which impedes effective HIV/AIDS response in the country. Three decades of experience has shown that promoting and protecting human rights are essential for preventing HIV transmission and reducing the impact of HIV/AIDS. Thus, a meaningful partnership and collaboration among partners such as the National Agency for the Control of AIDS (NACA), UNDP Country Office and ENDA Santé, a regional NGO to support KP in defending their rights and improve their access to adequate information and health services is a key strategy to ending AIDS by 2030.
Description: In 2017, the Africa Regional HIV Grant was provided to three rigorously selected national key populations-led organizations (YouthRise, COLaHR and ICARH). These organizations organized capacity building meetings for sex workers, men who have sex with Men and persons who inject drug and other key stakeholders on issues related to HIV/TB and human rights. Issues harnessed were quite different as the different populations had their specific peculiarities and human right issues affecting them from accessing HIV services. Group discussions were used to identify issues under different contexts areas, how it affect their human rights, access to HIV services and proposed advocacy strategies to address the issues.
Lessons learned: The capacity building meetings which used nationally standardized tools were instructive for strengthening key populations associations, documentation and reporting of human rights violations. The support also produced an evidence-based policy brief for advocacy on current quality of service provision, barriers to HIV services and strategies to address them for key and vulnerable populations.
Conclusions/Next steps: The collaboration of development partners and government institutions is a strategy that could positively be harnessed and expanded. This would provide the much-needed civil society institutional strengthening for key population led and focused institutions for a human rights responsive HIV programmes towards ending AIDS by 2030.

Legal advocacy tools and strategies

TUPED546

The activities of the patients' community to improve access to treatment of HIV-positive patients: The role of communications in legal advocacy

Y. Chechotkina[1], M. Rovinskyi[1], K. Rivera[1], A. Leonova[1], S. Dmytriiev[2]
[1]CO 'All-Ukrainian Network of PLWH', PR-Department, Kyiv, Ukraine, [2]CO 'All-Ukrainian Network of PLWH', Advocacy, Kyiv, Ukraine

Background: It is estimated that 238 000 people live with HIV (PLWH) in Ukraine; 88 270 PLWH receive ARV therapy, and 42 150 of them are treated at the state expense. About 40% of the state budget is spent only for the Lopinavir/Ritonavir (LPV/R) drug which has a 13-year monopolistic position in the market. The abolition of the patent for LPV/R will open access to generic versions of the drug and give the state up to $ 13 million in savings. This will allow additionally 125 000 people to be treated. Ukrainian courts are reluctant to hear cases against one of the largest pharmaceutical companies *AbbVie*, that is why and the risk of corrupt decisions always exists.

Description: In May 2016, *the Network* created a precedent by filing a patent opposition to recognize the LPV/R patent as invalid as not novel and obvious. The court refused to examine the patent, and a number of high-profile actions were held to follow each court session during 2017. The judges and the *AbbVie* management were the target audience of these actions. The largest online media (*Ukrainska Pravda, Censor.net, and RBC-Ukraine*) published *the Network*'s experts' blogs on case progress, and *the Network's* website has all related information in Ukrainian, Russian, and English. The information was also distributed to the English-speaking audience through the *Make Medicines Affordable* partnership coalition.

Lessons learned: Correct media messages for judges in combination with vivid and effective promotion campaigns allowed keeping media attention to the trial during a year. The maximum publicity did not allow the court to delay the hearings further and contributed to reducing the influence of the pharmacy's lobby. The court delivered a judgment in favour of the patients' organization under public pressure and appointed patent re-examination in 2018.

Conclusions/Next steps: The milestone of the patent re-examination is achieved. The first such a precedent in Ukraine provides the basis for future demands to increase access to treatment. Challenges related to patent oppositions initiated by patient's organizations could be successfully overcome by bringing public attention using media instruments.

TUPED547

David against Goliath: How concerted action among stakeholders in Brazil overturned a draft bill that aimed to classify HIV transmission as heinous crime

G. Braga-Orillard[1], D. de Castro[2]
[1]UNAIDS, Brazil Country Office, Brasilia, Brazil, [2]UNAIDS, Brasilia, Brazil

Background: Amidst political turmoil, the legislature of 2015 initiated bringing back to vote the text of a bill dated 1999, re-packaged into what was named PL198/2015. It stated that 'the intentional transmission of HIV is a heinous crime'. If the bill became law, all efforts of the country in the response to HIV would have been in vain. Simultaneously, news outlets were pouring out fake news of PLHIV ´gathering in clubs to infect others on purpose´. Therefore, concerted action was key to put pressure in Congress and retract the bill.

Description: By virtue of an active partnership, the Ministry of Health (MoH), UNAIDS and civil society, were expedient in setting-up a strategy to target parliamentarians to bring down the PL198/2015. The strategy was composed of:

(i) production of well-argumented documentation against the bill. Two technical notes were produced by UNAIDS and MoH. They were presented in conjunction with a repudiation note from civil society (ANAIDS) to the President of the Constitution and Justice Committee;

(ii) usage of mechanisms of the legislative process to stall the vote: members of the Parliamentarian Front against AIDS were mobilized to comment the bill and adjourn the vote. The Family and Social Security Committee also presented a motion to reject the bill;

(iii) Mobilization of media outlets and counter argumentation: UNAIDS and partners launched an active social media campaign against the text to influence public opinion;

(iv) use of personal networks to reach out to key parliamentarians: members of civil society sensitized Congressmen to finally have the bill retracted.

Lessons learned: It is arduous to break barriers, it is easier to stop them from being built.

The whole process took two years, amidst the impeachment of President Rousseff. Despite the political turmoil, attempts to reduce the rights of PLHIV did not stop. Building on the strength of each partner was the key to success.

Conclusions/Next steps: A permanent legislative watch has been put in place by UNAIDS to monitor closely proposed bills that can affect negatively and positively the rights of people living with HIV and other key populations. Today, more than 190 bills are being monitored on a weekly basis.

[Images from social media campaign]

TUPED548

Dangerous desires: The criminalisation of HIV endangerment in Victoria, Australia

P. Kidd[1,2]
[1]La Trobe University, La Trobe Law School, Melbourne, Australia, [2]HIV Legal Working Group, Melbourne, Australia

Background: The criminalisation of HIV transmission and exposure represents a controversial expansion of the scope of the criminal law to encompass disease transmission as a criminal subject. In the state of Victoria, Australia, the principal mechanism for HIV criminalisation has been via reckless endangerment laws, however their application to HIV has not been extensively studied.

Methods: A series of HIV-related criminal cases employing the endangerment laws were identified, and access to court records was sought from the County Court of Victoria. The Court granted access to five of the six cases requested. A review of academic and judicial commentary on the endangerment laws was undertaken, as well as a doctrinal analysis of the application of the laws to people with HIV over two decades. The Court-provided materials were analysed to critically examine the practical application of the laws in HIV cases.

Results: This analysis shows that general endangerment laws have been used as a ´proxy charge´ in HIV transmission cases; that highly prejudicial evidence about HIV transmission is routinely put before juries despite not being a fact in issue; and that in some cases, defendants appear to have been sentenced as if they were on trial for causing another´s HIV infection rather than endangering it. This represents a significant departure from the scope and intent of the endangerment laws as they were passed.

Moreover, the broad scope of Victoria´s endangerment law has resulted in an unreasonably high rate of criminalisation of HIV compared to equivalent jurisdictions without similar laws.

Conclusions: The use of laws criminalising reckless endangerment in cases where HIV transmission is alleged represents a problematic exercise of prosecutorial discretion which has the potential to lead to greater

criminalisation of, and injustice against, people with HIV. Legislative and policy reform is needed to ensure prosecutions are in the public interest and do not counteract public health efforts.

TUPED549

Intimate conviction: The role of churches in the (de) criminalization of sodomy

M. Tomlinson[1], S. Ka Hon Chu[1], R. Elliott[1], P. Wong[2], J. Butler-Mcphee[3], J. Terry[3]
[1]Canadian HIV/AIDS Legal Network, Research and Policy, Toronto, Canada, [2]Canadian HIV/AIDS Legal Network, Development, Toronto, Canada, [3]Canadian HIV/AIDS Legal Network, Communications and Advocacy, Toronto, Canada

Background: Despite advances for LGBTQI rights in some countries, 73 states still criminalize consensual same-sex activity. 36 of these countries are in the Commonwealth of Nations: former British colonies, many in Africa and the Caribbean, where anti-sodomy laws were mostly imposed during the period of British colonial rule. Despite decades of independence, the statutes have been difficult to dislodge and contribute to the overwhelmingly disproportionate HIV burden in Africa and the Caribbean.
Description: The British anti-sodomy law reflected Victorian morality based on narrow Church of England theology. While the Church of England played a significant role in decriminalizing same-sex activity in the UK, a similar process has not occurred in the Commonwealth. With the support of local and international partners, the Canadian HIV/AIDS Legal Network hosted "Intimate Conviction" — the first-ever discussion of the role (past, present and future) of the church in the decriminalization of sodomy.
From October 12-13, 2017, 25 Christian leaders (12 women and 13 men), including many senior clergy and academics from former British colonies, met in Jamaica. The sessions were all open to the public, and although some local conservative church pastors called for a boycott, there were significant interventions by Christians opposed to decriminalization who attended and took opposing views.
Lessons learned: Topics covered included the distinction between Global North and Global South churches regarding decriminalization, the role of criminalization on the church's response to HIV, and the impact of criminalization on women. There was also a rich discussion of the history of church involvement in criminalization and the challenge for church leaders to support decriminalization. Most participants reported that the conference was timely, as the issues of religion and homosexuality were topical in Jamaica after two local senior preachers made public calls for decriminalization.
Conclusions/Next steps: The conference concluded with recommendations on how to encourage more churches to endorse decriminalization, including holding similar dialogues in criminalized contexts, and encouraging more Global South participation in these exchanges. An edited volume of the conference presentations will be produced for use and research by Commonwealth lawyers working on decriminalization, as well as NGOs seeking to engage and partner with faith leaders.

TUPED550

Using the HIV and AIDS tribunal in Kenya to protect rights of PLHIV: A compendium of cases

T. Makokha[1], L. Ghati[2], A. Maleche[2]
[1]Kenya Legal and Ethical Issues Network on HIV and AIDS, HIV & TB Thematic Area, Nairobi, Kenya, [2]Kenya Legal and Ethical Issues Network on HIV and AIDS, Nairobi, Kenya

Background: The *HIV & AIDS Tribunal* in Kenya was established in 2009. The *Tribunal* was established to adjudicate and give appropriate redress in cases on HIV violations; and prevent an irrational, panicky and fear-driven response to HIV. The *Tribunal* adjudicates cases on breach of privacy and confidentiality; testing without consent; disclosure of status; stigma and discrimination; loss of employment due to status, among others.
The Tribunal has endeavored to
- Enhance access to justice for PLHIV;
- Interpret the Kenyan law in line with the international best practices; and
- Provide a flexible and friendly forum for resolution of HIV and AIDS disputes.

In 2016 KELIN, with support from UNDP Kenya, embarked on documentation of cases decided by this Tribunal, resulting in a first ever *compendium of cases*. KELIN, has over the years, through its pro bono lawyers, supported clients with cases at the *Tribunal*.
Description: This *Compendium* was produced with an aim of supporting lawyers, judges, legal researchers, students, and the general public in understanding and appreciating how the law has been applied and interpreted to protect and promote the rights of PLHIV. It aimed at igniting legal discourse on HIV and AIDS laws and policies in Kenya.
Lessons learned: Cognizant of the fact that HIV stigma, discrimination, bastardization and other forms of rights violations pose the greatest threat to the fight against HIV and AIDS, the tribunal has committed itself to addressing these challenges, and has endeavored to develop and improve HIV jurisprudence in Kenya taking into account the development of HIV law worldwide. This is reflected in the decisions it has made as documented in the *compendium of cases*.
Conclusions/Next steps: The *compendium* will be useful in advancing the human rights agenda of PLHIV in Kenya and beyond and can help eradicate the rampant HIV related stigma and discrimination.

TUPED551

Aristotle was right - the sum is greater than the whole of its parts: How collaboration increased capacity in the fight against HIV criminalisation

S. Cameron, E.J. Bernard, S. Beaumont
HIV Justice Network, Amsterdam, Netherlands

Background: HIV criminalisation is the unjust application of criminal law to people living with HIV based solely on HIV status - either via HIV-specific criminal statutes or by applying general criminal laws that allow for prosecution of unintentional HIV transmission, potential or perceived exposure, and/or non-disclosure of known HIV-positive status. Despite recommendations from global normative agencies to severely limit the use of the criminal law to rare cases of malicious, intentional transmission, the overly broad and unjust use of the criminal law to control and punish people living with HIV is a growing, global phenomenon that has been generally overlooked and under-funded.
Description: In 2016, seven civil society networks, funded by the Robert Carr Fund, formed the HIV Justice Worldwide coalition to shape the global discourse on HIV criminalisation, share information and resources, build capacity, mobilise advocacy, and cultivate a community of transparency and collaboration. Today, HIV Justice Worldwide includes more than 70 partners globally and is led by a ten-agency steering committee. HIV Justice Network serves as its secretariat.
Lessons learned: Collaboration between civil society and other key stakeholders has delivered a diverse range of strategies to address HIV criminalisation including: stronger civil society relationships with international agencies and representative bodies of HIV scientists and clinicians; the reporting and analysis of more accurate global data on HIV laws and prosecutions; development of a centralised online advocacy resource consolidating all current HIV criminalisation resources; development of a compendium of legal precedents listing all known HIV criminalisation cases where a successful legal defence was mounted; development of shared communication strategy to promote expert scientific opinions on HIV transmission risk and harms; large-scale training events for community leaders, defence lawyers and media; and sharing of cross-jurisdictional legal expertise to mount successful legal challenges including constitutional challenges to amend laws or acquit those unjustly accused of HIV-related crimes.
Conclusions/Next steps: Funding international collaboration on HIV criminalisation for the first time has increased capacity and galvanised agencies and NGOs to develop evidence-based advocacy and undertake targeted interventions to improve the legal environment and increase access to justice for people living with HIV.

TUPED552

HIV related cognitive impairments and criminal law - barriers accessing justice for people living with HIV and HIV-associated neurocognitive disorder

A. Stratigos[1], V. Parwani[2]
[1]HIV/AIDS Legal Centre, Surry Hills, Australia, [2]HIV/AIDS Legal Centre, Sydney, Australia

Background: The HIV/AIDS Legal Centre has recognised an increase in the need for legal representation in criminal law matters for people with HIV with HIV-associated neurocognitive disorder (HAND). Many clients do not even have a recollection of having committed any offence and/or are in denial of their actions an their HAND has directly resulted in their offending behaviour.
The *Mental Health (Forensic Provisions) Act* in the Australian state of New South Wales allows for the dismissal of some criminal offences where the person has a cognitive impairment, case law requires that the defendant also enter into a treatment plan as proposed by an appropriately qualified physician. The application of the case law and legislation poses challenges for those facing criminal charges as a result of HAND.
Description: Representation of people with HIV with HAND in criminal law requires competent counsel to ensure that: clients remain empowered and engaged; the judiciary and the prosecution are educated on HIV and HAND, and people with HIV are not stigmatised and that the public do not form a view that all people with HIV will develop HAND.
Lessons learned: Case studies revealed that it is difficult to assist clients with HAND to have charges dismissed under the mental health legislation. The first challenge is establishing whether the client has sufficient legal capacity to provide instructions. Secondly the judiciary and the prosecution need to have the condition explained to them in a sensitive and non-stigmatising manner. The result of the challenges mean that appeals processes are often utilised and/or people with HAND face criminal penalties in circumstance where the mental health legislation should have been applied.
Conclusions/Next steps: Representation of people with HIV with HAND assists to ensure that the individual is not subject to criminal law penalties where it is not appropriate, but also educates the judiciary on the challenges faced by people living with HIV.
Outcomes achieved in the courtroom demonstrate that judicial and prosecutorial training is necessary to ensure greater success and greater sensitivity to protect not only the individual before the court but all people with HIV.

TUPED553

Community health advocates championing realization of the right to health in Kenya

L. Ghati[1], H. Ochieng[1], T. Wafula[2], A. Maleche[2], T. Saoyo[2]
[1]Kenya Legal and Ethical Issues Network on HIV & AIDS (KELIN), HIV and TB, Nairobi, Kenya, [2]Kenya Legal and Ethical Issues Network on HIV & AIDS (KELIN), Nairobi, Kenya

Background: Realization of the universal health coverage, achievement of the Sustainable Development Goals and the global targets of 90:90:90 in HIV interventions will remain a pipe dream if the community level health care systems are not adequately addressed. Every year, TB kills 1.4 million people and is the number one killer opportunistic infection amongst persons living with HIV. This is largely due to various social, legal and structural factors such as stigma and discrimination, inadequate drug regimens, poor drugs adherence to treatment and a large proportion of people with active TB disease who are missed by health systems.
Article 27 of the Constitution of Kenya 2010 has provisions that outlaw discrimination on the basis of one's health status. Many affected communities are not aware about the useful provisions in the Constitution.
Description: KELIN, with support from ARASA, has engaged 30 Community Health Advocates (CHAs) from five counties in Kenya to raise awareness on HIV and TB rights, increase treatment literacy, and demand for quality health care services contributing to strengthening community health facility linkages.
The CHAs have documented and reported cases of health human rights violation, the most recent is detention of lactating mothers in a public health facility for nonpayment of maternity fees. With KELIN's intervention, the mothers were release from the facility without paying a cent. The CHAs hold regular feedback meetings and conduct community outreaches by leveraging on existing community platforms including chiefs *barazas*, religious gatherings, and in health facilities. They receive technical support from KELIN, who has linked them to local partners working on HIV and Human Rights.
Lessons learned: Community health advocates, adequately trained, supported and motivated, are better champions of health rights in their respective communities. This kind of intervention has proved necessary, useful and easy to implement and can be replicated in other areas of similar and comparable settings to yield positive results.
Conclusions/Next steps: The CHAs will continue with the community based outreaches to increase awareness and document cases of rights violations to ensure that communities enjoy their health rights.

TUPED554

Working with parliamentarians on rights of PLHIV: Safeguarding access to treatment in the HIV/AIDS Act 2017

M. Gahlot[1], J. Prakash[2], E. Chinrimoi Haokip[2], Delhi Network of Positive People (DNP+) Study Group
[1]The Delhi Network of Positive People, Advocacy, New Delhi, India, [2]Delhi Network of Positive People (DNP+), New Delhi, India

Background: PLHIV networks have been advocating for the adoption of an HIV anti-discrimination law drafted through community consultations in India since 2003. Since the Bill was submitted to the government in 2007, DNP+ being the network of PLHIV in Delhi where the Indian Parliament meets, met members of Parliament (MPs) to advocate for the Bill. In 2014 an amended version of the Bill was presented in Parliament without a legal commitment to provide HIV treatment.
Methods: Between 2015-2017, DNP+ worked with MPs on the treatment clause in the HIV/AIDS bill which stated that government would provide treatment „as far as possible;" a vague phrase according to legal experts. DNP+ with other PLHIV networks and legal experts commenced a legislative advocacy campaign including:
(1) Submissions, testimony and evidence to Parliament Standing Committees
(2) One-to-one advocacy with MPs from the ruling and opposition parties
(3) Public/media sensitisation and advocacy: Direct actions like protests in front of Minister of Health´ residence, press releases and press conferences were also held.

NATIONAL

Remove the words 'as far as possible' from HIV Bill: patients

SPECIAL CORRESPONDENT

Members of the People Living with HIV group protesting outside the residence of Union Health Minister J.P Nadda. | Photo Credit: Vidya Krishnan

[Advocacy on HIV Bill Treatment Clause]

Results: As a result of the strong advocacy of PLHIV networks, during the debate on the HIV Bill several MPs including from the ruling coalition requested the government to remove the vague clause on treatment.

Despite these efforts, „as far as possible" remains in the HIV/AIDS Act. However, not only did the pressure from PLHIV networks result in raising this issue in Parliament, it also resulted in a clear commitment from the Health Minister on providing treatment and his announcement of „Test and Treat" as the new policy of the government.

Conclusions: With the Bill being passed with the vague treatment clause still in it, DNP+ and other positive networks are committed to continuing advocacy for its proper implementation, to raise awareness among the community on their rights and to ensure comprehensive access to treatment for PLHIV. As the Act requires rules and regulations and guidelines on access to treatment for implementation, PLHIV networks are continuing their advocacy with Members of Parliament, the Ministry of Health and the National AIDS Control Organisation on these processes to ensure that the government continues to provide and expand access to HIV treatment.

TUPED555

My body, my right! The power of women's advocacy in defeating HIV criminalisation in Malawi's HIV Bill

A. Raw[1], C. Banya[2], C. Chijozi[3], S. Chisala-Tempelhoff[4], M. Clayton[5], M. Luba[6]

[1]Southern Africa Litigation Centre, Johannesburg, South Africa, [2]International Community of Women Living with HIV, Lilongwe, Malawi, [3]Centre for Human Rights Education, Advice and Assistance, Blantyre, Malawi, [4]Women Lawyers Association, Lilongwe, Malawi, [5]The AIDS and Rights Alliance for Southern Africa, Windhoek, Namibia, [6]The Malawi Network of AIDS Service Organisations, Lilongwe, Malawi

Background: Based on a 2008 Law Commission report, Malawi's HIV (Prevention and Management) Bill was tabled in mid-2017. It combined coercive and punitive approaches on the management of HIV with crucial administrative provisions to institutionalise the National AIDS Commission. This paper describes key interventions by civil society, activists and, prominently, the role of women living with HIV, in ensuring the removal of criminalising and rights-infringing provisions from the law.

Description: In 2017 Malawian and regional civil society organisations (CSOs) conducted joint advocacy, raising human rights and public health concerns on coercive and punitive provisions in the draft HIV law. This joint, cumulative advocacy resulted in Parliament's HIV Committee proposing a range of amendments. Their amendment report addressed many civil society concerns but retained section 43, criminalising the "deliberate transmission" of HIV. In weeks before the Bill went to vote, Malawian women activists, led by women living with HIV, directly engaged Parliamentarians, protested and delivered statements condemning section 43 as a threat to human rights. On 28 November 2017, Parliament passed the Bill into law, adopting the HIV Committee's amendment report in full and going further to exclude section 43, thus comprehensively rejecting criminalisation of HIV.

Lessons learned: Manufactured urgency to enact the law left little space for meaningful engagement with affected communities. Adopting the slogan, "My body, my right", women activists, led by women living with HIV, achieved a fundamental shift in the understanding of and attitude towards HIV criminalisation by lawmakers and the executive. The technical objections and support of lawyers and human rights CSOs were effective in a supporting capacity, legally empowering the affected community with the language to implicate the proposed law in their lived realities. This grounded the discourse and powerfully challenged the abiding patriarchal and stigmatising underpinnings of the law's purported protections. Ultimately, the ability of "ordinary" women living with HIV to articulate what the law meant in real terms directed Parliament's response.

Conclusions/Next steps: The feminisation of HIV criminalisation in Africa demands a response led by women living with HIV. This requires the active engagement, participation and full legal empowerment of affected communities.

TUPED556

Impact of the ARASA online short courses on criminalisation of HIV transmission, exposure and non-disclosure

B. Tushabe

AIDS Rights Alliance for Southern Africa, Training, Cape Town, South Africa

Background: The AIDS and Rights Alliance for Southern Africa is a partnership of over 117 civil society organisations working together in Southern and Eastern Africa to promote a human rights response to HIV and TB.

Description: The criminalisation of HIV transmission, exposure and non-disclosure, which is often referred to as 'HIV criminalisation', is the unjust application of criminal law based solely on HIV status - either by enacting and applying HIV-specific criminal laws, or by applying general criminal laws exclusively or disproportionately against people with HIV.
Law makers who try to enact HIV-specific laws to criminalise HIV transmission are often driven by public pressure to be seen to be doing something about HIV in their country without stopping to consider the effects of HIV criminalisation on the spread of HIV.

Lessons learned: The course has equipped participants in Africa to advocate for laws that do not criminalise HIV transmission, exposure and non-disclosure and respect the rights of people living with HIV and promote universal access or for the repeal or amendment of laws that do criminalise

Ø Increased understanding on criminalisation of HIV transmission, exposure and non-disclosure is and the difference between transmission, exposure and non-disclosure

Ø Increased understanding of the disproportionate impact of criminalisation on women and key populations

Conclusions/Next steps: Monitor existing and proposed laws on HIV non-disclosure, exposure and transmission. Advocate that any criminal law provision applicable to HIV be informed by the best scientific and medical evidence relating to HIV, and uphold generally applicable criminal law and human rights principles.

Ø Support people living with HIV through programmes such as legal assistance and "know your rights" campaigns, to challenge overly broad criminalisation of HIV non-disclosure, exposure or transmission

Ø Support monitoring and research to further inform an appropriately limited application of criminal law in the context of HIV in order to support public health, justice and human rights. Such research should investigate the content and impact of HIV-related laws on public health and human rights, as well as the effectiveness of alternatives to criminalisation of HIV non-disclosure, exposure and transmission.

Ethical aspects and standards in research, including clinical trials

TUPED557

Ethical considerations in HIV phylogenetic research

A. Hoppe[1], C. Coltart[2], M. Parker[3], L. Dawson[4], J.J. Amon[5], M. Simwinga[6], G. Geller[7], G. Henderson[8], O. Laeyendecker[9], J.D. Tucker[8], P. Eba[10,11], V. Novitsky[12], A.-M. Vandamme[13,14], J. Seeley[15,16], G. Dallabetta[17], M.K. Grabowksi[18,19], P. Godfrey-Faussett[10,16], C. Fraser[3], M.S. Cohen[8], D. Pillay[2,15], On behalf of the Ethics in Phylogenetics Working Group
[1]University College London, Infection and Immunity, London, United Kingdom, [2]University College London, London, United Kingdom, [3]University of Oxford, Oxford, United Kingdom, [4]DAIDS, Bethesda, United States, [5]Princeton University, Princeton, United States, [6]Zambart, Lusaka, Zambia, [7]Johns Hopkins University, Baltimore, United States, [8]University of North Carolina, Chapel Hill, United States, [9]NIH, Bethesda, United States, [10]UNAIDS, Geneva, Switzerland, [11]University of KwaZulu-Natal, Pietermaritzburg, South Africa, [12]Harvard T.H. Chan School of Public Health, Boston, United States, [13]KU Leuven - University of Leuven, Leuven, Belgium, [14]Universidade Nova de Lisboa, Lisbon, Portugal, [15]Africa Health Research Institute, Durban, South Africa, [16]London School of Hygiene & Tropical Medicine, London, United Kingdom, [17]Bill & Melinda Gates Foundation, Washington, United States, [18]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States, [19]Rakai Health Sciences Program, Kalisizo, Uganda

Background: Phylogenetic analysis applied to pathogen genetics is a powerful tool with the potential to help reduce the spread of epidemics, including HIV. Phylogenetics allows the deduction of historical relationships between groups of organisms based on their pathogen genomes, which can be used to help infer transmission chains among infected individuals. The application of phylogenetic approaches to public health programmes has rapidly increased in the last five years and present unique ethical, legal and social issues which are not well addressed by the existing bioethics literature.
Description: A multidisciplinary meeting was convened to explore the issues arising from the design, conduct and use of results from HIV phylogenetic studies, and additionally to propose recommendations to minimise the associated risks both to individuals and groups. The meeting focused on phylogenetic studies of HIV in Africa, the epicentre of the global HIV pandemic.
Lessons learned: We identified eight critical ethical domains which provide a framework through which to consider the issues:
(i) risk-benefit assessment;
(ii) protection of the rights and interests of study participants while in pursuit of scientific progress;
(iii) local social and legal context, including human rights violations;
(iv) risk mitigation strategies;
(v) valid informed consent and other safeguards;
(vi) community engagement;
(vii) communication and
(viii) equitable data sharing.
Within each domain, we highlighted factors that make phylogenetic research unique, such as the fact that both individuals who participate in studies as well as social and geographic groups are linked in phylogenetic networks.
Conclusions/Next steps: We endeavoured to provide a framework to assist researchers, public health practitioners, and funding institutions to ensure that HIV phylogenetic studies are designed, conducted and disseminated in an ethical manner.

TUPED558

PLHIV data sovereignty in research: Empowerment and inclusion in the Australian context

D. Toborek[1], C. Cooper[2], L. Sutherland[3]
[1]Positive Life NSW, Research & Peer Support, Sydney, Australia, [2]Positive Life NSW, Chief Executive Officer, Sydney, Australia, [3]Positive Life NSW, Manager, Sydney, Australia

Background: Research conducted by academic institutions is rarely directed, owned or controlled by PLHIV, and university research agendas do not always align with the PLHIV community's need to research issues in a timely and targeted manner, influencing policy and service systems. To redress these issues Positive Life NSW has increasingly turned to community driven, owned, and promoted electronic surveys (Anal Cancer Awareness Survey, Immediate Start to HIV Treatments Survey) to provide a more effective mechanism to consult with community. We have demonstrated that our surveys are faster, more in depth data in greater quantities, and more responsive to emerging PLHIV concerns and needs. This data and PLHIV representative advice adds to and compliments the research published by universities and clinical services.
Description: Produced by Positive Life on behalf of the national Australian HIV peer-led organisational grouping, Poz Action, the document establishing the principles, objectives and guidelines of the PLHIV-led human research ethics committee (HREC) was drawn from local and international examples. The guiding document will now enable Australian HIV peer organisations to include PLHIV at all stages of the research process and inform the HIV research agenda.
Lessons learned: Not all jurisdictions have a dedicated PLHIV-led organisation and varied levels of skills and resources to dedicate to development; however, the desire to progress this project has led to stronger ties, skill development and knowledge transfer between PLHIV community organisations throughout the collaboration stages. As PLHIV become more involved and the issue of data sovereignty, coordination and participation impact researchers and clinicians, a culture shift in management process and education will need to occur.
Conclusions/Next steps: Formal establishment of the HREC. Engagement with all Australian HIV researchers and research facilities and jurisdictional/national health agencies. As per Australian Aboriginal research precedent, seeking State/Territory legislation requiring HIV research to be reviewed by a PLHIV-led HREC.
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TUPED559

A study of violations of human rights of PWUD and PLHIV in Kazakhstan resulted from an unethical governmental research

D. Matyushina-Ocheret[1], M. Golichenko[2], E. Bilokon[3], A. Pak[4]
[1]Eurasian Harm Reduction Association, Moscow, Lithuania, [2]Canadian HIV Legal Network, Toronto, Canada, [3]Community Crisis Center Moi Dom (My Home), Temirtau, Kazakhstan, [4]NGO 'Ty Ne Odin' (You Are Not Alone), Pavlodar, Kazakhstan

Background: Among post-Soviet states, Kazakhstan has one of the biggest populations of people who inject drugs (PWID), which amounts to 128700 persons, 8.2% of them living with HIV. Around 98,000 of Kazakhstan PWID are opiate users, which means that the spread of HIV can be substantially decreased through opioid substitution treatment (OST). However, OST programs in Kazakhstan are available to only 2.69% of those in need, and even these treatment slots are currently under the threat of being closed. In 2017 Kazakhstan government initiated an assessment of the effectiveness of OST programs. The study explored human rights violations among PWID and PLHIV resulted from the governmental assessment.
Methods: In November - December 2017 three group interviews with 30 OST patients (most of them PLHIV) in Pavlodar and Temirtau were conducted.The study was organised by an independent international group. Local PLHIV community groups were involved as gatekeepers and in interpreting the study results.

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Results: Analysis of interviews revealed the following violations of research participants' and patients' rights:
(1) Patients participated in the assessment on non-voluntary basis and under threat of termination of the OST program;
(2) Patients were not provided with full information on research to participants;
(3) Patients were forced to provide urine for non-anonymous drug testing;
(4) No single patient gave informed consent to medical doctors to disclose information about their diagnosis to any assessment group members or other government bodies;
(5) Assessment group members often spoke to patients in a disrespectful, loud tone, and were present when male and female patients collected urine samples without permission;
(6) Former patients were approached at their homes by police to provide details about the reasons they had quit OST program.
Conclusions: The governmental assessment of OST was organised with rude noncompliance with international bioethical standards. It is recommended that the governments of Kazakhstan rejects the results of the assessments as of poor quality and ensures that in future any research with the involvement of PLHIV and PWUD is organised according to international bioethical standards.

TUPED560

Identifying ethical issues in HIV positive adolescents research: Zimbabwe National Ethics Committee experiences

S. Sithembile, M. Kanengoni, M. Phiri-Shana, P. Ndebele
Medical Research Council of Zimbabwe, Research Oversight, Harare, Zimbabwe

Background: There remains reluctance to involve adolescents in clinical trials, in general, yet they remain at high risk of the HIV disease. When such a protocol is submitted to an Ethics Committee for review, contradictory legal and ethical requirements remain a challenge. Because of this myriad of challenges, it is necessary for Ethics Committees to identify, during protocol review, as much as possible, ethical issues that might arise during research involving HIV positive adolescents. We share our experiences as the National Ethics Committee on ethical issues raised during review of research protocols involving HIV positive adolescents.
Methods: Monthly protocol review meetings were held in order to cope with the review workload. Protocols involving HIV positive adolescents are never reviewed through the expedited process as per Standard Operating Procedures. This allows a wide range of face-to-face opinions from committee members. Stipulations and recommendations raised are communicated to the researcher through written letters and these are addressed before protocol approval.
Results: In 2017, a total of 54 HIV research protocols were reviewed, clinical trials and social sciences research inclusive. Out of the 54, fifteen protocols involved recruiting HIV positive adolescents research participants. Some of the ethical issues identified during review included, when adolescent child can consent independently, logistic challenges of child and parent/guardian consent, confidentiality issues on the side of the child, justice not done to the child whose parents /guardian refuses their participation when they can benefit, principle of autonomy not honored, adolescents treated as vulnerable patients, and that protectionist attitude impedes human rights.
Conclusions: Protocols involving HIV positive adolescents need attention to detail when reviewing. It is prudent to adopt and adapt to localized context-dependent strategies. There is need for flexibility in reviewing HIV positive adolescent research so as to meet community needs, thereby ensuring ethical research practices.

TUPED561

"Free testing and PrEP without outing myself to parents:" barriers and facilitators for oral and injectable PrEP clinical trial participation among adolescent men who have sex with men

C. Fisher[1], L. Ibrahim Puri[1], A. Fried[2], K. Macapagal[3], B. Mustanski[3]
[1]Fordham University, Center for Ethics Education, New York, United States, [2]Midwestern University, Glendale, United States, [3]Northwestern University, Feinberg School of Medicine, Chicago, United States

Background: Adolescent men who have sex with men (AMSM) account for high numbers of new HIV diagnoses. Non-adherence to daily use limiting the effectiveness of oral PrEP (Truvada) has led to current trials with adult MSM testing Cabotegravir, a long-term injectable medication. AMSM trials will begin once adult studies have established relative safety and efficacy of these medications. Recruitment of AMSM under 18 has been a barrier in prior HIV prevention research due in part to guardian permission requirements. This has created pressures to waive guardian consent and develop alternative research protections. This study examined factors influencingAMSM attitudes toward participation in oral/injectable PrEP RCTs to inform protections of youth's rights and welfare in future studies.
Methods: We administered to 198 ethnically diverse U.S. AMSM, 14 - 17 years a web-based survey including demographic and sexual health questions, description of a year-long oral versus injectable PrEP RCT and 20 Likert-type and open-ended items assessing motivations for and against participation including: perceived benefits and risks of PrEP and HIV/STI testing; benefit to others; random assignment; and confidentiality concerns.
Results: Sixty-two percent indicated they were likely to participate in the study. Over 80% endorsed daily HIV protection, HIV/STI testing, sexual health counseling, not having to rely on partner's condom use, and altruism as reasons to participate. Reasons against participation included medication side effects (48%), fear of learning they had HIV (42.5%) and concern taking the pill daily would reveal their sexual orientation to parents (61%). Many (60%) erroneously assumed they would be assigned to the
condition best for them and 39% indicated free access to services would lead them to participate even if they did not want to. Multiple regression indicated these factors accounted for 55% of the variance in participation choice. Nether age or ethnicity yielded significance.
Conclusions: Results suggest future biomedical HIV prevention research will need to address AMSM's confidentiality concerns and develop procedures to enhance youth's understanding of random assignment, the continued importance of partner condom use during trial participation, and availability of alternative sexual health services to avoid the potentially undue influence of access to free sexual health services.

TUPED562

Participating in biomedical HIV prevention trials while pregnant: Women´s views about enrolling in Pre-Exposure Prophylaxis (PrEP), vaginal ring, and randomized comparison trials

K. Sullivan[1], C. Zimba[2], S. Gilbert[3], T. Mtande[2], E. Jaffe[1], M. Gross[4], J. Coleman[4], I. Hoffman[5], L. Rahangdale[6], N. Rosenberg[2,7], J. Anderson[4], R. Faden[3], A. Lyerly[1]
[1]University of North Carolina at Chapel Hill, Center for Bioethics, Department of Social Medicine, Chapel Hill, United States, [2]UNC Project Malawi, Lilongwe, Malawi, [3]Johns Hopkins University, Berman Institute of Bioethics, Baltimore, United States, [4]Johns Hopkins Medical Institutions, Division of Gynecologic Specialties, Baltimore, United States, [5]University of North Carolina at Chapel Hill, Institute for Global Health and Infectious Diseases, Chapel Hill, United States, [6]University of North Carolina at Chapel Hill, Department of Obstetrics and Gynecology, Chapel Hill, United States, [7]University of North Carolina at Chapel Hill, Department of Health Behavior, Chapel Hill, United States

Background: Despite the significant need for effective HIV prevention during pregnancy, the widespread exclusion of pregnant women from clinical trials has resulted in limited data on biomedical HIV prevention

methods in pregnancy. Failing to study these methods in pregnancy has important implications for equitable access to prevention modalities and their safe and effective use. The PHASES project is developing engagement-driven guidance on how to responsibly expand the HIV evidence base for pregnant women. Pregnant women´s views on participation in research are critical to informing the development of this guidance which must be responsive to pregnant women's needs and values.

Methods: Seventy semi-structured, in-depth interviews were conducted with pregnant or recently pregnant women at risk for HIV; 35 in the U.S. and 35 in Malawi. Questions explored decision-making around enrollment while pregnant in 3 hypothetical HIV prevention clinical trial vignettes testing

(1) PrEP,

(2) a vaginal ring, and

(3) a randomized trial comparing the two.

Thematic analysis informed the analytic approach. Interviews were transcribed, translated when necessary, coded and emergent themes identified.

Results: The majority of women in Malawi reported willingness to join at least one trial. Reasons included the potential benefit of preventing HIV in themselves and their offspring, access to enhanced medical care, helping other women in the future, and low perceived risk of the medications during pregnancy. Overall, U.S. women were more reluctant to participate, citing general avoidance of medications during pregnancy, unwillingness to assume potential risk to offspring, and low perceived personal risk for HIV exposure, with some exceptions.

Conclusions: We identified diverse considerations shaping decision making around potential participation in HIV prevention trials during pregnancy. Perceptions of HIV risk and the safety of medications in pregnancy were significant drivers of women´s decisions and appear to be influenced by underlying epidemiological and cultural contexts. These findings indicate that the current HIV research agenda, which largely excludes pregnant women, is misaligned with the views of some of these women; consideration of such views, situated within cultural contexts, may lead to a more ethically responsible and inclusive approach.

TUPED563

Ethical research with indigenous populations: Translating standard ethical guidelines to strengthen indigenous community involvement in research

C.R. Pearson[1], M. Parker[2], C. Fisher[3]
[1]University of Washington, Indigenous Wellness Research Institute, Seattle, United States, [2]University of Washington, Seattle, United States, [3]Fordham University, Psychology, New York, United States

Background: American Indian and Alaska Native (AIAN) community partner informed engagement in the review of HIV/AIDS research protocols helps ensure community-based research (CBPR) serves community interest, enhances recruitment and study retention and avoids cultural misunderstandings, stigmatization, or culturally inappropriate, irrelevant, and disrespectful science. Although review boards and researchers are trained to minimize risks to participants, all parties must also know how to apply research ethics principle that are culturally responsive, at a community level, and weigh studies' potential pathologizing effects for entire social groups. Traditional ethics training curricula have yet to keep pace with the rapid expansion of CBPR and have failed to address the unique situations across AIAN communities. We brought together national panels of AIAN community members, AIAN academic scholars and allies, and policy leaders to co-design and evaluate a culturally tailored online human subjects training curriculum.

Methods: In a national randomized sample of 490 AIAN community members, we compared our AIAN ethics training curriculum (n= 244) with a standard nationally used online curriculum (n= 246). We assessed pre-and post-test measures in group differences in ethics knowledge. Analysis of regional tribal differences assessed curriculum generalizability.

Results: The AIAN curriculum, as compared to the standard curriculum, achieved significantly higher levels of participants' research ethics knowledge at first attempt (78.9% quiz items correct versus 65.3%, t= 8.09, p < .001), acceptability (4.2 versus 3.8, t= 6.21, p < .001), satisfaction (4.1 versus 3.7, t= 5.26, p < .001), ease of responding to curriculum and completion of the training requirements. There were no regional, urban, or rural differences.

Conclusions: We produced a validated research with human subject training curriculum and a trainer's toolkit with case studies and quiz items that is ready for immediate use. Culturally-grounded training curricula may help remedy the impact of historical research ethics abuses involving minority communities that have contributed to mistrust of research and lack of community engagement in research.

TUPED564

Data regarding the ethical issues in HIV+ to HIV+ solid organ transplantation

J. Sugarman[1,2,3], S. Rasmussen[2], A. Eno[2], J. Bollinger[1], S. Seaman[2], A. Nguyen[3], D. Brown[2], M. Henderson[2], A. Tobian[2,3], D. Segev[2,3], A. Wu[2,3], C. Durand[2]
[1]Johns Hopkins University, Berman Institute of Bioethics, Baltimore, United States, [2]Johns Hopkins University School of Medicine, Baltimore, United States, [3]Johns Hopkins University, Bloomberg School of Public Health, Baltimore, United States

Background: Clinical trials involving transplantation of HIV+ organs into HIV+ recipients are now being conducted. If proven safe and effective, HIV+/HIV+ transplants will provide another source of organs for people living with HIV (PLWH) facing high mortality on transplant waitlists and alleviate organ shortages generally. However, HIV+/HIV+ transplantation raises ethical issues related to risk, consent, and fairness, among others, that must be addressed.

Description: Given the novelty of these transplants, we are conducting a set of empirical ethics projects that include: a survey of PLWH on a transplant waitlist about HIV+/HIV+ transplants; a survey of a general PLWH population regarding willingness to donate organs; in-depth interviews with early recipients of HIV+/HIV+ transplants; in-depth interviews with independent recipient advocates (which are required for HIV+/HIV+ transplants in the US); and developing patient reported ethical outcome measures (PROM) to prospectively capture ethical issues among future HIV+/HIV+ transplant recipients.

Lessons learned: Preliminary data suggest that most (44/46) PLWH on an organ waitlist are willing to accept an HIV+ deceased donor organ. Most of the 114 general PLWH population survey respondents expressed willingness to donate (79.8% after death and 62.3% as living donors). However, only 21% were registered organ donors. Interviews with six transplant recipients revealed general satisfaction with the consent process and absence of regret over their decision to undergo transplantation, but some were concerned about stigma. Nine independent recipient advocate interviews revealed marked variability in practice among medical institutions and a desire for additional information and specification of their roles. We developed a draft PROM based on these results and existing scales. After cognitive and pilot testing with 27 PLWH it includes 29 items in five domains: emotions, trust, decision-making, transplant, and decision satisfaction.

Conclusions/Next steps: Overall our preliminary findings are encouraging, but there are opportunities to enhance current approaches. Organ donation registration rates may pose a barrier to these transplants and independent recipient advocates need additional guidance. We are continuing these data collection activities as well as nesting our PROM in a multicenter trial of HIV+/HIV+ kidney transplants to obtain generalizable information about the ethical issues related to these transplants.

Ethical aspects and standards in prevention programmes

TUPED565

Ethical pitfalls of phylogenetic approaches to HIV prevention

M.K. Smith[1], A.M. Dennis[2], S. Rennie[3], G.E. Henderson[3]
[1]*University of North Carolina, Infectious Diseases, Chapel Hill, United States,* [2]*University of North Carolina Chapel Hill, Medicine, Chapel Hill, United States,* [3]*University of North Carolina Chapel Hill, Social Medicine, Chapel Hill, United States*

Background: Advances in molecular network analysis are providing unprecedented levels of granular insight into HIV transmission patterns. Through sequence similarity or phylogenetics, analysis of these molecular data can reveal potential transmission patterns among HIV-infected people. Although they cannot prove direct transmission, use of these methods to inform prevention targeting can inadvertently confer greater epidemiological significance to these data, raising ethical questions regarding the appropriate balance of personal risk and public health benefit.

Methods: We conducted a review of six known studies taking place in Europe, North America, and sub-Saharan Africa that are utilizing molecular data to identify and target individuals with elevated HIV transmission risk. Data were gathered through direct communication with investigators and attendance at an international conference on this topic organized by the Bill and Melinda Gates Foundation in May 2017. This review focuses on study design, risks, benefits, and informed consent procedures used in these interventions.

Results: By targeting people or groups who are not only HIV-infected but also identified as having higher transmission risk, molecular and network-driven prevention approaches may introduce new risks to already vulnerable populations. These interventions could also backfire if fear of criminalization, stigma, or other harms cause people to withdraw from studies or the HVI care continuum. Consent procedures that convey appropriate amounts of scientific complexity and uncertainty for lay audiences pose significant implementation challenges. The ethical implications of these methods will continually evolve as technologies and analytical techniques develop.

Conclusions: Public health ethics dictate that any tool capable of more rapid or effective HIV control be utilized. Yet decisions on whether and how to implement molecular and network tools must carefully consider tradeoffs between population benefit and individual-level risks Community-wide input will be necessary to ensure that indications of transmission risk (e.g. cluster membership, network centrality, etc.) are not conflated with evidence of a transmission, particularly in settings that criminalize HIV transmission. Design of acceptable and sustainable interventions will need to involve communities from the most formative stages. Lastly, better methodological consensus can be expected as our understanding of their particular limitations improves.

TUPED566

Supporting patient rights and informed consent in the context of HIV testing and treatment scale-up: Experiences of female sex workers living with HIV in Bali, Indonesia

P. Duff[1,2,3], C. Supriyadinata[4], E. Rowe[5], L. Maher[3], N.G.A. Nanditha[2], T. Sarahdita[5], K. Shannon[1,2]
[1]*Gender and Sexual Health Initiative, Vancouver, Canada,* [2]*University of British Columbia, Medicine, Vancouver, Canada,* [3]*Kirby Institute for Infection and Immunity, University of New South Wales, Sydney, Australia,* [4]*Yayasan Gaya Dewata, Denpasar, Indonesia,* [5]*Yayasan Kerti Praja, Denpasar, Indonesia*

Background: Access and coverage of combination prevention strategies for key populations continues to lag behind/remains sub-optimal. The role of HIV testing and treatment scale up for key populations as part 'Treatment as Prevention' (TasP) has drawn criticism and concern by community groups, with fear that patient rights and informed consent may be compromised. In a setting with government-sponsored HIV TasP roll-out, this study sought to capture female sex workers (SWs) experiences around informed consent (i.e., information, comprehension, voluntariness).

Methods: Data were drawn from ETHICS (2016-2017), a community-based qualitative study aimed at exploring a broad range of ethical questions surrounding HIV service scale-up in Bali, Indonesia. In-depth interviews with 25 female SWs living with HIV were conducted by a trained Peer Research Associate and analyzed using participatory coding techniques.

Results: Informed consent around HIV testing varied widely by venue, with most SWs who were tested at Yayasan Kerti Praja, a non-profit HIV clinic serving marginalized communities, indicating they were able to make an informed decision to test. In contrast, many SWs who were tested for HIV via outreach to sex work venues (e.g., by government-sponsored mobile health clinics) described having their blood 'stolen'; many were not informed, did not understand the purpose of the test and felt unable to refuse authority figures, or in the presence of managers/co-workers. Overall, SWs were satisfied and comprehended the information received around ART, though some described having been sold on the idea of one-pill-per day, only to have the pill burden increase (to 3+ pills/day) months later. Peer navigators (SWs living with HIV) and support groups were suggested to help support patient rights and the ethical scale-up of HIV services.

Conclusions: Our findings highlight a need for services, developed and delivered together with SWs themselves (including peer navigators), that better support SWs' right to informed consent. Aligned with WHO/UNAIDS sex work guidelines, consideration of laws, confidentiality and labour rights of workers must be considered before rolling out venue-based HIV services and supports (e.g., housing & work environments), and must be in partnership with SWs.

National financing analyses and initiatives

TUPEE567

Investing in the HIV Workforce: Government Capacity and Willingness to Increase HRH Spending in Response to Increased Needs for HIV in Uganda

C. Barker Cantelmo[1], M. Schnure[1], C. Shumba[2], R. Berger[3]
[1]*Palladium, Washington, United States,* [2]*HRH2030 consultant, Kampala, Uganda,* [3]*Chemonics International, Washington, United States*

Background: Uganda may need additional human resources for health (HRH) to achieve national HIV goals, yet the country faces HRH constraints, including inadequate skills mix, maldistribution, and a 36% vacancy rate in public facilities. As a result, the HRH2030 program, funded by USAID, through PEPFAR, assessed the capacity and willingness of the government to make more strategic investments in facility- and community-based HRH for HIV.

Methods: We projected HIV workforce salary costs and fiscal space and conducted a political economy analysis involving literature review and interviews with 52 stakeholders. The cost analysis estimated how many facility- and community-based health workers are needed and the corresponding salary/stipend costs for reaching national HIV targets, including 90-90-90. We analyzed costs for HIV treatment under two service delivery model scenarios: status quo versus national roll-out of differentiated care models (DCMs). The fiscal space analysis estimated how much funding may be available for HIV HRH salaries from the government and PEPFAR from 2016 to 2020.

Results: An estimated $20.3 million is needed in 2020 for select facility- and community-based HRH salaries to reach national HIV targets under 2016 HIV treatment models. The HIV HRH funding gap under this scenario could be as high as $6 million in 2020, even if the government increases HRH salary spending in line with its national recruitment plan - which may not be feasible due to macroeconomic projections and limited political will to invest in HRH - and PEPFAR's salary support for

HRH remains constant. Community-based health workers (CHWs) face the largest gaps. However, DCMs that change the frequency of facility visits and the types of laboratory monitoring conducted by patient group could save an estimated $1.7 million in HIV HRH salary costs in 2020 alone.

Conclusions: Increasing investment in HRH and improving efficiency in HIV service delivery are essential to reach national HIV goals and sustain achievements. The analysis suggests that there are financial and political constraints to increasing investment in HIV HRH in the short term, but national roll-out of DCMs for HIV treatment has the potential to improve efficiency, lowering the average HRH cost per patient.

TUPEE568

Mobilizing domestic financing for HIV through health insurance

B. Lee, S. Prabhakaran, E. Lang, A. Dutta, S. Bowsky
Palladium, Washington, United States

Background: Integrating HIV services into health insurance schemes can sustainably increase domestic resources available for HIV, though regulatory and financial mechanisms must be in place. A package of HIV services must be in the minimum benefits package of the insurance scheme. Results from select countries can illuminate options applicable for both generalized and concentrated epidemics.

Methods: In Tanzania and Indonesia, the PEPFAR- and USAID-funded Health Policy Plus project (HP+) assessed these options. Based on basic vs. comprehensive packages of HIV services, HP+ projected utilization rates through insurance. This involved analyses of the current proportion of people living with HIV (PLHIV) enrolled in schemes. Costs to the scheme of selected HIV services were estimated based on underlying unit costs to project the scheme's total annual expenditure on HIV. This additional liability was compared to scheme revenues and expenditures, to assess sustainability. Sensitivity analyses considered variations in enrolment, utilization, reimbursement mechanisms and service delivery efficiency.

Results: In Tanzania, a basic package (excluding commodity costs) of ART, PMTCT, and HTC is estimated to cost an additional $23 million in Year 1 ($33 million with commodities). A comprehensive package of HIV services (including HIV support services and VMMC) would cost $34 million ($45 million with commodities). In Indonesia, a basic package may only include opportunistic infection prophylaxis, screening and treatment; while a comprehensive one includes ART, PMTCT and HTC. These packages would decrease projected scheme surpluses by 26%-34% in Year 1.

Conclusions: Based on the current cost of HIV services, our results suggest the financial impact on insurance schemes is manageable within the scope of existing pooled resources or through minor premium increases. While insurance schemes differ in design and implementation, this approach to analyzing integration of HIV services can be consistently applied in countries with established health insurance schemes and declining external resources for HIV. A key requirement is ensuring PLHIV are adequately covered and served by insurance schemes, especially key populations. The governments of Tanzania and Indonesia should adopt a two pronged approach - concurrently integrating HIV services into, and scaling up enrolment of PLHIV in, their major insurance schemes.

TUPEE569

Optimal allocation of resources for HIV services in Ukraine: Findings from a model-based study

J. Pearson[1], A. Latypov[2], R. Dierst-Davies[3], M. Duda[2], N. Avaliani[2], C. Kerr[4,5]
[1]Deloitte Consulting LLP, Strategy & Operations Practice, Arlington, United States, [2]Deloitte Consulting LLP, The USAID HIV Reform in Action Project, Kyiv, Ukraine, [3]Deloitte Consulting LLP, San Francisco, United States, [4]Optima Consortium for Decision Science, Sydney, Australia, [5]University of Sydney, Sydney, Australia

Background: Ukraine has one of the most severe HIV epidemics in the region, with an estimated 238,000 infected persons (prevalence ~1.0%) in 2017. Globally, Ukraine is among 30 fast-track-strategy countries, which generated more than 89% of new HIV infections in 2014. To investigate the most efficient way to achieve the UNAIDS 90-90-90 HIV eradication goals, a forecasting and resource allocation analysis was conducted.

Methods: A secondary analysis of data from a study of HIV expenditures among selected facilities in three regions (Mykolayiv, Poltava, and Zhytomyr) of Ukraine was conducted. First, sample data were interpolated to all facilities in study regions. The Optima HIV model was then applied to determine allocative efficiency across regions. This model estimates how changes in funding allocations to individual programs impact overall epidemic outcomes. The effects of multiple funding scenarios on disease progression through 2030 were explored: baseline, each oblast optimized independently (with C&T services either unconstrained or constrained), and geospatial optimized between oblasts
(C&T unconstrained and constrained).

Results: Over the past 10 years, both new incidence cases and HIV-related deaths have decreased sharply among all key populations, a trend that is expected to continue, albeit at a slower rate, until 2030. Compared to the current mix of funding, Ukraine can achieve a more cost-effective impact by shifting a greater portion of funding to ART and NSP programs, as well as increasing funding in Mykolayiv and Poltava. At current funding levels the total cost of services will be $115.1M in 2016-2030, resulting in 5,800 deaths, 5,300 infections, and 91,500 DALYs averted. To achieve 90-90-90 goals by 2020 and sustain the current funding mix is estimated to cost $184.5M by 2030. Applying a more cost-effective funding mix, 90-90-90 goals can be achieved for $155.9M (a cost savings of $28.6M), resulting in additional decreases in new infections (12,200 to 8,300) and deaths (10,800 to 7,800) by 2030.

Conclusions: With the anticipated reduction in donor funding, Ukraine may consider reallocating available resources to more cost-effective interventions. Reallocating more funding towards ART has the greatest impact on new infections and deaths averted and will play a crucial role in achieving the 90-90-90 benchmarks.

TUPEE570

The end of the golden age of HIV/AIDS funding? Trends in HIV/AIDS spending by financing source and spending category in 188 countries, 2000 - 2015

M. Moses[1], A. Haakenstad[2], T. Tao[1], A. Chapin[1], J. Dieleman[1]
[1]Institute for Health Metrics and Evaluation, University of Washington, Seattle, United States, [2]Harvard T.H. Chan School of Public Health, Boston, United States

Background: Development assistance provided by donors to combat HIV/AIDS in low- and middle-income countries decreased by 6.6% between 2012 and 2017, following a decade of 19.6% in annual growth. These decreases are concerning because little is known about the magnitude of domestic resources spent on HIV/AIDS across the globe and within each country. There is also little evidence about whether declines in funding threaten the reductions in HIV/AIDS incidence and mortality achieved since 2000. We addressed this critical knowledge gap by quantifying HIV/AIDS spending, identifying the source of these funds, and measuring HIV/AIDS spending on prevention, care and treatment, prevention of mother-to-child transmission of HIV/AIDS (PMTCT), and antiretroviral therapy (ART).

Methods: We collected and extracted data from five main sources: the AIDSinfo online database, Global Fund proposals, National AIDS Spending Assessments, National Health sub-Accounts, and the AIDS

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data hub. A spatiotemporal Gaussian process regression model was used to estimate HIV/AIDS expenditure by source and function from 2000 to 2015. All currencies were converted to 2017 purchasing power parity dollars.

Results: In 2015, global HIV/AIDS spending amounted to $48.1 ($45.7-$52.1) billion, a decrease of $800 million from 2013. Governments financed 62.2% (56.6%-66.7%) of total HIV/AIDS expenditure and out-of-pocket expenditure financed 5.6% (4.9%-6.3%). Development assistance for HIV/AIDS comprised 30.2% (27.8%-31.7%) of total spending in 2015. Among low-income countries, $0.11 in government health spending for HIV/AIDS is spent for each dollar of development assistance. In high prevalence countries, development assistance constituted 76.6% (73.6%-79.4%) of HIV/AIDS spending. Since 2000, expenditure on prevention has increased by 273% to 11.2 billion, while spending on treatment increased by 271% to 23.6 billion. In 2015, total expenditure on ART and PMTCT was $6.3 and $7.7 billion respectively.

Conclusions: Government resources played a substantial role in growth in global HIV/AIDS spending. Still, development assistance remains a major portion of spending on the prevention and treatment critical to millions living with HIV/AIDS. This makes these programs susceptible to future cuts in spending. High prevalence countries reliant on international assistance must plan strategically so that drops in external financing do not alter progress towards an AIDS-free generation.

TUPEE571

Domestic financing of HIV prevention programs for key populations in Thailand

R. Rahman[1,2], S. Talawat[1], P. Lertpayup[1], P. Panitchpakdi[1]
[1]Raks Thai Foundation, Bangkok, Thailand, [2]Duke University Hart Leadership Program, Durham, United States

Background: Between 2015 and 2019, over 70% of new HIV infections in Thailand are projected to occur among key populations, including men who have sex with men, transgender women, people who inject drugs, and female sex workers. Civil society organizations (CSOs), reliant on international donor support, have played an important role in ensuring access to HIV services among key populations. However, declines in international funding threaten the sustainability of CSO engagement in HIV prevention in Thailand.

Description: Starting in 2015, Thailand established the THB200 million (6.4% of national AIDS budget) HIV Prevention Fund, a national program aiming to fund CSOs working in HIV prevention and to overcome dependence on international donors. Under this program, CSOs work to reach key populations, recruit them into HIV testing and treatment, and retain them in the continuum of care.

Lessons learned: In the first year of implementation (2015-2016) of the HIV Prevention Fund, only 38% of targeted key population individuals (27,157/72,285) were reached with HIV prevention services. CSOs reported many challenges in accessing funding under this program: 1) Legislative frameworks, which had only allowed for government health funds to be provided to hospitals, had to be revised to allow funding to be directly allocated to CSOs. 2) The cost of reaching and providing HIV services to hard-to-reach key population communities was not fully accounted for by the initial compensation packages offered to CSOs. Despite these difficulties, open communication between government, CSOs, and key population communities allowed for identification of key challenges and gradual reform in the second year of implementation.

Conclusions/Next steps: Integrating CSO participation into the national AIDS program may require restructuring of health financing channels that traditionally support hospital-based care alone. Global Fund and PEPFAR exit strategies must include tailored discussions between government and civil society to identify feasible options for domestic financing.

TUPEE572

Funding for HIV/AIDS and TB: Producing evidence for a successful donor transition in Cambodia

F. Sophie[1], B. Johns[1], H. Nguyen[2]
[1]Abt Associates, Bethesda, United States, [2]Abt Associates Inc, Hanoi, Vietnam

Background: In Cambodia HIV/AIDS and TB have historically been financed by donors, the Ministry of Health, and out-of-pocket spending. However, in recent years donor funding has been declining and upcoming social health protection reforms may increase the likelihood that the National Social Security Fund (NSSF) might cover HIV/AIDS and TB services. In this context, the objective of this study was to estimate unit costs/cost components and identify the sources of funding for HIV/AIDS and TB services. Such information aim to help the government better understand the financing of these services to prepare for donor transition; and help the NSSF shape future purchasing mechanisms and inform reimbursement rates.

Methods: Cost data were collected for the year 2016 from a sample of 21 health facilities in four high burden provinces in Cambodia. Total and unit costs were calculated using a step-down approach. Additionally, the sources of financing were tracked, and a variance analysis was performed to identify cost-drivers.

Results: The cost per VCCT visit ranged from $8.79 to $14.03. For first-line ART it ranged from under $214 to more than $323 per patient per year and for second line from just over $500 to over $716 per patient per year. The cost of TB diagnosis, inclusive of all visits and laboratory testing ranged from $18.17 to $44.12 and the cost per diagnosed sputum smear positive patient ranged from $39.32 to $119.59.The Global Fund and the US Government provided the financing for about 16% to 68% of the costs depending on the type of facility; mostly paying for commodities and staffs salaries. Cost for ART was driven by drug costs, while staff was the largest cost category for most other services.

Conclusions: The relatively large ranges found in unit costs may indicate inefficiencies in the delivery of services and can make it harder to design accurate reimbursement rates. As funding for HIV/AIDS and TB is transitioning from donors to local government in Cambodia, additional financial and technical resources need to be secured to maintain commodities procurement as well as staff positions previously supported by donors.

TUPEE573

Determinants and aggregate estimates of HIV/AIDS domestic public spending in low-and-middle-income countries, 2006-2016

D. Mattur[1], J.A. Izazola-Licea[1], D. Tabasso[2]
[1]UNAIDS, Strategic Information, Geneve, Switzerland, [2]University of Essex, Department of Economics, Wivenhoe Park, United Kingdom

Background: Achieving fast-track results of ending HIV will need an increased participation from government's resources for HIV/AIDS. Domestic spending on HIV from public sources is reported by countries to UNAIDS during the annual reporting process. While more than 55 countries report on average, many countries have not been regularly reporting these data.

Other countries, even while not reporting regularly to UNAIDS perform in-depth HIV resource tracking, e.g. National AIDS Spending Assessments (NASA).

Understanding the predictors of domestic public spending on HIV helps in estimating aggregates by income level of countries or regions and serve as input to project it for sustainability and transition analyses.

Methods: Country reported domestic public AIDS spending data from Global AIDS progress reporting and existing published NASA reports were considered. A panel data from 2005-2016 from 112 low-and-middle-income countries were used for the analysis including 933 country/year data points. Estimates result from panel data random effects models.

Results: There are significant positive relations between the GDP per capita of a country (1.082), ART coverage (16.5) and HIV prevalence (0.063) with the domestic public spending on HIV on current US dollars.

The overall R-squared for the model was 0.68.
The domestic public spending by income level of countries has increased from $121 MN, $231 MN and $2415 MN for Low, Lower-Middle and Upper-Middle Income countries (LICs, LMICs and UMICs respectively) in 2006 to $256 MN, $980 MN and $6887 MN in 2016.
The domestic public spending has increased 60% between 2010 and 2016. Almost all regions increased their domestic resources. Asia Pacific region witnessed 132% increase in domestic resources between 2010 and 2016 while Eastern & Southern Africa increased by 57%. At 33%, Eastern Europe and Central Asia witnessed the lowest increase among regions.
Conclusions: Domestic resources currently constitute 57% of the global AIDS response, mainly public. With the flat lining or decrease of international resources, sustained increase in domestic public spending will be key in achieving fast-track targets to end AIDS as a global public health threat by 2030. Trends and projections of domestic public spending will be of significant use in projecting trends for transition and financial sustainability.

TUPEE574

Improving domestic funding for HIV/AIDS using a resource tracking methodology: Lagos State Experience

O. Fisher[1], U.H. Edumoh[2], O.K. Ogundapo[2]
[1]Lagos State AIDS Control Agency, Projects, Lagos, Nigeria, [2]Abt Associates, International Health Department, Lagos, Nigeria

Background: Lagos State with a population of over 23million people is ranked as one of the high HIV burden States in Nigeria with a prevalence rate of 2.2% among the general population. Due to low Government spending on HIV and AIDS services in the State coupled with the ongoing transition of donor supported services to the Government, the USAID funded Health Finance and Governance Project embarked to support the State to generate evidence to be used in making a case for more money for HIV/AIDS by conducting the State AIDS Spending Assessment (SASA) 2014-2015.
Description: The Lagos State AIDS spending assessment (SASA) 2013-2015 was conducted in 2016; this exercise utilized a resource tracking approach which tracked the magnitude of all funds allocated to HIV from all sources. The report was used as an advocacy tool by the Lagos State Agency for the Control of AIDS (LSACA) to mobilize more domestic funding from the Government for HIV/AIDS response in the State.
Lessons learned: The SASA study revealed a reliance on external funding for HIV/AIDS service delivery with 86% of total spending on HIV/AIDS coming from international sources in 2015 and public spending 9.3%, and the remainder from other sources.
The results was presented to the multi-sectoral Domestic Resource Mobilization Technical Working Group (TWG) on HIV/AIDS which brings together the central budget MDAs (Ministry of Budget, Finance etc.) and other stakeholders who have implications for budgetary allocations and releases. These results were then synthesized and presented alongside multidimensional benefits of spending more on HIV/AIDS. Leveraging on our understanding of the political economy landscape, these results were presented to targeted policy makers during the 2017 budget preparation process in the State. The outcome was that the HIV/AIDS budget for 2017 experienced a 450% year on year increase from 2016.
Conclusions/Next steps: There was a significant increase in budgetary allocation to the state HIV and AIDS response with about 82% of the funds released till date. This result accentuates the importance of the use of evidence, a multi-sectoral approach and an understanding of the political economy landscape to improve domestic resource mobilization for HIV/AIDS.

	Year 2015	Year 2016	Year 2017
State HIV/AIDS budget in Naira	81,850,000	114,850,000	630,000,000
Year on year percentage increase	-5.3%	40.3%	448.5%

[HIV/AIDS budget for Lagos State 2015-2017]

TUPEE575

Domestic government spending on HIV: Three scenarios assessing decreased donor support

J. Kates[1], A. Wexler[1], A. Haakenstad[2], M. Moses[3]
[1]Kaiser Family Foundation, Washington, United States, [2]Harvard, T.H. Chan School of Public Health, Boston, United States, [3]Institute for Health Metrics and Evaluation, Seattle, United States

Background: Recent reports of declining donor financing for HIV underscore the need to mobilize increased domestic government spending. At the same time, countries vary significantly in their ability to absorb such cuts, making it critical for donors to carefully assess the vulnerability of countries to declines and scale transitions accordingly.
However, to date, data needed to make such assessments have been quite limited. This study uses a new dataset to begin to answer these questions.
Methods: Using IHME's new global dataset on estimated 2015 HIV spending by country, we identified spending by domestic governments, relative to other financing sources. We ran three scenarios of decreased donor support (2%, 5%, and 10% cuts) to assess implications for domestic government spending. Finally, we developed a "country vulnerability" scale based on the share of financing provided by domestic governments.
Results: In 2015, of the estimated $33.3 billion spent on HIV in low- and middle-income countries, half ($16.7 billion) was provided by domestic governments. This varied significantly, ranging from 10% in low-income countries to 84% in upper middle-income countries. Conversely, donor financing comprised only 11% of financing in upper middle-income countries, but 86% in low- income countries. The three scenarios highlight the differential impact of donor cuts. For example, a 5% decline in donor financing in low-income countries represents $342 million, or almost half of what those governments are spending on HIV ($780 million). A 10% decline represents $684 million, or 88% of what they are spending. At the same time, many middle-income countries, particularly upper middle-income countries, could offset cuts more easily, though there may be other barriers to doing so (e.g., equity, human rights and political concerns).
Conclusions: The ability to identify and track domestic government resources for HIV is essential for understanding the full HIV financing envelope and carefully managing country transitions. As this analysis shows, for some countries, even modest declines in donor financing would create significant challenges for governments. For others, absorbing such declines would be more feasible. The findings here provide a new tool for donors and others to help make such assessments.

TUPEE576

A tale of two cities: A comparison of district level analysis of HIV budgets in Bandung and Semarang, Indonesia

Y. Nurhidayat[1], S. Putri[2], D. Solares[3], P. Loh[3], Seknas FITRA SHIFT
[1]Indonesia forum for Budget Transparency (Seknas FITRA), Jakarta, Indonesia, [2]Indonesia AIDS Coalition (IAC), Jakarta, Indonesia, [3]Asia Pacific Coalition on Male Sexual Health (APCOM), Bangkok, Thailand

Background: As the Government of Indonesia takes on increasing financial responsibility for its HIV response, the country will face several challenges, namely that budgetary analysis will become the responsibility of individual districts because of Indonesia's decentralised system of government. Meanwhile, district-level government processes are obscure and otherwise inaccessible to most local civil society organizations (CSOs).
Methods: From September - November 2017, as part of the Sustainable HIV Financing in Transition (SHIFT) program, the Indonesian AIDS Coalition (IAC) worked with the Indonesian Forum for Budget Transparency (Seknas FITRA) to analyze district level HIV budgets in Bandung and Semarang City. Under this collaboration, Seknas FITRA performed a structured review of key 2017 district-level government planning and budgeting documents to assess the extent in which each of the two districts include key population HIV interventions. Seknas FITRA then con-

ducted in-depth interviews and focus group discussions with government and civil society organizations to communicate and contextualize the findings.

Results: Districts exercise a high level of autonomy and determine, independently, where to rank HIV as a priority. Analysis of the 2017 Bandung and Semarang budgets show misalignment between investments and disease burdens across districts. Both Bandung and Semarang fall under the highest HIV prevalence category in Indonesia, and yet the budget allocation for HIV in Semarang is considerably larger. In Bandung, there was not a single programme specifically targeted on prevention for key populations. In Semarang, though there were resources budgeted for key population groups, many organizations either did not have the legal recognition to access these funds or did not have the capacity to apply for and manage district funds.

Conclusions: Budget transparency and analysis at the national and local district level will be essential to revealing situations where insufficient resources are allocated to fighting HIV or HIV resources are allocated inefficiently. In Indonesia, SHIFT is working to create new partnerships that assist HIV CSO and KP networks to navigate complex bureaucratic budgeting systems in order to carry out data-driven advocacy. Using these findings, IAC will support local CSOs to participate in District Financial Planning Cycle.

TUPEE577

Domestic financing for health: Are countries spending more on health?

A. Ithibu
Aidspan, Nairobi, Kenya

Background: The Global Fund to fight AIDS, Tuberculosis and malaria programs is a major financier of HIV programs in sub-Saharan Africa. More than half of its HIV investments are invested in Sub-Saharan Africa, where HIV programs are highly aid-dependent. In the face of dwindling donor aid and increasing donor fatigue, governments of these countries need to increase contributions to their national HIV responses.

Methods: The analysis targeted 13 African countries[1] classified as high impact countries by the Global Fund: Cote d´Ivoire, Congo (Democratic Republic), Ethiopia, Ghana, Kenya, Mozambique, Nigeria, Sudan, Tanzania, Uganda, South Africa, Zambia, and Zimbabwe. Investments in these High-impact countries account for nearly half of Global Fund investments. A trend analysis of the overall spending on health and proportion of government expenditure on health from 2011 to 2015 was performed.

Results: Of the 13 countries analysed, 6 were low income countries, 6 were lower middle income, while 1 was an upper middle income (South Africa). Current expenditure on health as a proportion of the GDP has remained stable for most of the countries between 2011 and 2015. The proportion of the CHE to the GDP was highest in Zimbabwe (10.32%) and lowest in Nigeria (3.56%).

In contrast, government spending on health has changed significantly for most of the countries over the five-year period. Government spending on health was highest in Sudan (18%) and lowest in Mozambique (1.22%). Of the 13 countries, 10 spent less than 8% of their government expenditures on health. Increases in government spending on health were highest in Sudan (8.09% in 2011 vs. 18.09% in 2015).

Conclusions: Domestic funding for health has increased significantly in recent years; it has actually doubled in between 2006 and 2011. However, there remains a huge gap in funding for health, and more specifically, HIV programs. It is important that countries continue increasing their contribution and involving other stakeholders such as the private sector.

Transitional financing

TUPEE578

Late presenters drive the non-ART cost of HIV-care

S. Popping*[1], B.E. Nichols* (*equally contributing authors)[1], D.A.M.C. van de Vijver[1], P. Reiss[2,3], A. van Sighem[3], K. Brinkman[4], S. Geerlings[2], C.A.B. Boucher*[1], A. Verbon* (*equally contributing authors)[5], for the ATHENA HIV Observational Cohort
[1]*Erasmus Medical Center, Department of Viroscience, Rotterdam, Netherlands,* [2]*Amsterdam Infection and Immunity Institute, Academic Medical Center, Department of Internal Medicine, Division of Infectious Diseases, Amsterdam, Netherlands,* [3]*Stichting HIV Monitoring, Amsterdam, Netherlands,* [4]*OLVG, Department of Internal Medicine, Amsterdam, Netherlands,* [5]*Erasmus Medical Center, Department of Internal Medicine and Infectious Diseases, Rotterdam, Netherlands*

Background: In Europe, as many as 50% of HIV-infected individuals present late to care. Late presentation is associated with high morbidity from AIDS-defining malignancies and opportunistic infections which may substantially increase the cost of care. The cost associated with late presentation has not been comprehensively assessed in the treat-all era. Our aim was to assess the additional cost of late presentation and factors contributing to high non-ART costs in a treat-all era.

Methods: The ATHENA cohort prospectively captures data of >98% of patients in HIV-care in the 26 treatment centres in the Netherlands. For this analysis data is used from individuals who first initiated ART between 1 July 2012 and 1 July 2013. We assessed the cost of late presentation(CD4< 350 cells/μL and/or AIDS) and presentation with advanced HIV disease(CD4< 200 cells/μL and/or AIDS) in the first year on ART. Costs of ART, hospitalization, outpatient visits, co-medication and HIV-laboratory tests were calculated. Factors independently associated with non-ART costs, were determined by multivariable logistic regression, including parameters with *P*< 0.1 from the univariable analysis.

Results: A total of 1,149 individuals were included with a median age of 40 years (Interquartile range (IQR)30-47) and median CD4-nadir of 330 cells/μL(IQR 229-420). 652(56.7%) patients were late presenters and 226(19.7%) presented with advanced disease. Nearly half (42.5%) of patients with advanced disease were of non-Dutch origin, compared to 32% in the total cohort. The mean cost per patient was €13,919(Standard deviation(SD) €8,301) of which €11,208(SD €4,258) represented ART cost and €2,711(SD €7,186) non-ART costs. Higher non-ART cost were calculated in individuals with advanced disease, €6,403(SD €14,631), ascribed to more hospitalization and, to a lesser extent, comedication (figure1). Few patients drive the non-ART cost resulting in a high SD. The ART cost was similar regardless of infection stage at entry into care. Factors that contributed independently to higher non-ART cost include CD4-cell count, AIDS-defining illness, regimen switching, and malignancies (table1).

Conclusions: Late presentation is associated with high cost in the first year on ART. Efforts toward earlier diagnosis, linkage to care and start of ART will not only improve individuals' clinical prognosis and contribute to HIV prevention, but also reduce short-term costs.

[Figure 1 : Mean non-ART cost per patient on their first year on ART stratified by CD4 -nadir cell-count.]

Parameter		Lowest 90% of the non-ART cost (<€3,500) n=1034	Highest 10% of the non-ART cost (>€3,500) n=115	Multivariable analysis Odds Ratio (OR) (95% confidence-interval)
CD4 nadir (cells/µL)	<200	16.2%	51.3%	OR 2.56 (1.44 - 4.55)
	200-350	38.4%	20.9%	OR 0.87 (0.47 - 1.59)
	>350	45.5%	27.8%	ref
AIDS-defining illness	YES	2.2%	22.6%	OR 4.20 (1.91 - 9.27)
Regimen switching	≥1	23.4%*	44.3%	OR 2.55 (1.60 - 4.05)
Malignancies	YES	2.7%	20%	OR 2.66 (1.21 - 5.86)
Route of transmission	MSM	67%	44.3%	OR 0.42 (0.26 - 0.67)
Included non-ART costs are: hospitalization, outpatient visits, co-medication, and HIV -related laboratory tests. * n= 849 Abbreviations: MSM: Men-who-have-sex-with-men				

[Table 1: Univariable and multivariable analysis of the highest 10% (€3,500) of the non-ART cost of individuals in their first year on ART]

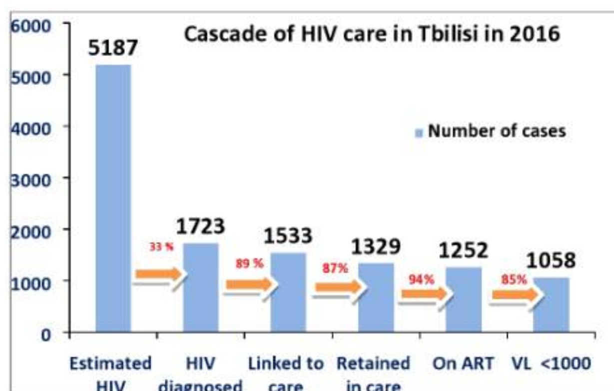
TUPEE579

Advocating for new forms of national funding of HIV and TB interventions as a response to mitigate the impact of donor retreat in Georgia

S. Chikhladze[1], N. Tsereteli[2], O. Chokoshvili[2], M. Chincharauli[3], M. Khmelidze[4]
[1]Center for Information and Counseling on Reproductive Health - Tanadgoma, Tbilisi, Georgia, [2]Infectious Diseases, AIDS and Clinical Immunology Research Center, Tbilisi, Georgia, [3]National Center for Tuberculosis and Lung Disease, Tbilisi, Georgia, [4]Georgian Harm Reduction Network, Tbilisi, Georgia

Background: The research implemented by the Georgian NGO "Tanadgoma" aimed at developing models of sustainable Tbilisi/Capital City response to HIV and TB in key affected populations (KAPs) and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and treatment cascades for HIV and TB. This would allow identifying gaps and advocating for establishing funding mechanism for HIV/TB interventions from municipal level. The research was implemented under the project "Fast-track TB/HIV responses for key populations in EECA cities" funded by GFATM.

Methods: The research took place in September-December 2017. Overall research design and tools were developed by AFEW International and Alliance for Public Health. Methods used for developing Tbilisi HIV and TB treatment cascades involved analysis of key data sources available on national/city level at the National AIDS and TB Centers. Experts from AIDS Center and TB Center created city cascades using Spectrum based on the data collected.



[Tbilisi HIV Care Cascade 2016]

Results: As a result of the research for the first time in Georgia HIV/TB Tbilisi cascades were developed. Where possible the cascades address each key population for HIV/TB, including estimate of population size & estimated level of access, comparing levels of access with key targets from national level. The main findings indicate that on Tbilisi level the most significant gap is in diagnosing HIV, but once diagnosed, linkage and retention indicators are almost reaching the desired target. As for TB, treatment success rate among MDR TB cases including known HIV+ needs significant improvement as since 2012 it has never exceeded 45% and 30%, respectively. Tbilisi HIV cascade includes data on KAPs while these are missing in TB cascade.

Conclusions: Creation of city level HIV/TB data baseline and respective analyses is the first of its kind. Implications of such analysis include refining HIV/TB programming, improving diagnostics, service linkages and intersectional data management system, including data on KAPs. During transitional period in Georgia, the research data help identifying financial insufficiency, respectively plan and define city specific interventions/budgets, and provide evidence for advocacy to establish funding mechanism for HIV/TB interventions for KAPs in the city from municipal level.

TUPEE580

Musrenbang: An involvement the HIV community in the budget cycle process to strengthen the country role for HIV responses in Indonesia

B. Bariyah[1], S. Raharjo[2]
[1]Indonesia AIDS Coalition, Social and Mobilization, South Jakarta, Indonesia, [2]Indonesia AIDS Coalition, Advocacy, South Jakarta, Indonesia

Background: External funding for HIV prevention programs in Indonesia is coming to an end. Therefore, it takes effort to plan a funding transition from external funding into domestic. As part of the Sustainable HIV Financing in Transition (SHIFT) program run in four countries (Indonesia, Malaysia, Thailand, Philippines) funded by the Global Fund, Indonesia AIDS Coalition (IAC) is implementing a two year program in Indonesia focusing in transitioning HIV funding from external into domestic.

Description: A key activity under SHIFT is to strengthen the HIV community to be involved in the budget cycle process, called *Musrenbang*, in two districts where the program operates, Bandung and Semarang. Musrenbang includes the full budget cycle from district to national level and is held from January - December to determine the next year budget. It has become an important process to encourage and incorporate health issues, especially HIV / AIDS prevention, as priority issues in budgeting. The process of strengthening the HIV community in the two districts was achieved by improving basic advocacy skills and budget advocacy by studying the budget cycle and budgetary analysis.

Lessons learned: Musrenbang is a new area of engagement for the HIV community in Bandung and Semarang. Strengthening the HIV community to realize that this is an important opportunity for engagement takes a long time, they need ongoing technical assistance to beinvolved in this process. Moreover, the budget cycle process runs for a full year which requires an explicit commitment on the parts of . The space for negotiation and budget advocacy for HIV programs in district was actually opened after understand the mechanism and budget cycle process.

Conclusions/Next steps: Involvement of HIV Community in the Musrembang process is important and urgently needed to encourage and optimize the role of the country from the ground level through the budget that support the HIV responses in creating the sustainability. In addition, the presence and involvement HIV community emphasize that HIV response is a shared responsibility that need to be support and reinforced by the funding and government participation from the ground.

TUPEE581

Transitioning from international donor funded to government funded HIV/AIDS treatment and prevention programme in Nigeria

I.M. Ezekwe[1], O.C. Nwanyanwu[2], S. Aliyu[3]
[1]National Agency for the Control of AIDS (NACA), National Comprehensive AIDS Programme in States, Abuja, Nigeria, [2]Global Health Services Network, Michigan, United States, [3]National Agency for the Control of AIDS, Abuja, Nigeria

Background: The estimated population of Nigeria in 2016 was more than 190 million.[1] Despite the relatively low HIV prevalence of 2.9 percent, because of its large population, an estimated 3.2 million people were living with HIV in 2016.[1] Ninety percent of the one million persons on treatment in Nigeria receive treatment through donors - President's

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Emergency Plan for AIDS Relief (PEPFAR) and Global Fund. International donors have been supporting the HIV response in Nigeria for many years and created systems for administration, program implementation, laboratory services, monitoring and evaluation, financial management, and reporting. With the donor envelope shrinking, the National Agency for AIDS Control (NACA) began the transition to a country-led, sustainable, and resource-appropriate model of HIV prevention and treatment.

Description: The transition process began in early 2014 with NACA requesting the transition of two states (Abia and Taraba) from the International Donor to the Government of Nigeria (GoN). Currently on treatment in these two states are **60,795** persons.

In both states, PEPFAR through the International Non-Governmental Organization (INGO) began its programs by jointly implementing HIV prevention and treatment activities with local transition in mind. Co-location offered the INGO and their respective State Implementation Planning Units (SPIUs) for HIV the opportunity to teach and learn from each other in planning, implementing, monitoring, and evaluating the programs. While INGO had a more robust complement of staff in all service areas, the few staff provided by the SPIUs were well trained and oriented, and engaged with INGO staff daily in conducting activities.

Lessons learned: Petroleum Subsidy Reinvestment and Empowerment Program Funds were made available to implement the President's Comprehensive Response Plan (PCRP). Transition from International donor funded HIV comprehensive treatment programme to Government ownership is seamless when recipients are involved in joint planning and implementation. With sufficient and regular funding, the transition proceeds smoothly.

Conclusions/Next steps: HIV prevention and treatment activities at the state level will be led by the existing State Management Teams (SMTs), with implementation carried out by the SPIUs. International donors should support Nigeria's effort to indigenize its operations and to get the best value for its money.

International assistance, frameworks, and funding mechanisms

TUPEE582

Innovation for an AIDS-free generation: Successes and challenges of a funds manager model to engage new partners for HIV prevention among adolescent girls and young women

F. Harris[1], C. Barbo[2], E. Easley[2], J. Mwangi[2], J. McCutcheon[2]

[1]JSI Research & Training Institute, Boston, United States, [2]JSI Research & Training Institute, Inc. (JSI), Boston, United States

Background: The DREAMS Innovation Challenge (DREAMS-IC) was established by the US Department of State (DOS)/PEPFAR in 2016 to aid in reducing HIV infections among adolescent girls and young women (AGYW). JSI Research & Training Institute, Inc. (JSI) supports 46 organizations' programs across 10 DREAMS African countries. These organizations differ in their level of institutional maturity, gender-responsive HIV programming, and knowledge of U.S. Government (USG) regulations.

Description: DREAMS-IC uses a Funds' Manager (FM) model to engage new organizations to implement innovative solutions for HIV prevention for an AIDS-free generation. As the DREAMS IC FM, JSI's responsibilities include: (1) management and monitoring of sub-awards for innovative HIV prevention programs, (2) capacity building to support sub-grantees' innovations targeting AGYW, (3) navigation of program alignment with donor priorities, national context, partner capacity, and beneficiaries' needs, and 4) technical assistance, contributing to sustainable local partners capable of leveraging international funding for the health and empowerment of girls.

Lessons learned:

1: Addressing the need to achieve evidence-based results and working with grantees to develop their organizational systems to facilitate better management of USG funds as well as strengthen the pool of local HIV implementers.

2: Some innovations require additional assistance in ensuring alignment with the UNAIDS/PEPFAR HIV prevention frameworks, given many sub-grantees have never received USG funding in the past. . The gap between technical requirements and sub-grantees' capabilities requires adequate time to bridge.

3: Adequate time should be planned for integration of USG regulations within organizations new to USG funding, particularly given various levels of management and coordinating structures.

Conclusions/Next steps: New, local organizations can offer innovative and culturally appropriate approaches to HIV prevention for AGYW. However, many require capacity strengthening over time to meet the rigorous expectations of international donors. This presentation will include an open discussion on how the international community can better empower local organizations and governments to effectively implement their public health agenda.

TUPEE583

Aid politics, developmental assistance for health and learned helplessness-narratives of evolving health systems in global south

M. Satpathy[1], J. Thomas[2], D.E. Lucero-Prisno III[3,4], B. Kanyemba[5,6], D. Haile Woldegebral[7]

[1]Utkal University, UGC Centre of Advanced Study in Psychology, Bhubaneswar, India, [2]Partners in Population and Development (PPD), Dhaka, Bangladesh, Dhaka, Bangladesh, [3]xi'an jiaotong-liverpool university (XJTLU), Suzhou, China, School of Public Health, Suzhou, China, [4]Global Health Focus, Suzhou, China, [5]Desmond Tutu HIV Centre, University of Cape Town, Cape Town, South Africa, [6]Advocates for HIV Prevention-an Arm of AVAC, Cape Town, South Africa, [7]University of California Davis, School of Public Health, Davis, United States

Background: Globally, past three decades are marked by an increased and steady interest in global partnership, and collaboration by the developed world in furthering the welfare and wellbeing of resource-constrained societies and economies. Overseas investment in terms of Developmental Assistance steadily evolved with the passage of HIV/AIDS era in early 1980's, and a decline by 2015, as most developed nations retracted/reduced their commitment to invest in global health movement.

Methods: The paper builds on a reflexive thematic analysis using Global Burden of Disease Data focused around Developmental Assistance for Health and critiques its role in the posited health systems strengthening framework. With a focus on Global South (South Asia-India and Bangladesh), East Asia (China), Asia and Pacific (Philippines), and African continent, we analyzed the impact of Developmental Assistance for Health (DAH) in terms of 3 parameters: Improvement in Health and Wellbeing, Scale of Impact, and Changes in Health systems.

Results: The study converged on some paradoxical insights, built around the nexus of aid politics, and how it unwinds with passage of depleting aid-box. Consensus was on critical and instrumental role of DAH in reshaping, and revamping HIV/AIDS care, by significant investments in monetary, and in-kind contributions. DAH has contributed enormously by investing in global health, and thereby helped shape these economies improve their overall stature.

However, the study also indicated that, DAH and the aid politics has significantly weakened these nations by a process of systemic dependency, may be have induced a state of Learned Helplessness, unconsciously so. This systemic dependency, and increased expectation (and resultant disappointment post 2015), have shook the spine of the health systems.

Conclusions: This illusory entrapment in such a state, with lessened resilience calls for an increased engagement of the developed nations, and their re-orientation in terms of investments not just in capital commitment, but in altruistically engage to develop the health systems by infusing and enhancing knowledge economies. Similarly, it also indicates that Governments and policy makers of these nations need to recognize the need, and respond effectively with increased efforts at health systems strengthening, by adopting holistic strategies focused around social drivers of health and wellbeing.

TUPEE584

Where does the buck stop?: Analysis of HIV prevention research and development (R&D) direct and country focused investments in sub-Saharan Africa

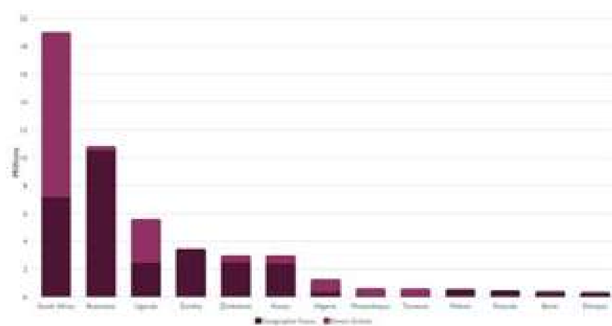
F. Riaz, K. Fisher, M. Warren
AVAC, New York, United States

Background: The Resource Tracking for HIV Prevention R&D Working Group report documented for 2016 the decade's lowest funding for HIV prevention research. This declining investment imperils the currently donor-dependent research landscape in sub-Saharan Africa - home to 81 percent of HIV prevention trial volunteers and two-thirds of people living with HIV globally. The magnitude of foreign investment in HIV prevention R&D for specific countries has remained unclear. Addressing this gap is central to understanding how HIV research supports African researchers.

Methods: To assess HIV prevention R&D investments in sub-Saharan Africa for the calendar year 2016, data was collected via annual surveys and direct disbursements by public, private and philanthropic funders. Grants were allocated to countries if they were either directly awarded to African researchers, or clinical or implementation science research geographically focused in sub-Saharan Africa. Where grants did not delineate between countries, the amounts were split equally. Investment trends were analyzed by country and prevention modality.

Results: Of the overall US$1.17 billion allotted to HIV prevention research in 2016, this analysis identified 98 grants totaling US$47 million awarded to researchers or trials in sub-Saharan Africa. Huge variance existed in investments, with four countries (South Africa, Botswana, Uganda and Zambia) receiving 81 percent of all funding. South African research institutions received the greatest amount of direct funding at US$11.6 million, while Botswana had the largest single grant (US$10.7 million) for a treatment as prevention (TasP) trial. Microbicides, TasP, preventive vaccines, voluntary medical male circumcision, pre-exposure prophylaxis and prevention of vertical transmission received 23 percent, 20 percent, 20 percent, 17 percent, 16 percent and 4 percent of total funding, respectively. Investment of US$3.7 million was made to strengthen existing HIV research infrastructure.

Conclusions: Direct funder investment in African researchers and institutions is critical to supporting national efforts to create a sustainable and robust HIV prevention research enterprise. Only 4 percent of biomedical HIV prevention research in 2016 was awarded directly to researchers or trials in sub-Saharan Africa. Yet, this investment in African researchers is critical to building sustainability and making the case for greater domestic investment in the region in the face of shifting donor priorities.



[Investment in Biomedical HIV Prevention R&D in Sub-Saharan Africa (USD)]

TUPEE585

Applying the Global fund allocation formula - are the data driving allocations?

A. Sharp, A. Jones, J. Sherwood, B. Honermann, G. Millett
amfAR, The Foundation for AIDS Research, Public Policy Office, Washington, United States

Background: Global Fund (GF) allocates funding to countries on the basis of a two-stage Formula: a quantitatively-measured raw allocation is qualitatively adjusted for contextual indicators, including HIV prevalence among key populations (KP). However, availability of KP data is limited, possibly diverting funds from concentrated epidemics. By modeling funding allocations, we identify the major drivers of allocations and qualitative adjustments and the impact of data availability.

Methods: We applied the Formula to available data across 101 recipient countries. HIV allocations (2017-2019) were linearly regressed on the raw allocation (per the Formula, number of people living with HIV and economic capacity, adjusted for minimum/ maximum shares and external funding sources) and data reportedly used in qualitative adjustments: domestic spending on HIV, past grant rating, ART coverage, World Bank income category, 'smoothing' of changes in 2014-2016 allocation to current raw allocation, and HIV prevalence data among KPs.

Results: Total allocations from the GF declined by 34% for 2017-2019 relative to 2014-2016. For individual countries, the strongest predictor of final allocation was raw allocation (adjusted R^2 = 0.713), with 88% of variation captured in a parsimonious model of raw allocation, domestic spending, income category, ART coverage, and smoothing in allocation differences relative to 2014-2016. Qualitative adjustments were primarily driven by smoothing to account for sharp declines in HIV allocations relative to 2014-2016; in addition, countries with higher domestic investments and lower ART coverage had greater proportional adjustments ($p < 0.05$). After controlling for other factors, KP prevalence data did not significantly predict allocation nor qualitative adjustments, although only 40% of countries had data for all KPs.

Conclusions: Country allocations were largely captured by public data, with remaining variation likely due to indicators described in the Formula but not publicly available. Qualitative adjustments to allocations were driven by the significant drop in HIV allocations relative to 2014-2016, possibly obscuring adjustments made for KP prevalence. Reducing year-to-year fluctuations in budget is needed to ensure Global Fund's ability to make epidemiologically appropriate allocations and ensure programmatic continuity. Greater transparency in methodology is needed to clarify how KP data are used in allocation decision-making.

TUPEE586

A quarter for prevention? Global fund investments in HIV prevention interventions in generalized African epidemics

G. Oberth[1,2], M.A. Torres[3], O. Mumba[4], M. O'Connor[5]
[1]International Council of AIDS Service Organizations (ICASO), Cape Town, South Africa, [2]Centre for Social Science Research, University of Cape Town, Cape Town, South Africa, [3]International Council of AIDS Service Organizations (ICASO), Toronto, Canada, [4]Eastern Africa National Networks of AIDS and Health Service Organizations (EANNASO), Arusha, Tanzania, United Republic of, [5]International Council of AIDS Service Organizations (ICASO), Ottawa, Canada

Background: In July 2016, the Joint United Nations Programme on HIV/AIDS (UNAIDS) announced that global efforts to reach fewer than 500,000 new HIV infections by 2020 are off track. UNAIDS estimates that ending AIDS by 2030 will cost $25 billion a year. About a quarter (26%) of this amount is required for prevention. The Global Fund to Fight AIDS, Tuberculosis and Malaria is a major financier of African HIV responses and a vital source of prevention investments.

Methods: A search was performed for Global Fund funding requests and signed grants from a sample of 25 African countries over the 2014-2016 funding cycle. Funding requests were accessed for 23 countries and signed grant agreements were accessed for 15 countries. Some documents were not publicly available. The budgets of the funding requests and grant agreements were examined to determine levels of HIV pre-

vention funding. Epidemiological and structural variables were explored to help explain the results.

Results: Of the funding requests examined, an average of 16% was dedicated to HIV prevention. Ten countries requested at least a quarter for prevention. Mauritius' request for prevention was the largest (67%) and Mozambique's was the smallest (3%). A significant correlation was found between the number of new HIV infections in a country and the amount of prevention funding requested (r=.747, p=< .01), suggesting that funding requests are aligned to disease burden. A significant correlation was also found between GDP/capita and the proportion of prevention funding requested (r=.676, p=< .01), likely because poorer countries are more dependent on the Global Fund for treatment. Of the grant agreements examined, an average of 15% was dedicated to HIV prevention. Only Botswana and Liberia had at least 26% of their grant budgets allocated to HIV prevention.

Conclusions: In order for the Global Fund to achieve its HIV prevention targets in its new strategy, there is a need to increase Global Fund investments in HIV prevention in Africa from current levels (15%) towards the UNAIDS benchmark (26%). Advocacy from civil society and communities is absolutely vital, particularly in urging countries to request greater HIV prevention funding for key populations and adolescent girls and young women.

TUPEE587

Review of strengthening integrated delivery of HIV/AIDS project (SIDHAS) accountability framework of HIV/AIDS financing with civil society organizations, government agencies and private institutions in Nigeria

O. Yemisi Bolanle, O. Agbaje, I. Utuk, C. Momah, N. Aliyu, C. Okhakumhe, C. Esuga, O. Olayemi, H. Khamofu, E. James, S. Raj Pandey
FHI 360, Program Management, Garki, Nigeria

Background: HIV care and treatment in Nigeria is largely managed by a combination of public and private health facilities. Although these institutions have experienced declines in funding from government/private owners over the years, they still account for the majority of patients in care. To bridge the funding gap, the USAID-funded SIDHAS project introduced different types of grants financing approaches and accountability frameworks to support scale up of HIV prevention, care and treatment services in 13 states in Nigeria. We share experiences from the various accountability frameworks applied on the project.

Description: From inception of SIDHAS project in 2011, FHI360 Nigeria conducted thorough pre-award assessments, after which 76 sub-awards were executed in 13 states between SIDHAS and State government for public health, faith-based, civil society organization, and private health facilities. Capacity building through trainings and mentoring was conducted. Accounting practices such as system enhancement, compliance audits, quarterly grant modification, expenditure analysis, scorecard audit, fund request review, documentation and reporting was mandated for each implementing agency (IA) routinely. A qualitative content analysis of the IAs' accounting practices, frameworks, reports and HIV prevention, care and treatment services delivered was conducted between October 2016 and September 2017.

Lessons learned: From the monthly expenditure analysis, sub-award monitoring reports and HIV program data reported across the 76 IAs showed that 100% of the IAs were compliant with submission of financial and program reports for the period of assessment. HIV testing, initiation of client on treatment and provision of care services were not interrupted at those sites within the period. An analysis of this result further shows that the combination of capacity building and use of accounting frameworks was instrumental to the results. About 82% Improvement in quality of program and financial reports received was recorded within the year demonstrating improved technical, institutional and financial domains of sustainability.

Conclusions/Next steps: A combination of accountability approaches resulted in improved ability of IAs to provide HIV services, manage, and account for donor resources. Providing a combination of accountability structures for IAs can expand their ability to better manage and sustain delivery of comprehensive HIV prevention, care and support services.

TUPEE588

Innovative Grant Fund: A lifeline for small community-based organizations

L. Mizuno, L. Wong
AIDS Healthcare Foundation, Global Advocacy, Los Angeles, United States

Background: In response to a lack of funding for smaller HIV/AIDS community service organizations around the world, in 2012 we created a Grant Fund which has funded 389 projects totaling $7.4 million over the past six years. The fund focuses on providing small, short-term grants to organizations whose activities advance HIV awareness, prevention, treatment and the elimination of stigma.

Description: Funding for the Grant Fund is generated through social enterprises in the United States, such as second-hand stores and pharmacies. The Grant Fund encourages innovation by funding pilot projects and programs that would not necessarily be eligible for traditional grants, such as advocacy campaigns and art exhibits. Additionally, the Grant Fund application is kept short with minimal jargon, as many small organizations may not have access to professional grant writers. Each month, the Grant Fund Committee reviews grants, funding organizations within 2-6 weeks of application on average. The structure of the Grant Fund has been developed to support organizations that may not normally get funded via traditional donors.

Lessons learned: The Grant Fund demonstrates the need for funding that creates opportunities for growth and innovation. The average operating budget for organizations applying for grant funding in 2017 was around $190,000. The average program budget was $50,000, of which, the average grant request was $19,900. This means that the average request was covering a little over half (53%) of the organization's total budget and 70% of the program budget. Approximately one fourth of applications were for pilot projects or independent programs with no other funding sources.

Conclusions/Next steps: From the growing interest in the Grant Fund, it is evident that there is a need for more innovative funding structures, especially those that don't always favor larger and more established organizations. Small community based organizations are the lifeblood of prevention many communities, and it is important for them to find sustainable paths for growth. As HIV service providers we strive to address the needs of clients "where they are." Unfortunately, the funding structures for HIV prevention services do not follow a similar philosophy to meet organizations where they are.

Financing HIV within UHC frameworks

TUPEE589

Financial feasibility of delivering HIV/AIDS services through health insurance schemes

F. Ilika, G. Alawode, S. Akande, E. Baruwa
Health Finance and Governance Project, Health Financing, Abuja, Nigeria

Background: HIV/AIDS is of a great burden in Nigeria with high reliance on donor funding. One of the ways to improve domestic funding for HIV/AIDS is its inclusion in health insurance benefit packages in order to ensure stable, predictable and sustainable financing. The National Health Insurance Scheme has decentralized health insurance to states and Lagos state is one of the early states to design their state health insurance scheme (SHIS). HIV/AIDS is often excluded in many health insurance packages and classified as a pre-existing condition. A primary concern for HIV inclusion in the SHIS is its potential negative impact on financial sustainability of the scheme.

Methods: This study was conducted in August 2017 to assess the financial impact and feasibility of providing HIV/AIDS services through the Lagos SHIS. An actuarial analysis was conducted and modular pricing for priority HIV services including HCT, PMTCT, and ART was done adopting historical data on population, HIV incidence, service utilization rates from routine health data, and projected costs from Global fund HIV

Quantification data. Additional risk premium for HIV/AIDS cover in the scheme was analyzed and a sensitivity analysis was done to compare input assumptions with probable situations.
Results: Additional risk premium of HIV/AIDS cover under the SHIS is N209.40 (68cents) per person per year, assuming 100% enrolment and a 30% contingency margin. Further sensitivity tests considering enrolment of 50%, 20% and 10% of the population produced variations with additional risk premium of N295.66, N694.81 and N1360.00 respectively. Varying incidence rate, service utilization, medical inflation and increase in exchange rates based on previous cycles; the additional risk premium is N302.81 ($1), values much lower than expected.
Conclusions: Findings showed that HIV service provision in the SHIS is financially feasible, but requires high insurance coverage levels to minimize costs. These findings will embolden HIV advocates to use similar financial evidence to make adequate cases to policy makers for HIV services inclusion in health insurance schemes; creating additional and sustainable financing for closing HIV treatment gaps. Donor efforts may be directed at strengthening systems for HIV service provision through systemic structures for reduced fragmentation, improved efficiency and sustainability.

Approaches to achieving sustainability

TUPEE590
Financing HIV/AIDS services through Health Insurance schemes - the Lagos state experience

U.H. Edumoh[1], O.K. Ogundapo[2], S. Akande[3]
[1]Abt Associates, International Health Division, Bethesda, United States, [2]Abt Associates, International Health Division, Lagos, Nigeria, [3]Abt Associates, International Health Division, Abuja, Nigeria

Background: Funding for HIV/AIDS remains a problem in most low and middle income countries, including Nigeria. In an effort to introduce a more sustainable means of financing for HIV in Lagos State, the Sustainable Financing Initiative executed by the Abt-Associates led USAID Health Finance and Governance (HFG) Project together with HIV stakeholders in the State sought to integrate HIV services within the newly introduced Health Insurance Scheme known as the Lagos State Health Scheme (LSHS).
Description: HFG supported HIV stakeholders in the Lagos State HIV Domestic Resource Mobilization Technical Working Group (DRM TWG), which comprises of both State, private, implementing partners, and CSOs to devise strategies for integrating vertical programmes providing HIV services within the Lagos State Health Scheme and include the full complement of HIV services (HTS, PMTCT, ARVs) on the benefit package of the scheme.
Lessons learned: Three main strategies were employed looking at the financial feasibility, technical feasibility and operational feasibility of integrating HIV services on the scheme. For the financial feasibility, an Actuarial analysis was conducted to determine the financial implication of having HIV and AIDS services on the LSHS benefit package. This amounted to an additional NGN209.40 per person per year on the premium at a point estimate of 100% coverage of the population. At lower levels of population coverage i.e 10% the cost could rise up to NGN1, 360.07. On the technical feasibility, a service availability mapping was conducted to identify the health facilities within the provider network with capacity to deliver HIV/AIDS services and address other technical aspects of integration. On the operational feasibility, an integration framework and implementation plan was developed on the key integration areas along the lines of service delivery arrangements, Human Resources for Health/capacity building, Logistics and supply chain management systems and monitoring and evaluation.
Conclusions/Next steps: Findings from the actuarial study and the technical and operational plans for service integration strengthened the inclusion of comprehensive HIV and AIDS services as part of the Lagos State Health Scheme benefit package. This will help ensure financial sustainability of HIV services in the State and improve access for HIV services for People living with HIV.

TUPEE591
Filling in the gaps: Extrapolating VMMC unit costs using aggregated primary data from several studies

S. Bautista-Arredondo[1], C. Pineda-Antunez[1], D. Cerecero-Garcia[1], S. Forsythe[2], M. Tchuenche[2], J. Kahn[3], A. Vassall[4], V. Mennon[5], L. Alexander[6], C. Chiwevu[5], K. Kripke[7], C. Levin[6], L. Bollinger[2]
[1]National Institute of Public Health in Mexico, Health Economics and Health Systems Innovation, Cuernavaca, Mexico, [2]Avenir Health, Glastonbury, United States, [3]University of California San Francisco, San Francisco, United States, [4]London School of Hygiene and Tropical Medicine, London, United Kingdom, [5]HPI Costing Task Order, Washington, United States, [6]University of Washington, Seattle, United States, [7]Avenir Health, Washington, United States

Background: The policy-relevance of cost information hinges on it being provided in a timely fashion. But cost studies are expensive and slow to implement, meaning this type of evidence is not available at moments of critical decision-making. The objective of this work is to combine data on costs of VMMC services from several independent studies, to identify determinants of VMMC costs and extrapolate costs to areas where there is absence of information.
Methods: We identified high-quality VMMC cost studies through a literature review. Authors were contacted to share their data on costs and service delivery characteristics. We standardized the disparate datasets into an aggregated database which included 228 facilities in eight countries. We estimated VMMC unit costs (or average cost per circumcision). We conducted OLS regression models to estimate the effect of the determinants of unit cost variation across sites. Based on cluster analysis, we extrapolated unit cost to different implementing scenarios, including countries out of our sample and different levels of scale.
Results: The average unit cost was 73 USD (IQR: 28.3, 100.7). South Africa showed the highest within-country cost variation, as well as the highest mean unit cost (135 USD). Uganda and Namibia had minimal within-country cost variation, and Uganda had the lowest mean VMMC unit cost (22 USD). Our results showed evidence consistent with economies of scale. Private ownership and Hospitals were significant determinants of higher unit costs. By clustering countries with similar economic, epidemiologic and demographic indicators, and through multivariate extrapolations, we extrapolated unit cost to countries without available cost data.
Conclusions: Our results showed large variation in VMMC unit costs across and within countries. We identified several facility-level characteristics significantly associated with VMMC unit costs across implementation and country contexts. Our findings contribute to improving the availability of cost evidence, even for those countries with no previous studies, in order to increase the efficiency of service delivery.

TUPEE592
Integration of sexual reproductive health rights and sustainable development

J. Nyanjom, C. Ayoma
Family Health Options Kenya, Programs, Nairobi, Kenya

Background: Kenya like other countries in Africa is facing the risks of climate change and this is anticipated to affect the country's sustainable development efforts. Integration on the other hand links sectors and supports cross-sectoral collaboration and coordination. The world all over is working towards the sustainable development goals. SRHR and Sustainable development project, is a 3-year project being implemented by Family Health Options Kenya, an affiliate of IPPF together with two other partners in Kisumu and Siaya county. It focuses on improving resilience of the vulnerable communities through the integration of reproductive health and rights into sustainable development programs through promotion of adaptation practices that help community members improve their level of resilience, The objective of the project is to increase the capacity of vulnerable communities to apply an integrated approach to SRHR. The project works with structured community groups comprising of women, men and the youth.
Description: Capacity building: Awareness creation on the importance of integration and sustainable development, training on adaptation practices for sustainability

Service provision: Comprehensive sexual and reproductive health services through community outreach services, integration of SRHR services, especially HIV/AIDS and family planning with other practices such as kitchen gardening for nutritional foods
Reach out strategy: The structured groups reaching out to fellow community members and creating a ripple effect and a resilient community
Networking and linkages: Working closely with extension officers in the communities, the Community Health Volunteers and agricultural extension officers and this solely for continuity of service provision. The extension officers offer skills, information, such as importance of HIV testing and community-based trainings regularly to the community members
Advocacy: Advocacy on scale up and resource allocation for more communities to benefit from the integration.
Lessons learned: Cross sectoral collaboration is important in development and it maximizes on the resources available hence sustainability.
Results 16106 women of reproductive age reached with SRHR services among these 6719 women were tested and 102 linked to care.
Conclusions/Next steps: Scale up and resource allocation to reach more communities and advocacy for community members to continue getting quality SRHR services as they work towards sustainable development.

[Women's group dicussing HIV and nutrition]

TUPEE593

Twinning partnerships support training programs introducing new health worker cadres in South Africa to sustain the HIV response

J. Capati[1], I. Jurkevich[2], K. Utan[2]
[1]American International Health Alliance, Pretoria, South Africa, [2]American International Health Alliance, Washington, United States

Background: American International Health Alliance (AIHA) developed local capacity in South Africa to train healthcare workers with the targeted skills needed to provide quality HIV/AIDS-related services. AIHA supported training programs introducing two new health worker cadres in South Africa: clinical associates (physician assistants) and pharmacy technicians. AIHA capacity-building partnerships supported the training programs at partner institutions, which have graduated 909 clinical associates and 187 pharmacy technicians who are deployed throughout South Africa.
Description: Using a multi-pillar approach for strengthening human resources for health, AIHA's PEPFAR-funded and HRSA-supported HIV/AIDS Twinning Center Program established and/or strengthened curricula and faculty for the following training programs: the 3-year Clinical Associate Bachelor's programs at the University of Pretoria, Walter Sisulu University, and the University of the Witwatersrand; and the 2-year pharmacy technician diploma program at Nelson Mandela University. The clinical associate and pharmacy technician programs stress practical over didactic training with clinical rotations built into the programs.
Lessons learned: Clinical associates are helping to improve patient adherence, care and treatment through district hospital HIV services in rural, underserved and high prevalence district hospitals with a lack of doctors. They provide patient consultations, HIV testing, ARV initiation, adherence counselling, ART regimen change, opportunistic infection management and medical male circumcisions. Each clinical associate provides care for approximately 17 PLHIV in a typical day. At one NGO program, clinical associates perform 1,500 VMMCs per month at 16 sites in four provinces. Pharmacy technicians conduct ARV drug dispensing and support ART adherence in PHC settings. Clinical associate graduates recruited from underserved areas are returning to those areas to work: 80% work in public facilities and 64% work in rural areas.
Conclusions/Next steps: Twinning partnerships have demonstrated effectiveness in developing the local capacity to train the needed human resources for health for the HIV response. Instead of relying on seconded staff and foreign personnel; countries and donors should support investments to scale up local pre-service programs to train local health care workers to sustain the HIV response and achieve the 90-90-90 goals and ultimately sustain epidemic control throughout Sub-Saharan Africa.

TUPEE594

A novel approach to enhance the sustainability of national HIV/AIDS programs: PEPFAR's incorporation of sustainability tools within business processes

C. Hart, M. Ruffner, J. Timberlake, M. Wollmers
US Department of State/PEPFAR, Washington, United States

Background: Despite the enormous strides made towards controlling HIV/AIDS, there is still much work left to be done. Country-led efforts to accelerate viral suppression through "test and treat" must simultaneously lay the groundwork that sustains current and future achievements in controlling the epidemic.
Description: PEPFAR developed an HIV/AIDS Sustainability Index and Dashboard (SID) to sharpen the understanding of each country's sustainability landscape, and has mandated its use for investment planning and to inform and monitor progress. The SID process supports a common view of where efforts and investments must be focused.
Lessons learned: SID implementation has proven to be a successful model for transparent engagement of diverse stakeholders in strategic planning discussions. Sustainability at PEPFAR is now hardwired into its investment planning and monitoring processes. During COP development, SID results inform the identification of critical barriers to reaching 95-95-95 through the formulation of a "Table 6" for each country. The Table 6 completion process requires planners to identify systems investments and establish clear benchmarks and outcomes needed to address critical systems barriers. The aggregated table below demonstrates the level of systems investments in PEPFAR-supported countries in FY 2018:

TABLE 6 INVESTMENTS BY CATEGORY, FY 2018

Country	Surveys, studies, [illegible]	HRH	Governance	Finance	Supply Chain	Institutional & Organizational Development	Strategic Information Systems	Laboratory Systems	Other	Total
Botswana	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Burundi	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cameroon	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Côte d'Ivoire	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DRC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ethiopia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Haiti	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kenya	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lesotho	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Malawi	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mozambique	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Namibia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nigeria	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Rwanda	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
South Africa	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
South Sudan	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Swaziland	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tanzania	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Uganda	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ukraine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Vietnam	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Zambia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Zimbabwe	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[Table 6 Investments by Category, FY 2018]

A review of the relationship between targeted investments and interventions selected through the Table 6 completion process reveals clear evidence of improvements across health systems that support sustained epidemic control. An analysis of country-specific data that triangulates SID results, systems investments, and achievement of outcomes shows improvement across many SID elements in most PEPFAR partner countries—particularly in areas such as laboratory systems, policy and planning, domestic resource mobilization, and quality management.
Conclusions/Next steps: PEPFAR's establishment of a means to measure sustainability that is directly linked to its planning and monitoring processes is strongly influencing sustainability investments and

achievements. It allows program planners to invest in the most needed areas with clarity of expected outcomes, and supports them to define short-, mid- or long-term outcome views. Through the use of these unique tools, PEPFAR is spearheading efforts to remove critical barriers to reaching and sustaining epidemic control while building greater transparency and accountability for achieving those results.

TUPEE595

Supporting evidence-based planning for HIV counseling and testing and opioid substitution therapy services: Results from a cost study in 7 high-burden PEPFAR-supported regions in Ukraine

N. Kovalenko, M. Duda, N. Avaliani
USAID HIV Reform in Action Project, Objective 2. Health Finance and Budgeting, Kyiv, Ukraine

Background: As of today, HIV Counseling and Testing services (HCT) and Opioid Substitution Therapy (OST) services in Ukraine are provided without proper estimation of their real costs. As country strives to achieve 90-90-90 targets, understanding costs of key elements in HIV prevention and care continuum, such as HCT and OST, becomes critically important. This is further relevant as Ukraine aims to introduce pay-for-performance approach through the health financing reform. The USAID HIV Reform in Action project conducted analyzed costs per HCT and OST service using a costing model and identified facility-level cost drivers in a sample of facilities in 7 high-burden PEPFAR-supported regions.
Methods: We used a "bottom-up" method to estimate HCT and OST costs, using an electronic costing tool. Cost data, including direct, administrative, and overall unit costs, were collected from facility budgets, procurement records, and medical providers' self-assessments. For each cost item we specified quantity, technical specifications, purchasing price, and level of use. We also separately calculated costs of pre- and post-counselling and testing (rapid tests) in case of HCT services.
Results: We found variation in per person HCT and OST service costs across different types of facilities. The highest per person HCT cost was observed at a Primary Healthcare Center in Dnipropetrovsk oblast - 12.96 USD, the lowest - at the TB dispensary in Odesa oblast - 4.27 USD. In case of OST - the highest cost was observed at the hospital in Mykolayiv oblast - 2.44 USD; the lowest at TB dispensaries in Odesa Oblast - 1.16 USD. Factors affecting HCT and OST costs vary substantially and depend on a type of a facility, composition of personnel providing services (one or two nurses and doctor for HTC services; one doctor and one nurse for OST service); time spent for each service, procurement methods and utility costs.
Conclusions: Understanding the costs of providing HTC and OST services can optimize the allocation of resources and support effective decision-making at a facility level, thereby increasing efficiency. As the health reform seeks to decentralize planning and funding processes, local level data is instrumental for effective planning, service delivery, and attracting additional funding.

TUPEE596

Are users willing to pay for condoms in sub-Saharan Africa? Surveys in five countries: Kenya, Nigeria, South Africa, Zambia, and Zimbabwe

R. Ganesan[1], J. Tuchman[2], L. Hartel[1], I. Thior[3], B. Deperthes[4], K. Kadirov[5], C. Broxton[5], C. Thompson[1], S. Hefter[1]
[1]Abt Associates, Rockville, United States, [2]USAID, Windhoek, Namibia, [3]AIDSFree Project, Arlington, United States, [4]UNFPA, New York City, United States, [5]USAID, Washington, United States

Background: The condom market in many sub-Saharan countries is dominated by subsidized condoms—free brands from the public sector and socially marketed (SM) brands from social marketing organizations (SMOs). The commercial sector share of the total market is often small. Freeing up resources devoted to subsidized condoms for use with other urgent priorities requires answering the following questions:
(1) are users of free condoms willing to pay for them?,
(2) are SM users willing to pay commercial prices? and
(3) if commercial brands were to reduce their prices, could they attract SM users?
Methods: Study countries were selected in consultation with government counterparts, condom manufacturers, SMOs, and donors, based on their potential for an increased role of commercial condom brands. The USAID-funded AIDSFree Project conducted cross-sectional household surveys with more than 6,500 adult male condom users in 2017 in Kenya, Nigeria, South Africa, Zambia, and Zimbabwe. Surveys used multiple price determination approaches—bidding game, discrete choice model, and van Westendorp price sensitivity measure—to estimate consumers' willingness to pay for condoms. Analyses included price sensitivity simulations and secondary source consultation (i.e., demographic health surveys and condom market assessments).
Results: Free condom supplies exceed demand in all countries except South Africa, where recent demand data were unavailable for comparison. In Kenya, Nigeria, and South Africa, free and SM users are willing to pay substantially more than what they currently do for condoms. Yet decreasing the price of commercial brands is unlikely to attract SM users. In Zambia and Zimbabwe, free and SM users are willing to pay marginally more than they currently do.
Conclusions: Our assessment calls for greater alignment between levels of supply and demand for free condoms. In Zambia and Zimbabwe, abrupt funding reductions for free and SM brands would likely prompt a substantial proportion of users to cease using condoms; a gradual, phased approach is recommended. In Kenya, Nigeria, and South Africa, the condom markets possess the right conditions for transition to more commercially sustainable models. However, this does not negate the need for targeted distribution of condoms to vulnerable populations or initiatives that promote condom use.

TUPEE597

Strengthening African civil society organizations for sustainable community-driven HIV programs: The blood:water model pairing grants and community system strengthening

N. Kist[1], C. Kuloba-Warria[2], B. Bruerd[3], A. Sands[4], S. Doerr[5]
[1]Blood:Water, Africa Partnerships, Nairobi, Kenya, [2]Warande Advisory Center, Principle, Nairobi, Kenya, [3]Blood:Water, Africa Partnerships, Nashville, United States, [4]Blood:Water, Systems, Nashville, United States, [5]Blood:Water, Nashville, United States

Background: Structural HIV-interventions are increasingly recognized as gatekeepers to accelerate and sustain progress towards the 90-90-90 goal. Local civil society organizations (CSOs) emerge as the critical link between community and facility contexts, ensuring a continuum of HIV-treatment, support and prevention. However, sector-wide funding constraints saw a decline in resourcing CSOs and their community-extension programs. Restrictions further inhibit CSOs' abilities to invest in operational health and longevity.
Description: In response, Blood:Water developed a framework complementing bilateral funding mechanisms by positioning flexible private philanthropy towards African CSOs responding to HIV/AIDS. Inextricably paired with programmatic grants is an Organizational Strengthening (OS) process that provides 10,000 USD of supplemental and restricted funding for organizational investments. A participatory self-assessment is applied using the Institutional Development Framework (IDF). CSOs are scored across 4 developmental stages: Beginning, Developing, Expanding, Sustaining (0.0-4.0). Quantitative and qualitative metrics are used to identify priorities for investment which are then executed, over two-year cycles for up to 8 years.
Lessons learned: 7 CSOs in 6 African countries have undergone the first cycle of the IDF process. Average scores place CSOs as Developing (2.3), considered vulnerable. Strengths across CSOs were technical resources (2.53) demonstrating mastery in programs and service delivery. Lowest scores were financial (2.25) and human resources (1.86). Factors attributing to this include limited diversity of funding sources and heavy restrictions on use. Lack of formal staff recruitment, compensation and development systems leaves CSOs vulnerable to high workforce at-

trition. CSOs invested their 1st funding cycle into solutions addressing policy, systems and skills gaps. Solutions were CSO-driven using local expertise exclusively. Results are monitored longitudinally with reassessments anticipated in 2019 to ascertain impact on overall stability and missional-efficacy.

Conclusions/Next steps: To date, this framework demonstrates the feasibility of strengthening African CSOs to sustain community HIV-interventions with limited resources. Strengthened organizations directly reinforce program quality and impact. When applied deliberately to complement the formal health sector, the anticipated outcome is a strengthened and resourced civil society organization implementing programs that create demand for and reinforce clinical models while championing their communities before government. These synergies will more efficiently resource comprehensive coverage of African-led and locally sustained HIV/AIDS responses.

TUPEE598

Community driven affordable and sustainable health service model for MSM and TG in Mumbai, India

U. Sharma, P. Bora, P. Naik, R. Thorat
Humsafar Trust, Mumbai, India

Background: HIV interventions in India have traditionally been government-funded. While the approach has always aimed to provide holistic services for key populations, the efforts often encounter barriers and challenges that limit these initiatives. Sustenance of a holistic approach was further impacted after 2014 due to down-scaling of HIV interventions. The Humsafar Trust (HST) a CBO in Mumbai, India, adopted a unique approach to continue providing HIV care and treatment services to MSM /TG communities.

Description: To ensure sustainability in and provision of health services, HST introduced a "Free-to -Fee" model in December 2015, by introducing Blue and Green health cards that would reduce reliance on funded interventions by introducing an annual fee of INR 1000 (USD 30) for clients earning over INR 15000/month (USD 250) entitling them to a Blue Health card. The card provided holders quarterly HIV/Syphilis tests as well as unlimited consultations with physicians, mental health professionals, nutritionists, and legal/crises support. These services would be offered at no cost to individuals (green card holders) earning less than INR 15000/month thus allowing free services being cross subsidized for those who can´t afford to pay. Self-reporting of income was adequate while assigning card to a client. Initially we faced challenges as the community had only received services for free till then, the approach received gradual acceptance in 2016-2017. Since its inception, HST has generated INR140000 ($11666) as a revenue along with providing services to free for an additional 1868 people.

Lessons learned: While efforts to improve HIV care and treatment services will remain, HIV interventions implemented by CBOs must focus on sustainability by introducing "Free to Fee" models as a way to cross-subsidize services. This would ensure that the most-at-need communities continue receiving services for free while those who can afford to pay can contribute toward sustainability. This model also ensures that `no one will be lost' as far as HIV prevention is concerned.

Conclusions/Next steps: Upscaling the "Free to Fee" model will be crucial along with including additional services to make the model as holistic as possible. Scaling and strengthening this model will further reduce reliance on external funding mechanisms for communities' health needs.

TUPEE599

Swa-Shakt - leveraging the power of communities: Member led local crowd funding model

T. Narendran
Vrutti, Livelihood Impact Finance & Resource Mobilization, Bangalore, India

Background: Community Organisations (COs) of marginalized populations infected and affected by HIV/AIDS in India are witnessing a substantial decrease in funding from Government and donor agencies.The uncertainty stems from various reasons, including change in priorities of the Government, shift in focus of donor agencies and growing competition between local NGOs and COs for limited funding opportunities. Long term sustainability of COs and the community's agenda is possible only if they are enabled to raise resources locally. The core of the Swa-shakt fundraising campaign lies in the direct involvement of the community to sustain their organizations while also empowering them, ensuring ownership and hugely reducing external dependencies. Swa-Shakt, derived from the Sanskrit word swashakti, blends two characters of `swa' meaning self and shakti meaning power. Swa-Shakt stands for being self sufficient.

Description: Between May 2016 and Sep 2017, Swa-shakt campaign was rolled out on a pilot basis in 25 Community Organizations across 5 states of India as part of the Avahan program funded by Gates Foundation and implemented by Swasti in partnership with Vrutti and CMS. Swa-shakt receives support from Swasti on strategic guidance, capacity building, communication materials, technology solutions, management of donations and overall coordination. A mobile cum web application called mCollect was used for data collection and monitoring during the process which tracked individual donations received and sends receipts to donors and receivers besides generating individual member and CO wise reports.

Lessons learned: USD 153,846 was raised involving 12000+ community members. Average collection per organisation is USD 2100 and average collection per member is USD 25. Through this campaign, COs raised 35-40% of total funds required yearly to run their organisation.

Conclusions/Next steps: Swa-shakt is a sheer example of grit and determination of the communities to realise their rights and stand on their own feet. Members are seen as beneficiaries and not as change agents. Swa Shakt shifts the center of the organisation from being dependent on external funding to being self sustained.

TUPEE600

Decentralized approach to achieving sustainable HIV financing: Experience from Kenya's transition into devolved government

S. Mairura, D.D. Mwai
Health Policy Plus - Palladium Group, Nairobi, Kenya

Background: In Kenya, HIV programming is heavily dependent on foreign aid. By 2015, HIV prevalence reduced to 5.9% from 14% in the 1990s. As a lower-middle income country, foreign aid will be less accessible; this calls for innovative local financing approaches. Fortunately, devolution of this responsibility to counties has increased local decision-making, creating an opportunity for more targeted responses and investments for HIV. Success is heavily dependent on counties' capacity to mobilize, accumulate, and allocate funds to health priorities. Through the USAID-funded Health Policy Plus (HP+) project, and with Ministry of Health support, counties employed better planning and budgeting strategies by focusing on ways to generate local revenue for sustainable financing for HIV.

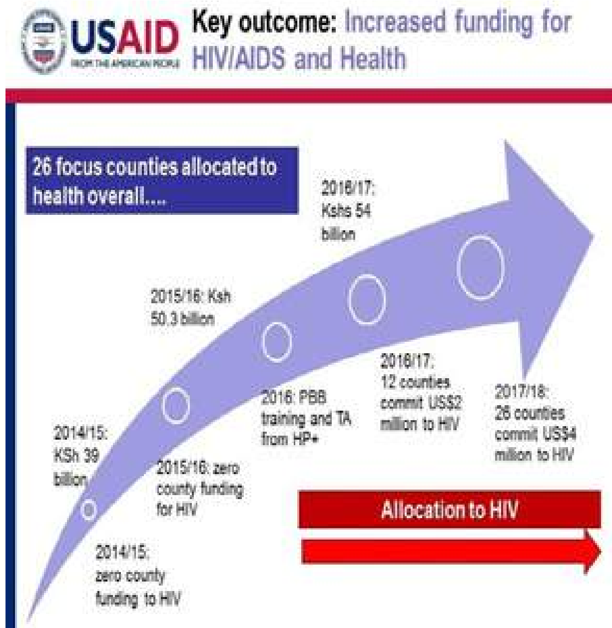
Description: To mobilize domestic resources, HP+ used a three-pronged approach: building capacity of 26 counties' planning and budgeting units through: training and mentorship on program-based-budgeting (PBB); assessing impact of PBB training by evaluating counties' strength in advocating for more resources for HIV and other health areas; and assessing impact of the training through evaluation of domestic resources mobilized for HIV, by analyzing resource allocation trends.

Lessons learned: PBB focused on identifying key programmes and sub-programmes necessary for achieving proposed health outcomes. While programmes were the same across all counties, counties were able to prioritize funding for key sub-programmes to include HIV. All 26 counties that received HP+ capacity building adopted the PBB approach and created a budget line item for HIV financing. Domestic resources mobilized amounted to US$7 million between fiscal years 2016/17 and 2017/18.

Conclusions/Next steps: This study points to the importance of domestic resource mobilization in greater sustainability for HIV financing within the uncertain context of donor funding. Enhanced capacity of county planning and budgeting units is critical in ensuring more domestic resources are mobilized and allocated to health, with devolved units

serving as a critical entry point for domestic resource mobilization activities, in addition to the national government.

Keywords: Devolution, Sustainability, HIV/AIDS Financing, Domestic Resource Mobilization, Capacity Building, Planning and Budgeting.



[Key outcome: Increased funding for HIV/AIDS and Health in Kenya]

TUPEE601

VIVE, much more than just a sustainable condoms socially-marketed brand

J. Rivas[1], S. Lungo[2], S. Barrios[2], O. Letouzé[3]
[1]Population Services International/PASMO, Marketing, Guatemala, Guatemala, [2]Population Services International/PASMO, Direction, Guatemala, Guatemala, [3]Population Services International, Marketing, Amsterdam, Netherlands

Background: In response to the HIV epidemic in Central America, Population Services International (PSI) created in Central America, its affiliate, the Pan American Social Marketing Organization (PASMO) in 1996. PASMO's inception project was to launch a regional socially-marketed condom brand, "VIVE," to improve availability of and access to high quality condoms. Sustainability of the brand and growth of the total market were core principles from the start of the project.

Description: To achieve brand sustainability, PASMO developed a tiered sustainability strategy, starting with cost recovery of commodities through product sales (achieved in 2000), cost recovery of commodities and marketing costs (achieved in 2010), and finally cost recovery of commodities, marketing and the bulk of operating costs (achieved in 2012).
PASMO´s strategy for growing the overall condom market was to implement a total market approach to ensure openness within the market for both public sector and fully commercial-sector brands to serve appropriate consumer segments. This strategy was coupled with highly targeted combination prevention programs to reach populations most affected by HIV and limiting drastic price increases.

Lessons learned: Today, PASMO's VIVE brand is the leading condom brand in Central America, both in terms of sales and brand image having 50.4% of regional market share. The use of marketing research tools has informed Vive's marketing strategies and ensured that the brand remained aligned with changing consumer preferences by applying multiple brand extensions, rebranding campaigns and new products. Through deliberate strategies to spark controversy and debate, VIVE mass media campaigns raised awareness about condoms and contributed to lower stigma associated with condom purchase and use. All these efforts have contributed to grow the Central American condom market from nearly 31 million in 2,000 to over 100 million in 2,016, and with behavioral data indicating that 48.4% FSW and 54.2% MSM are frequent users of the brand.

Conclusions/Next steps: Having a socially-marketed brand focused on sustainability, but combining marketing techniques and aiming to serve HIV target populations makes the condoms market wider, healthier, appealing and accessible for all.

TUPEE602

Community-led HIV prevention and care and harm reduction in Northern Myanmar

S. Nau
Metta Development Foundation, Community-Led Harm Reduction, Myitkyina, Myanmar

Background: Kachin state has been heavily affected by over 60 years of armed conflict between the Myanmar Army and the Kachin Independence Army (KIA). The situation in the region is characterised by insecurity, chronic under-spending in the health sector, and endemic corruption. Heroin is widely available and economic activity revolves mostly around the exploitation of natural resources. HIV prevalence is well above national average, with nearly 1 in every 2 People Who Inject Drugs (PWID). The provision of Harm Reduction services is largely insufficient and severely curtailed by a repressive legal framework, as well as strong opposition by a powerful anti-drug movement led by local Churches.

Description: From 2006 to 2012, *Metta Development Foundation* implemented a "Community-based HIV Intervention Project", which aimed at empowering People Living with HIV (PLH) and reducing stigma and discrimination in the wider community. A network of 68 Local AIDS committees (LAC's), composed of village administrators, elders, religious, women and youth leaders, and PLH were established to support HIV prevention and care activities. In 2014 and 2016, a similar approach was replicated to support the provision of Harm Reduction services in 7 locations, reviving LAC's and directly involving local community leaders, alongside PWID. The project main objective is to increase access to Harm Reduction services for PWID, while improving the acceptance of such services by local communities.

Lessons learned: Numerous Local AIDS committees created between 2006 and 2012 are fully autonomous and continue to be active, and stigma towards PLH has significantly reduced in concerned communities. Efforts to support Harm Reduction in 7 locations where communities were initially hostile to these services, have allowed the provision of 454,592 sterile Needles and Syringes, 623 HIV Tests and 244 referrals for OST in 2017. The project will be extended to a new location in 2018.

Conclusions/Next steps: The project shows that the involvement of community leaders in HIV and Harm Reduction programming in sensitive environments can contribute to the scale up of HIV and Harm Reduction services, improve community acceptance towards such services, and reduce stigma and discrimination.

[Enjoying playing game in peer group meeting supported by Local AIDS Committee.]

TUPEE603

Optimizing clients' retention on antiretroviral treatment using an "Out-of-facility health care worker group differentiated model" in Nigeria: Experiences and challenges

E. Nwabueze[1], A. Bukar[2], J. Ezekiel[3], M. Makumbi[4], N. Ndulue[5], P. Waibale[6,7]
[1]Management Sciences for Health, Country Office ART Team Lead and TB Team Lead, Abuja, Nigeria, [2]State Office Management Sciences for Health, State Team Lead, Minna, Nigeria, [3]USAID, Senior Care and Treatment Manager, Abuja, Nigeria, [4]MSH, Chief of Party, Abuja, Nigeria, [5]MSH, DPD, Abuja, Nigeria, [6]MSH, Technical Services, Abuja, Nigeria, [7]MSH, Senior Technical Director, Arinton, United States

Background: Monthly ARV drug refill is a known factor contributing to poor retention in care and treatment even for stable ART clients. In addition stigma and long distance from a treatment center deters clients from regularly accessing drug refills. Sustainable means are required in this donor fatigue era. This retrospective study was done to find out the impact of an out-of-facility ARV drug delivery program to community groups over a twelve-month period between March 2016 and February 2017.

Description: General Hospital (GH) New Bussa in Niger State in Nigeria had 3,678 on ART as at March 2016. The USAID-funded and MSH-led CaTSS project carried out a two-monthly ARV drug delivery to GH Babana, a spoke health facility serving hard-to-reach communities three hours' drive from the hub GH New Bussa.. There were 2 focal group discussions (6-8 persons) with HCWs and PLHIV. Optional choices for the spoke refills were given. Stable clients were clustered and mapped based on geographical location. We designed and deployed retention calendar, this simple M&E tool synchronizes individual PLHIV's refills, provides real time flagging of PLHIV expected for refills and who missed appointments. This ensured proper forecasting, immediate tracking and follow-up. Government staffs were involved throughout the implementation.

Lessons learned: There was an increased facility retention rate from 41% (March 2016) to 83% (February 2017). Retention rate in the cohort accessing out-of-facility drug delivery/refills was 92% (262/283). There were fewer missed appointments and LTFU at the spoke HF that were easily tracked and returned to treatment. HCWs appreciated the improved clients' satisfaction and quality of care. The clustered stable clients although fewer had improved health outcome and 100% suppression rate.

Conclusions/Next steps: This reduced clients' traffic, stigma and provided clinicians better opportunity and time to attend to the unstable clients at the hub creating clients satisfaction. This has strengthened collaboration with the government and sustainability of this implementation. The state government currently supports the transportation logistics for HCWs. This has also improved system performance, reduced workload and cost during tracking. Thus, recommended that it should be adopted across all facilities where sustainability is required if distance is a major barrier.

TUPEE604

Learning about the sustainability of pediatric and adolescent HIV programs in sub-Saharan Africa - how can qualitative methods help us get there?

A. Falconer[1], K. Morgan[1], F. Boldrini[2]
[1]Rabin Martin, New York, United States, [2]Rabin Martin, London, United Kingdom

Background: The joint Children's Investment Fund Foundation (CIFF) and U.S. President's Emergency Plan for AIDS Relief (PEPFAR) Accelerating Children's HIV/AIDS Treatment (ACT) Initiative aimed to double the number of children receiving antiretroviral treatment (ART) in nine sub-Saharan African countries over two years. CIFF invested in an independent evaluation of the sustainability of their investments in Kenya, Malawi, Tanzania, and Zimbabwe which asked:

· Are the essential domains of CIFF-funded pediatric and adolescent HIV programming sustainable once main program funding has concluded?

· What is needed to ensure the sustainability of CIFF-funded pediatric and adolescent HIV programming?

Methods: Sustainability can be complex to conceptualize and measure. This evaluation was rooted in a health systems approach and designed to provide a timely assessment of care cascade gains as well as pathways towards future sustainability. Building on examples from peer-reviewed sustainability literature, the PEPFAR Sustainability Index and Dashboard (SID) tool, ACT investment documents, CIFF and PEPFAR input, ACT grantee workplans, and field testing in Tanzania and Malawi, we developed a new pediatric and adolescent HIV sustainability heuristic. It aimed to assess inputs along three core domains:
(i) government, accountability, and leadership;
(ii) financing, and
(iii) program capacity, and outputs along the HIV care cascade.
Purposively sampled, semi-structured qualitative interviews (n=66) with government, donor, UN, NGO, and facility respondents in each country were used to evaluate inputs; NVivo 11 was used for analysis. Sustainability outputs were assessed using quantitative HIV care cascade data collected during and after the ACT initiative.

Results: Our approach enabled us to identify and comparatively assess sustainability pathways for ACT pediatric and adolescent HIV programming, despite the small-n nature of the study. These pathways are sufficiently nuanced to inform improvement of ACT sustainability within each country beyond the investment period.

Conclusions: This sustainability heuristic and its focus on qualitative methods can provide donors, advocates, and decision-makers focused on pediatric and adolescent HIV with a practical and nuanced assessment of program and investment sustainability. We believe this approach could be extended to develop sustainability pathways for other donor-funded programs in pediatric and adolescent HIV and beyond, delivering durable returns for donors and recipients alike.

TUPEE605

Bottom up or top down? Balancing the mix in annual HIV/AIDs operational planning and implementation for sustainability in HIV/AIDS service provision in Nigeria

S. Gombwer[1], O. Olayemi[1], I. Osaigbovo[1], S. Dada[1], E. Oladele[1], M. Opadotun[1], O. Adama[1], E. James[2], S. Raj Pandey[1]
[1]FHI360 Nigeria, Abuja, Nigeria, [2]USAID, Abuja, Nigeria

Background: Within the last 10 years, more resources have been deployed in the fight against HIV/AIDS than ever since the advent of the pandemic. However, weak capacities within governments and community based organizations (CBOs) at state level to plan, oversee, manage, and monitor programs to deliver quality services in a sustainable manner have posed challenges. This abstract describes the USAID-funded Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS) program's unique approach and experiences in supporting state governments and CBOs in planning, implementation, and monitoring of HIV/AIDS operational plans within the context of a PEPFAR supported project.

Description: Using the concept of "Co-location" as a program strategy SIDHAS built the capacity of 13 state governments and 26 CBOs to plan, implement, and monitor HIV/AIDS annual plans as part of operationalizing the national strategic heath development plan and the national strategic framework for HIV/AIDS. Co-location is a concept where government of Nigeria health providers are paired with a SIDHAS technical counterpart who works with them to provide technical assistance through supervision, coaching and mentoring.
A top to bottom approach is usually employed to kick start the processes of information sharing, joint planning, and building consensus to align with government and donor priorities. A bottom-up approach is then used in the development of specific state priorities. Through a participatory approach with stakeholders, the workplans are developed for state governments and CBOs. Approved, costed workplans guide implementation throughout. Early lessons from the field show positive signs that the mixed approach has resulted in increased ownership of the plans and integration of key elements into the state sustainability road map for 2016 -2018.

Lessons learned: A context specific, mixed approach to HIV and AIDS operational planning and an understanding of technical and operational challenges is needed to balance different priorities and build systems that promote sustainability of national and state governments HIV response.

Conclusions/Next steps: There is need to continue targeted policy advocacy and sustained engagements by civil society to the government of Nigeria to ensure implement the HIV sustainability road maps through funding of HIV response.

TUPEE606

Barriers to entering the African condom market

I. Thior[1], K. Kadirov[2], A. Berry[3], C. Jones[4], B. Deperthes[5], F. Roijmans[6], B. McKenna[7]
[1]AIDSFree, PATH, Arlington, United States, [2]United States Agency for International Development, Washington, United States, [3]United States Agency for International Development, Arlington, United States, [4]Global Insights, Sandpoint, United States, [5]United Nations Population Fund, New York, United States, [6]IplusSolutions, Washington, United States, [7]Reproductive Health Supplies Coalition, Brussels, Belgium

Background: Male and female condoms are the only devices that reduce the transmission of HIV and other sexually transmitted infections and prevent unintended pregnancy. Donor funding for condom procurement has been reduced in recent years. In 2013, about 10 condoms were made available to every man aged 15-64, and on average only one female condom per eight women in sub-Saharan Africa. To date very few condom manufacturers are present in the African market. In 2015, several condom manufacturers joined donor agencies to form a coalition whose main goal is to provide 20 billion condoms by 2020 in low- and middle-income countries. In furtherance of this goal, the authors conducted from August to October 2017 a survey to assess the barriers that prevent condom manufacturers from entering the African market.

Methods: A self-administered semi-structured questionnaire and in-depth interview were used to collect information on barriers to entering the African market among condom manufacturers.

Results: Nineteen manufacturers (out of 52 invited) from 12 countries, including the biggest male condom manufacturer in the world and all three female condom producing companies, completed the questionnaire. Biggest barriers to entering the African condom market were the high risk of insufficient return on investment (74%), inefficient distribution channels (74%), lack of purchasing power of targeted market segments (69%), lengthy and costly registration processes (68%), free and subsidized condoms (58%), and lack of partners and difficulty to vet financially strong local partners. Other barriers were macroeconomic and market-specific challenges related to government, currency stability, and trade policies.

Conclusions: The survey identified several critical barriers preventing entry to the African condom market. African governments could create an enabling environment for market entry by harmonizing regulatory standards, providing tax exemptions/incentives, reducing registration processing time and fees, facilitating adequate financing of local condom distributors, and establishing a public-private partnership for a healthy condom market. Donor agencies and governments should limit distribution of free and subsidized condoms to the right populations (key and poor populations) and dedicate funds for demand generation and promotion activities to grow the commercial condom market and make it more attractive.

TUPEE607

Active budget advocacy as a way to ensure sustainability of service provision to the communities and key populations on the regional level

D. Tyhach
Charitable Organization 'Charitable Society, All-Ukrainian Network of People living with HIV/AIDS, of Lviv City', Lviv, Ukraine

Background: There are around 4000 PLHIV in Lviv. Until 2016 social services for PLHIV were funded by donors without participation of the state, and only 2000 PLHIV could be provided with the services. According to Lviv regional `Strategy for ensuring a sustainable response to the TB epidemic, including chemoresistant TB and HIV / AIDS till 2020`, which was approved in September 2017, the total transition from the donors` funding to the local budgets should take place by 2020.

Description: At the beginning of 2015 the working group with representatives of AIDS Center, NGOs and regional authorities for justification of financial needs was formed. The group prepared a proposal for financing of social services for the funds of local budget in total amount of $ 5800. The proposal was introduced into the Integrative program of provision of medical care to the residents of Lviv region, however, it was removed by deputy corps. After this, an organized picket of the deputy meeting and media coverage of the event took place. As a result, funds for social support of the region residents in the amount of $ 5300 for provision of social services for HIV-positive children, was secured in the Program of provision of medical services to the region residents for the 2014-2017, amendments to which were approved on March 1 of 2016.

Lessons learned: In 2016 budget advocacy allowed to cover 70% of the needs for social services for HIV-positive children in the region. Due to further activities and strengthening of partnership with local authorities, in 2018 funding increased by 75% and reached $ 21,000. It will ensure 100% coverage of HIV-positive children by the needed social services and 30% coverage of HIV-positive adults, who are not reached by GF projects. The transparency of spending is ensured by the e-procurement system `ProZorro`.

Conclusions/Next steps:

1. Engagement of the HIV-positive community to the rights-protection actions is an effective tool in achieving positive changes.
2. Budget advocacy is a key for total transition to the funding of social services from the local state budgets.
3. Budget advocacy is more effective with the engagement of media for highlighting the process.

Economic evaluation and affordability assessments

TUPEE608

Costing of voluntary medical male circumcision in South Africa's private sector

M. Tchuenche[1], E. Njeuhmeli[2], C. Schütte[3], L. Ngubeni[4], I. Choge[5], E. Martin[6], D. Loykissoonlal[7], V. Kiggundu[2], A. Yansaneh[2], S. Forsythe[8]
[1]Avenir Health, Project SOAR (Supporting Operational AIDS Research), Glastonbury, United States, [2]USAID, Washington DC, United States, [3]Strategic Development Consultants, Hammarsdale, South Africa, [4]Avenir Health Consultant, Johannesburg, South Africa, [5]USAID, Pretoria, South Africa, [6]USAID, Pretoria, United States, [7]National Department of Health, Pretoria, South Africa, [8]Project SOAR (Supporting Operational AIDS Research), Avenir Health, Glastonbury, United States

Background: A previous study of the costs of providing a comprehensive set of services for surgical VMMC in South Africa at Government and PEPFAR-supported facilities noted that the lack of sufficient data from the private sector represented a gap in knowledge concerning the overall cost of scaling up VMMC services in South Africa.

Methods: VMMC Service delivery cost data were collected at 13 private for profit facilities in three provinces in South Africa: Gauteng, KwaZulu-Natal and Mpumalanga. Unit costs were calculated using a bottom-up

approach by cost components and disaggregated by the type and level of urbanization of the facility. Supply chain, VMMC demand creation, and higher-level management and program support costs were not collected and therefore not included.

Results: The unit cost (including the cost of training and continuous quality improvement) to provide VMMC at private facilities was $137, which was comparable to public and PEPFAR-supported nonprofit facilities. The largest cost components were consumables (40%), and direct labor (35%). Eleven out of the 13 surveyed facilities were fixed sites ($142), while the remaining were a fixed site with outreach services ($156) and a fixed site with outreach and mobile services ($123). The unit cost was not substantially different based on the level of urbanization: respectively $141, $129 and $143 at urban, peri-urban and rural facilities.

Conclusions: Private sector VMMC unit cost ($137) did not differ substantially from the costs at government and nonprofit, PEPFAR-supported facilities ($132). Consumables and direct labor accounted for 75% of total cost at for-profit facilities compared to 67% at public and nonprofit facilities. Results from this study complement unit cost data necessary to make informed decisions regarding the funding and scale-up of VMMC services in South Africa in both the private and public sectors.

TUPEE609

Out-of-pocket costs for patients receiving HIV care and treatment in Mozambique

A. Berruti[1], A. Krivelyova[2], F. Mbofana[3], D. Singer[4], A. Vergara[4]
[1]U.S. Centers for Disease Control and Prevention, Division of STD Prevention/NCHHSTP, Atlanta, United States, [2]ICF, Atlanta, United States, [3]Mozambique Ministry of Health, Maputo, Mozambique, [4]U.S. Centers for Disease Control and Prevention, DGHT, Atlanta, United States

Background: As of 2016, the Mozambique HIV prevalence among those aged 15-49 was estimated at 12.3%, with an estimated 1.6 million Mozambicans adults living with HIV/AIDS. In 2016 approximately 990,000 adults and 76,000 children were receiving antiretroviral therapy. Many HIV patients receive care and treatment funded by the government and donors, such as PEPFAR. Although services are largely free, HIV patients do incur costs to access treatment, potentially limiting uptake for some groups. This study quantified costs that different patient groups incurred while receiving publicly funded HIV treatment in Mozambique.

Methods: In -April 2017, a sample of 396 randomly selected adult patients (>18 years) receiving HIV care and treatment, with at least one prior appointment, was selected from 37 health facilities across 11 provinces in Mozambique). The survey assessed patients' costs associated with their access to HIV services.

Results: Results indicate that approximately 70% of respondents were female, and 21% lived in urban areas. The average age was 38 years (females, 37 years; males, 40 years). The findings indicated that 47% of respondents incurred some costs. Patients spent an average of US$19.57/year (2017) on costs to access treatment; more than 88% was for travel expenses (93% in Females and 75% in males). Patients living in rural and urban areas had average annual costs of US$17.81 and US$20.41, respectively. Males and females spent similar per year, US$18.24 and US$20.15, respectively. Patients' annual opportunity cost of the total time spent for treatment was $16.43 for male patients and $16.49 for female patients), approximately 4.3% of the per capita GDP in 2016.

Conclusions: Although HIV treatment was largely provided free, the study's findings suggest that (1) out-of-pocket costs to access this treatment are common and (2) patients spent a substantial amount of time at the HIV clinic. Results are similar to those found in similar studies in Tanzania, Kenya, and Swaziland.

TUPEE610

Cost evaluation of HIV-1 viral load testing: A comparative case study on open polyvalent platform versus integrated platform performed in CEDRES, Abidjan, Côte d'Ivoire (OPPera project)

N. Yakhelef[1], E. Guichet[2], F. Koné[3], G. Bado[4], H. Menan[5], A. Jousset[1], C. Rouzioux[6], B. Coriat[7]
[1]Solthis, Health Economics, Bagnolet, France, [2]Solthis, Virology, Bagnolet, France, [3]Laboratory of Cedres, Virology, Abidjan, Cote D'Ivoire, [4]Expertise France, Health Economics, Abidjan, Cote D'Ivoire, [5]CEDRES Laboratory, Virology, Abidjan, Cote D'Ivoire, [6]AP-HP Hôpital Necker-Enfants Malades; Université Paris Descartes, Virology, Paris, France, [7]Université Paris13, Sorbonne Paris Cité, Health Economics, Paris, France

Background: Monitoring of HIV patients receiving ARV through viral load (VL) testing is now recommended by WHO. Various technologies exist, however, cost evaluation data per VL test are scarce. We evaluated and compared the cost of VL performed on two different types of equipment: Open Polyvalent Platforms (OPP) vs. Integrated Platforms (IP) in CEDRES laboratory in Abidjan, Côte d'Ivoire.

Methods: Data collection covered the period from March 2013 to July 2016. Costs of VL performed on an OPP with Biocentric Generic HIV-1 VL reagents and on an IP with Roche *COBAS® AmpliPrep/COBAS®* TaqMan® HIV-1 *V2.0*) were evaluated. The costs were calculated using a "micro-costing" method, which includes the value of all resources consumed (time, goods and services) by the laboratory. Seven cost categories were identified: human resources costs, training costs, laboratory costs, VL reagent costs, small non-medical equipment costs, investment costs, overhead costs. The value of resources was estimated from the relevant quantities and corresponding unit price. All costs, both direct (i.e., resources used only by the VL laboratory) and joint, included both variable and fixed costs (depreciation of the equipment) and were expressed in euros and discount at 4%.

Results: A total of 12 771 VL tests were performed on OPP and 4 877 on IP. The overall cost of VL was €507 170 on OPP and €365 396 on IP. The unit cost was respectively €39.71 and €74.92. Overall, the main costs were reagents (respectively 68% and 55%), followed by single use and multiple use laboratory consumables (17% and 36%) and OPP equipment maintenance (5.3%). Human resources represented respectively 4.3% and 5.3%. Medical and non-medical equipment represented together 1.24% on OPP and 0.56% on IP.

Conclusions: This analysis showed that the unit cost of a VL test is much less expensive using OPP than IP in a West African country conditions. Further studies with other types of platforms would be important to draw a more complete picture of VL cost testing and allow decision-makers to optimize their choices in resource-limited countries.

TUPEE612

Evaluating HIV service expenditures in Ukraine: Results from a cost analysis study

M. Duda[1], A. Latypov[1], R. Dierst-Davies[2], J. Pearson[3], U. Kou Griffiths[4], I. Pykalo[5], I. Kuzin[6], N. Avaliani[7]
[1]Deloitte Consulting LLP, The USAID HIV Reform in Action Project, Kyiv, Ukraine, [2]Deloitte Consulting LLP, San Francisco, United States, [3]Deloitte Consulting LLP, Arlington, United States, [4]UNICEF, New York, United States, [5]Ukrainian Institute on Public Health Policy, Kyiv, Ukraine, [6]Public Health Center of the Ministry of Health of Ukraine, Kyiv, Ukraine, [7]Deloitte Consluting LLP, The USAID HIV Reform in Action Project, Kyiv, Ukraine

Background: Ukraine has one of the most severe HIV epidemics in the region, with an estimated 238,000 people living with HIV in 2017. As funding for HIV services in Ukraine is provided from domestic and international sources, and with support from donors and international aid agencies decreasing significantly in the near future, a better understanding of how monies for HIV services are spent will help inform resource allocation and programming decisions.

Methods: A two-staged stratified sampling method was used to select study regions and facilities to evaluate funding spent by the government on HIV services. In total, three oblasts with high, medium and low prevalence rates (Mykolayiv, Poltava, and Zhytomyr), and 57 facilities (from

seven facility types) were sampled. Data collected included both direct (program staff, laboratory supplies, commodities, medications) and indirect (overhead) costs for nine separate HIV services provided. Both overall and per-patient costs for each service are presented.

Results: According to Ukrainian health authorities, $97,737,794 was spent on HIV services in 2015. Among sampled facilities, total expenditures were $7,642,333. A plurality of expenses were for medications (45%), with the least (1%) being spent on commodities (condoms and syringes). Per-patient costs were the greatest among those seeking TB treatment for PLHIV ($1,151.53) with the least expensive being condom distribution programs ($2.20). Among sampled facilities, 56% of expenditures ($4,249,901.64) were reported by AIDS Centers, with costs primarily driven by medication expenses. The most unstable per-patient costs across different facility types were program staff (range: $1.97-$424.54) and overhead (range: $3.53-$617.69) expenditures. Mykolayiv, a high prevalence region which included the greatest number of sampled facilities and patients, also incurred the greatest proportion of costs (55%). Overall, AIDS Centers and hospital-type facilities reported greater fixed costs (range: 73%-87%) compared to other facility types (range: 17%-30%).

Conclusions: Variations between costs of HIV services across different facility types indicate substantial savings that can improve the likelihood of achieving the 90-90-90 targets. Cost-saving strategies should focus on unique approaches for fixed and variable costs, including increasing patient volumes to improve patient to staff ratios, reducing unnecessary facility visits, reducing expenses on maintenance and utilities, and implementing integrated service delivery strategies.

TUPEE613

Systematic literature review of critical gaps in costs and cost-effectiveness analyses (CEA) of HIV testing services in sub-Saharan Africa

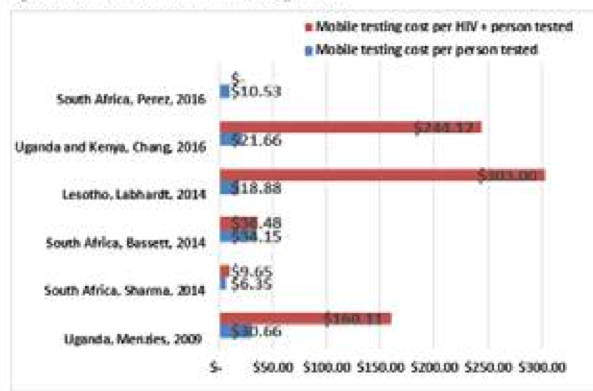
N. Ahmed[1], S. Rotolo[2], J. Ong[2], M. d'Elbée[2], L. Mwenge[3], K. Hatzold[4], G. Medley[2], H. Maheswaran[5], C. Johnson[6], L. Corbett[2], F. Terris-Prestholt[2]
[1]London School of Hygiene and Tropical Medicine., Global Health and Development, London, United Kingdom, [2]London School of Hygiene and Tropical Medicine, London, United Kingdom, [3]Zambart, Lusaka, Zambia, [4]PSI, Harare, Zimbabwe, [5]Population Evidence and Technologies, Warwick Medical School, University of Warwick, Warwick, United Kingdom, [6]World Health Organisation, Geneva, Switzerland

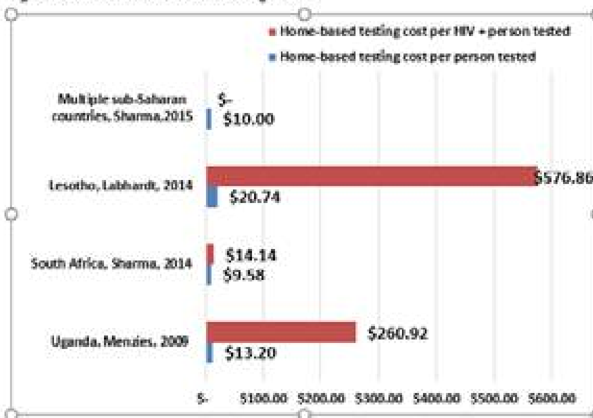
Background: HIV testing services (HTS) have undergone dramatic changes in recent years, and the most recent and the most innovative one is HIV self-testing. To date, there has been no systemic assessment of the evidence around the costs and cost-effectiveness of the broad HIV testing alternatives in sub-Saharan Africa.

Methods: We conducted a systematic literature review of costs and cost-effectiveness of HTS in sub-Saharan Africa between 2006 and 2017 following accepted guidelines (the CHEERS statement). We assessed study methodology, including primary or secondary costings, outcomes reporting as generic (QALYs, DALYs, HIV infection averted or life years gained or HTS specific). We analysed variations in unit costs per person tested ($pptested) and per positive case identified ($ppositive), cost-effectiveness, and identified cost drivers. All costs are presented in US$ 2016.

Results: Ninety-five studies met the eligibility criteria. Twenty-percent conducted primary costing exercises and applied it to perform CEA of alternative HTS. FBT, home-based and mobile-testing costs were presented in 73%, 12% and 7% of studies, respectively. Only 15% reported generic health outcomes. More than 50% assessed for uncertainty in parameters and reported cost drivers.

The reported unit costs for HTS varied widely. FBT $pptested ranged from $4.24 to $49.61 and $ppositive from $26.59 to $1,147. For mobile outreach, the $pptested was $6.35 to $34.15 and $ppositive was $9.65 to $303. Home-based HIV testing $pptested ranged from $9.58 to $20.74 and $ppositive ranged from $14.14 to $576.





[Costs of different HIV testing services in sub_Saharan Africa]

QALYs $pptested ranged from $522 to $1570. The main factors driving-up costs were: personnel, transportation, and HIV test kits commodity.

Conclusions: The observed unit costs and cost-effectiveness varied widely, attributable both to real differences in scale of implementation, uptake and HIV prevalence, and variation in study methodology. It is vital to understand costs as well as estimate ultimate CEA using generic health outcomes to allow optimisation across health budgets and scaling-up of HIV interventions to improve population health, even more so as the financing of HIV programs increasingly falls on national governments.

TUPEE614

The effect of universal test and treat on average cost per ART patient-year: Evidence from a health systems implementation trial in Swaziland

S. Khan[1], C. Wong[1], P. Geldsetzer[2], F. Walsh[3], C. Lejeune[1], T. Bärnighausen[2,4]
[1]Clinton Health Access Initiative (CHAI), Mbabane, Swaziland, [2]Harvard T.H. Chan School of Public Health, Boston, United States, [3]Clinton Health Access Initiative (CHAI), Boston, United States, [4]Heidelberg Institute of Public Health, University of Heidelberg, Heidelberg, Germany

Background: As Swaziland and many other countries in sub-Saharan Africa are adopting 2015 World Health Organization (WHO) antiretroviral therapy (ART) guidelines and introducing universal test-and-treat (UTT) strategy, it is critical to understand the cost implications of this change to inform long-term financial planning. We present results from one of the first empirical costing studies of UTT under the "real world" conditions of scale-up in public-sector primary-care clinics.

Methods: From September 2014 through August 2017, we collected comprehensive data on facility-level ART costs from 14 facilities transitioning from standard of care (SOC) to UTT as part of a large-scale stepped-wedge health systems implementation trial. We take the perspective of the public-sector and use a "bottom-up costing" approach extracting data from facility budgets, expenditure reports, and patient

records. We use an activity-based allocation method for costs shared with non-ART patients. We include costs of medications, laboratory services, direct and indirect personnel, equipment and administrative services. The effect of UTT on average costs per ART patient-year was estimated using a multilevel generalized linear model. The model was adjusted for time fixed effects and clinic random effects.

Results: The **Table** shows detailed cost comparisons under UTT vs. SOC. The UTT effects were small and insignificant for overall costs and most cost categories. UTT effect estimates were $4 (95%CI -20 to 28) for average facility-level total cost per ART patient-year (p=0.75). The simple mean cost per patient-year across SOC was $215 (95% CI: 123-316) compared to $219 (95% CI: 138-293) in EAAA. There was marginal increase of 5 patient-years (95% CI: -1 - 9) due to EAAA (p=0.08).

Conclusions: Average public-sector costs per ART patient-year in Swaziland are essentially the same under the SOC and UTT. Differences in funding requirements for UTT will thus be largely driven by the number of patients receiving treatment, rather than by changes in the efficiency of service delivery.

	Universal Test and Treat (UTT) (mean cost ($) (95%CI)	Standard of Care (mean cost ($) (95%CI)	p-value
Total	**$219 (123-316)**	**$215 (138-293)**	**0.75**
ARVs	$95 (91 -99)	$95 (92-98)	0.76
Personnel	$100 (6-194)	$99 (28-170)	0.94
TB	$4 (0-8)	$1 (0-3)	0.04
Labs	$19 (10-28)	$20 (12-29)	0.70

[ART patient-year cost under universal test-and-treat (UTT) and standard-of-care (SOC)]

TUPEE615

Health care costs and deaths prevented by ACTA trial treatments for cryptococcal meningitis: A comparison between 5 induction strategies in sub Saharan Africa

T. Chen[1], L. Mwenge[2], S. Lakhi[3], D. Chanda[4], P. Mwaba[5], S.F. Molloy[6], A. Gheorghe[7], U. Griffiths[7], R.S. Heyderman[8,9], C. Kanyama[10], C. Kouanfack[11], S. Mfinanga[12], A.K. Chan[13], E. Temfack[14], S. Lesikari[12], M. Hosseinipour[10,15], O. Lortholary[16], A. Loyse[6], S. Jaffar[1], T.S. Harrison[6], L.W. Niessen[1], ACTA Trial Team
[1]Liverpool School of Tropical Medicine, Liverpool, United Kingdom, [2]Zambart, Lusaka, Zambia, [3]University Teaching Hospital, Lusaka, Zambia, [4]Institute for Medical Research and Training, University Teaching Hospital, Lusaka, Zambia, [5]Lusaka Apex Medical University, Lusaka, Zambia, [6]St George's University of London, London, United Kingdom, [7]London School of Hygiene and Tropical Medicine, London, United Kingdom, [8]Malawi-Liverpool-Wellcome Trust Clinical Research Programme, Blantyre, Malawi, [9]College of Medicine, University of Malawi, Blantyre, Malawi, [10]UNC Project, Kamuzu Central Hospital, Lilongwe, Malawi, [11]Hôpital Central Yaoundé/Site ANRS Cameroun, Yaoundé, Cameroon, [12]National Institute Medical Research, Muhimbili Medical Research Centre, Dar es Salaam, Tanzania, United Republic of, [13]Dignitas International, Zomba Central Hospital, Zomba, Malawi, [14]Douala General Hospital, Douala, Cameroon, [15]University of North Carolina, Chapel Hill, United States, [16]Institut Pasteur, Paris, France

Background: Mortality from cryptoccocal meningitis remains high. The ACTA trial demonstrated that 1 week of amphotericin B (AmB) plus flucytosine (5FC) was associated with lower mortality, and 2 weeks of oral fluconazole (FLU) plus 5FC combination was non-inferior compared with 2 weeks of AmB+5FC (gold standard), 2 weeks of AmB+FLU, or 1 week of AmB+FLU. We assess health service resource use and related costs in relation to health outcomes for the 4 alternative treatments compared with 2 weeks AmB+5FC.

Methods: Participants were randomised in a ratio of 2:1:1:1:1 to oral 5FC+FLU, 1 week AmB+FLU, 1 week AmB+5FC, 2 weeks AmB+FLU or 2 weeks AmB+5FC between 2013 and November 2016 in Malawi, Zambia, Cameroon and Tanzania. Data on individual resource use and health outcomes were collected from everyone. A costing study from the provider's perspective was done in Zambia.

Total health service costs for each treatment were estimated using the ingredient approach. The primary health outcome was health care cost per deaths prevented per 100 patients. Non-parametric bootstrapping was used with 1000 samples of 678 participants and 95% CI calculated using the 2.5th and 97.5th percentiles of the bootstrap samples.

Results: 678 participants were enrolled. Mean total costs per patient were US$1654 for oral FLU+5FC, $1936 for 1 week AmB+FLU, $2070 for 1 week AmB+5FC, $2321 for 2 weeks AmB+FLU, and $2481 for 2 weeks AmB+5FC. Hospitalization cost was the major component of total service costs. Differences between arms were driven by costs related to the component drugs and related complications, in particular AmB.

One week AmB+5FC was less costly as well as more effective than (dominated) 2 weeks AmB+5FC; Oral FLU+5FC was less costly than 2 weeks AmB+5FC and at least as effective as 2 weeks AmB+5FC. If the mortality for 1 week AmB+5FC was varied to the upper 95% CI, 1 week AmB+5FC still dominated 2 weeks AmB+5FC. The incremental cost effectiveness ratio for 1 week AmB+5FC versus oral FLU+5FC was US $53 (95% CI: 16-151) per death averted.

Conclusions: 1-week AmB+5FC and 2-weeks oral FLU+5FC are suitable for implementation in resource-limited settings. 5FC needs to be made available widely.

TUPEE616

Financial mobilization for antiretroviral therapy program: Multi-level predictors of willingness to pay among patients with HIV/AIDS in Vietnam

C. Nguyen
Duy Tan University, Institute for Global Health Innovations, Hanoi, Vietnam

Background: In Vietnam, significant progress has been made in increasing the number of patients receiving anti-retroviral therapy (ART) in the last number of years. As this number increases and international aid and funding for HIV services declines, a greater proportion of ART funding will need to be provided by the government budget, health insurance or by the patients themselves. This study aims to assess the willingness of HIV patients to pay for ART.

Methods: A cross-sectional study which included 1,133 HIVpositive patients was conducted across 8 outpatient centres in Hanoi and Nam Binh in Northern Vietnam in 2013. Participants were asked if they were willing to pay for ART to treat HIV using contingent valuation method.

Results: Over 90% of the patients were willing to pay for ART for an average amount of 19.7 USD per month. Regression models showed that the willingness of patients to pay for ART was influenced by factors such as employment, income, quality of life and social factors. The amount patients were willing to pay was also associated with gender, living place and level of HIV service administration.

Conclusions: By establishing these factors which influence the amount of willingness to pay for ART, plans for the future can be effectively designed and patient groups at risk can be appropriately managed.

Supporting sustainable financing for civil society

TUPEE617

How to build consortium of different key communities for effective advocacy to insure sustainable funding of HIV response

I. Gordon[1], G. Dovbakh[1], E. German[2], P. Sabelashvili[2]
[1]Eurasian Harm Reduction Association, Vilnius, Lithuania, [2]Eurasian Coalition on Male Health, Tallinn, Estonia

Background: Highly stigmatised and criminalised key populations/communities in EECA excluded from the continuum of HIV care due to legal, institutional, social and other barriers being key drivers of the epidemic. In last year's funding of services for key populations more depends on national governmental officials who stigmatising key populations and are not ready to invest into services. Having the same advocacy targets on

national and regional level it is important to coordinate advocacy for sustainability by different communities in coordinated consortium.
The Eurasian Regional Consortium (the consortium) brings together 3 regional networks: Eurasian Harm Reduction Association, Eurasian Coalition on Men's Health, Eastern European and Central Asian Union of PLWH to jointly build capacity of PWUD, MSM and PLWH communities in Armenia, Estonia and Kyrgyzstan to advocate governments to invest in services along the continuum of HIV care that those communities prioritize themselves in EECA.
Description: The consortium builds the capacity of key population CBOs via learning by doing approach to assess and prioritize HIV services and to conduct community-led quality access and quality assessment for the HIV response by provision of grants and technical assistance to all 3 countries and start budget advocacy.
Lessons learned: As a direct result, community-based testing was introduced in Armenia, and the Kyrgyzstan State HIV Program 2017-2021 included additional commodities for prevention as requested by MSM community. Assessment of access to services done by three different communities together build cooperation and strengthen join advocacy effort in budget advocacy and promotion of priority services for communities on national and local level.
Conclusions/Next steps: The Consortium developed budget advocacy models and processes for use across EECA and built relevant capacities of different communities. This bottom-up approach has been critical in generating community interest in budget issues, which have to date been seen as an issue that is not important for key populations. With the technical support from the regional Consortium it became possible for key populations to engage in direct dialogue with national decision-makers on budgeting issues together by three communities and several national partners.

Financing HIV drug access: the economics of generics and differential pricing structures

TUPEE618

Estimated cost-based generic prices for treatments of opportunistic infections

M. Barber[1], D. Gotham[2], A. Hill[3]
[1]*Harvard University, Harvard T.H. Chan School of Public Health, Boston, United States,* [2]*Independent, Boston, United States,* [3]*University of Liverpool, Liverpool, United Kingdom*

Background: Medicines used to treat opportunistic diseases are mostly off-patent, but there have nevertheless been concerns with price changes and unaffordability. For example, the fluconazole market is dominated by an originator-run donation programme, which excludes countries with large HIV burden such as Ukraine, Russia, India, Brazil, China, and Thailand. Pyrimethamine has recently been the subject of a 55-fold price hike in the US, and is not publicly procured in South Africa.
Methods: Current unit prices in the UK, South Africa (SA), and India were collected for medicines used in major opportunistic diseases from publicly available databases. Data on per-kilogram cost of exported active pharmaceutical ingredient (API) were retrieved from an online database of Indian export-import logs. Per-dose API costs were calculated, to which $0.01 per tablet or $0.70 per vial, as applicable, were added to estimate the cost of production. A 27% margin was then added to account for tax, and a 10% margin for profit. For liposomal amphotericin B, as API data were unavailable, we give the cost-based estimated price as the range of observed prices for formulated vials exported in bulk from India.
Results: Prices were highly variable between countries compared. In all cases for the UK, and all but one for SA, prices were substantially higher than estimated cost-based prices. In most cases, Indian prices were below estimated cost-based prices (likely reflecting conservative assumptions in estimation). Comparison of estimated cost-based price to current prices identified two cases worthy of further investigation: treatment for CMV retinitis, for which SA price was >12x and Indian price ≥2x the estimated cost-based price, and treatment for disseminated mycobacterium avium complex, for which SA price was more than two times estimated cost-based price. The price of liposomal amphotericin B was 14 times lower than in SA.

Disease	Treatment (regimen assumed for comparison)	Cost-based estimated generic price	UK price	India price	South Africa price
Pneumocystis pneumonia	Trimethoprim-sulphamethoxazole 160 mg/800 mg 6 tablets daily for 3 weeks	$5.43	$29.17	$1.21	$0.36
Toxoplasma encephalitis	Pyrimethamine 200 mg 1 tablet + 6 weeks of daily: 75mg pyrimethamine, 6000mg sulfadiazine, 15mg leucovorin	$94	$640	N	N
Cryptococcal meningitis	Liposomal amphotericin B 240mg daily for 2 weeks + fluconazole 400mg daily for 8 weeks + fluconazole 200mg daily for 12 months*	$2,352-9,274	$7,557	$988	$13,983
Disseminated mycobacterium avium complex	Daily: 1000mg clarithromycin 500 + 900mg ethambutol	$146	$322	$35	$322
Esophageal candidiasis	Fluconazole 200mg daily for 21 days	$1.65	$3.55	$0.81	$3.97
CMV retinitis	Valganciclovir 900mg twice daily for 3 weeks, then 900mg daily for 6 months	$481	$7,734	$987	$5,973
Tuberculosis	RHZE 600/300/1600/1100mg daily for 2 months, then RH 600/300mg daily for 4 months	$28	$302	$22	$41
Data in US dollars. N - insufficient data. *Flucytosine not included as data unavailable.					

[Estimated cost-based generic prices and current lowest prices.]

Conclusions: The current prices of valganciclovir in the SA, the UK, and India, are substantially higher than estimated cost-based generic price. In addition, the price of liposomal amphotericin B is higher in SA and the UK than in Inida Estimation of cost-based generic prices can identify cases in which there may be suboptimal market competition.

TUPEE619

Reigniting the fight for access to medicines: Outcomes and recommendations from the 2018 global summit on intellectual property and access to medicines (GSIPA2M2018)

O. Mellouk[1], S. Baptiste Simon[2], W. Mosime[3]
[1]*ITPC, Marrakech, Morocco,* [2]*ITPC, Johannesburg, South Africa,* [3]*ITPC, Gaborone, Botswana*

Background: It has been 24 years since the adoption of the TRIPS agreement by all WTO members in Marrakech. The agreement required countries to amend their national laws and grant 20-year product patents on pharmaceuticals. Since 2005, the true scope and negative impact of this Agreement on access to medicines have become evident.
The extent of work and expertise of CSOs and the critical role they play in balancing WTO mandated IP rules with public interest and public health while also resisting the onslaught of TRIPS-plus measures is under-recognised and under-resourced.
Description: In January 2018, 134 experts, treatment advocates and community advocates from 34 countries gathered in Marrakech at the initiative of ITPC for the first Global Summit on IP and Access to medicines planned as a return to Marrakesh to reflect, discuss and strategize on over two decades of the implementation of the TRIPS Agreement, its impact on health and access to medicines and to both imagine and re-imagine what the next two decades of TRIPS implementation will (or could) bring.
Lessons learned: The Summit highlighted the critical role played by PLHIV, patient groups, NGOs in the implementation of TRIPS flexibilities since 1995 and identified key factors in enabling environment to sustain the work of CSOs in this area. Participants collectively brainstormed on a more radical agenda for the interpretation and implementation of TRIPS flexibilities and identify key opportunities for this agenda and expand access to medicines. The summit provided a platform to discuss success-

es and setbacks in resisting trade, lobbying and litigation threats that undermine the use of TRIPS flexibilities, push the enforcement agenda and force the adoption of TRIPS-plus measures. Finally, the summit enabled discussions and conceptualisations of alternative frameworks for IP and Health that ensure the primacy of the right to health over trade rules.
Conclusions/Next steps: This presentation aims to share with the broader HIV and access to medicines movement outcomes and conclusions of this unique summit.

TUPEE620

The impact of dolutegravir in first-line adult ART on HIV transmission and cost of HIV in South Africa

G. Meyer-Rath[1], L. Jamieson[2], S. Masuku[2], F. Venter[3], L. Johnson[4]
[1]Boston University, Center for Global Health and Development, Johannesburg, South Africa, [2]Health Economics and Epidemiology Research Office (HE2RO), University of the Witwatersrand, Johannesburg, South Africa, [3]Wits Reproductive Health and HIV Institute, University of the Witwatersrand, Johannesburg, South Africa, [4]Centre for Infectious Disease Epidemiology and Research (CIDER), University of Cape Town, Cape Town, South Africa

Background: South Africa will switch all adults currently on first-line antiretroviral treatment (ART) regimens containing efavirenz (tenofovir (TDF) +emtricitabine(FTC)+efavirenz (EFV)) to regimens containing dolutegravir (DTG). We examined the impact on HIV transmission and mortality and the cost of the country's HIV programme over the next 20 years (2017/18 to 2036/37) compared to a baseline of the current HIV programme, as well as a scenario where universal testing and treatment (UTT) was fully implemented by 2022.
Methods: We used a previously developed model of the cost of ART in South Africa to calculate the average cost of fixed-dose combination regimens containing either TDF+FTC+EFV or TDF+lamivudine (3TC)+DTG, with TDF+3TC+DTG drug prices based on recent negotiations ($75 per adult patient year, 39% lower than TDF+FTC+EFV). We assumed full roll-out of the new regimen by April 2019. We used this cost as an input into a separate HIV transmission model updated with assumptions about the impact of DTG on viral suppression and treatment failure.
Results: Switching to a DTG-containing first-line regimen by 2019 reduces new HIV infections and AIDS deaths by 18% and 7% by 2036/37, respectively, averting 570,000 HIV infections and 48,000 AIDS deaths over 20 years and increasing progress towards the third UNAIDS 90-90-90 target from 80% to 88% by 2020/21. Fully implementing UTT reduces infections by 20% and deaths by 14% over baseline; combining full UTT with DTG reduces infections by 37% and deaths by 20%. The annual cost of the HIV programme is decreased by 18% in the first year of full DTG roll-out, and by 34% by 2036/37. Full UTT first increases annual cost, then decreases it by 1% over baseline, with the first cost savings seen in 2036/37. Adding DTG to full UTT decreases total cost by 36% by 2036/37, with immediate cost savings.
Conclusions: Switching adults from EFV to DTG and fully implementing UTT reduces new HIV infections and AIDS deaths by similar amounts over 20 years in South Africa, but DTG dramatically reduces the cost of world's largest ART programme from the first year of introduction onwards even when fully implementing universal testing and treatment.

HIV and universal health coverage

TUPEE621

Out-of-pocket spending by the pregnant women attending antenatal care/ prevention of mother-to-child HIV transmission services in Ethiopia, and its implication for universal health coverage: Applying econometric model

E.A. Zegeye[1], J. Mbonigaba[2], C. Kabiru[3]
[1]Federal Ministry of Health, Health Economics and Financing Analysis Team, Addis Ababa, Ethiopia, [2]University of KwaZulu Natal, Economics Department, Durban, South Africa, [3]African Population and Health Research Center (APHRC), Nairobi, Kenya

Background: Universal health coverage (UHC) aims to provide health care access for those in need, including pregnant women attending antenatal care (ANC)/ prevention of mother-to-child HIV transmission (PMTCT) service, without any financial barriers. However, out-of-pocket fees affect ANC/PMTCT service access, coverage and utilization among pregnant women. This paper aims to assess possible explanatory factors for direct medical out-of-pocket spending and their effect on UHC.
Methods: A random sample of 484 pregnant women attending twelve health facilities was interviewed across six regions in Ethiopia. Six health facilities from urban and six health facilities from rural settings were selected from the latest 2012 ANC sentinel HIV prevalence report (EPHI, 2014). Ordinary least square econometric model was employed. The dependent variable was the total direct medical out-of-pocket spending by the pregnant women. Direct medical costs consisted of consultation fees, laboratory tests and drug purchase. Normality distribution, linearity and homoscedasticity were tested.
Results: A pregnant woman incurred direct medical costs of Ethiopian birr/ ETB 119 (United States dollar/ USD 6) and ETB 6 (USD < 0.5) in urban and rural settings, respectively ($p< 0.001$). ANC/PMTCT visits and locations were the statistically significant factors related to the dependent variable ($p < 0.05$). Holding other factors constant, a unit increase in ANC visit is related to 33% increase in the direct medical expense (for the care fees, laboratory tests and drug costs) at the public health facilities. A pregnant woman from an urban setting incurred five times higher out-of-pocket spending when compared to her rural counterpart, ceteris paribus.
Conclusions: A pregnant woman from an urban setting experienced higher out-of-pocket spending when compared to a pregnant woman in a rural setting. An increase in ANC/PMTCT visits is directly related to an increase in medical expense, which may have a negative spillover effect on the path towards UHC.

TUPEE622

Do people living with HIV in Thailand with different health schemes have equitable access and receive equal quality services on their HIV treatment?

R. Jommaroeng[1,2]
[1]National Institute of Development Administration (NIDA), Graduate School of Public Administration, Bangkok, Thailand, [2]Ramkhamhaeng University, Dual Master's Degree in Public and Business Administration, Bangkok, Thailand

Background: Thailand is currently categorized as an upper-middle income country by the World Bank since 2011 and has geared towards universal health coverage since 2002 as steered by the World Health Organization. The country is implementing four health policies, including the National Health Security Scheme (NHSS), Social Security Scheme (SSS), Civil Servant Medical Benefit Scheme (CSMBS) and Migrant Security Fund (MSF) with an attempt to provide access to quality healthcare services for all, which include HIV treatment. However, the country is struggling in policy implementation, raising concerns whether people are actually receiving equitable HIV services due to different schemes.
Methods: This study is a document research with key informant interviews, specializing HIV from the international development, civil society and community sectors. The four policies are different in nodality, au-

thority, treasure and organization, hence are analyzed using a comparative public policy method.
Results: Of all Thai nationals, the CSMBS started in 1980, covering 7.7% and all are civil servants. It provides the greatest benefits but with the highest spending in healthcare. The SSS started in 1990, covering 7.7% among those in the private sector. It is the only trilateral co-payment but has less benefits than CMBS and NHSS. The NHSS started in 2007, covering 75.3% among those besides CMBS and SSS but clients are experiencing stigma and discrimination due to perceived low socioeconomic beings from healthcare providers, resulted in low service quality. The MSF started in 2014, covering approximately 107,000 migrants with lowest benefits but is experiencing great loss and low policy implementation. HIV treatment is provided in the first three health scheme but the MSF only provides HIV treatment if it is only for the prevention of mother-to-child transmission.

	Civil Servant Medical Benefit Scheme (CSMBS)	Social Security Scheme (SSS)	National Health Security Scheme (NHSS)	Migrant Security Fund (MSF)
Year of commencement	1980	1990	2007	2014
Coverage	7.7% of Thai nationals (Approx. 5 million persons)	16.0% of Thai nationals and work-permitted non-Thai nationals (Approx. 10.5 million persons)	75.3% of Thai nationals (Approx.48.0 million persons)	Approx. 107,000 migrants (Targets: 1.34 million persons)
Beneficiaries	Government civil servants and families with less than 3 children under 20 years of age	Employees in private sector	All citizens besides CSMBS and SSS coverage	Documented and undocumented international migrants
Approximate annual budget	US$1,818.9M	US$713.1M	US$2,972.3M	N/A
Source of budgets	Government	Trilateral co-payment (government, employers and employees)	Government	Beneficiaries US$61.8/year/ person US$41.2/ six months/person US$10.7/three months/person
Cost per person	US$415.4	US$60.3	US$89.1	US$28.4
HIV and other Service coverage and exception	All covered	All diseases except medical checkups	All diseases except medical checkups	Except terminal kidney disease, mental illness, HIV (only cover the prevention of mother-to-child transmission)
Authority	Ministry of Finance Department of Comptrollers' General	Ministry of Labor Social Security Office	National Health Security Office	Ministry of Public Health Office of the Permanent Secretary-general
Laws	Judicial Royal Servant in Ministry of Royal Treasury Act 1890; Specific Budgetary Reimbursement Determination Act 1975; Royal Decree on Welfare and Medical Benefits 1980 and its amendments (2nd Amendment); Provision of Ministry of Finance on Financial Reimbursement on Medical Benefits 2010; Bangkok Metropolitan Administration Ordinance on Medical Benefits 1987; Provisions of Ministry of Interior on Medical Benefits for Local Administration Staff 1998	Compensation Act 1994; Social Security Act 1990; Social Security Act (4th Amendment) 2015	National Health Security Act 2002	Public Health Ministerial Ordinance on Healthcare and Health Security dated 30 March 2015

[Comparisons of the four government-implemented healthcare schemes]

Conclusions: Thailand is still striving to achieve equitable healthcare provision. The country should now integrate different health care schemes under the condition of not diminishing high benefit schemes and increasing standards of underprivileged health schemes.

TUPEE623

The financial feasibility of inclusion of HIV/AIDS in the benefit package of Lagos State Health Scheme

O.K. Ogundapo[1], S. Akande[2], U.H. Edumoh[1], A. Dagadu[3], O. Fisher[4]
[1]Abt Associates, International Health Division, Lagos, Nigeria, [2]Abt Associates, International Health Department, Abuja, Nigeria, [3]HR Actuaries, Lagos, Nigeria, [4]Lagos State AIDS Control Agency, Lagos, Nigeria

Background: An actuarial analysis was conducted for Lagos State in order to ascertain the financial implication on the premium cost of adding comprehensive HIV and AIDS services (PMTCT, HTC & ART) to the benefit package of the Lagos State Health Scheme (LSHS). A previous benefit package had been costed that included only the testing component of PMTCT as part of services to be offered on the scheme. This was due to the fact that many stakeholders were concerned about the affordability and sustainability of a benefit package with comprehensive HIV/AIDS services.
To support the state in taking a decision, the USAID funded Health Finance and Governance (HFG) Project supported the Lagos State Government to answer the financial feasibility question using an evidence based approach of actuarial analysis.
Description: An actuarial study was undertaken to estimate the modular costing of HIV services using State validated data as encounter data, weighting of different ARV regimen and costing data from the State (CHAI references). Sensitivity analysis using the incidence rates, medical inflation and coverage estimates were included in the analysis.
Lessons learned: The additional risk premium for adding comprehensive HIV services on the benefit package is estimated to be NGN209.40 ($0.68) per enrollee per year. This pricing includes the cost of a viral load test done once a year) assuming a 100% coverage of all Lagos residents. Further stress tests at 10% and 20% coverage puts the cost at NGN1360 and NGN694.81respectively. The modular break down is shown in the table below. From the sensitivity analysis conducted, the most important risk factor affecting this cost was the utilization of HIV services within the health scheme.
Conclusions/Next steps: The additional cost on the premium of integrating HIV and AIDS services on the Lagos State Health scheme benefit package is at an affordable range of 209.40 - 1360.07 NGN per enrollee per year. The delivery of HIV and AIDS services on the scheme will however require additional technical and operational feasibility studies which has been carried out but outside the scope of this study. Other considerations are the provider payment methods for the HIV/AIDS services.

Additional risk premium for HIV/AIDS cost of cover	Amount in Naira
HTC	13.60
ART	133.05
PMTCT	15.96
contingency margin	46.78
Total cost for additional HIV/AIDS cover	209.40

[Modular costing of HIV Services]

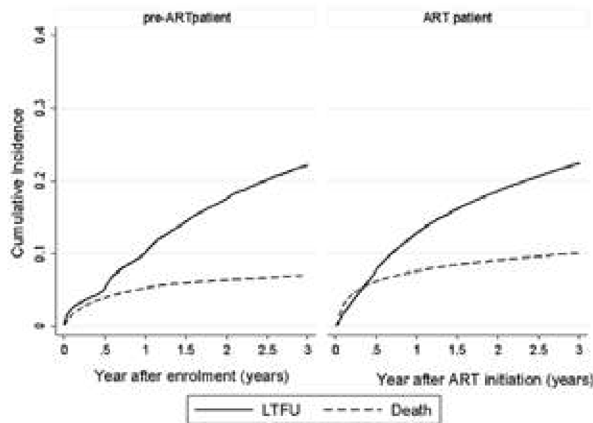
TUPEE624

Loss to follow-up and associated factors of patients through the National AIDS Program in Thailand

S. Teeraananchai[1], K. Ruxrungtham[1,2], M.G. Law[3], A. Avihingsanon[1,2], S. Chaivooth[4], A. Teeraratkul[5], S. Bhakeecheep[4], S. Ongwandee[6], S. Thanprasertsuk[6], S.J. Kerr[1,3]
[1]HIV-NAT, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [2]Chulalongkorn University, Department of Medicine, Faculty of Medicine, Bangkok, Thailand, [3]Kirby Institute, University of New South Wales, Sydney, Australia, [4]The HIV/AIDS, Tuberculosis and Infectious Diseases Program, National Health Security Office (NHSO), Bangkok, Thailand, [5]Thailand MOPH - U.S. CDC Collaboration, Nonthaburi, Thailand, [6]Ministry of Public Health, Nonthaburi, Thailand

Background: Loss to follow-up (LTFU) before (pre-ART) and after starting ART (ART-patients) are factors that prevent countries from meeting the UNAIDS 90:90:90 targets.

Methods: We studied LTFU in Thai HIV patients aged ≥15 years enrolled in the National AIDS Program (NAP) from 2008 to 2014, a period when linkage with the death registry was complete. LTFU was defined as not attending clinic within 12 months (pre-ART), or within 6 months (ART-patients), irrespective of whether they later returned to the program. Follow-up was based on CD4 count or ART prescription visits. Competing risk models were used to calculate the adjusted sub-distribution hazards (aSHR) for LTFU, with death as a competing risk.
Results: 137,431 pre-ART patients registered to the program, with median age 36 (Interquartile range (IQR) 30-43) years and median CD4 count of 115 (IQR 34-299) cells/mm3. In pre-ART patients, 8,697 (6%) were LTFU over 78,165 person-years (pys): a crude LTFU rate of 11.1 per 100 pys (95% Confidence interval (CI) 10.9-11.4). In 141,117 ART patients, median age at ART initiation was 37 (IQR 31-43) years with median baseline CD4 count of 93 (IQR 30-220) cells/mm3. Over 353,480 pys, 30,762 (22%) were lost: a crude LTFU rate of 8.7 per 100 pys (95%CI 8.6-8.8). Cumulative LTFU incidence in pre-ART patients was 5.3% at 6 months and 10.2% at 1 year, whereas in ART-patients it was 4.0% and 12.8% respectively (Figure 1). Among pre-ART patients, younger age (< 30 vs age ≥45, aSHR 1.60, 95%CI 1.49-1.72), higher CD4 count (≥350 vs < 100; aSHR 6.31, 95%CI 5.74-6.95) and CDC Category A (vs C) disease (aSHR 1.29, 95%CI 1.21-1.37) were associated with a higher chance of LTFU. In ART-patients, higher baseline CD4 count (CD4 ≥350 vs CD4 < 50; aSHR 2.06, 95%CI 1.97-2.15) and CDC Category A/B (vs C) disease were associated with an increased risk of LTFU.
Conclusions: High LTFU rates occur in both pre-ART and ART patients in the Thai NAP and hinder progression towards reaching 90:90:90 targets. Strategies need to address improving retention in all patients, especially those with higher CD4 counts, now that Thai guidelines recommend commencing ART at any CD4 count.



[Figure 1. Cumulative incidence of LTFU and death between pre-ART patients and ART patients.]

TUPEE625

A community perspective of Indonesian universal health care (Jaminan Kesehatan Nasional)

S. Putri, I. Widjaja, A. Sentosa
Indonesia AIDS Coalition, Advocacy, Jakarta Selatan, Indonesia

Background: Jaminan Kesehatan Nasional (JKN) is the national insurance scheme under the auspices of the Indonesian government providing Universal Health Coverage (UHC), it has been implemented since 2014. JKN is touted by the government as being available for all levels of Indonesian society and it is the only insurance that covers HIV-related treatment.
A study was conducted by Indonesian AIDS Coalition (IAC) to evaluate the level of understanding of key populations (KPs) in relation to health insurance and JKN assessing the level of coverage by key population groups and their utilization of the scheme.
Methods: The qualitative case study was carried out through focus group discussions (FGDs) with the KPs (MSM, PWUD, sex workers and women living with HIV) in Jakarta in 2015. An additional FGD was conducted with people living with HIV (PLHIV) in November 2017 with representatives from 10 provinces in Indonesia carried out under the Sustainable HIV Financing in Transition (SHIFT) program.
Results: There are variations in the knowledge of JKN among providers related to HIV services and hierarchical referral system. The MSM participants feel that preponderance of perceived lower quality of JKN in coverage, ease of access on a cover, and in the variety of medications or treatments prescribed rather than previous one. The PWUD participants mentioned that they don't face any barriers to access the JKN services, however, there was an impression that decision to cover the services hinge largely on the discretionary power of the health care providers, and favorable initial diagnosis that stated no drug services is a key aspect to successful claims. Sex worker participants raised domicile issue as a barrier to access the JKN, thereby reducing its universality. Those barriers impact to the low uptake of the JKN coverage and utilization by PLHIV and KP.
Conclusions: It is agreed that JKN offers benefits for KP and PLHIV but at the same time it should coincide with strengthening the health services. In the future, capacity building and improved information relating to JKN are important to better sensitize the community. Recommendations include the development of additional educational materials and resources intended for peer educators and clients.

TUPEE626

Crossing the country boundary; ART service linkages between two countries-India and Nepal contributed to uninterrupted supply

P. Pandeya[1], N. Bohidar[2], N. Sharma[3], N. Kaur[4]
[1]CARE Nepal, Program, Tansen, Nepal, [2]CARE India, Program Monitoring and Evaluation, Delhi, India, [3]Fairmed Foundation, Program, Kathmandu, Nepal, [4]CARE India, Program, Delhi, India

Background: Nepal has identified the labor migration to India is a common and increasing phenomenon. HIV infection in major cities in India (Delhi, Mumbai & Calcutta) and transmission to their families in Western Nepal. Nepal spelled out one major HIV/AIDS strategy to work with India to prevent HIV infection and to work together to provide treatment. A 5 years´ project (2012-2016) implemented in Nepal and India explored many possibilities to work together.
Description: A 5 years´ research project (EMPHASIS) implemented in Nepal and India engaging local partners, PLHIV organizations and government organizations. Local partners and PLHIV organizations (6 NGOs and 70 staff, 5 PLHIV organizations, 300 volunteers, 16 health facilities) worked with Nepalese people in India and Nepal worked with Indian citizens in Nepal. In both countries similar strategies were adopted to reach, test and treat. The communication, experience sharing and developing interventions were made by two country teams together. This has provided to reach both country´s Apex body of HIV/AIDS, facilitated to hold bilateral meeting and the efforts could make an understanding to provide ART services (treatment) to Nepalese in India and Indians in Nepal. The same was communicated to all the sites by India and Nepal both. The effort supported 6500 PLHIV from Nepal to get ART in India and 700 Indians to get ART from Nepal. ART adherence, follow up and ultimately uninterrupted ART supply is possible in two countries.
Lessons learned: Evidences created through the program implementation can influence the local government and health facility. Sharing progress and impact with the concern stakeholders can have greater impact that can influence the governments. Tireless advocacy with the documentation, voice of people and impact showing clips can influence the governments. Engaging government staff at all level of program implementation can be a good strategy to influence the governments.
Conclusions/Next steps: Uninterrupted ART treatment to the people will contribute to reduce the risk of drug resistance as well as the cost to get treatment. Providing ART to the people irrespective of the country will contribute to the overall health goal to make the world healthy.

Evidence from integration of health services

TUPEE628

The relationship between efficiency and quality in health facilities providing HIV testing and counseling and prevention of mother-to-child transmission: Evidence from Kenya, Nigeria, Rwanda, South Africa and Zambia

C. Chivardi[1], S. Sosa Rubi[1], D. Contreras Loya[1], G. De la Hera Fuentes[1], M. Opuni[2]
[1]National Institute of Public Health, Center for Research for Health System, Cuernavaca, Mexico, [2]Independent Consultant, Geneva, Switzerland

Background: Given constrained funding for HIV programs across Sub-Saharan Africa, delivering services efficiently is vital. It has not yet been studied, however, what managerial factors may contribute to the efficient and high-quality execution of HIV prevention programs. The objectives of this study are to describe the levels of efficiency and quality of health facilities providing HIV testing and counseling (HTC); to analyze the trade-off between efficiency and quality in these facilities; to examine the management characteristics associated with efficiency and quality.
Methods: We used data from 338 facilities in Kenya, Nigeria, Rwanda, South Africa, and Zambia covering 2011, 2012, or 2013. We estimated and adjusted efficiency scores using Data Envelopment Analysis (DEA) and estimated quality scores using factor analysis. We mapped the relationship between the efficiency and quality of care. Finally, we used seemly-unrelated regression analysis (SUR) to examine the relationship between quality and efficiency scores and management characteristics at facility level.
Results: Facilities in South Africa and Rwanda were quite efficient while facilities in Nigeria and Zambia were relatively inefficient. Quality of services were rather poor across countries and between 24% and 27% of facilities had either high efficiency/low quality or low efficiency/high quality indicating some trade-off between efficiency and quality. Number of managerial meetings, frequency of HIV-related supervisions, and provision of HIV staff rewards for performance were all associated with better performance. Existence of a community advisory council monitoring facility performance and funding subject to management of inputs also improved quality. Most incentives for good performance contributed to high quality at the expense of efficiency. This was true of rewards for good performance provided to the HIV unit, funding based on facility management, and the provision of staff training as a result of good performance.
Conclusions: In all countries, substantial efficiency and quality gains could be made in delivering HTC services and our study suggested a number of management practices that could improve efficiency and quality. Additional exploration of the relationship between quality and efficiency in HIV service delivery is needed and further investigation of management practices associated with efficiency and quality of care is required.

TUPEE629

Integrating HIV testing services (HTS) into household vulnerability assessments (HHVAs): A window to meeting the first 90 among children and adolescents in Nigeria

T.A. Idaboh[1], E. Oladele[1], S. Cartier[1], N. Ike[1], S. Momoh[2], C. Agbakwuru[2], S. Raj-Pandey[3], E. James[4], D. Magaji[5], H. Khamofu[6]
[1]FHI 360 Nigeria, HIV Prevention Care and Treatment, Abuja, Nigeria, [2]FHI 360 Nigeria, Monitoring and Evaluation, Abuja, Nigeria, [3]FHi 360 Nigeria, Party Sidhas Project, Abuja, Nigeria, [4]USAID Nigeria, TB/HIV, Abuja, Nigeria, [5]USAID Nigeria, HIV/TB, OVC, Abuja, Nigeria, [6]FHI 360 Nigeria, Party Technical Sidhas, Abuja, Nigeria

Background: Undiagnosed HIV-infection is more common among children and adolescents, who are harder to reach than adults, hence a high priority target for HIV testing services (HTS). HTS is the critical first step to accessing HIV services, therefore an integral part of the HIV/AIDS response to prevent spread and improve health outcomes for those already infected. Orphans and Vulnerable Children (OVC) programs reach large numbers of children and adolescents in the community, so we decided to take advantage of this to reach them with HTS. This paper describes HTS uptake when offered as part of household vulnerability assessments (HHVAs) for OVC/households reached on a PEPFAR/USAID-funded project - Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS) implemented in 13 Nigerian states. We also examined HIV-positivity prevalence by vulnerability categorization of assessed households.
Methods: Trained case-managers, supervised by project-supported community based organizations were engaged to provide community-based HTS to children and adolescents (0-19 years) enrolled in the SIDHAS OVC Program. Caregiver permission was obtained before testing for children ages < 18 years, except emancipated minors ages 15-17 years who provided consent for themselves. HTS and linkages of positive beneficiaries were integrated into HHVAs between January and March 2016, in 124 local government areas in Nigeria. Using the National 'HHVA Tool', households were assessed, scored and categorized into 3-levels - "Most-Vulnerable", "More-Vulnerable" and "Vulnerable" - based on the following criteria: household headship, health, education level of the household head, shelter/housing, food security/nutrition, means of livelihood and household income.
Results: A total of 31,510 households with 71,442 children (36,596 males, 34,956 females) were assessed. Forty percent of children (n=28,577) were tested for HIV. Among those tested, 3.9% (n=1,127) tested positive. 7.9% (n=89) of HIV+ children were from "Vulnerable" households, 73.3% (n=826) were from "More-vulnerable" households and 18.8% (n=212) were from "Most-vulnerable" households. HIV-prevalence was similar across vulnerability levels (range 3.6% to 4.2%), but increased slightly with increased vulnerability.
Conclusions: Offering HTS during community-based HHVA affords care-providers the opportunity to reach the most-vulnerable children and adolescents who may not otherwise be reached, thus reducing the numbers who remain undiagnosed and increasing linkages to critical services for those who test HIV-positive.

TUPEE630

Does integration of HIV and sexual and reproductive health (SRH) services improve the patient's experience? Results from a cluster randomized trial in Zimbabwe

C. Dell'Aira[1], M. Gorgens[1], F. Mhuriro[2], K. Takarinda[2], I. Taramusi[2], J. Friedman[1], C.N. Sisimayi[3], S. Zizhou[4]
[1]World Bank, Washington DC, United States, [2]Ministry of Health, Harare, Zimbabwe, [3]World Bank, Harare, Zimbabwe, [4]Ministry of Health and Child Welfare, Harare, Zimbabwe

Background: It is assumed that integrating Human Immunodeficiency Virus (HIV) services with sexual and reproductive health (SRH) services improves programmatic efficiency. Yet, it is unclear how integration may affect patient satisfaction and patient's burden to access care. We therefore aim to assess impact of the Government of Zimbabwe's 2016 HIV-SRH integration program on patient satisfaction and on the patient's burden to access care.
Description: 15 districts were randomly allocated to treatment and 13 to control group. The sample of facilities included all 31 district hospitals (DHs), within which 34 out-patient departments (OPDs), and 149 randomly selected primary health centers (PHCs). The study used linear models on facility-level endline data separately for the PHC, DHs and OPDs.
Lessons learned: Patient satisfaction was not affected by the intervention in PHCs. In DHs, however, satisfaction was found to be significantly higher in patients receiving care from treated facilities compared to controls, according to both an arithmetically-derived Satisfaction Score and a Principal Component Analysis-computed Satisfaction Component ($ps< 0.05$). This higher satisfaction was mostly found in the subgroup of patients receiving SRH compared to controls ($p< 0.05$). In treated OPDs, overall satisfaction was higher ($p< 0.05$) than in controls. In particular, satisfaction scores reveal that patients receiving both HIV and SRH care

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experienced higher satisfaction (p< 0.0001), while SRH patients were found to be less satisfied than controls (p< 0.05). Regarding patient burdens, patients receiving care from treated PHCs experienced lower loss of income and childcare costs due to visiting the facility (p< 0.05). Patient burden was unchanged in DHs. In contrast, treated OPD patients benefitted from receiving a higher number of services, while spending less in care costs (p< 0.05). The increase in number of services mainly affected patients receiving both SRH/HIV services (p< 0.0001), who also experienced lower waiting time than control (p< 0.0001); care costs, instead, were found to particularly decrease in the subset of SRH patients when compared to controls (p< 0.05).
Conclusions/Next steps: Overall, the integration of HIV and SRH can yield improvements in patient experience, but with some limitations. Further research will explore possible mechanisms that can account for difference between the intervention groups.

Evidence from cross-sectoral programming

TUPEE631

HIV prevention and SRH education on the football pitch: Results from a mixed-methods evaluation of an HIV prevention programme delivered to adolescent boys by football coaches

M. Malotana[1], N. Advani[2], S. Zwele[1], T. Gubesa[1], D. Lee[3], C. Barkley[1]
[1]Grassroot Soccer South Africa, Maboneng, South Africa, [2]Self-employed, Cape Town, South Africa, [3]Grassroot Soccer, Inc., Norwich, United States

Background: Little is known about effective approaches to address the unique HIV and SRH needs of **adolescent boys.** In 2016 Grassroot Soccer (GRS) conducted a mixed methods evaluation of an HIV prevention and life skills programme (SKILLZ) delivered to adolescent boys by coaches from local football associations (LFAs) within the South African Football Association (SAFA). The objective was to assess the effectiveness of SKILLZ at improving knowledge of HIV risk factors and prevention; gender equitable beliefs; and positive self-image among participants.
Methods: LFA coaches conducted the SKILLZ intervention (seven 1.5-hour sessions) in the peri-urban communities of Alexandra and Soweto in Johannesburg, and Khayelitsha in Cape Town. Participants (mean age = 13.8) completed a 17-item questionnaire at baseline (September-December 2016, n=974) and immediately after the intervention (March-May 2017, n=974). Focus group discussions (FGDs) were conducted with participants (n=1) and coaches (n=1) and in-depth interviews (IDIs) were conducted with GRS staff (n=2) and LFA administrators (n=1). Quantitative data was analysed in R and significance was assessed via Wilcoxon Signed Rank Test. Qualitative data was analysed using an inductive coding approach to identify emergent process and outcome themes.
Results: All 17 questionnaire items showed significant improvements pre- to post-intervention as shown in Table 1. The largest changes were seen in items about communication about HIV with friends, gender equitable decision-making responsibility in relationships, and drinking alcohol increasing HIV risk. Larger changes were seen in older participants (ages 14-17) in items pertaining to decision-making responsibility in relationships and attitude toward people living with HIV. Qualitative data found demand for more support and training among LFA coaches and unanticipated improvements to communication and discipline on the football pitch.
Conclusions: These findings suggest that local football structures may be under-utilised in reaching adolescent boys, showing that SKILLZ is an effective intervention for short-term improvements to HIV knowledge and attitudes toward gender equality and health. Greater positive change was seen among older youth in several items, indicating that the intervention could be more effective for older adolescents. Both the intervention (SKILLZ) and delivery channel (LFAs) present opportunities for scale and merit more rigorous, longer-term evaluation.

Q	Statement	Pre	Post	Change	p-value*
1	I have talked about HIV with an adult in the past two months (outside SKILLZ).	43%	61%	41%	<0.01
2	I have talked about HIV with a friend in the past two months (outside SKILLZ).	44%	67%	53%	<0.01
3	I can tell if someone has HIV by looking at him or her.	59%	84%	41%	<0.01
4	I would say no to playing sport with someone who has HIV.	64%	84%	32%	<0.01
7	Unequal power in relationships can contribute to the spread of HIV.	57%	83%	45%	<0.01
9	It is the male´s responsibility to make decisions in a relationship.	50%	80%	61%	<0.01
12	Drinking alcohol can increase my risk of getting HIV.	57%	89%	57%	<0.01
13	Drinking alcohol is a choice.	68%	90%	33%	<0.01
14	Male circumcision reduces a male´s risk of getting HIV.	60%	86%	43%	<0.01

*[Table 1: Selected Pre/post intervention survey outcomes, all participants; *Assessed via Wilcoxon signed rank test; n=974 from 29 teams]*

Approaches to financing across sectors

TUPEE632

Alignment in HIV programming and funding by key donors is critical for achieving epidemic control - an example from Kenya

D. Koros, T. Daniel
PEPFAR Kenya, PEPFAR Country Coordination Office, Nairobi, Kenya

Background: In most developing countries, HIV programs are heavily donor funded. Donors have different priorities and requirements, and most host country governments do not have full understanding or control of those requirements. As a result, duplication and funding overlaps are commonplace. With proper coordination and alignment, epidemic control could be achieved at a much faster rate.
Description: An example is the PEPFAR and Global Fund (GF) collaboration in Kenya. Before 2015, PEPFAR and GF were working almost independently with little or no information moving across the two key donors. Though efforts were made to share information for planning, funding applications, and program implementation, there were no structured ways of engagement or proper guidelines. In 2015, deliberate efforts were made both at headquarters and in-country for PEPFAR to engage with GF in all its processes. This included engagement with GF on the Country Operational Plan (COP) guidance, in-country dialogue and approval meetings; recruitment of PEPFAR-Global Fund Liaison Officers; and commitment to host countries through Geneva-based leadership consultations to eliminate duplicative programming.
Lessons learned: As a result, the PEPFAR Kenya COP 2016-2017 as well as the GF New Concept Note 2015-2017 and GF New Funding Request 2017-2019 demonstrated better alignment in funding allocation, geographic prioritization, commodity procurement, human resource support, target setting, program monitoring strategies, and oversight. Key achievements include: 1) GF's allocation to care and treatment reduced from 78% to 61% of its total funding given PEPFAR's investments and priorities; 2) funding and target allocations to key populations substantially increased, more than twofold for men who have sex with men (19,000 to 52,000 for GF and PEPFAR combined); 3) adolescent girls and young women (AGYW) support were well coordinated; and 4) HIV and TB commodities procurement, including joint procurement and supply planning, quantification, forecasting and monitoring ensured fewer stock-outs and expires. These are critical factors in attainment of 90/90/90 UNAIDS targets.
Conclusions/Next steps: When donors work in a well-coordinated manner, there will be increased program coverage for critical interventions with a resultant faster attainment of epidemic control.

Combination programming on social drivers of HIV (including education; violence; & workplaces)

TUPEE633

Building synergies between health and health sector: Labour inspectors can play a key role

S. Mabhele
ILO, Workquality, Pretoria, South Africa

Background: Labour inspectors advise workplaces as well as ensure compliance. In both of these functions, they can play a key role in ensuring non-discrimination, enhancing access to HIV information and services for workers.
The ILO has developed a *'Handbook on HIV and AIDS for Labour Inspectors.'* The purpose of the handbook is to strengthen the capacity of Labour Inspectors to effectively address HIV-related issues in the workplace. Labour Inspectors were trained by the ILO in four selected countries, including Botswana, Lesotho, South Africa and Zambia.
Description: Trainings of Labour Inspectors were conducted at national level. The methodology focused on five sequential steps: A pre-and post-assessment on the knowledge of Labour Inspectors regarding HIV and AIDS; development of a customized Labour Inspection Checklist/Form on HIV and AIDS by inspectors; conducting HIV and AIDS focussed labour Inspections using the Labour Inspection Checklist/Form; a one-day Feedback session to allow the labour Inspectors to report on their findings; and analysing the data/reports submitted by labour inspectors in collaboration with Ministries of Health and Labour; National AIDS Councils/Commissions; Employers and Workers' Organizations. The ILO trained more than **130 Labour Inspectors**, majority of whom were women.
Lessons learned: The Labour Inspectors reached more than 300 workplaces employing more than 10,000 working women and men in different sectors. Labour Inspectors are a critical resource in facilitating access to the world of work in order to revolutionize prevention to HIV and AIDS. The workplaces where Labour Inspections were conducted employ a significant number of populations that are regarded to be left behind, including young people and men.
Conclusions/Next steps: Majority of the workplaces reached did not have workplace policies on HIV and AIDS even though located in areas with high HIV prevalence. Some of the workers have never been exposed to HIV related services, and therefore would welcome workplace programmes that include HIV and AIDS. Collaboration with the National AIDS Authorities to agree on a plan of action will be considered. The workplace remains part of the communities that could reach men in order to facilitate increased access to HIV/AIDS and other health services.

TUPEE634

Scaling up HIV services for workers in the agriculture sector through an integrated approach

D. Muhika[1], H. Amakobe[2], S. Mabhele[3]
[1]*Central Organization of Trade Unions in Kenya, Nairobi, Kenya,* [2]*International Labour Organization, Nairobi, Kenya,* [3]*International Labour Organization, Pretoria, South Africa*

Background: According to the Economic Survey 2017, there are 336,700 people on wage employment within the agricultural sector in Kenya. The mobile nature of agricultural sector workers, many of whom are seasonal workers, increases their vulnerability to HIV. They are often excluded from community-based initiatives and support systems, isolated in large plantations and farms with limited access to health and HIV services. The Central Organization of Trade Unions in Kenya (COTU-K) through its affiliate the Kenya Plantation and Agricultural Workers' Union (KPAWU) has up-scaled its efforts to improve working conditions for workers in the sector in partnership with the International Labour Organization (ILO) through a HIV, Tuberculosis, social protection, Sexual and Gender Based Violence (SGBV) integrated services approach.
Description: The ILO/COTU(K)/KPAWU partnership collaborated with AIDS Healthcare Foundation, Stop TB Partnership, National Hospital Insurance Fund and the county governments to reach workers in tea, sisal and flower plantations (some subscribed to Fair Trade Certification) in Baringo, Nairobi, Kajiado, Kilifi, and Nakuru. This partnership managed to enhance knowledge on HIV, non-discrimination and promote an enabling work environment, reaching 3831 male and 2349 female workers who were also sensitized on SGBV and importance of enrolling with social protection schemes.
The six months initiative resulted in 1415 male and 1287 female workers knowing their HIV status with 14 male and 11 female who tested positive linked to treatment. TB screening was conducted with 918 chest X-rays done for suggestive cases, 4 male and 2 female workers were diagnosed with TB with one male case being Multi Drug Resistant TB. All were linked to treatment.
Lessons learned:
- Plantations adhering to Fair Trade Certification provide a good entry point to promote HIV related non-discriminatory practices due to compliance auditing
- In the absence of discrimination and harmonious industrial relations between workers and the employers, people living with HIV are more likely to disclose their status and become champions against stigma with creation of support groups at the workplace.

Conclusions/Next steps: Considering persisting myths and misconceptions about HIV, future interventions will focus on addressing high levels of stigma in the sector, while building linkages with county health services for HIV prevention and care.

TUPEE635

How are economic factors and HIV risk related? A social-ecological exploration of the relationship between economic factors and HIV risk among adolescents in KZN, South Africa

A. O'Regan, S. Zissette, C. Godwin, G. Guest, L. Lorenzetti
FHI 360, Behavioral, Epidemiological & Clinical Sciences, Durham, United States

Background: While South Africa has made significant progress in improving HIV prevention and treatment services, there are still high rates of new HIV infections, particularly among young people ages 15-24. The USAID-funded Accelerating Strategies for Practical Innovation and Research in Economic Strengthening (ASPIRES) project helps young people prevent HIV infection through integrated economic strengthening and HIV education programs.
We present qualitative findings from this project with the aim of examining the synergistic effects of combining HIV and economic strengthening educational programming on participants' attitudes, behaviors, and inter-personal relationships.
Methods: From October 2016 to April 2017, 60 adolescents (ages 14-17, 55% girls) participated in the ASPIRES program in rural KwaZulu Natal, South Africa. Through this mixed-methods cohort study, in-depth interviews were conducted at two time points during program implementation and once more six months after the program ended. We used thematic analysis to identify and explore consistent themes across the transcripts and data collection periods. Inter-coder agreement checks were carried out by two analysts on 10% of all transcripts in order maintain consistency in definition and application of codes.
Results: Overall, the study found that participants gained knowledge on financial literacy and how to prevent HIV, as well as knowledge on how maintaining financial security can help protect against HIV. In addition, participants felt an improved sense of self and new hope for the future following participation in the program. Participants described having a positive outlook on their future with clear goals and the confidence to achieve them. Many described changing their relationships with others as a result of program participation.
Examples of this included an increase in respect for elders and ending friendships with peers who were not supportive of their new life vision or who participated in sexually or financially risky activities. Participants described sharing these lessons with others in their family and young people in the community.

Conclusions: Combining HIV prevention and economic strengthening education programs for young adults can improve their understanding of sexual health and financial literacy. These programs seem to have a synergistic effect on participants perception of self-worth that transcends the program through diffusion of ideas to others.

TUPEE636

Capacity Building of sex workers community: Sex Worker Academy Africa

M. Braden Njukia[1], P. Abdalla[2]
[1]African Sex Workers Alliance, Capacity Building, Research, Advocacy and Human Rights, Nairobi, Kenya, [2]Kenya Sex Workers Alliance, Nairobi, Kenya

Background: The Sex Worker Academy Africa is a ground-breaking learning programme for community empowerment and capacity building, led by and for sex workers. It delivers an effective blend of knowledge and experience. The Academy is presented over the course of a week, and includes workshops, site visits and art advocacy sessions.
Description: The Academy brings together national teams of sex workers from across Africa to develop organising skills, learn best practices, stimulate national sex worker movements, and strengthen the regional network. The Academy is an African Sex Workers Alliance (ASWA) initiative implemented by Kenya Sex Workers Alliance (KESWA) in Nairobi, Kenya. The Global Network of Sex Work Projects (NSWP) supported the concept of South-South learning and capacity building.
Lessons learned: The Sex workers implementation tool (SWIT) is the foundation and the backbone of the sex workers academy Africa. The Academy provides sex workers with tools to advocate for and ensure that HIV and sex work-related policies, and HIV and STI prevention, treatment, care and support programming are rights-based, and designed and implemented with the meaningful participation of sex workers. At the Academy, participants acquire the skills and knowledge to influence both policy and service delivery.
Conclusions/Next steps: the SWIT recommendations require meaningful sex worker participation in all aspects of planning, implementation and monitoring and evaluation. It is informed by sex worker experiences and preferences, research, and evidence, and represents consensus between sex worker networks, UN agencies, civil society and donors.

TUPEE637

Improving HIV testing for HIV-exposed infants (HEIs) through community participation

P. Chibanda[1], M. Sichamba[2], G. Sikazwe[3], K. Banda[4], C. Thompson[5], HEI
[1]USAID's Systems for Better Health, International Health Division, Lusaka, Zambia, [2]USAID's Systems for Better Health, International Health Division, Kabwe, Zambia, [3]Ministry of Health, Health, Kabwe, Zambia, [4]Ministry of Health, Health, Chipata, Zambia, [5]Abt Associates Inc., Rockville, United States

Background: HIV testing for HEIs is critical for early infant diagnosis, and subsequent access to care and treatment. The Zambian HIV guidelines state that children born to HIV positive mothers are tested at 6 weeks, then 6, 12 and 18 months. Three of the Systems for Better Health-supported health facilities showed particularly low levels of HEI testing: Ngungu Centre tested 22% of HEIs at 18 months; Chikando Zonal Centre tested 33% of HEIs at 12 months, and Kayanga Health Post tested 40% of HEIs at 12 months.
Description: SBH helped these health facilities develop and implement quality improvement (QI) initiatives using the Ministry of Health's performance improvement approach (PIA): context analysis, stakeholder analysis and engagement, defining desired performance, measuring performance, identifying and analyzing the causes of performance gaps, designing and implementing interventions, and monitoring and evaluating results. Depending on the facilities' needs, interventions included:
· Orienting staff and community volunteers on EMTCT
· Assigning a community volunteer to each HEI to conduct follow up
· Establishing monthly appointment lists of HEIs due for testing
· Integrating HIV testing for HEIs with other activities
· Improving data management systems for tracking HEIs
· Sensitizing communities on HIV testing for HEIs through quarterly committee meetings
· Supporting consistent and accurate reporting of HIV commodities to ensure availability of test kits
Interventions were implemented over 12 months and monitored monthly using the "Exposed Infant Monthly Appointment Tool."
Lessons learned: The facilities demonstrated remarkable improvements in testing HEIs. Ngungu Centre and Chikando Zonal Centre increased testing of HEIs at 18 months and 12 months to 100%, whereas the Kayanga Health Post reached 73.8% of HEIs tested at 12 months. These results suggest that a PIA and corresponding interventions that improve outreach, tracking, and commodity logistics help in increasing HIV testing for HEIs. The use of community volunteers to conduct follow ups on HEIs proved to be effective.
Conclusions/Next steps: The PIA can be effective in significantly improving HIV testing of HEIs, using simple and low-cost interventions. The Zambian government and cooperating partners should invest in supporting similar QI initiatives in health facilities to improve key HIV and other health indicators.

TUPEE638

Vulnerability reduction minimizes risk of STI in FSW

P. Khandelwal
Catalyst Management Services Pvt ltd, Research, Bangalore, India

Background: A study was conducted among the FSW groups in the high HIV prevalence states of India in the phase-III of Avahan India AIDS initiative, funded by Bill and Melinda Gates Foundation, implemented by Swasti, to find out the instances of STI in FSW in the last six months and the possible reasons exposing an FSW to the threat of STI. The primary imperative of phase-III has been vulnerability reduction and sustainability of the Community Organizations.
Methods: The study was conducted in five states in India with high HIV prevalence, the study included primary data collection among FSW, MSM and TG groups in these states. The outcome monitoring survey of Avahan phase III was conducted in August 2017 with a sample of 10891 FSW across these five states. The results were then analysed keeping the instances of STI in last six months as outcome variable, and taking profile characteristics, age, education, clients, income as independent variable.
Results: The scores for different variables like social protection, financial security, safety, security and justice was calculated and independently regressed against STI status. It was observed that FSW with high CVRICI (Comprehensive Vulnerability Reduction Intervention Coverage Index) score had less probability of having STI (AOR 0.812, CI (0.416-1.587)). The profile variables like education and typology were negatively related to STI status. The FSW with better access to better security and justice options had 60% less chances of having STI. The FSW with lesser vulnerability score had less likelihood of having STI (AOR 3.003 CI (2.248-4.011)).
Conclusions: Most interventions in the field of STI are clinical in nature and focuses largely on diagnosis and treatment but not prevention. This study attempts to prove that non-clinical vulnerability reduction interventions with focus on empowerment, vulnerability reduction, social and financial security can lead to STI reduction. The results of the study reflect that given the FSW are provided with institutions like access to social safety, social protection, financial security, it makes them more empowered to adopt safe sex behaviour and hence less vulnerable to STI. Collective action also plays a key role in inducting safe sex behaviour in the FSW.

TUPEE639

Can we make comprehensive sexuality education more effective? A review of 23 school-based comprehensive sexuality education programmes in sub-Saharan Africa

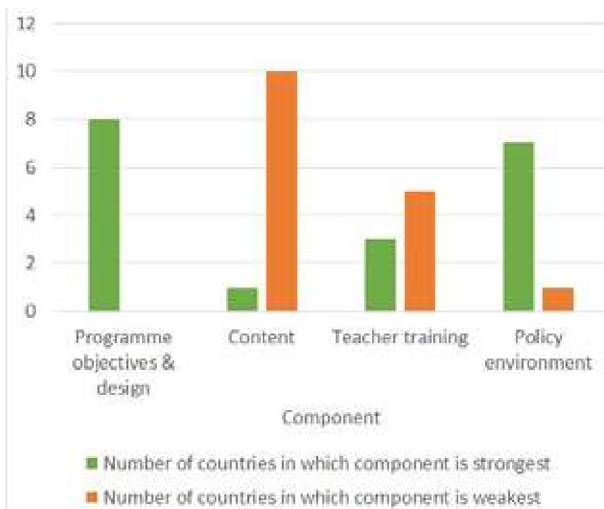
X. Hospital[1], J. Herat[2], P. Machawira[3], W. Ngué[1], C. Castle[2]
[1]UNESCO, Section Education, Dakar, Senegal, [2]UNESCO, Paris, France, [3]UNESCO, Harare, Zimbabwe

Background: Good quality comprehensive sexuality education (CSE) equips young people with knowledge, attitudes and skills to engage in positive social and sexual relationships. Combined with sexual and reproductive health (SRH) services and commodities, school-based CSE is a key element of HIV prevention. As part of a long-term UNESCO endeavour to support CSE in Africa, we reviewed school-based programmes across 23 sub-Saharan countries to assess the status and inform further interventions.

Description: : Using the Sexuality Education Review and Assessment Tool, we analysed data collected in collaboration with ministries of education between February 2011 and January 2016. Analysis of field interviews and teaching, learning, and training materials provided raw data to assess components such as curriculum content, teacher training, programme objectives and design, and policy environment. The tool provided a grid to rate the components against international standards and identify two per country: the weakest and the strongest. This review reported the frequency of strongest and weakest components across the 23 countries.

Lessons learned: CSE programme design is the strongest component in 8 countries, above policy environment (7 countries, Figure 1). Curriculum content is the most frequent weakest component (10 countries), with important variations among countries. As regards content sub-components, the strongest themes were human development and youth empowerment, while relationships and SRH were most frequently the weakest component. There was a much stronger focus on life skills (8 countries), but limited attention to gender or social norms (weakest in 4 and 5 countries, respectively). Nine countries had the strongest curriculum in the 5-8 age range, but conversely 7 countries had the weakest curriculum in the same range. Curricula for the 15-18 age range were the least developed overall.

Conclusions/Next steps: Strong programme objectives and design shows that many ministries of education address the elements that make CSE effective. There is an important gap in curriculum content for the 15-18 age range, and wide variations between countries in the 5-8 range. Finally, there is a need to pay more attention to content on relationships and SRH, and on social norms and gender, in order to make life skills more relevant and effective.



[Figure 1. Number of countries per type and strrenght of component]

TUPEE640

Effectiveness of integrated approaches to reduce HIV/AIDS among young people - a case of an integrated area based approach (IABA) concept in rural areas of Chikwawa District in Malawi

C.F. Mbukwa
Centre for Youth Empowerment and Civic Education, Programs Department, Chikwawa, Malawi

Background: Centre for Youth Empowerment and Civic Education (CYECE) is implementing an SRHR project called; GET UP! SPEAK OUT! Which focuses on addressing harmful, cultural and religious beliefs which affect young people from accessing quality SRHR and HIV/AIDS services within their communities. This project is implemented in a consortium with 5 organsations: CAVWOC, COLWHA, CHRR, YONECO and FPAM. The 5 year project is being funded by the Dutch Government. Under the main goal of ensuring that all young people, especially girls and young women are empowered to realize their SRHR without fear of stigma and discrimination. The Integrated Area Based Approach (IABA) concept is a model which focuses on demarcating a particular area in a community where you would like to see change and create Zero Tolerance to New HIV/AIDS infections specifically among young people.

Description:
1. Social Mapping: analysing the working environment in Traditional Authority Lundu in Chikhwawa district
- identifying the existing structures and institutions for collaboration.
2. capacity building of young people, community, Police VSU & CBOs for them to continuously support project activities.
- administered a Community Score Card process to identify existing gaps (ie distance to facilities, attitude of service providers, lack of YYFHS etc.)
3. conducted community interface forums with community stakeholders and young & young people.

Lessons learned:
- need to follow up on by laws against Stigma and Discrimination against PLWHA
- IABA process helped CYECE to establish critical partners for which to work with in the fight against HIV/AIDS but also promoting access to SRHR services among young people in line with the UNAIDS targets of 90-90-90 to end HIV/AIDS.

Conclusions/Next steps: CYECE is very much convinced that the community scorecard helped in bringing out the issues as to why young especially the girls and young women do not access services from health centres in their communities & also to see the gap and how to bridge it. This will also help us to contribute towards achieving Malawi National HIV strategic Plan which highlights the need to align the national response to the UNAIDS 90-90-90 strategy for adolescent girls and young women especially those living with and affected by AIDS.

TUPEE641

'Money was the motivator': An evaluation of the integration of a matched-savings program into a HIV prevention program for street-connected young people in Eldoret, Kenya

L. Embleton[1], D. Ayuku[2], P. Braitstein[3,4,5]
[1]University of Toronto, Institute of Medicine, Faculty of Medicine, Toronto, Canada, [2]Moi University, Department of Behavioural Science, College of Health Sciences, Eldoret, Kenya, [3]University of Toronto, Dalla Lana School of Public Health, Toronto, Canada, [4]Academic Model Providing Access to Healthcare, Eldoret, Kenya, [5]Moi University, College of Health Sciences, School of Medicine, Eldoret, Kenya

Background: We integrated a matched-savings program (MSP) conditional on attendance into an adapted HIV prevention intervention for street-connected young people (SCY) in Eldoret, Kenya. The integration of the MSP aimed to increase attendance at the program sessions, give SCY an economic boost to start an income generating activity (IGA), and secure livelihoods to reduce structural drivers of SCY's HIV-risk. We sought to evaluate the feasibility, acceptability, and explore outcomes of the savings program.

Description: We rigorously adapted the Stepping Stones and Creating Futures intervention for a new context with SCY in Eldoret, Kenya. A MSP conditional on attendance was added to the program to supplement the livelihood curriculum and assist participants in relation to setting an achievable goal and developing an IGA. Participants contributed 25-200 Kenyan Shillings (KES) per week and savings were matched based on individual attendance at twice weekly sessions over 14 weeks.
From August to December 2017 we piloted the program at the Academic Model Providing Access to Healthcare using a pre- and post-test study design. In total 80 SCY were enrolled into the program with 20 participants per age and sex stratified group (16-19 and 20-24 years). Through participant observation, savings account records, and focus group discussions (FGDs), we evaluated the program.
Lessons learned: Participants saved 1302 USD, with females saving 615 USD, and males 687 USD. FGDs revealed that the MSP was the primary motivator for attending the sessions, and that SCY would not have attended without this component.
Participants reported that in combination with the livelihood program, the MSP had positively impacted their lives by allowing them to start an IGA, move from the streets into rental houses, and taught them the value of saving.
Participants reported challenges around trust with their finances, and many with low attendance were unsure about the program returning their money.
Conclusions/Next steps: In our setting, the MSP was the key to engaging SCY in an HIV prevention program that impacted their health and well-being. Our results demonstrate combination HIV prevention programs for SCY are not only feasible, but essential to address structural drivers of HIV-risk for this population.

TUPEE642

Feasibility and acceptability of integrating intimate partner violence screening and counselling into community HIV testing and counselling services in Kenya

L. Digolo[1], E. Sakwa[2], G. Zulaika[3], D. Njeru[1], J. Thiomi[1], R. Karuga[1]
[1]LVCT Health, Nairobi, Kenya, [2]Root Capital, Nairobi, Kenya, [3]Liverpool School of Tropical Medicine, London, United Kingdom

Background: HIV and intimate partner violence (IPV) are commonly co-occurring epidemics affecting the health of women globally and especially in sub-Saharan Africa.
This study aimed to assess the feasibility and acceptability of integrating IPV screening and counselling into community based HIV testing services (CHTS) in Kenya.
Methods: This study employed a mixed qualitative and qualitative design and was implemented between August and December 2013 in three community testing facilities. A total of 332 women aged 18 years and older and 12 HIV testing counselors who gave consent were enrolled. The intervention involved IPV screening using a WHO adapted tool and brief counselling for women who report experience of IPV by counsellors who had undergone a three day training. A subset of 37 women were purposively selected for In-depth interviews to assess acceptability of the IPV screening and counselling; and with 12 counselors to assess feasibility of integration of the services into HTS. A focus group discussion was conducted with the counselors to identify gaps in the IPV training curriculum. Frequencies were used to describe the characteristics of the study participants and to measure acceptability. Thematic analysis was conducted with the aid of NVIVO 10 software.
Results: Majority of the women 332(92%) accepted to undergo IPV screening. Most, 315(94.6%) rated screening and counselling services as good and were willing to discuss their experiences with the HIV counsellors. Majority, 282(85%) said the time taken to screen and counsel was adequate (15 to 30 minutes). The providers found the additional time take to screen and counsel reasonable. However, some found the screening questions difficult to explain and translate into local language and noted that a single counselling session was not sufficient. With regards to knowledge and skills, most providers felt that the IPV training equipped them to provide effective screening and counseling services.

Conclusions: This study provides evidence that supports the integration of IPV and HIV services particularly in Sub-Saharan Africa where the two public health problems are still highly prevalent. For successful integration facilities require: a simple screening tool and well trained HIV service providers on IPV identification and IPV counselling services.

TUPEE643

Community-wide implementation of positive parenting: A prevention strategy for HIV/AIDS

C. Winkelman[1], K. Mashego[2]
[1]Families Foundation, Hilversum, Netherlands, [2]City of Tshwane, Department of Health/Multisectoral Mangement Aids Unit, Tshwane, South Africa

Background: The Director of the Multisectoral AIDS Management Unit (MSAMU) at the City of Tshwane, South Africa, initiated consideration of a wide-reach positive parenting programme as an HIV/AIDS prevention strategy.
By strengthening parents' capacity to deal with risky behaviour through enhancing parenting skills, improving family communication and relationships, (proven outcomes of positive parenting) and supporting better decision-making by adolescents increases parents' ability for discussions about sexuality and prepares teenagers to make decisions that would keep them safe and could delay engagement in sexual activity.
Description: A pilot was initiated in townships and informal settlements of the City of Tshwane. 18 SWs and managers of the City and SOS Children Villages Mamelodi were trained in the 8-week Triple P - Positive Parenting Program Teen Group and delivered the programme to 300 parents between August 2015 and October 2016. The programme was delivered at six communities.
Local "community health workers" were engaged in the programme as peer educators to recruit and support parents. The project was supported by a partnership between City of Tshwane, Ubuntu Parenting Family and Youth Institute South Africa and Triple P International, with University of Queensland providing evaluation support.
Lessons learned: The programme had significant positive outcomes on the behaviour of parents and teenagers and high satisfaction with the programme as illustrated by the evaluation results.
Families typically included children of broader age range than teens, suggesting the programme should address 0 -16.
Practitioners evaluated the program as effective and useful, however a limited number delivered the programme. This speaks to the importance of supervisory and organisation support in implementing a new programme.
Conclusions/Next steps: The evaluation suggests that the Triple P teen group program has the potential to significantly strengthen family relationships and communication, parent's confidence and competence and teenagers dealing with risky behaviour. This will strengthen the capacity of the family to deal with risky situations and prevent early sexual activity.
Next steps:
- Follow-up evaluation to determine if positive outcomes are sustained over time.
- Additional training to extend the target population to parents of children 0-16.
- Increased support to practitioners to deliver the programme.

TUPEE644

Integrating HIV prevention services in residential and support services for women in crisis: What works for women in Ukraine?

H. Skipalska[1], T. Castillo[2], N. Pustilnik[1]
[1]Ukrainian Foundation for Public Health, Kyiv, Ukraine, [2]HealthRight International, New York, United States

Background: Many women in crisis due to violence, homelessness, displacement, or sex work need residential, legal and socio-psychological support. Research has demonstrated that many of crisis's drivers are linked with increased risk of HIV infection (i.e. violence against women).

Street-involved women and sex workers often lack information about HIV risks. Integration of HIV prevention services in comprehensive support for women in crisis is essential for improving their health outcomes.
Description: We developed a continuum model of care encompassing three elements: outreach work, drop-in centers (DIC), and shelters. The model presents an opportunity for synergy in violence response, HIV prevention, and social protection. Outreach work is directed at identification, first psychological aid and rapid HIV testing. Then clients are referred to the DIC, where they receive case management support, HIV/STI/HCV and reproductive health education, testing and treatment. For women in need of transitional housing, shelters provide a comprehensive support program for building basic life skills, supporting economic empowerment and securing long-term housing.
Lessons learned: Addressing the social drivers of HIV, such as violence, homelessness and socio-economic status through the continuum of care model for women in crisis has been integral for improving women's health. At DICs and shelters women are offered health education and violence prevention programs that incorporate HIV topics. As a result, women have adapted positive health behaviors and become more assertive and independent (i.e., ask partner about their HIV status or condom negotiation). Women at the DIC were supported in finding employment, resorting documents, claiming social welfare payments thus reducing their risks of returning to risky behavior or problematic environment.
Conclusions/Next steps: Incorporating HIV prevention services in the system of support services is an effective way of improving health outcomes for women. The continuum model of care is a good example of development synergy. It can be replicated in national AIDS responses in context of reaching the Sustainable Development Goals. Having been successfully piloted in Kyiv, the model was extended to other cities (Berdiansk, Zaporizhia and Kharkiv).

Delivering gender transformative programmes and tackling violence against women and girls: programmatic lessons

TUPEE645

Child marriage, HIV and young people: An appeal for a strong alliance

A.H. van der Kwaak[1], N. Tromp[2], P. Baatsen[3], M. Deminent[4]
[1]*Royal Tropical Institute, Amsterdam, Health, Amsterdam, Netherlands,* [2]*KIT Royal Tropical Institute, Health, Amsterdam, Netherlands,* [3]*Royal Tropical Institute, Amsterdam, Netherlands,* [4]*Plan NL, Amsterdam, Netherlands*

Background: At present (2016-2020) we are engaged in an alliance combatting child marriage, teenage pregnancy and female genital mutilations/cutting (Yes I Do) in 7 countries among which some with high a HIV prevalence among girls and boys. We also collaborate with other child marriage alliances and till now HIV seems to be hardly prioritized in the discourse of preventing girls from becoming young brides and mothers. This is an omission in the Theory of Change, pathways of change and interventions. Here we make a plea for integrating and building alliances between HIV and child marriage interventions.
Description: Yes I Do interventions include community mobilization, meaning full participation of young people, increased access to social and health services, economic and educational empowerment and legal advocacy. Young girls and boys are the main target group as well as their social environment in all layers of the community. Gender transformative approaches and engagement of men are crosscutting; boys and men are not seen as part of the problem but as part of the solution.
Lessons learned: Working with 5 pathways is effective. Young people are both victims as well as agents of change, eager to be informed to give better shape to their lives. Child marriage and divorce after child marriage make them vulnerable, teenage pregnancy is a silenced problem, no attention seems given to the risk of HIV or STI infections. Child marriage interventions and health programs are operating in parallel atmospheres.
Conclusions/Next steps: In child marriage programs attention needs to be given to HIV prevention, treatment and care while in HIV programs providers need to become aware of extra vulnerabilities such as child marriage and consequences. Only then both programs become more effective. Support clubs for girls and boys, combined comprehensive sexuality education information in and out of school and training health service providers facilitate the strong link between child marriage and HIV interventions. This will be essential for realizing SDG 3 and 5.3.

TUPEE646

Mbereko+Men: Innovative model for male engagement in PMTCT and family health in rural Zimbabwe

K. Webb[1], L. Comrie-Thomson[2,3,4], Z. Kapamurandu[1], P. Wata[1], B. Madzima[5], L. Davis[2,3], M.-A. Nicholas[2], S. Luchters[2,3,6], D. Patel[1]
[1]*Organisation for Public Health Interventions and Development, Harare, Zimbabwe,* [2]*Burnet Institute, Melborne, Australia,* [3]*Monash University, Department of Epidemiology and Preventive Medicine, Melborne, Australia,* [4]*Ghent University, Department of Obstetrics and Gynecology, Ghent, Belgium,* [5]*Ministry of Health and Child Care, Harare, Zimbabwe,* [6]*International Centre for Reproductive Health (ICRH), Department of Obstetrics and Gynecology, Ghent University, Belgium*

Background: Zimbabwe has an adult HIV prevalence of 14.6%. Male partner involvement is associated with improved PMTCT and maternal/child health service uptake and outcomes. Little is known about the most effective approaches for engaging men in gender transformative programs for PMTCT and family health in high prevalence settings, including men's needs and priorities for family health. We present implementation evidence and key lessons from engagement of rural men in men's dialogue sessions and development of men's Family Health Charters in the Mbereko+Men Program in Zimbabwe.
Description: The Mbereko Model is a multi-component community-based strategy for engaging women in empowerment support groups for PMTCT/MNCH. Since 2010, over 863 Mbereko women's empowerment groups have been formed in geographical catchment of 46 clinics in 3 provinces of Zimbabwe with over 14,000 members. Based on community and Mbereko mother feedback, the model evolved to Mbereko+Men in 2016 to include men's facilitated dialogues in the geographical catchment of 4 rural health facilities, in Mutasa District, Manicaland Province.
Lessons learned: Since September 2016, the Mbereko+Men project has created 30 men's dialogue forums with 781 participating men. Dialogue forums explore men's needs and preferences around 10 key topics, mirrored to information provided to women in Mbereko groups. Each men's meeting results in development of a consensus-based commitment or 'resolution' of men to support family health in a community-held Men's Family Health Charter. Routine facility data demonstrates male partner participation in antenatal care and male partner testing in ANC are significantly higher in Mbereko+Men project areas above national targets (47% and 33% respectively).

Broad Theme	Men's Family Health Charter Resolutions *key themes from 30 Charters
Men's role in family health	- Men to accompany their pregnant wives for ANC booking before 12weeks of pregnancy - To plan, discuss and share ideas on how money and other resources are used in the family.
HIV prevention for mother, father and baby	- Couples to have HIV testing together. - Responsible fathers disclose HIV status to partners. - Open discussion of condom use and sex during pregnancy and postnatal
Health of mother and baby during pre-and-postnatal	- Share household chores and give partner time to rest - Share childcare and participate and play with young children
Birth & importance of birth preparation	- Support partners with developing a birth plan and preparations - Accompany wife to facility and be present during delivery
Postnatal HIV care and family planning	- To ensure that the whole family is tested for HIV even if they are well, not only parents. (Family HIV testing). - Demystify condom use in married couples and use it as dual method of family planning - Support exclusive breastfeeding - Promote open discussion of reproductive health including sex in married couples - Share responsibility for family planning - Help bring child to clinic for routine check-ups/illness
Family violence	- Promote a free and warm family environment - Zero tolerance for violence in the home, neighbourhood or community

[Men's Family Health Charter Resolutions]

Conclusions/Next steps: Mbereko+Men has been an effective model for engaging men in a conservative, rural population in Zimbabwe in transformative dialogues regarding family health, roles, and support. The Zimbabwean Ministry of Health and Child Care have adopted and costed the Mbereko+Men model as part of "community outreach events" in the "The Plan for Elimination of Mother to Child Transmission (eMTCT) of HIV & Syphilis in Zimbabwe 2018-2022". Future research seeks to establish family health outcomes including MTCT, in Zimbabwe's drive to eMTCT.

TUPEE647

Creating a continuum of care for survivors of gender-based violence: Evaluation of a mobile phone-based referral system in Botswana

A. Cannon[1], S. Treves-Kagan[2], M. Cutherall[3], J. Fehringer[1], H. Apps[4], P. Ramaphane[4], J. Curran[1], K. Scurria[1], S.S. Bloom[3]
[1]University of North Carolina at Chapel Hill, MEASURE Evaluation, Chapel Hill, United States, [2]University of North Carolina at Chapel Hill, Health Behavior; MEASURE Evaluation, Chapel Hill, United States, [3]University of North Carolina at Chapel Hill, Maternal and Child Health; MEASURE Evaluation, Chapel Hill, United States, [4]WoMen Against Rape, Maun, Botswana

Background: Gender-based violence (GBV) is a critical risk factor for HIV infection. Reducing GBV and HIV is an urgent priority in Botswana. MEASURE Evaluation collaborated with the Government of Botswana Gender Affairs Department and USAID Botswana to implement a pilot of a GBV Referral System (GBVRS). The GBVRS included a Referral Information System (RIS) which uses simple mobile technology to facilitate referrals and track GBV cases through multiple sectors; provider training to ensure high-quality GBV care; relationship strengthening between providers; and community mobilization to reduce GBV acceptability and increase awareness of services.
Methods: We implemented a 12-month pilot of the GBVRS. To evaluate the pilot, service provider interviews (n=117) and community member focus groups (n=65) were conducted in intervention and control communities at two time points. Data from 12 months of RIS usage, key informant interviews (n=7), and monitoring reports from implementing partners were also analyzed. Dedoose was used for qualitative analysis.
Results: At endline, providers in intervention areas reported greater trust in fellow service providers, confidence in identifying GBV cases, and understanding appropriate protocols compared to those in control communities. Between August 2016-July 2017, 401 GBV cases were entered in the RIS. Of the cases logged, 33% (n=134) were provided with a referral and 30% (n=41) of referrals were completed. RIS uptake was uneven between sites and provider type. Challenges noted were adopting new processes, technical difficulties with the phones, and high staff turnover. Community FGDs found that inequitable gender norms undermined understanding of GBV and service utilization; modest improvements regarding GBV acceptability were seen among male focus group participants in intervention sites compared to comparison sites.
Conclusions: This is the first use of a formal GBV referral system in Botswana and one of few in low or middle income countries. This evaluation provides promising results and insights to enhance comprehensive GBV service delivery through an innovative data system and surrounding support. Given the strong connection between HIV and GBV, investing in systems to improve the standard of care for GBV survivors is critical to ending both epidemics.

TUPEE648

Improved services, health seeking behavior, and outcomes for gender-based violence survivors, including post-exposure prophylaxis (PEP) in rural Zambézia province, Mozambique

C. Audet[1], S. Van Rompaey[2], W. Gong[3], E. Graves[3], M. Bravo[2], F. Melo[4], J.E. Malinha[4], E. Chele[5], C. De Schacht[2]
[1]Vanderbilt University Medical Center, Health Policy, Nashville, United States, [2]Friends in Global Health, Maputo, Mozambique, [3]Vanderbilt University Medical Center, Nashville, United States, [4]Friends in Global Health, Quelimane, Mozambique, [5]Zambézia Provincial Health Directorate, Quelimane, Mozambique

Background: Gender-based violence (GBV), including physical, psychological, and sexual assault (SA), represent a significant public health issue. In Zambézia, Mozambique, "one-stop" care models were established at nine district health facilities (HF) by late 2015, creating a single entry point for GBV-related services, but low numbers of people seeking care have limited the impact on health for survivors.
Methods: In January 2017 we initiated a campaign to improve the number of GBV survivors who seek care at the health facility. We conducted theater presentations and lectures to educate community members about the importance of seeking immediate care for GBV and provided a 4-day training to service providers (followed by regular clinical mentoring) to reinforce GBV treatment protocols. We also introduced a home-based care system to follow up patients who did not return for repeat HIV testing. We compared pre- (July 2016 - January 2017) vs. post-intervention (February - September 2017) patient characteristics using Pearson and Student's t-tests. We employed a negative binomial model to assess change in rate of care-seeking.
Results: From July 2016 to September 2017 we compiled data on 473 GBV events at nine HF. Patients were primarily female (90.5%), married (42.7%), and with a mean age of 23 years (SD 12.4). Physical violence was reported in the majority of cases (383, 81%), SA in 89 cases (18.8%), and psychological violence in 1 case (0.2%). Daily rate of care seeking increased from 0.10 to 0.13 events per day with a rate ratio of 1.33 (CI: 1.11, 1.61; p=0.002). During the post-intervention period, 73% of SA survivors sought care within 72 hours (vs. 51% pre-intervention; p=< 0.001); 100% of eligible survivors initiated PEP (vs. 86% pre-intervention; p=0.07); 71% completed (28 days) PEP (vs. 21% pre-intervention; p=0.004); and 57% completed an HIV test at one-month (vs. 21% pre-intervention; p=0.036). No improvement was found in survivors' three- or six-month HIV testing.
Conclusions: GBV campaign activities contributed to significant improvement in the rate and promptness (within 72 hours) of care seeking, as well as completion of PEP medication. Our findings highlight the impact of awareness-raising campaigns and need for further clinical support to ensure patient follow-up.

Social protection: new evidence and programmatic lessons

TUPEE649

Human rights documentation and advocacy program in Myanmar: Ending discrimination against PLHIV and key populations through scaling up their capacity to advocate for themselves

J. Shrestha[1], K. Su Win[2]
[1]Asia Catalyst, Capacity Building and Community Initiatives, Bangkok, Thailand, [2]Asia Catalyst, Capacity Building and Community Initiatives, Yangon, Myanmar

Background: Asia Catalyst (AC) programs and activities through 2011-2016 in Myanmar revealed few community-based organisations(CBOs) have sound organizational management and skills to effectively advocate, thereby limiting communities' ability to achieve advocacy goals. AC's baseline data showed limited understanding among CBOs of in-

ternational rights frameworks, documentation skills, or evidence-based advocacy. Equipping and upscaling skills of local through a long-term sustained approach was vital. Development partners in the country concurred.

Description: 10community leaders from 4CBOs representing WLHIV, sex workers, LGBT and PUD participated in series of workshops. The workshops, designed through participatory peer-to-peer learning approach, centered on community-lived experiences and local contexts. Participants developed qualitative tools for powerful evidence collection. CBOs received sub-grants to conduct rights documentation and advocacy on: access to discrimination free SRHR services for WLHIV and sex workers, access to drop-in-centers for PUD and end of arbitrary arrests of LGBT persons.

Lessons learned: Grassroot CBOs while having limited skills in organizational planning and advocacy plays instrumental role in service delivery. There is limited ability to identify and use the opportunity presented by service delivery work to advance advocacy goals they are seeking. CBOs need support to identify opportunity within their existing workplans to integrate sustained knowledge sharing exercise and advocacy skills enhancement of the community. However, CBOs also have limited human and other resources posing challenges in prioritizing sustained knowledge building and policy advocacy roles. Despite this, communities recognize the importance in engaging in dialogues for structural reforms where their issues are highlighted. Creating a safer space for communities to freely share, learn and strategize is important.

Conclusions/Next steps: During this democratic transition in Myanmar, as the country is reviewing archaic laws or drafting new ones that will have long-term impact, community engagement is critical. There are opportunities for this engagement for the CBOs. There are ever increasing civil society movements, including experienced advocates who were in exile during the previous government, and continued donor interests in capacity building, advocacy and services delivery. For a truly community-led advocacy engagement to ending discrimination, stigmatization and criminalization of marginalized communities requires sustained long-term support, including investment in creating enabling environment for effective advocacy for their rights.

TUPEE650

Tracking HIV-sensitive social protection strategy implementation: Policy implications

D. Chipanta
UNAIDS, Community Support Social Justice and Inclusion, Geneva, Switzerland

Background: The 2016 Political Declaration on Ending AIDS encourages Member States to strengthen national social and child protection systems to ensure that by 2020, 75% of people living with, at risk of or affected by HIV benefit from HIV-sensitive social protection *(1)*. UNAIDS is mandated to support countries in monitoring and reporting on progress towards global AIDS commitments adopted through the 2016 Political Declaration on Ending AIDS (and previously the 2001 Declaration of Commitment on HIV/AIDS, the 2006 Political Declaration on HIV/AIDS, and the 2011 Political Declaration on HIV and AIDS), with the objective of identifying progress, challenges and constraints in the AIDS response.

Methods: Data on social protection policies and mechanisms are reported by national authorities and civil society through the UNAIDS Country Offices using the National Composite Policy Instrument (NCPI).

Results: Of the 114 reporting countries that submitted the social protection data, 91 countries (80%) have a social protection strategy that is being implemented, 9 countries (8%) have a social protection strategy that is not being implemented, and 14 countries (12%) do not have an approved social protection strategy. Analysis of the elements of HIV sensitivity indicate that 12 countries (11%) report having a social protection strategy implemented that includes all 6 of an HIV-sensitive social protection strategy.

71 countries (62%) reported having social protection strategies that refer to HIV, 68 (60%) countries´ strategies recognize people living with HIV as key beneficiaries, 32 (28%) recognize key population and 31 countries (28%) recognize unpaid work in the context of HIV. 28 of the 108 reporting countries implement cash transfer programmes aimed at young women in this age group.

Conclusions: Countries are failing short of meeting their commitments on social protection. Key populations and unpaid work in the context of HIV remain key areas of focus in increase the HIV sensitivity of social protection. More research is needed to understand the design features that will lead to more HIV sensitive social protection programmes.

TUPEE651

Caregiver participation in savings and internal lending communities improves the vulnerable household wellbeing and increases HIV testing

U. Ossai[1], A. Efuntoye[2], C. Anoje[2], S. Amadiegwu[2], C. Ujuju[2], P. Gado[3], D. Magaji[4], C. Miller[5], J. Hembling[5]
[1]Catholic Relief Services Nigeria, Health, Abuja, Nigeria, [2]Catholic Relief Services, Health, Abuja, Nigeria, [3]United States Agency for International Development, F.C.T, Nigeria, [4]United States Agency for International Development, Abuja, Nigeria, [5]Catholic Relief Services, Baltimore, United States

Background: Nigeria has a high HIV burden with 2.9 million people living with the virus. Caregiver's inability to meet the basic needs of orphans and vulnerable children (OVC) negatively affects their wellbeing and increases their vulnerability to HIV. To ensure vulnerable caregivers (VC) had reliable income to meet the needs of OVC, Catholic Relief Services-led Sustainable Mechanism for Improving Livelihoods and Household Empowerment (SMILE) project used a savings group methodology called savings and internal lending communities (SILC) to strengthen the household economy and build resilience of VC. Between 2015 and 2017, 1,148 SILC groups were formed comprising of 24,794 members (17,985 women and 6,809 men) including SMILE participants and other community members. By 2017, the groups accrued total assets worth over N146 million (approximately USD 406,000). The purpose of this study was to determine if OVC caregivers participating in SILC had better outcomes than non-participating caregivers.

Methods: The study administered a structured questionnaire to a random sample of 2,105 caregivers and 3,038 children who received project services across five states in Nigeria. Dependent variables of interest include HIV testing and progression in school. Multivariate logistic regression was used to assess associations between participation in SILC and wellbeing outcomes while controlling for potential confounders.

Results: The result showed the adjusted odds of female children 10-17 years progressing in school were 3.77 times greater if their caregivers were SILC participants compared to female children whose caregivers who were not SILC participants ($p< 0.01$). There were no differences in school progression for male children by SILC participation. Similarly, the odds of caregivers knowing the HIV status of their female children (0-17 years) was 1.89 times greater compared to caregivers who were not SILC participants ($p< 0.05$). There was no association between caregiver knowledge of their male children's HIV status and SILC participation.

Conclusions: SILC intervention strengthened the economy of caregivers with a positive effect on caregivers' ability to meet their children's needs. Integrated activities have reinforcing effect notably on the uptake of HIV testing among caregivers who participated in SILC.

TUPEE652

Economic empowerment for key populations; potential for HIV prevention

E. Mwangi
Partners for Health and Development in Africa, Capacity Building and Mentorship, Nairobi, Kenya

Background: The burden of HIV is highest among low income countries, sub-Saharan Africa (SSA) contributes 71% of new HIV infections (UNAIDS, 2014), which has previously been agued to have a close correlation with the poverty levels in SSA. Kenya's HIV Prevalence is 6.0% with 29.3% HIV prevalence among sex workers. Nairobi has the highest number of SWs, with a population estimated at 45000 SW. Sex workers are also among groups who are economically underprivileged, with majority living in low socio-economic areas and at the fridges of the society.

This situation is largely worsened by lack of education, skills, resources and poor exposure to the available entrepreneurship opportunities. Consequently, majority cannot improve their livelihoods and hence engage in risky behaviors, such as drug abuse and condomless sex.
Description: In October 2016, an entrepreneurship, financial literacy and life skills training was conducted for 30 sex workers in Nairobi. Out of the thirty, five who had the best business proposals were selected to form a self help group. In December 2016, these sex workers were provided with financial support through a negotiated line of credit to establish businesses. They also accessed a peer mentorship program and a quarterly performance review on progress was done. At the end of Dec 2017, a semi-structured interview was conducted to examine their current lifestyle, business performance and risk taking behaviors. Data was then analyzed thematically.
Lessons learned: All participants had improved their livelihood within the first year, three out of the five startups were generating 20% increase in profits by the second quarter. Two out of the three had also managed to start developing their rural homes and one was paying university fees for her child. All the participants were repaying their loans and venturing into various investments. The data analysis also revealed a reduction of risky sexual behavior as they could now select clients confidently negotiate for condom use.
Conclusions/Next steps: Economic empowerment through self help groups has proved to be a much needed structural intervention for HIV/STI risk reduction. Sex workers when offered alternative livelihoods adopt safer sex, develop confidence and make independent decisions.

TUPEE653

Social protection schemes for people living with HIV (PLHIV) through single window model: Case study from India

A. Verma, N. Goel, R. Rana, R. Bhushan, N. Pandey, N. Rawat
National AIDS Control Organization, Ministry of Health & Family Welfare, New Delhi, India

Background: India has an estimated 2.1 million People living with HIV in which 1.16 million on ART. Poor awareness, low demand, social apathy, systematic flaws, procedural delay and stigma and discrimination is big hindrance in enrollment and access of social protection benefits. Women and Children (< 15 years), which constituted 39% and 7% of estimated 2.1 million PLHIVs, are more vulnerable and standing far behind in availing social protection benefits.
Methods: National AIDS Control Organization (NACO) along with State and district administration particularly District AIDS Prevention Control Units (DAPCU) adapted community centric approaches to coordinate with government, autonomous institutions, civil society for enabling HIV sensitive policies and schemes.
Following NACP IV mandates of ensuring social protection for PLHIVs; 'DAPCU led single window model on social protection' was piloted and scaled up in 186 high prevalent districts with support of UNDP.
Joint advocacy have taken place for HIV sensitive social protection. 142 directives were issued by Government. Compendium of government orders, social protection web portal, demand generation toolkit are made available and have used for demand generation, demand aggregation, quality assurance and grievance redressal.
Results: Uptake of social protection schemes by community increased. Priorities given to widow, orphan children for nutritional support, free transport, financial assistance, shelter, insurance, legal aid etc. Access of social protection impacted positively in improving qualities of lives of PLHIVs particularly women and children, prevent further indulgence in risky behavior, support to realize one's rights.
450 government officials from 21 states are trained in 10 regional workshops. 2083 help desk are established in various facilities to aware communities on social protection, generate demand and enroll them in various schemes. 39 directories on HIV sensitive social protection by State Government made available.
More than 1.05 million benefits are accessed by PLHIVs that include 28733 widow pensions, 125857 nutritional benefits, 20002 guardian schemes , 19957 insurance, 7159 legal aid, 285208, free transport benefits etc.
Conclusions: Single window model is economically and programmatically viable option that enabled environments for sensitive policies, social protection schemes, reduces stigma & discrimination, secured human rights and paved way to lead lives of PLHIV with dignity.

TUPEE654

What is different? Lessons learned from the National Strategic Framework (NSF) 2017-2021 development process in Nigeria

F. Agbo[1], A. Ogundipe[2]
[1]*National Agency for the Control of AIDS, Strategic Knowledge Management, Abuja, Nigeria,* [2]*National Agency for the Control of AIDS, Policy and Strategy, Abuja, Nigeria*

Background: Traditionally the development of HIV/AIDS strategic plans in Nigeria has followed a top down approach due to the Federal nature of governance and perceived capacity gaps at sub-national levels. The federal level coordination agency leads the reviews of the HIV response and develops the National Strategic Framework (NSF) that guides the development of the National Strategic Plan (NSP). State level coordination agencies then derive state strategic plans (SSPs) from the NSP.
Over the last two cycles of the strategic planning process, it has been observed that this approach has led to products that were non-responsive to the state epidemic status, capacity and available resources. Thus, most SSPs were inadequately implemented due to poor ownership and resourcing and never seemed to guide implementation.
Description: This informed the adoption of a different methodology in developing the NSP 2017-2021. A team of consultants, staff from the National Agency for the Control of AIDS (NACA) and the Federal Ministry of Health (FMOH) worked to develop and finalize the NSF 2017-2021. The team developed comprehensive guidance notes to guide development of sub-national plans by states. The guidance notes identified priority thematic areas, suggestive list of interventions and a Microsoft Excel based costing tool with standard unit cost. State coordinating agencies constituted technical teams to lead the development of SSPs. State teams were trained on the guidance notes and NACA staff drafted to the states to provide hands-on support to states to develop their SSPs. Sub-national plans developed were then consolidated into the NSP 2017-2021.
Lessons learned: The new approach ensured that SSPs were responsive to the state epidemic and set targets were reflective of the resources and capacity in the states. It allowed states to prioritize interventions and activities appropriate to local context, epidemiological data and evidence of what works as a sub-set of overall country priorities. It enhanced the capacity of NACA staff to support the strategic planning process thus reducing cost of hiring consultants. Also states capacities were developed, and ownership of the state plans assured.
Conclusions/Next steps: Implement SSPs at state level and the NSP at national level and put in place tools to track their implementation.

TUPEE655

Impact of drought on HIV response and interventions in arid and semi-arid regions of Kenya

M. Josephine Muthoni[1], O. Cyprian[2], M. Mumma[2]
[1]*UN World Food Programme, VAM, Nairobi, Kenya,* [2]*UNWFP, Nairobi, Kenya*

Background: Tremendous progress has been made in controlling and reversing the HIV trend in Kenya. However, despite the significant progress, there remains a high new HIV infection rate among young people and key populations. Further, the HIV response in arid and semi-arid areas which experience cyclical drought and accompanied high levels of food insecurity and malnutrition remain a concern. With the well-established links between malnutrition, food insecurity and HIV, a good number of PLHIV and their households are classified as food insecure with high levels of negative coping mechanisms.
Further, gaps are experienced in service delivery with nutrition and HIV services often offered separately and gaps persist in prevention of

mother to child transmission, antiretroviral treatment coverage, and in the coverage and distribution of health facilities and personnel.
Methods: A mixed methods research approach was used in data collection in kilifi, Turkana and Kitui counties. Three comprehensive care clinics (CCCs) from each county were selected as the entry point. 1272 children aged 2 to 14 years, adult men and women were sampled. Household Dietary Diversity Score (HDDS) was assessed using one 24-hour recall period. Household Food Insecurity Access Scale (HFIAS), Coping strategies, Coping Strategy Index (CSI) and levels of malnutrition were assessed using BMI and Z scores. data was stripped and analyzed thematically using SPSS v24.
Results: Drought affected access to HIV care, treatment and adherence. PLHIV prioritized finding food over accessing medicine; food scarcity also forced PLHIV to skip or discontinue medication. Ignorance was noted on PEP, PrEP, female condoms use. There was increased risk of HIV transmission through transactional and commercial sex, gender-based violence and disruption of social networks. PLHIV adopted strategies to cope with the effects of drought including controlled food consumption, reduced portion sizes, reduced number of meals, and relied on less preferred foods.
Conclusions: Strengthened inter-sectoral linkages between nutrition, HIV, WASH and communicable diseases in coordinating drought responses that are cost-effective are needed. Consideration of mixed livelihoods when designing drought response and resilience programmes can be used as a strategy to build resilience into communities to reduce outlays on emergency responses.

TUPEE656

Facilitating outreach services for PLHIV: Experience from the Global Fund-supported Vihaan programme in Hyderabad, India

S. Ramasamy Murugesan[1], V. Arumugam[1], H. Rosenara[2], V. R. Nair[3], R. Chauhan[1], G. Pandey[1], S. Chakraborty[1], B.B. Ubarhande[1], P.K. Shetty[2], V. Joseph[2], M. Balani[2], S. Mehta[4]
[1]India HIV/AIDS Alliance, Strategic Information, New Delhi, India, [2]India HIV/AIDS Alliance, Care & Support, New Delhi, India, [3]India HIV/AIDS Alliance, Care & Support, Hyderabad, India, [4]India HIV/AIDS Alliance, New Delhi, India

Background: India HIV/AIDS Alliance implements the Global Fund supported Vihaan programme to deliver care and support services for people living with HIV (PLHIV) through its 350 community-based Care & Support Centres (CSC) across India. Care and support helps increase treatment adherence, improves quality of life and ensures access to social entitlement services for PLHIV. Promoting linkages to social protection schemes helps in the socio- economic empowerment of PLHIV, as it increases their access to pension schemes, nutritional programmes and income generation activities.
Methods: A cohort of 34,528 PLHIVs were recruited for the programme and followed for four years (at least once in 6 months) with Vihaan intervention. Client data were collected using Client registration form for baseline and the follow up service data were collected and documented over the period of 4 years. For analysis, the clients who had been followed-up in the last one year and received services including social protection has been considered. Descriptive and regression analyses were carried out using the SPSS 20.0. A linear regression was performed to ascertain the effects of Vihaan services (Social protection) on health indicator.
Results: In last one year (2017) 31% of the clients has received outreach services from the CSCs which includes 67% health referral, 21% linked with social protection services and 12% received counselling. The characteristics of the clients received outreach services and not received are similar with average age 34 years, 50% male, 43% illiteracy, 65% married and 15% widowed. However, when there latest CD4 cell count is analysed there is good increase and through linear modelling with R^2=22%, a client who had received CSC services has a chance of gaining 75 CD4 cell count.
Conclusions: Care and support services support in physical quality of life of PLHIV and thus Vihaan care and support model (peer led linkages with social protection) can be replicated with further testing of significance.

TUPEE657

The role of oral-HIV self-testing in enrolment of female sex workers into comprehensive HIV programmes in Kenya

T. Achia[1], K. Chesang[1], P. Gichangi[2], G. Mgomella[1], J. Kimani[3], C.T. Ruto[1], P. Young[1], S. Ohaga[4], J. Ambia[4], P. Matti[4], K. Agot[4]
[1]Division of Global HIV and TB, US Centers for Disease Control and Prevention, Nairobi, Kenya, [2]International Centre for Reproductive Health, University of Nairobi, Ghent University, Belgium., Mombasa, Kenya, [3]University of Manitoba / Partners for Health and Development in Africa, Nairobi, Kenya, [4]Impact Research and Development Organization, Kisumu, Kenya

Background: Female sex workers (FSW) enrol to receive comprehensive HIV, STI and reproductive health services at Drop-in Centres (DiCEs) - FSW dedicated clinics/safe spaces. Enrolment entails registering and HIV testing service, and is the entry point to DiCE services. However, enrolment and subsequent utilization of services at the DiCEs are known to be sub-optimal.
Methods: Using quasi-experimental design, we sought to find out if peer educators (PEs) distributing HIV oral-self testing (HIVOST) increased FSW enrolling into DiCEs versus routine programming. We conducted the study from February 2016 - May 2017 in eight sites spread in four regions, all with high HIV burden and attributing to 88% of Kenya's FSW population. Two DiCEs in each region were randomly selected. The intervention phase involved PEs distributing HIVOST at hot-spots, linked to the selected DiCE, to FSW who had never sought HTS or last tested over six-months, and subsequently confirming their HIV status at the selected DiCE after using HIVOST. In the control phase, PE referred an equivalent FSW population from the same hot-spots to the selected DiCE for routine HTS. In each region, one site started with the 6-months intervention phase, 3-months wash-out period to wane-off the effects of HIVOST, and 6-months control phase (Group-1), while the other site started with the control, wash-out, and intervention (Group-2). The choice of the different starting times was to spread the distribution of HIVOST to cover different months as the intensity of sex work is known to vary throughout the year. We used Stata for analysis and accounted for the study design.
Results: Overall, 1,415 FSW were enrolled. During the intervention phase, 900 FSW were enrolled, and 515 during the control phase. The proportion of Intervention phase enrolment was significantly higher compared to the control phase (48% vs18%; p< 0.001). Similar independent results were observed for group-1 and group-2. Adjusting for DiCE characteristics (urban/rural and work load) and study phases, enrolment likelihood was significantly greater in the intervention phase compared to the control phase [adjusted odds ratio=8.44, 95% confidence interval=5.04-14.1].
Conclusions: This study suggests that HIVOST improves FSW enrolment to DiCEs and uptake of HIV, STI and RH services.

Innovations in behavioural data collection and use

TUPEE658

Innovative, technology-driven methodologies to collect qualitative data among youth

L. Hightow-Weidman[1], S. Legrand[2], K. Muessig[3], K. Soni[1], K. Knudtson[1], R. Stephenson[4]
[1]University of North Carolina-Chapel Hill, Medicine/Infectious Diseases, Chapel Hill, United States, [2]Duke University, Duke Global Health Institute, Durham, United States, [3]University of North Carolina-Chapel Hill, Health Behavior, Chapel Hill, United States, [4]University of Michigan, School of Nursing, Ann Arbor, United States

Background: In-person methods for collecting qualitative data from youth to inform intervention development traditionally involve focus groups, in-depth interviews and advisory boards (YABs). While these proven methodologies have strengths, youth engagement can be limited by structural barriers (e.g. lack of transportation, inconvenient tim-

ing) and reluctance to participate due to stigma or discomfort with group settings. As an increasing number of HIV prevention and care interventions are successfully delivered online, innovative approaches to youth engagement in virtual spaces can also be applied across the intervention lifespan to increase the quality and validity of formative data.

Description: We present unique technology-based methods employed to elicit participant feedback during the development of four HIV prevention and care interventions. In *Tough Talks*, an avatar-based intervention that utilizes natural language processing to increase HIV disclosure among young men who have sex with men (YMSM), an online comic book caption contest was launched to gather real-world HIV disclosure discussions. Winning entries were awarded prizes and participant dialogues are used to program avatar responses (Figure 1). In *Test Rehearsal,* an interactive mHealth intervention that uses virtual reality scenarios to educate YMSM about HIV self-testing, asynchronous online focus groups enumerated barriers and facilitators to HIV testing among youth. In *iTech*, a Youth Advisory Council, composed of YAB members from 6 diverse sites across the US, convenes monthly videoconferencing meetings to foster continuous youth engagement. Finally, in *Love Lab* and *We Prevent*, qualitative relationship histories were collected from youth via video-chat. Youth could create, annotate and change online relationship diaries under the guidance of an interviewer, to explore periods of risk and facilitate the development and targeting of couples-based interventions.

Lessons learned: Beyond facilitating intervention delivery, technology can serve as a platform for formative data collection, mitigating the limitations of in-person methods and increasing access to diverse and "hard-to-reach" youth. It is critical to ensure that platforms used to engage and communicate with youth are secure, easy to use, and function even in low-bandwidth settings.

Conclusions/Next steps: Innovations in communication technologies offer researchers viable and valuable means to collect formative data. Utilization of these methodological innovations may better position interventions to impact behavior among youth.

[Tough Talks Comic Book Disclosure Dialgogue Submission]

TUPEE659

Estimating over-reporting in condom use among Senegalese sex workers

A. Lepine[1], C. Treibich[2], K. Gueye[3], C.T. Ndour[3], P. Vickerman[4]
[1]LSHTM, London, United Kingdom, [2]University of Grenoble, Grenoble, France, [3]Ministry of Health of Senegal, Dakar, Senegal, [4]University of Bristol, Bristol, United Kingdom

Background: Social desirability bias, that is the tendency to under-report socially undesirable health behaviours, significantly distort information on sensitive behaviours gained from self-reports. As a result, self-reported condom use among high-risk populations is systematically over-reported. The main objective of the paper is to test whether the list randomization is an effective method to estimate misreporting in condom use among female sex workers and to identify factors associated with condom use.

Methods: We used a list randomization and a secret vote to indirectly elicit condom use among 805 female sex workers surveyed in 2015 and 2017 in Senegal, a country where sex workers face high social stigma and a high risk of HIV/AIDS infection.

Results: Based on the list randomization, we find that the condom use rate in their last sexual intercourse with a client is 80% (79%) in 2015 (2017), which is significantly lower than the 97% obtained when self-reported. The secret vote method estimates a condom use of 88%. When estimating condom use among sub-groups, we find that condom use among HIV positive female sex workers is only 31%, which is 46 points lower than the condom use in HIV negative FSWs. However, we did not find any significant difference in condom use among sex workers who were enrolled in the PrEP demonstration project.

Conclusions: Our study confirms that, unlike the secret vote method, a well-designed list randomization is an inexpensive and an easy method to implement in order to elicit condom use among high-risk groups in low-income countries.

TUPEE660

69% of respondents in Eastern Europe and Central Asia (EECA) know their HIV status: Results of the largest ever online survey in social network Odnoklassniki (OK)

E. Kiryushina[1], V. Saldanha[1], S. Kolomiiets[1], L. Zohrabyan[1], T. Yepoyan[2], Y. Plakhutina[2], A. Ilieva[2], E. Sergeeva[3]
[1]UNAIDS, Regional Office for Eastern Europe and Central Asia, Moscow, Russian Federation, [2]UNESCO, HIV and Health Education Programme for Eastern Europe and Central Asia, Moscow, Russian Federation, [3]OK Social Network, Moscow, Russian Federation

Background: On WAD 2017, a survey with 13 HIV-related questions was launched in Odnoklassniki, the largest Russian language social-media platform (71 mln users monthly).

Methods: An invitation link to an anonymous survey was promoted via banner at the ok.ru home page, in a thematic HIV group at ok.ru/test, and via a promo video and social media posts by UNAIDS Goodwill Ambassador Vera Brezhena (9 mln followers). The questions used UNAIDS Global AIDS Monitoring indicators.

Results: This is the largest online HIV survey ever conducted in EECA, with 169,314 respondents in 4 days. 80% of respondents were women. 98% were from EECA and 84% from Russia. Age groups distribution was: 10-19: 4,4%, 20-25: 7%, 26-39: 33,6%, 40-59: 42,9% and 60+: 11,65%.
97072 (57%) respondents completed the full survey with further results. 63% accurately answered all questions about HIV. 95% identified condom use every time person has sex as an effective HIV prevention measure. When asked about the age to educate an adolescent on condom use, 65% answered „Before the start of sexual activity" and 28% - "age of 14". 90% indicated tolerant attitudes towards people living with HIV. 63% reported to be ready to share food with a person living with HIV.
63% reported that they had an HIV test within a year. 84% of respondents knew where to get tested for HIV.

Conclusions: The survey demonstrated high level of awareness and knowledge about HIV prevention and a relatively low level of discrimination towards PLWHIV in EECA. However, 80% of respondents are women, but most new HIV infections in EECA are among men. So, it remains a challenge to reach men with HIV testing services, especially those most likely to be living with HIV. The survey showed that a large population can be reached online, and social media can serve as an effective tool to promote HIV prevention and access to HIV testing. Greater advocacy is needed to improve HIV testing coverage and close the gaps in areas where inaccurate knowledge and unsafe behaviours are reported.

Big data: an untapped opportunity?

TUPEE661

Rapid population size estimation of online men who have sex with men using Facebook marketing data in India

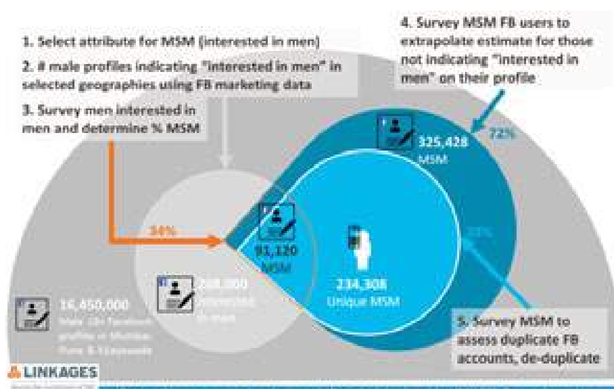
B. Eveslage[1], T. Saidel[2], P. Shah[3], J. Baishya[4]
[1]FHI 360, Global Health Population and Nutrition, Washington, United States, [2]Partnership for Epidemic Analysis (PEMA), New Delhi, India, [3]FHI 360, New Delhi, India, [4]USAID, New Delhi, India

Background: Population size estimates (PSE) are used by key population (KP) HIV programs to plan implementation and measure progress toward targets. However, it's challenging to estimate sizes of KPs not linked to known networks or physical venues. Programs need a way to quantify the reachable/accessible population, including those not present in physical venues.

Methods: Between September and October 2017, the USAID- and PEPFAR-supported LINKAGES project in India used a new method to rapidly enumerate online men who have sex with men (MSM) leveraging publicly available marketing data on Facebook and short online surveys on Survey Monkey to refine estimates useful for programming.

Results: Using Facebook's ad manager, there are 16.5 million adult male profiles in the program's catchment areas of Mumbai, Thane, Pune, and Vijayawada and 268,000 profiles if restricted to profiles indicating "interested in" men. A survey advertised to those profiles acquired 29 respondents, 34% reporting MSM behavior. A similar survey more widely distributed to MSM through ads and social media postings acquired 318 MSM respondents and found 72% do not specify "interested in" men on their Facebook profile. These data were used to estimate 325,428 Facebook profiles used by MSM in the 4 geographies, representing 234,308 individual MSM (after de-duplicating for 28% of MSM reporting two or more profiles on the survey). This estimate represents 1.42% of the adult male population on Facebook in the same geographies. Sixty-one percent of these MSM reported exclusively meeting partners for dating or sex online and not at physical locations where existing PSE and outreach efforts focus.

Conclusions: Leveraging Facebook's marketing data is a promising approach for assessing the size of online markets for KP HIV services - a new way to complement existing PSE approaches quickly and affordably. The approach can be adapted for other settings/populations by identifying the attributes on people's social media profiles which predict whether they are KP members and then refine based on the accuracy of that attribute and its expression among the target audience. The method is still being developed and needs to be tested rigorously with better quality surveys to establish proof of concept.



[Figure 1: Estimating the population of online MSM in areas of India using Facebook marketing data]

TUPEE662

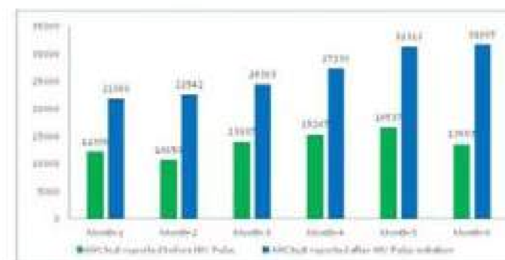
Technology based solution improves HIV testing reported by private facilities in the States of Tamil Nadu and Kerala, India

M.S. Rao[1], D.A. Hedge[2], S. K S[2], J. Niranjan[1], J. Rappai[3], C. S[1], S. Ramaswamy[1], M. Nair[4], M.K. Suryadevara[5], S. Kumar[1], S.S. Raghavan[6], R. L[1], D.M. Bhowmik[5]
[1]SAATHII, Programs, Chennai, India, [2]NACO, Programs, New Delhi, India, [3]SAATHII, Programs, Trivandrum, India, [4]SAATHII, M&E, Trivandrum, India, [5]SAATHII, Programs, Hyderabad, India, [6]SAATHII, Programs, New Delhi, India

Background: Reporting of HIV testing by private health sector is a challenge due to lack of policy for mandatory reporting in India. A large proportion of pregnant women deliver in private facilities in Tamil Nadu (41%) and Kerala (75%). Svetana, a GFATM funded program, was implemented to engage with 4177 private maternity facilities in the two states to increase PMTCT coverage. Collecting monthly HIV testing reports from these facilities was challenging as a limited number could be visited and report collection over phone was time consuming and unreliable. A technology based solution was introduced in both states to facilitate correct and consistent reporting of HIV testing directly by the private facilities.

Description: HIV Pulse a simple application for online, SMS or mobile based reporting system was developed, tested and rolled out by SAATHII in 2016-2017. Private facilities that agreed to share reports of monthly HIV testing were registered in HIV Pulse. Indicators for reporting were: number of pregnant women and general clients tested and found reactive for HIV and Syphilis. Between April 2016 and December 2017, 2332 private facilities were registered in HIV Pulse and 56% started reporting regularly.

Lessons learned: HIV Pulse contributed to 93% (82300 to 1,58,988) increase in reporting of HIV testing over a six month period. The number of HIV testing reported through HIV Pulse was significantly (75% to 100%) higher compared with testing data collected over phone. SMS reminders and in some cases phone based follow up with facilities helped to improve regularity and consistency of reporting. Facility staff found reporting in HIV Pulse to be simple and less time consuming for sharing of monthly reports. Reporting in HIV Pulse required involvement of the facility in charge which was considered more authentic.



[ANC Testing Trend Before and After roll out of HIV Pulse]

Conclusions/Next steps: Simple technology based solutions such as HIV Pulse can significantly increase private health sector reporting of HIV testing in India. This solution is being scaled up across 22 states of India in partnership with the Government PMTCT program.

Innovative approaches to track individuals

TUPEE663

Constructing a treatment cascade from routine laboratory data for HIV PCR positive children in two districts in South Africa

F. Moyo[1,2,3], A. Haeri Mazanderani[4,5], U. Feucht[6], S. Bhardwarj[7], O. Mhlongo[8], M. Goosen[4], D. Greyling[4], K. Ngoma[9], G. Sherman[2,4,10]
[1]National Institute for Communicable Diseases, Centre for HIV and STIs, Sandringham, Johannesburg, South Africa, [2]Wits Health Consortium, Paediatric HIV Diagnostics, Johannesburg, South Africa, [3]University of the Witwatersrand, School of Public Health, Johannesburg, South Africa, [4]National Institute for Communicable Diseases, Centre for HIV and STIs, Johannesburg, South Africa, [5]University of Pretoria, Medical Virology, Pretoria, South Africa, [6]University of Pretoria, Department of Paediatrics, Pretoria, South Africa, [7]UNICEF Nigeria, Garki, Nigeria, [8]Department of Health, Maternal Child and Women's Health, Pietermritzburg, South Africa, [9]UNICEF South Africa, Pretoria, South Africa, [10]University of the Witwatersrand, Department of Peadiatrics and Child Health, Johannesburg, South Africa

Background: Retention-in-care is associated with improved virological control and survival amongst HIV-infected children. Using routine laboratory HIV test data, we followed the retention-in-care and virological outcomes of HIV-PCR positive children aged < 18-months in one urban and one rural district in South Africa.

Methods: HIV-PCR positive results of children tested between April 2015-May 2016 from Tshwane (urban) and uMkhanyakude (rural) districts, were extracted from the National Health Laboratory Service's Corporate Data Warehouse (CDW). HIV test data (PCR, viral load (VL), CD4) are routinely collected into the CDW to facilitate near real-time monitoring. For each child, HIV test data were collected for ≥13-months after the initial PCR positive result using both an automated patient-linking algorithm and manually searching demographics within the CDW. Test-sets were linked if ≥2 demographics (surname, name, date of birth, folder number) matched exactly. Programmatic indicators evaluated included age at HIV diagnosis, result return-rate and retention-in-care at 6 and 12-months.

Results: 304 and 94 children tested HIV-PCR positive in Tshwane and uMkhanyakude, respectively. Median age at HIV diagnosis was 2.3-months (IQR: 0.1-6.7) for Tshwane and 3.6-months (IQR: 1.4-7.1) for uMkhanyakude. In Tshwane, 218 (72%) children with an initial HIV-PCR positive result returned for their result; 192 (63%) had a confirmatory HIV test; 58 (19%) were retained in care at 6-months; 50 (16%) had a VL test and 24 (8%) were virologically suppressed. 40 (13%) children retained in care at 6-months had subsequent follow-up. In uMkhanyakude, 73 (78%) children returned for their result after testing HIV-PCR positive; 59 (63%) had a confirmatory HIV test; 30 (32%) were retained in care at 6-months; 25 (27%) had a VL and 15 (16%) were virologically suppressed. 21 (13%) children retained-in-care at 6-months had subsequent follow-up.

Conclusions: We demonstrate the value of routine laboratory data for constructing a treatment cascade of HIV-infected children. Data demonstrates high drop-off rates immediately following first HIV-PCR positive result, with loss-to-follow up of 70-80% by 6-months. However, once children present at 6-months, subsequent drop-offs of only 6-10% were seen at 12-months. Strengthening systems for tracking HIV-infected children in the first 6-months of treatment must be prioritzed for enhanced monitoring and improved retention-in-care.

TUPEE664

Replicating the success: Using an HIV model of Peer Driven Intervention (PDI+) to increase TB new case detection in Cambodia

S. Tuot[1], C. Ly[2], S. Ong[2], S. Ly[2], S.C. Choub[2], S. Yi[1]
[1]KHANA, Center for Population Health Research, Phnom Penh, Cambodia, [2]KHANA, Phnom Penh, Cambodia

Background: Cambodia has made great strides in tuberculosis (TB) control and achieved the Millennium Development Goals (MDG) target to halve TB deaths and prevalence by 2015. However, new case detection and treatment coverage remain a challenge. To increase new case detection rates, KHANA, under support of the national TB program, has implemented an innovative approach that was adapted from HIV model of peer driven intervention (PDI+) that was successfully employed in HIV new case detection.

Description: In 2017, KHANA was awarded a grant from TB Reach Wave 5 to implement the Community-based Innovations for Revitalized TB Active Case Finding (ACF) for Improved Detection and Linkage to Treatment. The existing KHANA's community HIV infrastructure and networks, allowed us to integrate, mainstream and build synergy among keystakeholders at grassroots levels. The project has been implemented in four Operational Districts from August 2017. Three approaches were used for the intervention:

1) snowball active case finding (ACF);
2) integrated active case management (IACM); and
3) community mobilization for sustainability.

Lessons learned: Working with community lay counselors, seeds and recruits have been identified. These included former people with TB and familiy contacts. They were given a coupn if ageed to be a seed and another five coupons to refer their peers. The eligibility screening tools and TB risk evaluation using a multi-TB symtopm questionniare were used to screen the participants. A TB pre-counseling and consent form were completed for TB screening. As the result, by January 2018, 2,732 of people coming with a coupon were verbally screened and met TB risk criteria, and all of them were tested for TB. In total, 644 people were diagnosed of TB (all form of TB), yielding a positivity rate of 23 %. The majority of the positive cases (97%) received TB treatment.

Conclusions/Next steps: Findings from this intervention indicate that the PDI+ could be effectivly adapted to increase TB new case detection in Cambodia. This innovative strategy should be scaled up as part of the National TB Program. Further studies are needed to more comprehensively evaluate the impacts and cos-effectiveness of the model in Cambodia as well as in other resource-limitted settings.

TUPEE665

Time to HIV test uptake and associated factors among partners of newly diagnosed HIV infected persons in Rakai district, Uganda

S. Kigongo[1], D. Nabukalu[1], S. Kasasa[2], M. Sakor[3], K. Namatovu[3], P. Ssebbowa[1], J. Kagaayi[1]
[1]Rakai Health Sciences Program, Rakai, Uganda, [2]Makerere University School of Public Health, Kampala, Uganda, [3]Rakai District Local Government, Rakai, Uganda

Background: A substantial number of persons living with HIV are unaware of their status but literature on targeted HIV testing among exposed persons are limited. We aimed to determine the median time to HIV testing from date of partner elicitation, and factors associated with HIV test uptake in exposed persons in a low resource setting.

Methods: We reviewed service records at 6 facilities for 349 HIV exposed persons confidentially identified by their newly-diagnosed HIV infected partners (the index). Entry into the risk set was from the date of partner elicitation, and censoring was either at the endpoint (HIV test uptake) or administrative at the study end date of March 31st, 2017. The Kaplan-Meier method was used to estimate median time to HIV testing, and a Cox proportional hazards model was used to determine factors associated with HIV testing. Selection of covariates was based on plausibility and these included age, sex, marital status, notification options, phone access, location, prior partner violence, relationship to index, and key population status of index.

Results: The median time to HIV testing was 366 days (IQR 37-372). Exposed persons with phone access and those with an active relationship with the index partner had higher likelihood of testing for HIV (adj. HR=1.60, 95% CI 1.07, 2.38; and adj.HR=1.92, 95% CI 1.06, 3.50 respectively), while exposed persons residing outside Rakai district had lower likelihood of testing for HIV (adj.HR=0.14, 95% CI 0.04, 0.46).

Conclusions: A very long median time to HIV testing in exposed persons (366 days) reflects need for creative interventions for active partner tracking especially for those in temporary relationships, those who do not live with sexual partners, and those without phone access.

Innovative uses of data to strengthen systems and programmes

TUPEE666

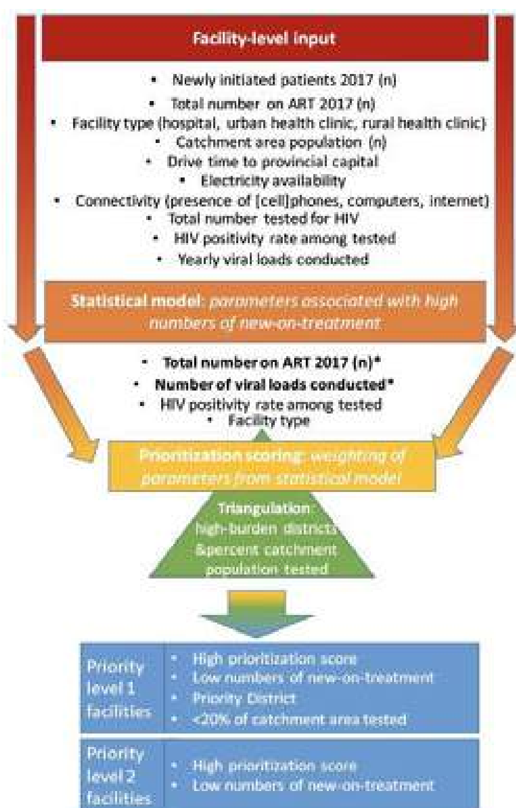
Prioritizing healthcare facilities for on-site mentorship to increase HIV treatment uptake: Results from EQUIP

B.E. Nichols[1,2], C. Hendrickson[2], N. Sigwebela[3], C. Moyo[4], M.P. Fox[1,2], S. Rosen[1,2], on behalf of EQUIP

[1]Boston University, Global Health, Boston, United States, [2]Health Economics and Epidemiology Research Office, Department of Internal Medicine, School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, [3]EQUIP, Centurion, South Africa, [4]EQUIP Zambia, Lusaka, Zambia

Background: Throughout Africa, resources are being invested in healthcare facilities to increase the number of new patients initiating ART, with the goal of achieving the "second 90." A practical methodology for determining which facilities should be prioritized to maximize uptake has not been developed. As part of a PEPFAR program to expand and improve service delivery in two provinces in Zambia, we developed a methodology to rank individual health facilities for on-site mentorship based on their potential to contribute to total numbers of patients initiating treatment ("new-on-ART").

Description: Using PEPFAR data, we ranked facilities in the selected provinces by number of patients initiated on ART in 2017. Using multivariable regression, we identified facility-level parameters associated with being in the top quartile of new-on-ART in 2017. Those parameters were then assigned weights, and the weights summed, at the facility level to calculate the prioritization score.



[Identification of priority facilities to target for on-site mentorship to maximize new-on-treatment: methodology flowchart]

Facilities that received a high prioritization score but did not rank highly on treatment initiation numbers (i.e. facilities that did not initiate as many new patients as their prioritization score suggested they should) were prioritized to receive intensive day-long on-site mentorship (target setting, stock monitoring, clinician mentoring on routine HIV testing, ART initiation, and record keeping).

Lessons learned: Thirteen of 76 facilities were identified as high priority for on-site mentorship. Eight of these were provided mentorship by EQUIP, as were two non-priority facilities. Prioritized facilities that received mentorship achieved 78% of their new-on-ART targets in the month prior to the intervention and 104% of their targets in the month after the intervention. In the two priority facilities not offered mentorship, 53% and 64% of the target was achieved in pre- and post-intervention months, respectively. In non-priority facilities that received mentorship, 63% and 72% of targets were achieved in pre- and post-intervention months.

Conclusions/Next steps: Early data suggest that prioritizing facilities for mentorship on the basis of unrealized potential can increase numbers of new-on-ART more efficiently than giving all facilities equal support. A practical, easily-applied methodology for prioritizing which specific healthcare facilities should be supported first thus offers a promising way to reallocate resources more efficiently to achieve national and global targets.

TUPEE667

Barriers to reaching the first 90: A simultaneous, multicountry online survey to identify barriers in HIV rapid test kit service delivery and commodity availability in low- and middle-income countries

A. George[1], J. Heavner[2], M.L. Field-Nguer[3], C. Ndongmo[4], M. Wattleworth[5]

[1]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Health Systems Strengthening - Forecasting and Supply Planning, Atlanta, United States, [2]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Arlington, United States, [3]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Task Order 1 HIV/AIDS, Arlington, United States, [4]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Health Systems Strengthening - Lab and VMMC, Arlington, United States, [5]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Systems Strengthening - Lab and VMMC, Arlington, United States

Background: In 2017, anecdotal reports indicated site-level stockouts of HIV rapid test kits (RTKs) in several countries. Two projects under the USAID Global Health Program-Procurement and Supply Management (GHSC-PSM) project and Rapid Test Kit (GHSC-RTK) investigated stockout causes, service delivery barriers, and supply chain management challenges in more than 20 countries.

Methods: October 24-November 15, 2017, the two projects simultaneously conducted a qualitative survey in 22 countries. The 47-question survey, which included multiple-choice and open-answer questions, was sent to GHSC-PSM field offices for data collection and response through SurveyMonkey, a cloud-based online survey development service. Answers extracted from SurveyMonkey were cleaned, aggregated, and analyzed by headquarters staff of GHSC-PSM and GHSC-RTK.

Results: Survey analysis highlighted: a) major issues that currently hinder countries' ability to provide testing services, including poor planning practices (of the 23 percent of countries without established min/max levels, 80 percent have reported stockouts at one or multiple levels in the last two years) and inefficient distribution systems (25 percent of countries use a push model; 14 percent of countries do not have emergency distribution procedures; both systems could help prevent stockouts) and b) correlation between service delivery practice/planning and availability of RTKs at all supply chain levels (58 percent of countries test through unplanned campaigns, of which 43 percent reported stockouts at all levels in the last two years).

Conclusions: This survey was a first in the number of participating countries and the types of data collected, helping identify countries with considerable barriers to reaching the goal of having 90 percent of people with HIV know their status. Results highlighted correlation — if not causality — in how service delivery decisions can affect product availability, and ultimately a program's ability to reach its testing objectives. Finally, the survey is helping partners prioritize countries and systems strengthening interventions, and showed opportunities for service delivery planning and improved communication to help ensure availability of RTKs at testing sites.

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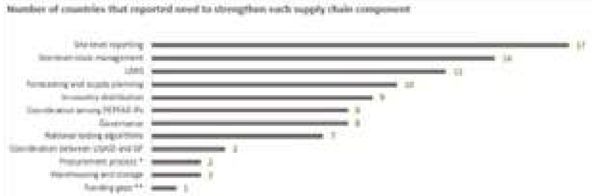

[Supply chain components in most need of strengthening to improve RTK availability as identified by GHSC-PSM field offices]

TUPEE668

Task-shifting and sharing practices during implementation of differentiated care for HIV service delivery: Experiences from Uganda

S. Kironde[1,2], R. Berger[2,3], A. Hurst[4]
[1]University Research Co., LLC, Chevy Chase, United States, [2]Human Resources for Health in 2030 (HRH2030) Program, Arlington, United States, [3]Chemonics International Ltd., Arlington, United States, [4]United States Agency for International Development (USAID), Arlington, United States

Background: The adoption of 'Test and Start' to accelerate the achievement of the 90-90-90 goals has increased the number of ART clients. In many countries, this requires the adoption of streamlined service delivery approaches to combat potential health systems constraints - notably the lack of adequate human resources for health (HRH). Differentiated service delivery (DSD) models are one such innovative approach. Under these models, drug refills are separated from clinical consultations, and stable ART clients have less frequent clinical consultations; receive their refills faster and less frequently; and can be managed outside health facilities by health workers or ART clients themselves.
Implementing DSD models in high HIV burden, resource limited settings often requires optimization of the limited HRH resources to include task-shifting and sharing. In 2017, the HRH2030 program, funded by USAID, through PEPFAR, explored such practices at 20 health facilities offering DSD models in Uganda to better understand staffing requirements.
Methods: 1,720 client flow observations were undertaken across eight 'critical tasks' along the ART service delivery continuum for DSD and the standard models of care. For each observation, service providers performing specific tasks were identified and their frequency of task performance tallied. For analysis, these service providers were grouped into professional and lay health workers as shown in the table.
Results: It was found that the proportion of critical tasks carried out by both professional and lay health service providers (51% vs 49%, p=0.2408) was similar. Nurses performed 66% of observed tasks in the professional group while facility-based auxiliaries - a type of trained, facility-based but non-professionally certified lay provider performed 48% of all tasks in the second group. Additionally, lay providers were found to be more involved in enrollment and triage (p< 0.0001) while the professional group were more involved in clinical consultations, laboratory/blood work and drug dispensing (p< 0.0001).

Critical Task	Differentiated Service Delivery Model - No. of observations of who performed critical task												
	Standard Care		Facility Individual Fast Track		Facility Group		Community Group Client Led		Community - Individual		Totals		p Value
	Health care workings performing task (Prof. = Professional, Lay = Lay)												
	Prof.	Lay	Prof.	Lay	Prof.	Lay	Prof.	Lay	Prof.	Lay	Prof.	Lay	
Enrolment/Registration	24	82	0	84	9	22	18	79	0	40	51	307	p<0.0001
Triage	53	48	3	80	17	5	18	45	2	48	93	226	p<0.0001
Health Education	27	23	8	29	14	9	61	21	34	20	144	102	p=0.017
Consultation/Clinical Assessment	86	5	20	8	27	1	59	11	5	1	197	26	p<0.0001
Laboratory Work/Blood Draw	18	1	4	2	2	0	28	2	3	0	55	5	p<0.0001
Adherence Counseling	15	5	6	4	6	0	1	0	2	10	28	19	p=0.185
Drug Dispensing	72	31	74	8	26	6	54	51	24	30	249	126	p<0.0001
Updating Records	4	10	27	5	2	2	17	12	9	4	59	33	p=0.0065
											876 (51%)	844 (49%)	p=0.2408

Legend:
- (Prof.) Professional health workers include the following categories of service providers: Medical Doctors, Non-Physician Clinicians, Nurses, Pharmacy Technicians or Attendants, Laboratory Technicians and Social Service Workers
- (Lay) Lay health workers include the following categories of service providers: Community Health Workers, Facility-based Auxiliaries, Peers and Counsellors

[Table. Frequency of various service providers observed performing critical tasks across 5 models of ART service delivery in Uganda]

Conclusions: Appropriate task-shifting and sharing can reduce overburdening and optimize client flows hence improving health worker utilization during the implementation of DSD models. Our data suggest that if countries allowed greater use of task shifting/sharing and lay workers through DSD, limited clinical staff could be prioritized for ART initiation or complex cases.

TUPEE669

Evidence synthesis to populate a dynamic HIV transmission model for 6 US cities

E. Krebs[1], D. Panagiotoglou[1], L. Wang[1], B. Enns[1], X. Zang[1], C. Del Rio[2], J. Dombrowski[3], D.J. Feaster[4], M. Golden[3], R. Granich[5], B. Marshall[6], S.H. Mehta[7], L. Metsch[8], B.R. Schackman[9], S.A. Strathdee[10], B. Nosyk[1], on behalf of the Localized HIV Modeling Study Group
[1]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada, [2]Emory Center for AIDS Research, Rollins School of Public Health of Emory University, Hubert Department of Global Health, Atlanta, United States, [3]Division of Allergy & Infectious Disease, Adjunct in Epidemiology, University of Washington, Department of Medicine, Seattle, United States, [4]Center for Family Studies, Department of Epidemiology and Public Health, Leonard M. Miller School of Medicine, University of Miami, Miami, United States, [5]International Association of Providers of AIDS Care, Washington, DC, United States, [6]Brown School of Public Health, Department of Epidemiology, Providence, United States, [7]Bloomberg School of Public Health, Johns Hopkins University, Baltimore, United States, [8]Mailman School of Public Health, Columbia University, Department of Sociomedical Sciences, New York, United States, [9]Weill Cornell Medical College, Department of Healthcare Policy and Research, New York, United States, [10]School of Medicine, University of California, Department of Medicine, San Diego, United States

Background: Dynamic HIV transmission models can provide evidence-based guidance on optimal combination implementation strategies to treat and prevent HIV/AIDS. However, these models can be extremely data intensive, and the availability of good quality data characterizing regional microepidemics varies substantially within and across countries. We aim to provide a comprehensive description of a novel evidence synthesis process to populate and calibrate a dynamic, compartmental HIV transmission model for six US cities.
Methods: We executed a mixed-method evidence synthesis strategy to compile model parameters in six categories:
(i) Initial HIV-negative and HIV-infected population;
(ii) parameters used to calculate the probability of HIV transmission;
(iii) screening, diagnosis, treatment and HIV disease progression;
(iv) HIV prevention programs;
(v) the costs of medical care; and
(vi) quality-adjusted life year weights for each stage of HIV disease progression.
We defined parameters that required city-specific data and stratification by gender, risk group and race/ethnicity a priori, and sought out databases for primary analysis to augment our evidence synthesis. We ranked the quality of each parameter using a context- and category-specific rubric and verified data sources and assumptions with a scientific advisory committee using a web-based survey.
Results: We synthesized evidence from 74 peer-reviewed publications, 102 public health and surveillance reports, and executed primary analyses using 11 data sets to identify the 1,731 parameters needed to populate our model (1,093 (63%), 218 (13%), and 330 (19%) parameters in categories (i), (ii) and(iii), respectively, with 1,562 (90%) parameters being unique to each city). Parameters ranked as best- to moderate-quality evidence comprised 47% of the 169 common parameters and ranged from 61% to 63% across cities for the city-specific parameters. In addition to variation in parameter values across cities, we also found extensive variation in key parameters within cities across risk and race/ethnic groups (Figure 1).
Conclusions: Systematic reporting of the evidence synthesis process used to populate models and explicit quality assessment of data inputs can promote better integration of modelling in decision-making. Effectively communicating this process can help prioritize data collection to reduce decision uncertainty and strengthen model conclusions.

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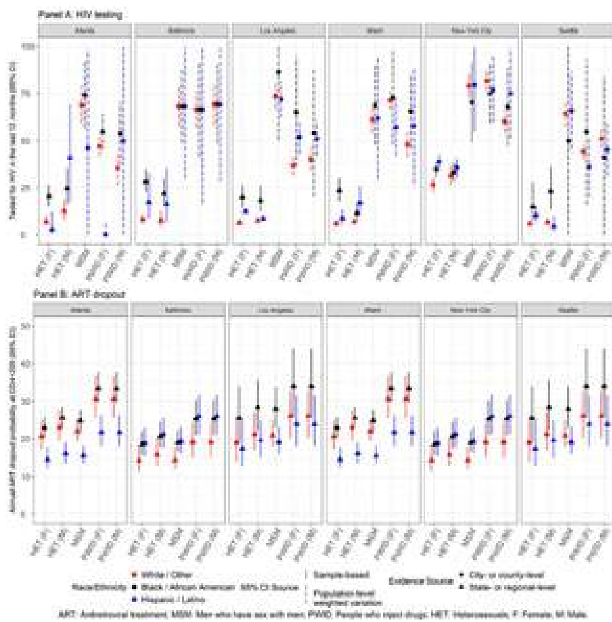


[Figure 1. Heterogeneity in selected parameters by city, risk group, gender and race/ethnicity]

TUPEE670

Risk assessment scale for differentiated preventive care for key populations in Mumbai, India

S. Acharya[1], S. Katkar[2], J. Patil[3], M.S. Setia[4], P. Keskar[2]
[1]Mumbai Districts AIDS Control Society, City AIDS Control, Mumbai, India, [2]Mumbai Districts AIDS Control Society, Mumbai, India, [3]Mumbai Districts AIDS Control Society, TSU, Mumbai, India, [4]Consultant, Mumbai, India

Background: The National AIDS Control Programme has implemented targeted interventions (TIs) for key populations (KPs): female sex workers (FSWs), men who have sex with men (MSM) and male-to-female transgendered people/Hijras (TGH). The individual tracking system (ITS) uses indicators of risk assessment - sexual behavior, alcohol use, and violence - to classify KP as low, medium, or high risk. The assessment is uniform across these three KP groups.
Methods: We changed the risk assessment scale to incorporate number of sexual acts, condom use with different types of partners, anal sex, and substance use according to the specific KP typology; and reclassified them as low, medium, and high risk. We assessed the change in risk assessment between the original and the new scale in 3818 KPs (FSWs=1333, MSM=1649, TGH=836). We compared HIV and STI incidence among KPs according to old and new classifications.

	Original Scale	Low risk	Medium risk	High risk	p value
New Scale	Low risk	243 (18)	417 (31)	17 (1)	<0.001
FSWs (n=1333)	Medium risk	13 (1)	477 (36)	166 (12)	
	High risk	0 (0)	0 (0)	0 (0)	
MSM (n=1649)	Low risk	0 (0)	1352 (82)	37 (3)	<0.001
	Medium risk	0 (0)	44 (3)	206 (12)	
	High risk	0 (0)	0 (0)	0 (0)	
TGH (n=836)	Low risk	134 (16)	552 (66)	1 (0.1)	<0.001
	Medium risk	0 (0)	120 (14)	27 (3)	
	High risk	0 (0)	0 (0)	2 (0.2)	

[Comparison of original and revised risk assessment scale in key populations]

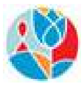
Results: The results of the old classification were: 72% low, 28% medium, and 0.1% high; and with the new classification were: 10% low, 78% medium, and 12% high. Only 27% of KPs were classified similarly in both scales. In 73% of KPs, the risk was upgraded in the new scale; the proportion was 45% in FSWs, 97% in MSM, and 69% in TGH ($p< 0.001$). About 69% (95% CI: 68%, 71%, $p< 0.001$) change from low to medium or high in all KPs could be attributed to the new scale; this proportion was high in MSM (84%, 95% CI: 83%, 86%, $p< 0.001$) and TGH (79%, 95% CI: 75%, 82%, $p< 0.001$) and low in FSWs (39%, 95% CI: 35%, 43%, $p< 0.001$). The incidence of HIV (0.55% vs. 0.28%, $p=0.27$) and VDRL positivity (0.44% vs. 0.28%, $p=0.49$) was higher among high/medium risk KPs according to new classification.
Conclusions: The revised risk assessment scale was able to classify a significantly higher proportion of KPs as medium or high risk, particularly MSM and TGH. These KPs also had a higher incidence of HIV and syphilis. Thus, using type-specific scale may be useful to identify high risk KPs for intensive follow-up and strengthen the existing intervention programmes for differentiated and focused preventive care.

TUPEE671

Social media platforms- a tool for increasing access to medicines in low income countries

C. Nwuba[1], L. Odoemene[2], D. Fatoke[3], D. Lapoutre[4], L. Matowe[5], E. Ehijie[6], R. Atteh[2]
[1]Iplus Solutions, Nigeria Supply Chain Integration Project, Abuja, Nigeria, [2]Federal Ministry of Health, Nigeria Supply Chain Integration Project, Abuja, Nigeria, [3]Sustainable HealthCare International, Nigeria Supply Chain Integration Project, Abuja, Nigeria, [4]Iplus Solutions, Nigeria Supply Chain Integration Project, Woerden, Netherlands, [5]Pharmaceutical Systems Africa, Nigeria Supply Chain Integration Project, Harare, Zimbabwe, [6]University of Benin, Nigeria Supply Chain Integration Project, Benin, Nigeria

Background: Generating health commodities supply chain data occurs routinely in most countries at different levels. A major challenge however, is the incomplete and fragmented nature of the data generated, with gaps in data and issue visibility making it extremely difficult for program managers and logistics officers to detect and resolve supply chain related issues at service delivery points (SDPs), build better awareness of stock issues as they arise and support affected SDPs to improve their performance on an ongoing basis.
This paper describes the outcome of interventions to enhance data quality and issue visibility for increased access to HIV, TB & Malaria drugs in 1,412 health facilities across 44 local government areas in Nigeria.
Description: To improve data quality and issue visibility at SDPs, the Nigeria Supply Chain Integration Project in conjunction with i+ Consortium, developed simplified data capture and quality verification tools for use by government instituted logistics management units across 14 States. Data officers within these units were trained on the use of these tools and a "WhatsApp" group was formed as a "real time" alert system to enable them report issues detected for timely action. In addition, monitoring/supervisory visits to health facilities were conducted to provide capacity building and support to health facilities that require on-site interventions.
Lessons learned: The "WhatsApp" group served as a medium for presenting health facilities' stock performance, alerting and enabling state/national level managers, partners and donors to see and address issues as they arise. This resulted in the re-distribution of 1,134,851 packs of malaria and HIV drugs & products worth about $17,281,758 USD thus averting expiries and stock outs at SDPs. The data verification tools helped to analyze logistics data and review issues detected at SDPs for corrective follow up actions.
Conclusions/Next steps: In resource limited countries, lack of data and stock issue visibility at SDPs and ability to react appropriately in a timely way has led to stock-outs, overstocks, expiries, and other losses throughout the health system. It is therefore vital to introduce simple and efficient communication channels to ensure regular contact with SDPs, improve issue visibility and enable "real time' resolution of issues as they arise.

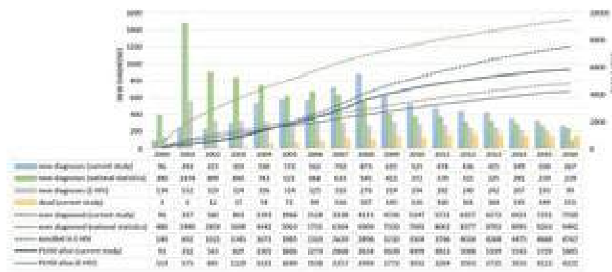


TUPEE672

How to ascertain an accurate number of people living with diagnosed HIV and fill data gaps from the past - lessons learned from a high prevalence setting in Europe

L. Lemsalu[1,2], B. Rice[3], A. Uusküla[2], M. Raag[2], I. Lutsar[4], K. Rüütel[1]
[1]National Institute for Health Development, Tallinn, Estonia, [2]University of Tartu, Institute of Family Medicine and Public Health, Tartu, Estonia, [3]London School of Hygiene and Tropical Medicine, Department of Social and Environmental Health Research, London, United Kingdom, [4]Estonian Society for Infectious Diseases, Estonian HIV Database, Tartu, Estonia

Background: In 2013, HIV prevalence was estimated to be 1.3% in Estonia. Unique identifier based HIV surveillance became available in Estonia in 2009 and until then included anonymous reporting of up to 30%. Only AIDS related mortality is monitored. Ascertaining the number of people currently living with diagnosed HIV has remained a challenge.
Methods: All healthcare services are recorded electronically since early 2000s in Estonia. For this study, all electronic healthcare records which included an HIV diagnosis (ICD-10 codes B20-B24, Z21, F02.4, O98.7, R75) and a national identification-code were extracted from the following national databases: Estonian Health Insurance Fund, 2000-2016, covering >94% of the population; Health Board, 2010-2016, passive HIV surveillance; Prisons healthcare, 2008-2016. Data was linked with the national Death Registry. We compare our results with other HIV data sources including E-HIV, a prospective clinical cohort study in Estonia that started recruitment in 2009.
Results: By end 2016, 9492 HIV diagnoses had ever been recorded through national statistics (Figure). Our analyses found a 21% lower figure of 7518 unique HIV diagnosed individuals. Of these 7518 people, 22% had died (n=1673). Of the remaining 5845 people alive, 72% were enrolled and alive in E-HIV.



[Figure. Number of people diagnosed with HIV (PLHIV) in all electronic databases available in Estonia]

Conclusions: For the first time, we present a de-duplicated number of people diagnosed with HIV in Estonia who remain alive. The higher cumulative figure reported through national statistics includes people who have died as well as people reported anonymously. Our data show a time lag in linking to HIV care, as recently more people newly appear in our data set than are reported as new diagnoses to national statistics each year. E-HIV has a good coverage of HIV diagnosed people and could become a national HIV treatment registry. Linking data from different registries helps to improve data quality and provides vital information for prevention and treatment activities.

TUPEE673

A mobile electronic system to monitor mode, content and duration of health navigation services for people living with HIV in Guatemala

J.P. Alvis Estrada[1], R. Santa Luce[1], D.A. Davis[2], K.M. Guzmán Guevara[1], M. Meekins[2], M.I. Loya-Montiel[1], S. Northbrook[3], C. Barrington[2]
[1]Universidad del Valle de Guatemala, Center for Health Studies, Guatemala City, Guatemala, [2]University of North Carolina, Department of Health Behavior, Gillings School of Global Public Health, Chapel Hill, United States, [3]US Centers for Disease Control and Prevention, HIV Program, Guatemala City, Guatemala

Background: Health navigators provide instrumental and emotional support for people living with HIV to stay in care and adhere to treatment. Timely monitoring of navigation services is challenging due to the burden of reporting a high volume of diverse activities and outcomes. We developed a mobile electronic monitoring system for navigators as part of a multi-level intervention to decentralize HIV care and treatment and offer holistic care for men who have sex with men (MSM) living with HIV in Guatemala City.
Methods: We designed a mobile application using free and open-source tools for navigators to report details about interactions with patients. The app prompts navigators to enter data in three areas: 1) mode of support provided - in person (accompaniment to appointments, meeting with families/partners, support visit) or distance (phone call, text messages, social networks); 2) content of interaction (appointment reminder, HIV education, emotional support, clinic procedures, employment issues); and 3) duration of interaction.
Results: From July 2017 to December 2017, 96.5% (385/399) of MSM enrolled in the intervention received the support of a health navigator. A total of 2037 reports were recorded by 11 navigators. Navigators took from 1-5 minutes per interaction to enter data. The median number of interactions per participant was 5 (IQR: 3-8). Most frequently covered topics during interactions were: appointment reminders 35.8%, employment issues 19.7%, family concerns 14.3%, partner relations 14.1%, HIV education 11.5%, and clinic procedures 9.4%. The majority of interactions occurred remotely (75.9%) with a median duration of 5 min (IQR: 5-10) for telephone interventions and 3 hours for in-person interventions (IQR: 1-4). Information from the app was used to identify areas for follow-up training regarding navigator functions as well as content areas, such as PrEP/PEP.
Conclusions: The mobile monitoring app is a user-friendly and low-cost tool that allows navigators to quickly and efficiently record details about each interaction with participants. Access to up-to-date navigator data allowed the intervention team to more effectively monitor and provide timely feedback and follow-up training. These data can also facilitate analysis of the required intensity and content of support for different types of patients to tailor and streamline navigator interventions.

TUPEE674

Clinical monitoring system for people living with HIV (SIMC) and continuum care improvement in Brazil

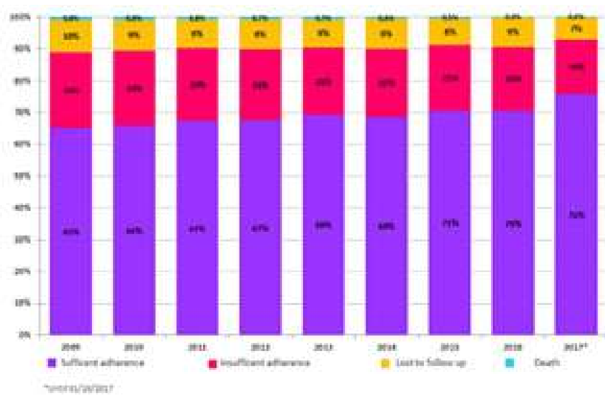
M. Camelo de Moura Vasconcelos[1], R. Vianna Brizolara[1], A.F. Kolling[2], J.G. Silva Netto[1], F. Barros Perini[1], A.R. Pati Pascom[1], A. Schwartz Benzaken[1]
[1]Brazilian Ministry of Health, STI AIDS and Viral Hepatitis Department, Brasilia, Brazil, [2]Brazilian Ministry of Health; PhD student on Collective Health of University of Brasilia;, STI AIDS and Viral Hepatitis Department, Brasilia, Brazil

Background: The HIV care cascade assessment enables measurement, understanding and monitoring of ART delivery policy and guide the development of interventions to improve people living with HIV (PLHIV) care. A tool to easily monitor PLHIV viral load (VL) suppression allows health care providers (HCP) to identify care gaps (low adherence, lost to follow up and treatment failure), as well as readily indicates treatment success, and potentially contributes to reduce transmissibility and morbidity-mortality of PLHIV.
Description: Brazilian´s Ministry of Health developed in 2013 a clinical monitoring system (SIMC) that link data from national ART delivery and laboratory (CD4 and VL) control systems to help HCP to develop better

interventions in the process of continuum care of PLHIV. Besides showing treatment GAP - PLHIV that are not on ART - since 2016 is possible to monitor patients with lost to follow up and/or detectable VL.

Lessons learned: After SIMC´s development and its use encouraged, analyzes of PLHIV (≥ 18 years old) between 2013 and 2017, demonstrate that there was an increase of PLHIV on ART with sufficient adherence (SA) and reduction with insufficient adherence (IA), as well lost to follow up (LTFU) - SA and IA considered right time ART delivery above or below 80%, respectively, and LTFU as more than 100 days without ART delivery. In 2013, of the approximately 355,000 PLHIV with at least one ART delivery, 69% had SA, 21% had IA and 9% had LTFU. In contrast, of the 431,000 PLHIV who delivered ART in 2017, 76% had SA, 18% had IA and 7% had LTFU. Data from PLHIV (≥ 12 years old) on ART, between 2013 and 2016, also showed that there was an increase in VL suppression (40% in 2013 and 53% in 2016).

Conclusions/Next steps: The SIMC development, with crucial information to HCP about PLHIV in treatment GAP, detectable VL or lost to follow up, helped to improve PLHIV care in Brazil. However, it is necessary to encourage its use and systematic monitoring, contributing to the establishment of strategies that will have a long-term impact on SA to ART, reduction of LTFU, as well as the increasingof people with VL suppression.



[Distribution of PLHIV (18+) on ART in the year, according ART status, per year of delivery. Brazil, 2009-2017]*

TUPEE675

Review of home and community-based care (HCBC) for orphans and vulnerable communities programme implementation in KwaZulu-Natal, South Africa: Towards re-engineering the HCBCs programme

N.G. Khanyile[1], N.C. Dlamini[2]
[1]Government, Department of Social Development, Executive Section, Pietermaritzburg, South Africa, [2]Department of Social Development, Population & Demographic Trends, Pietermaritzburg, South Africa

Background: South Africa remains one of the high-burden HIV/AIDS country globally with an estimated 5, 7 million individuals infected. One of the greatest HIV/AIDS consequences that face South Africa's children and their future, particularly in KwaZulu-Natal (KZN), is orphan-hood and child-headed families that render them unable to reach/attain their full developmental potential.

Description: To mitigate the ravaging effects of the HIV/AIDS pandemic on children, youth and other vulnerable communities, the Department of Social Development (DSD) through the community and home based care (CHBC) programme provide funding and support to organizations that offer a range of services to individuals and families infected and affected by HIV/AIDS with particular focus on orphans and vulnerable children (OVCs). Essentially HCBC's provide two broad categories of interventions

(i) Care and Support,

(ii) Prevention Programmes.

Lessons learned: Of the eleven HCBC centres reviewed, all had some form of governance structure and business plan and none provided training. In terms of prevention services, two reported home visits, two had awareness campaigns, two had socio-behavioural change programmes, and two had youth programmes. Regarding psychosocial support four conducted counselling, five had food security programme, three provided educational support, none monitored treatment adherence. Referrals were reported in only three centres where two made referrals to SASSA and one to home affairs. Only three had some form of monitoring documentation. These results suggest that there are major programmatic challenges, poor quality of services and implicit inadequate reach of the vulnerable and needy individuals and children.

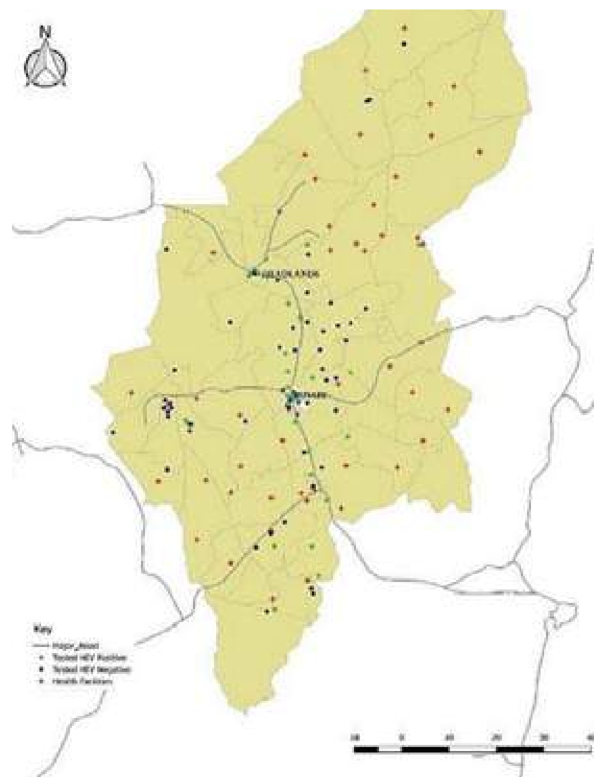
Conclusions/Next steps: The results suggest a need for a more in-depth assessment of the programme, its quality, impact, reach of the deserving communities particularly orphans and a need for programme restructuring plus establishment of an effective monitoring and evaluation programme. The evaluation should include interviews and focus group discussions with staff, beneficiaries and community members on programme activities. Indicators for effective monitoring and evaluation will also be developed.

TUPEE676

Reaching the first 90 through community HIV testing services requires use of digital systems to understand geo-coverage. A case of implementing DHIS2 Mobile tracker during HIV testing

T.W. Zulu
FHI 360, Harare, Zimbabwe

Background: Zimbabwe Population Based HIV Impact assessment (2017) have shown that considerable progress towards the 90-90-90 UNIADS targets have been made. However, there are some sub-geographies with significant gaps especially on HIV case detection. FHI360 was awarded a five-year USAID-funded Zimbabwe HIV Care and Treatment (ZHCT) mechanism to provide homebased index case HIV testing (HIHT) as the main activity to close the gap on reaching the first 90 UNAIDS target. Reported here is the coverage of HIV testing in one of the 10 districts under FHI360 where an electronic HIV testing register was introduced.



[HIV Testing coverage in one of the districts (Makoni)]

Description: In the first 18 months, the project has been using a paper based system to collect patient data on HIV testing. However, program managers were not sure if all areas were covered with HIHT. The project

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assumed that services were being provided to only easy to reach areas. As a result, DHIS2 Mobile Tracker Capture was customized to include capturing of geo-coordinates when providing HIV testing which will allow pinpointing geographical location of HIV testing. The application works offline and synchronize with central server when there is connectivity. Makoni district was selected for the pilot and nurse testers were trained. QGIS was used to analyze and present spatial data collected between October to December 2017.

Lessons learned: A total of 146 people were tested, 32% (47/146) were positive and 98% (46/47) were linked into care during this period. Majority of the clients tested were those living within four kilometers of the major roads as shown in Figure 1.

Furthermore, HIV testing services were provided to clients living in peri-urban area (65% of tested). The North-East and South-East part of the of the urban area with more than 40km and 29Km respectively was poorly covered during this period. The major reason stated is that of inaccessibility.

Conclusions/Next steps: Reaching the first 90 of UNAIDS targets will be difficult if HTS services are only limited to easy to reach areas. Use of electronic systems with geo-coordinates in the provision of HIV services will help to improve service coverage and identification of hotspots when feedback is provided to field teams in a timely manner.

TUPEE677

Evaluation of "Getting to 90," a data-driven health department - service agency initiative to improve viral suppression rates among HIV-positive housing consumers in New York City

E. Wiewel[1], C. Beattie[1], Y. Zhong[1], R. Silverio[1], E. Jimenez-Levi[1], X.P. Farquhar[1], P. Brown[1], J. Thomas[2], J. Rojas[1]
[1]New York City Department of Health and Mental Hygiene, Long Island City, United States, [2]RDE Systems, Little Falls, United States

Background: The World Health Organization recommends that 90% of persons diagnosed with HIV be engaged in care and 90% of those achieve viral suppression ("suppression") in order to control the epidemic. The US National HIV/AIDS Strategy and Centers for Disease Control and New York State's Ending the Epidemic initiative prioritize increasing care and suppression among low-income and racial/ethnic minority persons. More than one-third of New York City's (NYC) persons with HIV receive subsidized housing assistance, but many remain unsuppressed. The "Getting to 90" initiative was developed to help HIV housing agencies reduce barriers to suppression. We evaluated the impact of this initiative.

Description: In August 2016, the NYC Department of Health and Mental Hygiene (DOHMH), a grantee for the US Housing and Urban Development's Housing Opportunities for Persons with HIV/AIDS (HOPWA) program, launched "Getting to 90" for 14 HOPWA-funded agencies, which serve low-income and predominantly racial/ethnic-minority persons with HIV (Table). DOHMH and technical staff established a 90% suppression goal; streamlined collection of consumer care and suppression information in the NYC HOPWA data system (eCOMPAS); matched eCOMPAS with NYC HIV surveillance data; analyzed factors associated with non-suppression among HOPWA consumers; and provided agencies with analysis results, customized care- and suppression-rate dashboards, and monitoring and technical assistance.

Lessons learned: At baseline, 88% of NYC HOPWA consumers were documented in eCOMPAS as being in care and 73% suppressed (Figure). During the initiative, agencies participated in eCOMPAS training and received six quarterly dashboards, five quarterly technical assistance calls, and lists and epidemiologic profiles of their unsuppressed consumers. Non-clinical professionals successfully incorporated suppression into routine work, supervision, team meetings, and in-house trainings, and had timely awareness of their housing consumers' suppression status. Agency-reported care engagement rates from baseline to 15 months increased to 95%. Suppression rates increased at 10 of 14 agencies and to 82% overall (Figure).

Conclusions/Next steps: Local health departments can play an important role in providing data and technical assistance to agencies responsible for providing services and increasing suppression among persons with HIV. "Getting to 90" advanced innovative use of program and jurisdictional surveillance data to strengthen suppression efforts among HOPWA agencies.

	N	%
Total	*950*	*100%*
Age at end of 2017		
<30 years	83	9%
30-44 years	313	33%
45-54 years	298	31%
55+ years	256	27%
Current gender identity		
Woman	385	41%
Man	565	59%

[Table. Demographic characteristics of HIV-positive HOPWA housing consumers at the 14 agencies in the Getting to 90 initiative]

[Care & suppression among HIV-positive supportive permanent housing (SPH) & rental assistance (REN) consumers before & during Getting to 90 initiative]

TUPEE678

Digital innovation to improve access to health services: Online platform with geo-referenced information

B. Caceres[1], M. Romero[2], M. Gutiérrez[3], L. Malajovich[4], L. Cahn[5]
[1]Fundación Huésped, Digital Innovation Lab, Buenos Aires, Argentina, [2]Centro de Estudios de Estado y Sociedad (CEDES), Buenos Aires, Argentina, [3]International Planned Parenthood Federation. Western Hemisphere Region (IPPF/WHR), New York, United States, [4]International Planned Parenthood Federation. Western Hemisphere Region (IPPF/WHR), Buenos Aires, Argentina, [5]Fundación Huésped, Buenos Aires, Argentina

Background: Increasing access to supplies and services for prevention, diagnosis and care of HIV/AIDS is a key aspect to reach 90-90-90 targets. Massive increases in the use of internet devices and availability of public data allow innovation on digital solutions offering useful data to citizens.

The purpose of the program is to create a platform with geo-referenced information about condom delivery points, HIV testing, infectology centers among other health services and allows the collection of user feedback to improve quality of care.

Description: A responsive website was developed, specially focused on young people, originally for Argentina (#Dónde) and then also to 40 countries in Latin America and the Caribbean (VAMOS). In addition to localizing health services, the platform encourages citizen participation to assess services' quality. Users can add information and evaluate each service in order to identify opportunities for improvement.

The information gathered is used to advocate in order to improve services and delivery. Through user involvement, collaboration with social organizations and the public sector, the tool is continuously updated and improved.

Lessons learned: The national platform had 15045 visits during the last year; regional platform had 2256 visits during the first three months; young people represent 61% of the users. 12 youth organizations are committed to its use and dissemination. User involvement is reflected in 177 reviews and comments received. This initiative contributes to achieving an Open Government Partnership goal. 11 requests for access to public information were made in order to obtain or update more than 15000 records in the database.
Conclusions/Next steps: Success in the use of technologies and data to improve access to rights is evidenced through platform creation and proper operation. This project is the result of collaboration between social organizations and the public sector. Plans for the future include updating the database and increasing the number of user reviews, thus becoming a reference and a means to identify and solve issues within health service settings. Additionally, developing a pilot project to measure service attendance after location within the platform. VAMOS regional platform is going to develop an online counseling tool to provide information in a comprehensive approach.

[#Dónde home page]

TUPEE679

Using data to optimize provision of DREAMS social asset building services in safe spaces across two counties in Western Kenya

W. Olando[1], S. Goldfrank[2], I. Jurkevich[2]
[1]American International Health Alliance, Nairobi, Kenya, [2]American International Health Alliance, Washington, United States

Background: Nearly 1,000 adolescent girls and young women (AGYW) are infected with HIV every day. This group accounts for over 70% of new HIV infections among adolescents in sub-Saharan Africa. DREAMS is an initiative of the President's Emergency Plan for AIDS Relief (PEPFAR) that supports AGYW through a multi-layered, evidence-based package of interventions, including social asset building (SAB) focused on strengthening social, health, economic, educational, and other factors to create a strong, positive safety net for AGYW at risk.
Description: With PEPFAR support, American International Health Alliance (AIHA) implements a DREAMS project for girls aged 10-14 in high HIV burden counties in Western Kenya where the HIV prevalence rate is over 25%. SAB takes place in Safe Spaces; it is one aspect of the project that provides a platform from which other interventions are offered and monitored to ensure each girl receives comprehensive, individualized services. Optimally, AGYW should receive a minimum of 3 primary interventions, 3 secondary interventions, and 2 contextual interventions.
Lessons learned: AIHA conducted a survey in early 2017 revealing that 17,509 AGYW were enrolled in SAB: 1,937 (11%) received 4+ services; 6,809 (39%) received 2-3 services; 2,879 (16%) received 1 service; and 5,884 (34%) had received no services. AIHA developed a structured tracker to monitor service layering at its 200 project Safe Spaces in Bondo and Siaya counties. AIHA conducted a follow-up assessment in January 2018, revealing that out of the 24,661 AGYW enrolled: 7,329 (30%) received 4+ services; 12,900 (52%) received 2-3 services; 3,954 (16%) received 1 service; and only 478 (2%) had not received any service.
Conclusions/Next steps: As revealed by the second survey, the service provision tracker allows for continuous monitoring of each girl at the lowest level of implementation, helps identify gaps in service, and facilitates more effective prioritization of girls for intervention. Use of the tracker helped reduce the number of girls receiving no services from 5,884 to 478 within a year's time, thus ensuring girls receive the required package of interventions to support them as they grow into determined, resilient, empowered, AIDS-free, safe women.

TUPEE680

Using low cost performance tracer systems for data collection and performance monitoring of large HIV programs in resource limited settings

D. Damba[1], A. Maganda[1], P. Amuge[2], P. Nahirya Ntege[2]
[1]Baylor College of Medicine Children's Foundation Uganda, Monitoring and Evaluation, Kampala, Uganda, [2]Baylor College of Medicine Children's Foundation Uganda, Research, Kampala, Uganda

Background: In the era of scaling up of HIV/AIDS programs to meet the UNAIDS 909090 goal, strong low cost M&E tools that provide real time quality data for tracking program performance are inevitable. This paper presents a new innovation (Performance Tracer system) used to collect data and monitor performance of a large HIV/AIDS program in Uganda.
Description: Baylor Uganda is implementing a large PEPFAR funded HIV/AIDS project in Western Uganda, at 361 health facilities since 2012. The project scope has over 182 performance indicators being monitored. Of them, 10 performance tracer indicators were objectively selected for weekly tracking in 2017. Program components tracked include HIV testing, HIV Treatment, Viral load, TB-HIV, PMTCT and Logistic stock status. Trained health workers submit weekly reports for these tracers through an-affordable mobile SMS platform. The platform has a user friendly dashboard with weekly analytics shared with management and district health teams for review and action planning. Comparison was done to assess impact of tracer system for program performance before (FY2016 Quarter 4) and after (FY2017 Quarter 4).
Lessons learned:
- Monitoring performance using tracers motivated implementers to refocus on key interventions and identifying areas which require quick actions. Consequently, there was a general improvement in the program performance as per set targets. A comparison before and after showed an improvement of 18% in positives identified, 25% in HTS yield, 22% in new ART initiation, 3% in viral load suppression, 11% in new TB case identification, 26% in HIV exposed infants identified and 14% in ARV stock availability.
- The weekly Tracer platform promoted program ownership, data use and increased timely responsiveness to actions among implementers.
- The system is scale-able and effective in enabling staff to fast track actions to gaps
- Mobile SMS is an affordable and efficient platform to monitor performance while engaging implementers
- Transfer of trained staff and mobile network interruptions affected the functionality of the system.

Conclusions/Next steps: Objectively selected tracer indicators can be used to monitor performance of large programs through a reliable and efficient electronic system. Such low cost tracer systems should be scale-up to monitor progress in line with UN909090 goal.

TUPEE681

HIV prevention cascades: Progress towards a single unifying framework that can replicate the success of treatment and care cascades

R. Schaefer[1], E. Fearon[2], S. Gregson[1,3], J.R. Hargreaves[2,4]
[1]Imperial College London, Department of Infectious Disease Epidemiology, London, United Kingdom, [2]London School of Hygiene & Tropic Medicine, Department of Social and Environmental Health Research, London, United Kingdom, [3]Biomedical Research and Training Institute, Harare, Zimbabwe, [4]London School of Hygiene & Tropic Medicine, Centre for Evaluation, London, United Kingdom

Background: HIV incidence remains high in many countries and use of efficacious HIV prevention methods remains limited. HIV prevention cascades have been proposed to assist in the advocacy for and monitoring

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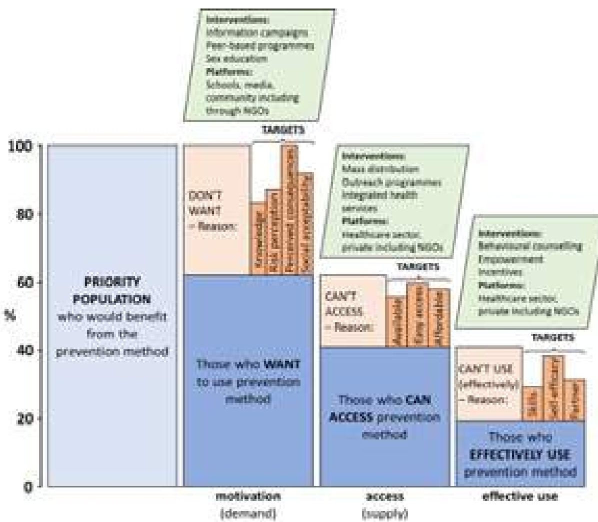
and improved targeting of HIV prevention programmes, similar to HIV treatment cascades. However, different prevention cascade formulations exist, reflecting their different purposes. This project aimed at developing a unifying HIV prevention cascade framework on which different applications with different requirements could be based.

Description: A series of meetings and seminars was conducted to establish goals of HIV prevention cascades, review prevention cascade models, and develop new models of cascades. Prevention cascade frameworks were applied to existing datasets to understand gaps in data currently collected. A stakeholders meeting and workshop were held in Harare, Zimbabwe, with policy-makers, non-governmental organisations, programme planners, and international and local researchers to consult on the utility and functions of HIV prevention cascades and develop models for prevention cascades.

Lessons learned: Previously proposed HIV prevention cascade models (Lancet HIV issue July 2016) were considered too complex for many intended uses of prevention cascades, especially routine monitoring and advocacy for HIV prevention. Particularly, estimating the impact of HIV prevention (infections averted) (proposed by Garnett et al., 2016) should be seen as a useful but separate modelling exercise.

Instead, a generic HIV prevention cascade model is proposed that consists of three core steps of motivation for using a prevention method, access to this, and effective use of it in a priority population (Figure blue). This cascade is part of a framework that incorporates the explanatory factors underlying gaps in cascade steps and indicates types of interventions to address these (Figure orange/green). The simple core cascade and wider framework reconcile contrasting needs for simple and complex cascade models.

Conclusions/Next steps: The HIV treatment cascade has shown how a framework can become a driving force for treatment programmes and policy. While applications of the proposed HIV prevention cascade framework need piloting and methods for measuring the framework need to be developed and validated, the HIV prevention cascade has similar potential for boosting our HIV prevention efforts to bring about substantial declines in HIV incidence.



[A generic and unifying HIV prevention cascade framework. Blue: Core cascade. Orange: Reasons underlying gaps in cascade. Green: Interventions.]

TUPEE682

Age-specific national HIV care continua in sub-Saharan Africa

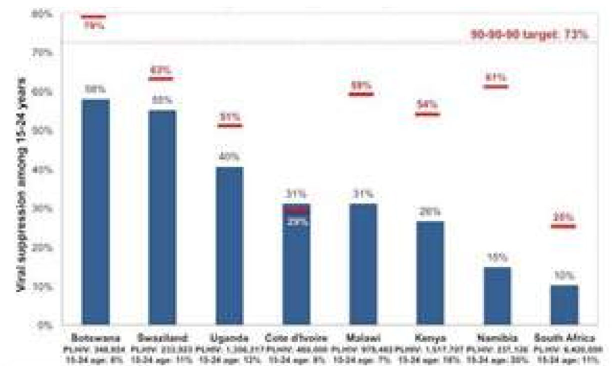
S. Gupta[1], R. Granich[2]
[1]Independent Consultant, Delhi, India, [2]Independent Consultant, San Francisco, United States

Background: In Sub-Saharan Africa (SSA), epidemic control requires increased coverage of HIV testing and treatment for adolescents and young adults (15-24 years). Adolescents and young adults account for nearly 11% of all people living with HIV (PLHIV) yet nearly one-third of new HIV infections occur in this age category.

Methods: For 21 highest burden countries in SSA (95% regional HIV burden), we searched PubMed, US President's Emergency Plan for AIDS Relief (PEPFAR) operational plans, country progress reports and conference abstracts for the age-specific continua published between 2012-2017. We reviewed published national HIV care continua with age-specific data and compared the progress towards 90-90-90 across age groups.

Results: Of the 21 countries, 10 countries published age-specific continua between 2012 and 2017 (53% regional burden). The age distributions were < 15,15-24 and >25 years. Only three countries published the complete 90-90-90 data. All countries reported data on second 90 (on ART), three countries reported on first 90 (diagnosed), and eight countries on the third 90 (viral suppression).

ART coverage among 15-24 year olds living with HIV varied from 17%-72% and was significantly lower than the ART coverage for < 15 and >25 year olds in all but three countries (Uganda, Cote d'Ivoire and Cameroon). Similarly, viral suppression rates among 15-24 year olds varied from 10%-58% and were lower than the national average in all countries except Cote d'Ivoire.



[Figure. Viral suppression among adolescents and young adults (15-24 years) in 8 countries]

Only Botswana has achieved 90-90-90 for all age groups except 15-24 year olds. In Namibia 15-24 year olds account for 20% of all PLHIV, however, ART coverage and viral suppression was 49 and 46 percentage points lower than that among all PLHIV above 24 years of age, respectively.

Conclusions: Publicaly available comprehensive HIV care continua for adolescents and young adults are limited and are compromised by inconsistent methods and data availability. Although the available data is limited, it is consistent with the PEPFAR Population-based HIV Impact Assessment results and shows the need for improved HIV efforts for the bulging youth population in SSA while sustaining the progress made towards 90-90-90 for paediatrics and adults.

TUPEE683

Impact of electronic logistics information system on HIV service delivery in Zambia

W. Nicodemus, C. Opit, J. Sikazwe, W. Bomett
John Snow, Inc., Lusaka, Zambia

Background: The Zambian Ministry of Health faced many challenges in managing procurement and distribution of medical products and supplies. Long lead times, stockouts, and general lack of efficiency characterized the in-country supply chain.

Description: In 2014, USAID implementing partners began working with the Zambian Government to pilot and scale up an electronic Logistics Management Information System (eLMIS). This open-source software facilitates data collection in low-infrastructure environments for review, aggregation, analysis, and forecasting by incorporating a wide range of systems (medical records, laboratory data) and enabling data visibility from point of origin to point of delivery. The eLMIS has been deployed to seven countries.

Lessons learned: Through eLMIS, Zambia has achieved measurable improvements in logistics management, according to the eLMIS mid-line evaluation, including:

- Increased visibility of supply chain operations resulting in broader involvement of user groups for supply chain decision making: User sessions in eLMIS increased by 149% between May 2015 and January 2018
- Increased throughput of health commodities to support WHO universal test-and-treat strategy (UNAIDS 90-90-90 goals): Increased use of HIV test kits by 141% and ARVs by 254% between the start of 2015 and end of 2016
- Improved health care service delivery resulting in reduced missed treatments and better patient adherence to treatments: Expired products at sites reduced by 80% between March 2016 and February 2017; ARV availability at sites increased by 20% since 2015
- Potential reduction in supply chain supervision costs: Targeted supervision visits conducted to easily identifiable problem sites based on insights from data; Fostering of a cohesive experience among implementing partners, leading to improved quality and lower costs of intervention.

Conclusions/Next steps: Electronic information systems require allocation of resources and time to achieve sustainability and attain the full change management maturity model. Some challenges persist in Zambia; there is a need to continue cultivating reliance on data for decision-making. Data are widely used to guide procurement and routine operational decisions, but not yet for supervision and policy development. The technology and implementation experience from Zambia will benefit neighboring countries grappling with similar challenges.

TUPEE684

Maximizing data use to respond to healthcare landscape changes: Lessons learned from a national survey on the state of community-based organizations

S. Linov, M. Stanley, B. Hujdich
HealthHIV, Washington, United States

Background: Implementation of healthcare reform, advancement of national public health strategies, and biomedical prevention developments are some of the fundamental shifts impacting HIV non-profit organizations in the United States. Reduction and re-direction of HIV funding and increased focus on accountability and outcomes requires these organizations to remain responsive and proactive.

Description: HealthHIV conducted a first-of-its-kind national survey of over 600 AIDS Service Organizations and Community-Based Organizations (ASO/CBOs) to evaluate the sustainability and availability of services, and the capacity and structure of the organizations providing them. With the survey, HealthHIV developed a National Directory of ASO/CBOs to document the availability, scope, location, and type of services available to healthcare consumers. The *State of ASOs/CBOs in the US* survey assessed how ASO/CBOs are responding to the healthcare landscape changes, particularly its impact on workforce development; program coordination; fiscal sustainability; strategic partnership development; leadership advancement; and strategic planning.

Findings provided a qualitative perspective on the challenges ASO/CBOs face in responding to environmental, political, and economic changes in the healthcare landscape. Participation, content, and categories make it a unique analysis of the overall health of ASOs and a valuable tool for responding to collective challenges.

Lessons learned: ASO/CBOs are the point of medical care for many people living with HIV and face barriers in responding to the changing healthcare landscape. Services commonly provided by ASO/CBOs (condom distribution, HIV counseling/testing), do not reflect the social, environmental, and economic developments impacting people living with or at risk for HIV. Responses indicated an inability to innovate based on client need and a lack of diversity in funding streams across ASO/CBOs in the US.

Conclusions/Next steps: While ASO/CBOs are expanding to incorporate clinical services and updating billing infrastructure to bill third party payers, organizations are not able to sustain services and maintain purposeful data to improve health outcomes. Better understanding the infrastructure and sustainability challenges of ASO/CBOs allows stakeholders to inform creation of educational resources and capacity building programs, establish training blueprints for policymakers, and prepare strategies to respond to healthcare landscape changes. The State of ASO/CBOs Survey will facilitate decision-making on funding pursuits, service expansion, and capacity building assistance in the US.

TUPEE685

Harmonization processes on HIV data for key population clinical cascades in and it's impact on HIV programing in Tanzania

N.E. Makyao, NACP Prevention and Management Study Group
Ministry of Health, National AIDS Control Program, Prevention, Dar es Salaam, Tanzania, United Republic of

Background: In an efforts to attain the 90,90 90 Global targets, Tanzania developed HIV data for key and vulnerable populations reporting system through harmonization of all data recording and reporting tools and indicators from all partners and donars. The process was consultative with all key stakeholders. The aim of this data is also improvement of data quality for better programing among KVPs.

Methods: Four Technical consultative meetings with LGAs, CSOs, KP community and all partners to review tools used, indicators and reporting modalities was conducted. Consensus was reached through the use of one National reporting system for all implementing partners and KP organisations. Tools which report from community to facility level (identified HF) at a catchment area were developed with 15 indicators and reporting timeline was agreed. Quarterly reports agreed for all KPs as per the National Guidelines which was disaggregated by KP type, age, geographical location and implementing partners. Data collected include behavioural data, services accessed and visit type. Each client is provided by unique identification code.

Results: Five main implementing partners are supporting the Ministry who are ICAP, Jhpiego, HJF AMREF and MUHAS TAPP. Data reported from all the implementing partners from January to December 2017 show HIV clinical cascade performance for KPs in Tanzania. Total KPs reached were **82,746,** Tested **80,180,** identified positive **7,146,** initiated ART **5441,** and the linkage is at 70% of all identified KPs. Strategies used to reach the performance included engagement of identified KP friendly facilities and attached peers to the friendly facilities. Also provided facility led ART outreach services targeting general and KP.

Conclusions: Harmonisation of all KP reporting system to one National reporting tool has enabled to track KP HIV programing through the clinical cascade. All partners are using one National system through DHIS2 system. This has improved HIV programing among this group and informs the country on KP cascade.

TUPEE686

Implementation of HIV testing status of TB cases and ART coverage: A descriptive analysis of PEPFAR and national data in 15 countries in East and Southern Africa

E. Noykhovich[1], C. Nichols[2], J.S. Cavanaugh[3]
[1]*Peace Corps, Office of Global Health and HIV, Washington, United States,* [2]*USAID, Office of HIV/AIDS, Washington, United States,* [3]*The U.S. Department of State, The Office of the U.S. Global AIDS Coordinator and Health Diplomacy, Washington, United States*

Background: HIV testing should be offered to presumptive and diagnosed TB patients because it is a critical entry point for HIV-positive TB cases to be linked to a continuum of health services and initiated on lifelong antiretroviral therapy (ART). Such clinical services can reduce morbidity and mortality associated with TB/HIV co-infection.

We analyzed data from 15 countries in East and Southern Africa supported by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and from national estimates to evaluate the state of implementation of these services.

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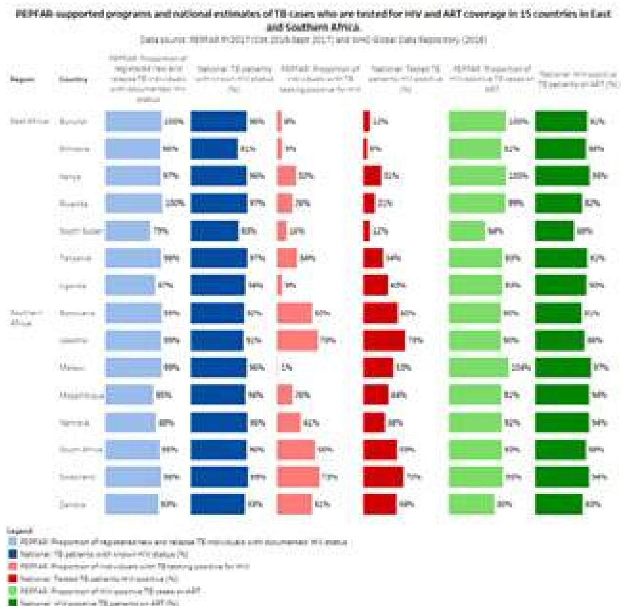
Methods: We analyzed documented client interactions for new and relapsed TB cases, inclusive of adults and children, at PEPFAR-supported TB clinics in 15 countries from October 2016 - September 2017 as they related to:
1) the proportion of TB cases who had a known HIV status
2) the proportion of TB cases who were HIV-positive
3) and the proportion of HIV-positive TB cases who were on ART.
We analyzed comparable national-level estimates from the 2017 World Health Organization (WHO) Global TB Report.
Results: As reported by both sources across 15 countries, a majority of TB cases knew their HIV status and a majority of HIV-positive TB cases were on ART. For nine out of 15 countries (Burundi, Ethiopia, Kenya, Rwanda, Tanzania, Botswana, Lesotho, Malawi), the PEPFAR-supported programs reported a higher proportion of registered new and relapsed TB patients who knew their HIV status when compared to same metrics reported by national estimates in these countries. The PEPFAR range was 85% in Mozambique to 100% in Burundi and Rwanda. For 11 out of the 15 countries (Burundi, Ethiopia, Kenya, Rwanda, Tanzania, Uganda, Botswana, Lesotho, Malawi, South Africa and Swaziland), the PEPFAR-supported programs reported a higher proportion of HIV-positive TB cases who were on ART when compared to the same metrics reported at the national level in these countries.
Conclusions: Although PEPFAR-supported programs and national estimates may not serve directly comparable underlying populations, it is prudent to consider the state of implementation of these services as reported by these sources to identify gaps in the delivery of these services and inform strategies to meet 100% coverage.



[PEPFAR-supported programs and national estimates of TB cases who are tested for HIV and ART coverage in 15 countries in East and Southern Africa.]

TUPEE687

Identifying optimal definition of rapid molecular cluster growth for public health intervention in Illinois, USA

N. Benbow[1], M. Ragonnet-Cronin[2], J. Wertheim[2], R. D'Aquila[1], C. Ward[3], F. Ma[3], C. Hayford[4]
[1]Northwestern University, Chicago, United States, [2]University of California San Diego, San Diego, United States, [3]Illinois Department of Public Health, Chicago, United States, [4]Northwestern University, Chicao, United States

Background: HIV sequence data from routine genotype testing are reported to health departments across the US and efforts are underway to use the data to target prevention and care interventions. The Centers for Disease Control and Prevention (CDC) recommends targeting interventions to recent, and rapidly growing, molecular clusters which they define as: clusters of HIV sequences from diagnoses in the last 3 years using a genetic distance threshold of 0.5% and in which ≥5 sequences are from persons diagnosed within the prior year. We used retrospective data to compare how well different schemes to describe rapid growth of a cluster predicted future growth, or yield, defined as the percent increase in the number of persons in that cluster in the following year.
Methods: We used HIV-1 *pol* sequences from persons diagnosed with HIV between 2013 through 2016 reported to the Illinois health department through June 2017. We examined 8 different schemes: the CDC definition and 3 variations which relaxed the minimum number of new diagnoses in the last year, and four which involved clustering and relative cluster growth (i.e. $\Delta N \div \sqrt{N}$) at 0.5% and 1.5% each. For each scheme, we calculated the number of clusters, and used logistic regression to identify factors associated with clustering.
Results: The 0.5% relative cluster growth scheme had greatest yield (73%) from a relatively small number of clusters (N=15). The CDC definition had a 50% yield from only 5 clusters, compared with a less-stringent definition (at least 3 recent diagnoses) with a higher yield (59%) resulting from many more clusters (N=23). Schemes using 1.5% genetic distance to determine clustering or relative growth had the lowest yield (11% and 18%). In the three schemes that better predicted growth, clustered individuals were more likely to be young (AOR=2.1,p< .05). Other demographic characteristics associated with clustering varied depending on the scheme.
Conclusions: Schemes that considered recent cluster growth were more likely to grow the following year. Variations in criteria defining rapid growth produced different number of clusters, growth rates, and demographic composition. Health departments could benefit from using this comparison approach to identify priority clusters that best fit their epidemic and available resources.

Approaches to using data to improve programming

TUPEE688

Using simple electronic systems to enhance data quality and use for HIV/AIDS programming

D. Damba[1], A. Maganda[1], P. Nahirya Ntege[2]
[1]Baylor College of Medicine Children's Foundation Uganda, Monitoring and Evaluation, Kampala, Uganda, [2]Baylor College of Medicine Children's Foundation Uganda, Research, Kampala, Uganda

Background: Use of electronic medical records systems to enhance data quality and use in HIV/AIDS programming has been emphasized and well documented, however adopting such systems has been on small scale. This study presents findings and experiences from a large HIV/AIDS program implementing simple and easy to use electronic system(OPENMRS) in Uganda.
Methods: Baylor Uganda is implementing a large HIV/AIDS program in Western Uganda serving over 70,000 HIV positive patients on treatment, 5,000 HIV exposed infants, 6300 sex workers and 1800 TB patients annually. The organization is implementing OPENMRS computer system in 80 health facilities. Training of staff, computers provided and supportive supervision done. Mentor coaches were identified to provide onsite technical assistance. Forty eight health facilities implementing OPENMRS and fifteen non-OPENMRS(un-computerized) were selected to assess impact of the system on data quality and use. The period of review was January 2017 and September 2017. Data quality components assessed were data accuracy, completeness, reporting rates, timeliness and staff capacity to use data. Data sources were Patient registers, OPENMRS, staff interviews. Descriptive statistics and odds ratios (OR) were generated using SAS 9.2 software for comparison.
Results: Results showed significant differences between OPENMRS and non-OPENMRS sites with respect data quality and use. Adherence to reporting timeliness was higher in OPENMRS sites (87%) compared to non EMR sites (73%). OPENMRS sites were 3.1 times (95%CI, 2.13-4.07) more likely to report accurate data than non-OPENMRS sites. Completeness was 1.7 times (OR=1.7, 95%CI=1.22-3.18) better in OPENMRS than non-

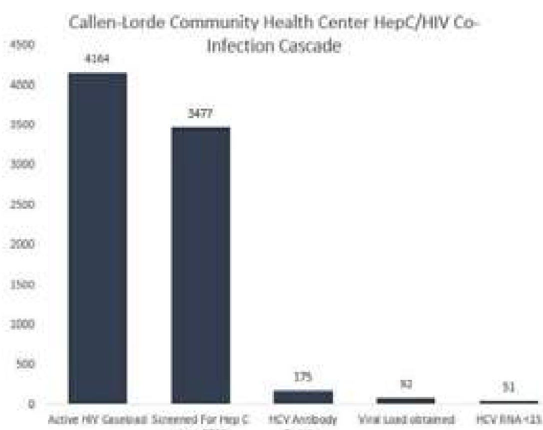
OPENMRS sites. 89% of staff at OPENMRS sites had used their data for planning compared to 65% in non-OPENMRS sites. 81% of OPENMRS sites had initiated quality improvement projects based on gaps in their data compared 52% non-OPENMRS sites. The average time of generating a report and reviewing it was half-a day for OPENMRS sites compared to 5 days in non-OPENMRS sites. All sites had submitted reports within 7 working days.
Conclusions: There was a strong association between computerization, data quality and use to improve HIV programming, with better results observed in computerized sites. There is need to design and implement low cost electronic systems to enhance data quality and use.

TUPEE689

Creation of a hepatitis C care cascade to identify gaps in diagnosis and treatment - experiences from an urban community health center

A. Stivala, P. Carneiro, R. Vail, P. Meacher, J. Bosco, A. Radix
Callen-Lorde Community Health Center, New York, United States

Background: Hepatitis C (HCV) is a major cause of chronic liver disease, cirrhosis, and hepatocellular cancer. Over the last decade there has been an increase in reported HCV infections among HIV-infected MSM, with incidence of 6.3 /1000 person-years (95% CI 5.0-7.5), 19-fold higher compared to HIV-negative MSM. The NYS guidelines recommends HCV screening annually for HIV-infected MSM. HCV sero-status awareness remains low in this community, and many never receive treatment. The new direct acting antiviral regimens are highly effective and provide a pathway to cure, however access remain limited. Barriers to treatment include requiring HCV-experienced medical providers, medication costs, complex preauthorization requirements, drug-drug interactions, concurrent medical conditions and psychosocial factors. Callen-Lorde Community Health Center predominantly cares for the LGBT communities and people living with HIV. As part of a quality improvement program we developed a Hepatitis C Care Continuum to determine adherence to screening guidelines and subsequent treatment of those found to be HCV-infected.
Description: To develop the HCV care cascade we used the electronic health record and laboratory results to assess the proportion of PLWH who had been screened for HCV in the past 2 years. For patients with positive HCV antibody we investigated the number who known HCV RNA in accordance with guidelines. Chart reviews were conducted for patients with viremia to assess whether referrals were made for treatment and subsequent sustained virologic suppression.
Lessons learned: Of 4164 PLWH (88% MSM, 10% transgender women), 3477 (84%) received HCV screening within 2 years. 175 (4%) had HCV antibodies. Only 92 (53%) had a viral load obtained, and 51 (55%) of these were virally suppressed (< 15 IU/mL mL).
Conclusions/Next steps: Creation of a HCV Care Cascade allowed us to identify gaps in HCV diagnosis and treatment. Subsequent interventions have focused on improving HCV screening, provider and patient education, follow-up of individuals needing further HCV viral load testing and referrals for HCV treatment.



[Callen-Lorde Community Health Center HIV/HCV Co-infection Cascade]

TUPEE690

Improving continuum of HIV care: Experience from Ukraine

A. Chuykov[1,2], Y. Lopatina[3], G. Tyapkin[3], A. Zakowicz[1]
[1]AIDS Healthcare Foundation, Europe Bureau, Amsterdam, Netherlands, [2]Ural State Medical University, Yekaterinburg, Russian Federation, [3]AHF Ukraine, Kyiv, Ukraine

Background: Until now there have been a few publications on HIV continuum of Care from Eastern European Countries. First evaluation of HIV continuum of Care from AHF-supported Clinical Sites in Europe was published in 2017. Having strategic information on continuum of care is a key for effective monitoring of patient retention and treatment success.
Description: We analyzed electronic medical records of 29,693 patients from 29 AHF supported clinical sites in Ukraine. All data have been taken from databases created and maintained by AHF. We conducted evaluations of HIV treatment coverage and viral load suppression rates in January 2017 and January 2018. After first evaluation, we developed and implemented a comprehensive package of interventions, consisting of decentralization of services, integration of TB component into HIV care, outreach medical care for temporarily and permanently disabled patients, retention in care interventions including comprehensive psychosocial support, active case finding, and restoration of documents.
Lessons learned: As a result of implementation of the intervention package, the number of clients on ART in AHF supported programs increased from 19,392 in 2016 to 24,699 in 2017 while proportion of clients on ART therapy remained stable (83%). Additionally, the programs noted an increase of patients with viral load suppression from 9,681 (42%) in 2016 to 20,340 (69%) in 2017. Viral load suppression rates increased significantly in Mykolaiv Region (from 42% to 75%), Odessa Region (from 43% to 66%), Dnepropetrovsk region (from 38% to 58%), Kiev Region (from 41% to71%) and Donetsk Region (47% to 65%). There was no significant difference between genders. The lowest proportion of patients on ART and viral load suppression rate were identified in in the age group 25-34 (75% and 61% respectively). Additionally, it was found that VL suppression rates among patients with TB was 54% in Ukraine.
Conclusions/Next steps: Continuum of care is an effective tool to monitor patient retention in care and success of antiretroviral therapy at the country and program level. We suggest implementing it further in the region. Decentralization, integration of services, and targeted psychosocial activities has been found to be effective instruments to improve continuum of care in AHF supported clinical programs in Ukraine.

TUPEE691

Assessing the needs of the beneficiaries, measuring the impact of our programs: Preliminary results of a community study among the beneficiaries of the CBO Alternatives Cameroon in Douala

J. Ntetmen, J. Mandeng Mbem, F. Mananga
Alternatives-Cameroon, Management Staff, Douala, Cameroon

Background: Measuring the impact of CBO programs on their beneficiaries is often difficult. This is the case for Alternatives Cameroun, CBO working for LGBTI rights, including their access to comprehensive HIV care. Studies are often out of reach for CBOs and do not always provide program-specific information from the CBO. We decided to conduct a study with our beneficiaries, almost without costs, managed by the community actors themselves and which could provide a basis on which to measure the impact of our programs.
Methods: We administered a questionnaire to 105 MSM and 104 WSW during encounters with our beneficiaries. The questionnaire included 3 psychological tests and about 30 questions on sexuality and HIV, human rights, violence and mental health.
Results: The results revealed that 78% of MSM and 84% of WSW had no knowledge of LGBTI rights; 58% of MSM and 55% of WSW had a good knowledge of HIV; 85% of MSM and 78% of WSW wanted to have children, and among them, respectively 68% and 78% wanted to have them through a heterosexual relationship. The WSWs were 58% to consume tobacco and 18% to consume drugs, against 8% of MSM for tobacco

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and 3% for drugs. Severe depression was diagnosed in 32% of MSM and 30% of FSF. Also, 26% of passive MSM (role of dominated in the couple) against 14% of assets (dominant role), have already been paid for sex, while 30% of active FSF and 15% of passive have already been paid for sex. The condom is widely used in MSM couples (71%), and almost not between FSF (7%).
Conclusions: The study provided new insights for action, especially in mental health and human rights, with a baseline from which to measure changes to our beneficiaries attributable to our programs. This information has made more „SMART" description of the project objectives that we have written since then. By replicating the study at least every two years, we will be able to measure the achievement of these objectives.

TUPEE692

Diagnose one, link one1 (D1L1): Strategy increases new HIV diagnoses and improves testing yield among key and vulnerable populations in Tanzania

C. Casalini[1], G. Mbita[2], N. Rutabanzibwa[1], D. Mjungu[1], M. Ndolichimpa[1], M. Katabalila[1], E. Mlanga[3], G. J.Lija[4], A. Komba[1], K. Curran[5]
[1]Jhpiego, Program, Dar es Salaam, Tanzania, United Republic of, [2]Jhpiego, Research, Dar es Salaam, Tanzania, United Republic of, [3]USAID, Dar es Salaam, Tanzania, United Republic of, [4]NACP, Dar es Salaam, Tanzania, United Republic of, [5]Jhpiego, Baltimore, United States

Background: The 2016-17 Population HIV Impact Assessment suggests that Tanzania is not on track to reach the first 90 of UNAIDS' 90-90-90 goals. Sauti is a PEPFAR/USAID funded project which provides combination HIV prevention services including HIV testing and linkage to care to key and vulnerable populations (KVP) in 14 regions of Tanzania. HIV testing services (HTS) are provided on an outreach basis in hotspots such as bars, brothels, mines and truck stops, or in homes in the case of HIV-exposed partners and children of index cases. In fiscal year (FY) 2017 (Oct 2016-Sept 2017) Sauti aimed to test 541,682 and diagnose 37,450 individuals, but halfway through the year had reached 43% of the testing target and 23% of the new diagnosis target, respectively.
Methods: Due to mid-year achievement concerns, in May 2017 project leadership communicated a new strategy, "Diagnose One, Link One" (D1L1), to Sauti's 290 frontline HTS providers. The strategy consisted of: 1) Daily providers' target allocation; 2) Daily providers' performance monitoring and guidance using WhatsApp groups; 3) Effective use of GIS and data dashboards to guide HTS delivery; 4) Efficient leveraging of services and resources across partners and project-platforms. We conducted a two-population proportions z-test to compare the increase of HIV yield between Q4 and Q1.
Results: By year-end FY 2017, Sauti project had tested 505,274 and diagnosed 35,920 HIV infected KVP, 93% and 95% of the annual target. In Q1 and Q2, the project identified 1,524 and 7,614 new HIV positive KVP, respectively, compared to 10,862 in Q3 and 15,920 in Q4. These findings represent an increase in HIV yield as well as total clients diagnosed, from 4-5% in Q1 and Q2, to 8% in Q3 and 11% in Q4, a trend observed among all sub-populations (See Fig 1). The 7% increase in yield between Q1 and Q4 was statistically significant ($p < 0.001$, $z = 8.5562$).
Conclusions: A rapid increase in both new HIV diagnoses and HIV testing yield among KVP was observed following the introduction of the Diagnose One, Link One performance monitoring strategy. Similar approaches could help community based HTS programs achieve the first 90 of the UNAIDS' 90-90-90 goals.

Key:
AGYW: Adolescent Girls and Young Women (15-24 years)
FSW: Female Sex Workers
PFSW: Partners of Female Sex Workers
OHSP: Other hotspot populations at heightened risk of HIV

[Figure 1. Quarterly progress in number and percentage tested positive, by population category, FY17 (October 2016 to September 2017)]

TUPEE693

Measuring continued use of oral PrEP: A review of indicator definitions and programmatic implications

S.Y. Jenkins[1], A. Hainze[1], H. Subedar[2], Y. Pillay[2]
[1]Clinton Health Access Initiative, Pretoria, South Africa, [2]National Department of Health, Pretoria, South Africa

Background: Oral pre-exposure prophylaxis (PrEP) was launched in South Africa in 2016 in a phased approach to support reduction of new HIV infections. Routine programme data supports continual programme evaluation and adjustment. Contextualisation of continued use of PrEP is critical to this. This paper reviews definitions, data, and programmatic implications of measure of continued use of PrEP.
Methods: It is programmatically important to separate the concepts of retention in antiretroviral therapy (ART) and effective continued-use of PrEP. PrEP users may start, stop, and re-start PrEP over time, which does not necessarily indicate inappropriate usage. Based on current programme outcomes, many individuals who initiate PrEP stop use between initiation and one month. In order to better understand programmatic implications of varying approaches to defining continued use of PrEP, NDoH and CHAI undertook an assessment of two potential continued use definitions and resulting insights. Calculations are shown in Figure 1.
Results: Continued use outcomes are shown in Table 1 based on original and updated calculations, by site type. Both calculations demonstrate overall trends in PrEP stoppage, with slower rates of stoppage in later months and a slight increase in usage at 16 months. Further, sites that work primarily with men who have sex with men (MSM) demonstrated higher levels of continued use than sites that work primarily with sex workers (SW) for months where data is available. Utilising both calculations allows for clearer differentiation of drop-off point and for stakeholders to further reflect on how programmatic differences between sites - such as PrEP targets or differing practices on offering PrEP - affect drop-off in the first month of use.
Conclusions: The updated calculation enables clearer programmatic differentiation between individuals who may have been prematurely initiated or not managed appropriately during the critical first month of use rather than those who may face challenges in later stages or may be appropriately cycling. Operations research is currently evaluating discontinuation justifications at varying durations of PrEP use, though side effects appear to be a driver across durations. NDoH and partners are also developing options for targeted interventions to address site-level challenges and share opportunities for programmatic improvement.

Continued use of oral PrEP	At 1 month	At 4 months	At 7 months	At 10 months	At 13 months	At 16 months
Original calculation, all sites	53%	30%	21%	18%	14%	17%
Updated calculation, all sites	n/a	54%	38%	33%	25%	26%
Original calculation, sex worker sites	37%	20%	19%	18%	14%	17%
Updated calculation, sex worker sites	n/a	46%	37%	33%	25%	26%
Original calculation, MSM sites	84%	65%	49%	n/a	n/a	n/a
Updated calculation, MSM sites	n/a	79%	58%	n/a	n/a	n/a

[Table 1 Continued oral PrEP use outcomes, by site type and original and updated definitions]

$$\textbf{PrEP continued use}_{original} = (\text{Continuing PrEP}_{current\ month} + \text{Restart PrEP}_{current\ month})/\text{Initiated on PrEP}$$

$$\textbf{PrEP continued use}_{updated} = (\text{Continuing PrEP}_{current\ month} + \text{Restart PrEP}_{current\ month})/\text{Continuing PrEP}_{1\ month}$$

[Figure 1 Oral PrEP continued use calculations]

TUPEE694

A descriptive analysis of TB screening of ART patients and linkage to critical health services among PEPFAR-supported programs in Kenya, Tanzania, Uganda and Rwanda at semiannual time points, 2017

C. Nichols
USAID, Office of HIV/AIDS, Arlington, United States

Background: Tuberculosis (TB) is the leading cause of death for people living with HIV (PLHIV) and routine TB screening of antiretroviral (ART) patients is a critical health service in countries with dual epidemics. Linking ART patients who have been screened for TB into receiving TB preventive therapy (TPT) if clinically indicated or TB treatment if diagnosed, can reduce morbidity and mortality. The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) tracks the number of ART patients who have been screened for TB and related indicators that have helped to monitor program success and offer insight into implementation.
Methods: We conducted a descriptive analysis and assessed percent completeness and additional proportions as measures of data quality on documented client interactions collected at PEPFAR-supported ART sites from Kenya, Tanzania, Uganda and Rwanda between October 2016-March 2017 and April-September 2017 to investigate the state of implementation of these critical health services.
Results: The proportion of ART patients who were screened for TB increased across the two time periods for Kenya (92.54% to 95.6%), Tanzania (89.54% to 95.90%) and Rwanda (91.93% to 98.00%). The completeness of reporting for TB screening results improved across the two time periods for Tanzania (99.00% to 100%) and Rwanda (94.66% to 100%), and was low for Uganda (8.36%) for the time period April - September 2017. The proportion of ART patients who screened positive for TB ranged from 0.50% in Rwanda from October 2016 - March 2107 and to 6.22% in Kenya from October 2016 - March 2017.
Conclusions: The majority of PEPFAR-supported programs in East Africa are routinely screening ART patients for TB and these proportions increased over time, meeting an important global health benchmark. The proportion of patients who screened positive for TB remains low compared to the mean annual risk of HIV-infected individuals developing TB, which is approximately 10%. Our findings suggest that additional clinical training on symptom-based screening for TB might be needed to better identify positives and that data collection challenges, such as incomplete reporting of disaggregated data and proper documentation regarding the number of specimens sent for a diagnostic test, should be addressed.

Country	Patients on ART (N)	Patients on ART who were screened for TB (N)	Proportion of patients on ART who were screened for TB (%)	Completeness of reporting for TB screening results (%)	Patients who screened positive for TB (N)	Proportion of patients who screened positive for TB (%)	Specimens sent for diagnostic test (N)	Patients started on TB treatment (N)	Patients who screened negative for TB (N)
Kenya, Oct 2016-Mar 2017	1,011,712	936,270	92.54%	99.48%	57,961	6.22%	45,689	6,104	873,456
Kenya, Apr 2017-Sept 2017	1,041,326	995,264	95.60%	98.00%	59,738	6.12%	59,901	8,557	915,577
Uganda, Oct 2016-Mar 2017	893,591	-	-	-	-	-	-	-	-
Uganda, Apr 2017-Sept 2017	993,070	960,999	96.80%	8.36%	2,527	3.14%	1,871	5,632	77,857
Tanzania, Oct 2016-Mar 2017	841,798	753,754	89.54%	99.00%	9,182	1.23%	4,906	4,536	737,000
Tanzania, Apr 2017-Sept 2017	932,097	893,488	95.90%	100.00%	12,307	1.40%	13,666	5,306	881,161
Rwanda, Oct 2016-Mar 2017	93,366	85,534	91.93%	94.66%	402	0.50%	407	151	80,562
Rwanda, Apr 2017-Sept 2017	94,740	92,837	98.00%	100.00%	2,224	2.40%	2,224	212	90,613

[PEPFAR-supported, documented client interactions on routine screening of adults and children on ART for TB and related indicators in Kenya, Uganda, Tanzania and Rwanda]

TUPEE695

Using client tracking to improve access to counseling and testing services for adolescent girls and young women in Western Kenya

N. Migowa[1], S. Goldfrank[2], I. Jurkevich[2]
[1]American International Health Alliance, Nyanza, Kenya, [2]American International Health Alliance, Washington, United States

Background: DREAMS, funded by President's Emergency Plan for AIDS Relief (PEFPAR), is an evidence-informed initiative that arms adolescent girls and young women (AGYW) with knowledge, life skills, and support they need to stay healthy and HIV-free. DREAMS relies on functioning community health systems to ensure HIV testing services (HTS) support the needs of AGYW to more effectively address HIV/AIDS and reach global 90-90-90 targets.
Description: American International Health Alliance (AIHA) implements a DREAMS intervention targeting girls aged 10-14 to ensure they receive a core package of services to help reduce new HIV incidence by 40% in high-burden counties in Western Kenya. HTS is a core service AGYW receive through referrals and linkages, so girls know their HIV status and can make informed decisions to mitigate risky behavior. Caregivers were often unwilling to take girls for testing by themselves, however, so project mentors would accompany them, adding another layer of complexity to the HTS process. AIHA worked closely with Kenya's Ministry of Health (MOH) and County AIDS and STI Coordinators (CASCOs) to arrange for counsellors to provide HTS services at project Safe Spaces. Enrolled AGYW, accompanied by a parent or caregiver for consent, can get tested there. AIHA implemented a detailed process to track girls, HTS referrals, and status, ensuring girls who test positive are put on treatment, while those who test negative are scheduled for annual retesting. After the referral form is completed, it is filed and updated in DREAMS Database.
Lessons learned: Of the 24,620 AGYW presently enrolled by year 2 of the project, 19,353 (79%) were tested and aware of their HIV status; 27 girls tested positive and were referred to healthcare facilities for treatment and follow up care is support of Kenya's efforts to attain the global 90-90-90 targets.
Conclusions/Next steps: Implementers must continually evaluate projects and adjust operations to better meet local challenges and context. Working with stakeholders to find solutions that meet the needs of project beneficiaries can result in increased success and, in this case, resulted in a 90% success rate of AGYW enrolled in AIHA's DREAMS project knowing their HIV status.

TUPEE696

Is the whole greater than the sum of it's parts? Using narrow age bands in routine adult HIV surveillance for enhanced programme targeting and planning

M. Deda, K. Webb, P. Nesara
Organisation for Public Health Interventions and Development, Strategic Information and Evaluation, Harare, Zimbabwe

Background: Zimbabwe has an adult HIV prevalence of 14.6%. Since 2011 the National HIV & AIDS surveillance system has been tracking HIV prevention and control activities amongst older adults receiving services at public health facilities using a single broad age band (25-49 years). However, results from the 2016 Zimbabwe Population-Based HIV Impact Assessment showed noteworthy disparities of HIV prevalence by age and sex amongst persons between the age of 25 and 49 years. These results prompted the FACE-HIV programme to pilot a surveillance system collecting routine public health facility data on HIV prevention and control activities using narrower age bands (25-29, 30-34, 35-39, 40-49) amongst adults to solicit for enhanced HIV prevention and treatment program decision-making.
Description: A passive facility-based HIV surveillance system was implemented among 368 health facilities in 12 Districts from Oct-Dec 2017. Routine age and sex dis-aggregated service uptake and outcome data amongst adults (25-49) receiving HIV services at public health facilities were collected within narrow age bands.

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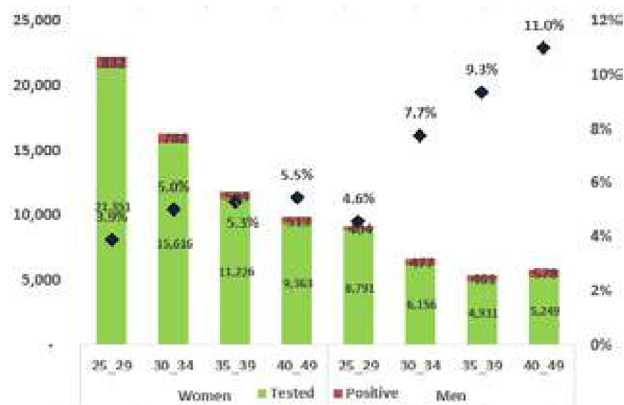
Lessons learned: A total of 82,683 clients within the 25-49 year age group were tested for HIV, 4,641 were newly identified HIV positive giving a yield of 5.6%. Amongst women and men the HIV testing yield was 4.7% (2,721/57,556) and 7.6% (1,920/25,127) respectively. When the same data were analysed using narrower age bands, noteworthy disparities by volume of tested clients and yield were observed (fig 1).
Across all age groups, absolute numbers of women tested for HIV was greater than men. For both women and men, as age increased, the volume of clients tested for HIV decreased, but the yield increased. The increase in yield was more marked in men, with the group with the highest yield being men aged 40-49(11%; 578/5249).



[Figure 1_HIV testing yield by narrow age bands and sex]

Conclusions/Next steps: The observed findings confirm the urgent need to collect and analyse increasingly granular routine facility HIV surveillance data for better understanding of HIV program performance and targeting of programme interventions as the programme reorients towards meeting the UNAIDS 90-90-90 2020 targets.

TUPEE697

Trends in one-year retention among clients on antiretroviral therapy in PEPFAR-supported sites from 2015-2017

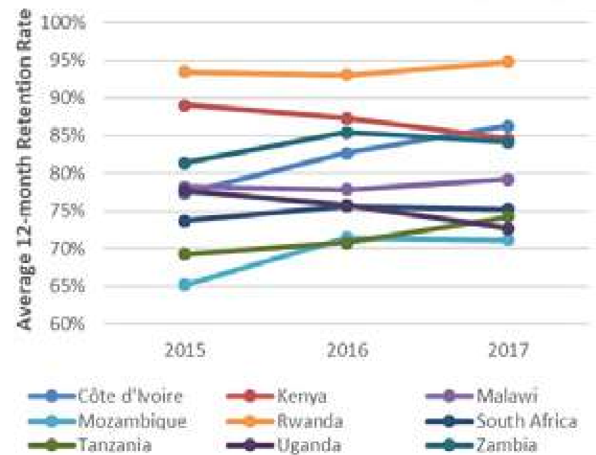
K. Clark, A. Radin, I. Zaidi
Office of the U.S. Global AIDS Coordinator and Health Diplomacy, Washington D.C., United States

Background: Recent PHIA results document high levels of viral suppression among people on ART, yet retention measured through routine program data suggest that retention among HIV+ clients newly initiating on antiretroviral therapy continues to be a significant barrier. In 2014, PEPFAR began prioritizing the highest burden geographic areas for accelerated epidemic control to increase diagnosis, linkage, and retention.
Methods: We conducted a retrospective analysis using facility-level 12-month retention data reported at 7,042 PEPFAR-supported facilities from 2015 to 2017 in the following countries: Côte d'Ivoire, Kenya, Malawi, Mozambique, Rwanda, South Africa, Uganda, Tanzania, and Zambia. Sites were selected for inclusion in the analysis if data were reported on the PEPFAR 12-month retention indicator during all three years under review. 5,707 (81%%) sites in the sample were in PEPFAR areas of geographic scale-up. We reviewed trends in overall 12-month retention rates and assessed if there was a relationship between PEPFAR geographic prioritization and changes in 12-month retention rates from 2015-2017.
Results: The overall mean rate of 12-month retention in was 78.4% (*SD*=17.3) in 2015 and 78.7% (*SD*=14.8) in 2017. 29.6% of the sites reporting in 2015 had a 12-month retention rate >90% compared to 29.2% in 2016 and 25.2% in 2017. 2,781 (48.7%) sites in PEPFAR scale-up areas observed an increase in 12-month retention compared to 631 (47.3%) in non-PEPFAR scale-up areas. There was no statistically significant difference in proportions (p = .085) between retention in scale-up and non-scale-up areas. Decreases in 12-month retention were observed in over half of sites in both PEPFAR scale-up (47.6%) and non-scale-up (50.0%) areas.

	Increase in 12-Month Retention	Retention Maintained at 100%	Decrease in 12-Month Retention	Total Sites
Sites in PEPFAR Scale-Up Areas	2,781 (48.7%)	211 (3.7%)	2,715 (47.6%)	5,707 (100%)
Sites not in PEPFAR Scale-Up Areas	631 (47.3%)	36 (2.7%)	668 (50.0%)	1,335 (100%)

[Retention in PEPFAR-Supported Sites]

Conclusions: Results reported for the PEPFAR 12-month retention indicator are likely an underestimation of actual 12-month retention as facilities often struggle to account for "silent transfers," particularly as efforts have been made to decentralize ART service delivery. Data from the PHIA demonstrate high levels of retention and viral suppression of clients on ART. Further investigation of both the data quality for retention indicators and programmatic strategies to improve tracing of clients between sites is needed to understand the observed decreases.



[Trends in Average 12-Month Retention by Country]

TUPEE698

Accelerating data use for Indonesia's Fast-Track response

S. Sulami[1], S. Rizal[1], V. Indrawati[2], C. Francis[3], J. Macom[4], A. Human[5]
[1]*FHI360, M&E and Strategic Information, Jakarta, Indonesia,* [2]*Ministry of Health, M&E and Surveilance, Jakarta, Indonesia,* [3]*FHI360, Chief of Party LINKAGES/USAID Project, Jakarta, Indonesia,* [4]*FHI360, Technical Advisor, Jakarta, Indonesia,* [5]*FHI 360 Indonesia, Jakarta, Indonesia*

Background: Each month, more than 4,000 health facilities across Indonesia collect and report HIV service-delivery data into the national HIV information reporting system (SIHA). Data are presented in tabular form across hundreds of indicators. This information is difficult to track, review, and analyze, and visual graphs are complicated to make. Not surprisingly, evidence has not been systematically used at all levels for accelerating HIV programming towards HIV epidemic control.
Description: The LINKAGES Indonesia Project - with support from USAID, under PEPFAR - partnered with Indonesia's Ministry of Health (MoH) to create the *Cascade Generator,* using Microsoft Excel and a MySQL application that is integrated directly into SIHA. For the first time, visual HIV testing and treatment cascade dashboards can be generated at facility, district, province, and national levels with just a few clicks. Data can be isolated for various time periods, key population groups, and HIV service modalities. The Cascade Generator enables users to focus on data that directly corresponds to national epidemic control objectives, making data more manageable and supporting more comprehensive data utilization efforts.
Lessons learned: The *Cascade Generator* has been introduced in two PEPFAR-targeted provinces, Jakarta and Papua. One hundred-fifty facilities, eight district health offices, two provincial health offices, and the MoH have initiated its use during Fast-Track planning and analysis consultations. In mid-2017, PEPFAR assessed its use and determined

that approximately half of Jakarta-based stakeholders had utilized the Cascade Generator at least once to review Fast-Track coverage or to identify quality improvement priorities. In the area of HIV testing, data generated through the Cascade Generator led to the amplification of mobile testing across Jakarta, increasing testing coverage by 53% over 2017.

Conclusions/Next steps: The Cascade Generator will be introduced by the MoH into 34 other provinces and 96 districts as Fast-Track implementation intensifies across the country. At the request of Jakarta's Public Health Office, additional Cascade Generator templates to support further data analysis efforts, including dashboards that track 95-95-95 performance against targets, are currently being added. The project will continue to place increased emphasis on data analysis assistance, and the systematic use of this data for quality improvement.

TUPEE699

Measuring advocacy and capacity building: Experience of major MSM/LGBTI-focused project in EECA

R. Stuikyte[1], S. Chikhladze[2], D. Kamaldinov[3], K. Kepuladze[2], M. Kasianczuk[4], V. Djuma[4]
[1]Consultant, Vilnius, Lithuania, [2]NGO Tanagdoma, Tbilisi, Georgia, [3]Humanitarian Project, Novosibirsk, Russian Federation, [4]Eurasian Coalition on Male Health (ECOM), Tallinn, Estonia

Background: Eurasian Coalition on Male Health (ECOM) initiated a project in 5 countries aimed at improving responses to increasing HIV epidemics among MSM/LGBTI in Eastern Europe and Central Asia (EECA) through advocacy and empowered community engagement in policies and services. To assess the work, in 2017, it conducted a baseline assessment (BA) covering: development of LGBT community; levels of epidemics and services available; recognition of MSM/LGBTI in national HIV policy documents; involvement of LGBTI leadership and MSM services in national HIV and other governance; domestic investments in HIV among MSM/LGBTI.

Methods: The BA protocol with qualitative and quantitative (scoring) tools was developed. Data were collected through literature review and semi-structured interviews with LGBT groups/MSM services and national stakeholders.

Results: Involvement of MSM and transgender people in HIV decisions varies from third to half of the maximum possible scores, with higher levels in Georgia and Kyrgyzstan, where investment in HIV prevention among MSM is highest. While all the countries indicate MSM as a key population in HIV policy documents, funding for services has come exclusively from the Global Fund. Transgender people is recognized as a key population only in Kyrgyzstan; there is a complete lack of data on them across the countries. LGBTI leadership is being renewed across the countries but without focused leadership building. Valuable experiences have been identified: special seats allocated for community representatives and first transgender person elected to HIV coordination mechanism in Belarus, PrEP initiation in Georgia, strong cross-fertilization among LGBTI groups and HIV-MSM services in Kyrgyzstan, first-time allocation of national funding for HIV prevention among MSM in Macedonia. Regional and country-specific recommendations were produced.

Conclusions: The BA might serve as an example for monitoring progress of advocacy and capacity building and producing comparative indexes on stronger and weaker sides of each country. Similar assessments should combine self-assessment of LGBTI/MSM stakeholders and confidential feedback from external partners (major differences seen in BA). The assessment will be repeated in 2019 to measure ECOM project's impact. ECOM considers extending BA to other EECA countries to map EECA situation and compare of changes in its project countries with non-project countries.

TUPEE700

HIV rapid test procurement forecast at a regional level: Improving operational planning to achieve the HIV screening and detection targets

L. Khomych, M. Duda
Deloitte Consulting Overseas Projects, LLC, USAID Project, Kyiv, Ukraine

Background: Ukraine has one of the highest HIV burdens in Eastern Europe with an estimated 243,000 people living with HIV/AIDS (PLWH). As of early 2018, 58.6% of PLWH have learned of their status. Scale-up of HIV testing is needed to reach the first 90 of the global targets. In the context of Ukraine's health financing reform and HIV services' decentralization, USAID HIV Reform in Action Project developed and tested an electronic tool for forecasting program and financial needs for rapid HIV tests supply at the regional level. The tool enables evidence-based supporting of HIV strategies and policies in programmatic scale-up and HIV testing provision.

Description: Our analysis reflected allocative and technical efficiencies as a key strategic pillar for HIV rapid test kit needs forecasting, with a particular focus on the first 90 target. The projections use regional 90-90-90 targets. Input data include area-specific demographic, epidemiological, service utilization, and costing data. The tool allows forecasting of three alternative scenarios based on procurement practices used at the targeted area.

We tested the tool in seven PEPFAR-supported high-burden regions. The routine application of the tool permitted calculation of rapid HIV testing financial and programmatic needs for annual procurement plans.

Lessons learned: The tool supported local-level authorities in projecting financial needs to purchase rapid HIV tests based on their regional epidemiologic situation. Our experience demonstrated the difference in financial forecast needs based on rapid HIV test procurement practice: centralized, or pooled procurement vs. local procurement of small amounts of test kits.

Conclusions/Next steps: A multipronged approach to forecasting the programmatic and financial needs for rapid HIV testing could be introduced countrywide into the routine operational planning process at regional and local levels. Using such a tool will allow governmental policy-makers to make informed decisions to achieve 90-90-90 targets in a cost-effective manner and enhance transparency and accountability in decision-making and programmatic planning at the regional level. Programmatic planning should select the more suitable procurement option (pooled vs. local procurement).

TUPEE701

All for the Africans but nothing by the Africans? Analysis of the contribution of African HIV research institutions in the IAS 2017 conference

J. Gonzalez Perez[1], A. Zakowicz[2], K. Ssamula[3], L. Buzaalirwa[3], A. Kayongo[3]
[1]AIDS Healthcare Foundation, Kigali, Rwanda, [2]AIDS Healthcare Foundation, Amsterdam, Netherlands, [3]AIDS Healthcare Foundation, Kampala, Uganda

Background: Research conducted in Africa has changed the way that HIV is prevented and managed globally. When the epidemic started expanding in Africa in the early 1990´s, foreign support (also in research) was critical to confront that threat. Today, is Africa still depending on foreign institutions and researchers to end HIV? We present here data on institutions that presented HIV research from Africa in the most recent International AIDS Society Conference on HIV Science (IAS 2017).

Methods: All abstracts accepted for IAS 2017 for Oral sessions and Poster discussions presenting research conducted in Africa were included in the study. Affiliations of the first four authors in each abstract were classified in seven categories: Research institutions [RI] - based in the United States (US-RI), Europe (UE-RI) or Africa (Afri-RI), Long term collaboration programs between RI in US or Europe and RI in Africa (Colab-RI), Non for profit with headquarters [HQ] out of Africa (Intl-NGOs), Non for profit with HQ in Africa (Afri-NGOs) and Ministries of Health [MoH] of African countries (Afri-MoH). Weighted scores based on author order were given

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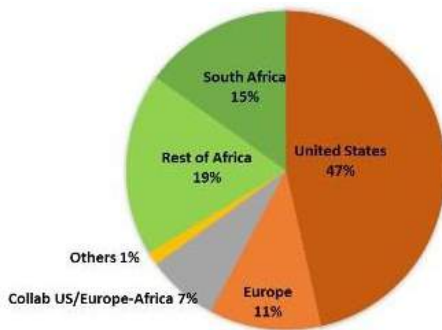
to each affiliation, keeping the total score for each abstract equal. After categorization, percentages were calculated of the contribution of each category to the total.

Results: 83 abstracts met the inclusion criteria. 46% of them focused on Implementation Science (Track D), none of them on Basic Science (Track A). Countries where HIV research was more frequently conducted were South Africa (22 abstracts), Malawi (13) and Uganda (9). By institutions, US-RI were responsible for 30% of the HIV research conducted in Africa presented in IAS 2017, Afri-RI for 22% (almost two thirds of these from South Africa), Intl-NGOs for 21%, Afri-NGOs for 8%, UE-RI and Colab-RI for 7% each and Afri-MoH for 5%.

Conclusions: Foreign research institutions and international NGOs are still responsible for almost 60% of the research conducted in Africa presented in IAS 2017. South African universities are the main actor in HIV research within the African continent. The role of long term collaboration programs between African and US or European universities in HIV research is lower than expected.



[Contribution of institutions conducting research in Africa to IAS 2017 by location]

TUPEE702

Mapping population sizes and hotspot locations for female sex workers improved targeting for HIV prevention interventions in Ethiopia

W. Girma, E. Workalemahu, T. Negatu
Population Services International/Ethiopia, Addis Ababa, Ethiopia

Background: HIV prevalence among female sex workers (FSWs) in Ethiopia is approximately 23%. To address risk of HIV in this population, the MULU/MARPs combination HIV prevention project was launched in 2012 across 168 Ethiopian towns/cities. Implementation was challenged by insufficient data on FSW locations and sizes. A rapid size estimation approach was developed to aid program implementation.

Description: FSWs were enumerated from 100 cities/towns through interviews with key informant (KI), who included FSWs, venue managers/owners, cashiers, and guards at FSWs workplaces. KIs were asked about the number of FSWs who negotiated sex for money in the last month. The number of venue-based FSWs reported by KIs were summed to estimate population size in a given town.

The number of street-based FSWs was estimated using a capture/recapture approach. Street vendors/guards of FSWs helped to identify street-based FSWs. Further, service facilities were also mapped from 79 towns, including facilities that provide HIV testing, family planning, and sexually transmitted infection diagnosis and treatment. KIs provided informed consent and data collection was conducted June-October, 2013 (44 cities/towns), February-March 2014 (35 cities/towns), and March-May, 2017 (21 cities/towns).

Lessons learned: The FSW population in the 100 study towns was estimated to be 84,801 (41,768 in 2013, 31,932 in 2014, and 11,101 in 2017) and were found to operate in 34,732 locations (57.9% establishment /bars, hotels, cafes, groceries & coffee house, 41.5% homes and 0.6% streets). A total of 3,544 private, public, public/private, and NGO facilities were mapped and about 550 (11%) provided comprehensive HIV services including HIV counselling and testing, STI screening, and FP services. The results of this rapid size estimation approach have been used for project target-setting, allocation of resources, and developing coverage standards specific to each project town. It also helped to establish private network service facilities in hot-spots to provide standard services and evidence for national planning processes. One limitation is dependence of interviewers on KIs who can over/under estimate the size for various reasons.

Conclusions/Next steps: Rapid size estimation approaches may be less precise than other estimation approaches, but can be a useful exercise for programs seeking to better target services for hidden populations.

TUPEE703

Reaching universal coverage, through low cost integration with health system model: Madhya Pradesh, India

P.K. Malaiya[1], P. Gupta[2], A. Hegde[3]
[1]Madhya Pradesh State AIDS Control Society, Health & Family Welfare Madhya Pradesh, Bhopal, India, [2]UNICEF, Madhya Pradesh State AIDS Control Society, Bhopal, India, [3]National AIDS Control Organization, Health and Family Welfare, New Delhi, India

Background: Madhya Pradesh, low prevalent, central state in India, reports 2.2 million estimated annual pregnancies. 95% of the estimated pregnant women are registered for antenatal services and 75% are tested for HIV in 2017. These services are delivered through 680 facilities located in Community centers and Primary health centers. This paper describes the improvement in PPTCT in terms of screening and treatment services.

Description: The major barrier in reporting of Prevention of Mother to child transmission services of HIV/AIDS program was the need for hardware and internet connectivity and data monitoring of these facilities. Although pregnant women were accessing services for PMTCT, it was not being reflected in the health system. The reporting from the facilities was 8% in 2014, which increased to 80% in 2017. These improvement in reporting was due to the integration with the maternal health system. Nodal officers from maternal health were identified at State, district, block and facility level: were trained on their responsibility to ensure reporting pf the PMTCT services in the health system. These trainings were conducted during their regular monthly review meeting. These trained officers during their regular supportive supervision visits to the facilities and during their review of the facilities ensured reporting of PMTCT services in the health system.

Lessons learned: Despite many constraints on the need of hardware and internet connectivity, the facilities delivering services ensured that they report in the health system, through utilisation of the health system hardware and internet facilities. Total number of ANC registration in the year of 2014-15, 2015-16 & 2016-17 were 1.90,1.84,1.84 million and out of which pregnant women screened for HIV were 36%,54% 61% respectively, i.e. **97% increment** over 3 years. The treatment initiation to the HIV positive pregnant women and ARV prophylaxis to HIV exposed babies increased to 94.9% in 2016-17 from 58.8% in 2014-15. Integration with maternal health systems and strengthening of data monitoring and reporting from the facilities providing testing & counselling services led to this upscale.

Conclusions/Next steps: Monitoring of Health facilities and strengthening reporting through the maternal health system has contributed to documenting the increase uptake of HIV services and improvement in treatment services.

TUPEE704

Focused HIV programming: A visual analysis of routine HIV data from 51 sub-districts in KwaZulu-Natal province, South Africa

I. Maina[1], T. Ngwenya[2], E. Mungai[3], F. Ndlovu[2]
[1]UNAIDS, Pretoria, South Africa, [2]KwaZulu-Natal Office of The Premier, Priority Programmes, Pietermaritzburg, South Africa, [3]KwaZulu-Natal Treasury, Pietermaritzburg, South Africa

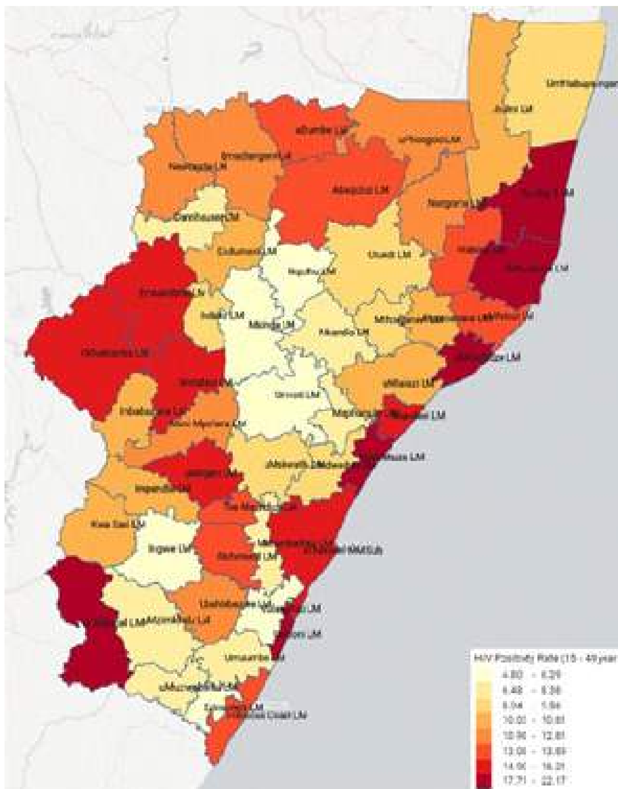
Background: KwaZulu-Natal (KZN) province remains the epicenter of the global HIV epidemic and despite massive investment in HIV programmes, infection rates remain unacceptably high. In 2016, the Provin-

cial Council on AIDS (PCA) embarked on the process to develop the KZN HIV, TB and STI strategic plan for 2017 - 2022. The purpose was to use routine HIV data for focussed programme planning on where, how and what for each of its 11 districts and 51 sub-districts.

Description: The first step in developing the plan was to better understand the epidemic in all districts and sub-districts. To achieve this, incidence, prevalence and behavior trends from survey data, modeling and programme performance from routine data was analysed. This paper focusses on the latter and specifically facility data on HIV positivity aligned to government financial year 2015/16.

Routine health data for selected indicators was analysed using a geo-spatial tool disaggregated by age and location. Each facility was mapped to understand its catchment population and assigned to a sub-district. HIV positivity rates for the following age categories was used for analysis: 18 months, 1 - 4 years, 5 - 14 years and 15 - 49 years. For improved targeting, the actual number of people diagnosed HIV positive in that year was also reviewed.

Lessons learned: The epidemic is not homogeneous in the province both at district and sub-district level. Across all age-groups, Ethekwini Metro has a high positivity rate and carries 40% of the total provincial burden. Sub-district analysis indicate major variances with cities and coastal areas having higher rates. For example, figure 1 shows that 12 of the 19 sub-districts with positivity rates over 10% among 15 - 49 age group were along major routes or towns.



[2015/16, KZN HIV Positivity Rates Among 15 - 49 Year Old]

Based on analysis, the province was able to prioritize specific high burden districts and sub-districts for intensification of high impact interventions. In 2017, the results informed Global Fund resource allocation for HIV prevention to five identified high burden districts and 10 sub-districts.

Conclusions/Next steps: Visual analysis of rountine data collected at sub-district can easily be used for focussed HIV programmming at different levels. Further disaggregation by sex and ward level is recommended.

TUPEE705

Effective use of LabEQIP tool for VL laboratory network optimization in Rwanda: Data-driven decision making to building laboratory capacity to meet the 3rd 90

A. Bingi Tusiime[1], F. Gasaza[2], E.I. Mwikarago[3], E. Ntagwabira[3], E. Karangwa[3], I. Buki[2], H. Steppe[4], S. Were[5], M.C. Wattleworth[5], C.B. Ndongmo[5], M.L. Field-Nguer[6]

[1]USAID Global Health Supply Chain Program - Procurement and Supply Management (GHSC-PSM) Project, Arlington, United States, [2]USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) Project, Kigali, Rwanda, [3]Rwanda Biomedical Center, Kigali, Rwanda, [4]Llamasoft, Inc, Alexandria, United States, [5]USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) Project, Arlington, United States, [6]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Task Order 1 HIV/AIDS, Arlington, United States

Background: To reach the 3rd global 90-90-90 goal of having 90% of those on treatment virally suppressed, countries require thorough analysis and understanding of their national laboratories and referral sites networks. These networks should be optimized to strategically plan for future testing capacity needs. To that end, a comprehensive laboratory network optimization exercise in Rwanda supported viral load (VL) scale-up while scaling down CD4 testing.

Methods: Using the Laboratory Efficiency and Quality Improvement Planning (LabEQIP) software, a mapping and network optimization tool, partners in Rwanda collected data on patient numbers, facilities, and equipment utilization rates. The existing testing network and respective referral sites contained nine conventional VL and 92 CD4 instruments. Using LabEQIP, partners ran various scenarios to determine the optimal testing capacity, equipment placement and utilization rates, sample transportation, and referral linkages.

Results: A key finding from the exercise was that the National Reference Laboratory (NRL) was overburdened by participating referral sites while the Rwanda Military Hospital Laboratory (RMHL) was underutilized. Reassignment of some ART sites from NRL to RMHL resulted in a 6% reduced workload at NRL that RMHL was able to absorb; this also led to a 15% decrease in travel distances to support the network. Moreover, a scenario assuming the projected 8% increase in VL patients found the national equipment capacity to be adequate, as the labs were found to have only 23% utilization rate at baseline. Another scenario analysis showed that the existing POC CD4 network could meet projected overall 85% decrease in testing demand through reallocation of existing POC CD4 machines, leading to cancellation of a planned order of 22 new ones, saving at least $240,000 in equipment and installation.

Conclusions: The experience in Rwanda is illustrative of how national VL programs can benefit from the use of the LabEQIP tool. By providing rich, data driven scenario planning for VL network optimization, the tool informs policy and programmatic decisions that produce greater network efficiency, better clinical outcomes, and significant cost savings. The tool can also be used for long-term monitoring and revisions to VL networks.

TUPEE706

Using surveillance and other data systems to improve linkage to HIV care for racial and ethnic minorities in the United States: Lessons from the CAPUS demonstration project (2012-2016)

M.S. Mulatu, P. Sweeney, T. Hoyte, K. Williams

Centers for Disease Control and Prevention, Division of HIV/AIDS Prevention, Atlanta, United States

Background: In the United States, blacks/African Americans and Hispanics / Latinos are disproportionately affected by HIV. Increasing access to care for people living with HIV (PLWH) and reducing HIV-related disparities are key national objectives. Data-to-Care (D2C) is a public health strategy that uses HIV surveillance and other data to improve linkage, retention, and health outcomes for PLWH who are not linked to medical care.

Description: The Care and Prevention in the United States (CAPUS) project implemented in 2012-2016 by eight state health departments included a combination of interventions to reduce HIV-related morbidity,

mortality, and disparities among racial/ethnic minorities. A key component of CAPUS required grantees to develop capacity to use HIV surveillance and other data to:
a) identify and help PLWH link to or re-engage with care,
b) monitor their clinical outcomes, and
c) improve the quality of care and prevention services provided to them.
We synthesized qualitative and quantitative data reported by grantees to describe their D2C implementation and outcomes.
Lessons learned: Grantees enhanced their capacity to implement D2C by improving their data systems; integrating surveillance, care and prevention data; and enacting policies and procedures for using surveillance information for program follow-up. Using multiple data systems, grantees identified and contacted 4,952 PLWH presumed to be not-in-care (64.0% blacks/African Americans, 29.2% whites, 4.1% Hispanic/Latino). Of those, only 36.6% were confirmed as not-in-care (41.6% of blacks/African Americans, 30.9% of Hispanic/Latinos, 25.2% of whites). Linkage services were provided to 57% of those confirmed as not-in-care (60.5% of blacks/African Americans, 58.7% of Hispanics/Latinos, 42.5% of whites). Overall, 82.4% of those provided linkage services were linked to or re-engaged with medical care (84.4% of blacks/African Americans, 78.4% of Hispanics/Latinos, 69.7% of whites).
Conclusions/Next steps: CAPUS grantees enhanced their capacity to use surveillance and other data to identify PLWH who were not-in-care and link to or re-engage them with medical care. Better outcomes for blacks/African Americans and Hispanics/Latinos, compared to whites, suggest that D2C programs that prioritize racial/ethnic minorities may help address disparities in access to HIV medical care. Further improvements in data systems and outreach services are essential for the success and scale-up of D2C programs.

TUPEE707

Strengthening data management and utilization to improve the quality of HIV/AIDS services provided by the Zambia Defence Force health facilities

S. Jere[1], D. Kaoma[1], L. Nonde[1], I. Jurkevich[2], F. Malasha[3], E. Lifuka[4]
[1]American International Health Alliance, Lusaka, Zambia, [2]American International Health Alliance, Washington, United States, [3]Zambia Defence Force, HIV Secretariat, Lusaka, Zambia, [4]DAO PEPFAR, Lusaka, Zambia

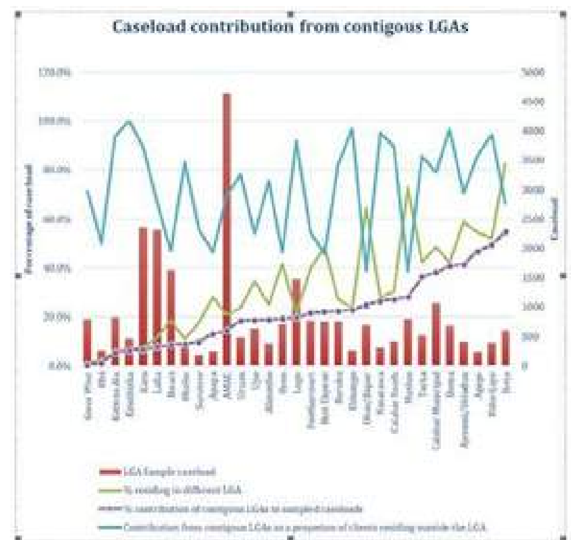
Background: The Zambia Defence Forces (ZDF) Military Medical Service plays a substantial role in the country's HIV/AIDS response. ZDF's 54 military bases provide health services, including HIV testing, counselling, care, and treatment, to over 400,000 military personnel and civilians across Zambia.
According to a study conducted by the University of Zambia's Department of Population Studies (UZDPS), data management and utilization to inform facility-level decisions at ZDF health centers is low due to a range of factors, including inadequate integration of monitoring and evaluation (M&E) systems, poor record documentation of records, and lack of standardized training resources.
Description: With support from the President's Emergency Plan for AIDS Relief (PEPFAR) and the U.S. Department of Defense (DOD), the American International Health Alliance (AIHA) is working with ZDF to promote data use for quality improvement (QI) in 19 (ZDF) health facilities by establishing M&E Hubs at 19 ZDF health facilities. In collaboration with the Ministry of Health and UZDPS, AIHA trained 3 health personnel (1 in data management and 2 in QI) from each of the 19 facilities in data management and QI. Post-training follow ups were conducted to ensure facilities were adhering to QI plans developed during training and onsite mentorship was done to support facilities that did not initiate QI processes.
Lessons learned: Site Improvement Monitoring visits conducted by DOD at three sites selected among the 19 facilities in 2016 scored 59% in QI; in 2017, two of the facilities selected scored 100%, demonstrating improved quality of HIV-related services. Staff at all 19 facilities discuss performance data in review meetings and revise action plans accordingly. Challenges such as staff attrition, inadequate support from District Health Offices (DHOs), and resource limitation still exist as impediments to further progress.
Conclusions/Next steps: Bridging identified gaps in effective collection and utilization of data to improve the quality of health services and outcomes requires, among other things, additional training, strong engagement of DHOs in the provision of onsite mentoring, and support for harmonization of data collection tools.

TUPEE708

Should health-facility service data alone be used to locate the HIV epidemic? Experience from a Health Facility Catchment Area Mapping study in Nigeria

O.J. Ibitoye[1], M. Langley[2], D. Oliver[2], T. Murove[3]
[1]Catholic Relief Services, Monitoring, Evaluation, Accountability & Learning, Abuja, Nigeria, [2]Cathoilic Relief Services, Programme Impact and Quality Assurance, Baltimore, United States, [3]Catholic Relief Services, Abuja, Nigeria

Background: Locating the epidemic is critical to any disease control effort. In Nigeria, PEPFAR utilized patient-level data to prioritize scale-up interventions in 32 of the 774 Local Government Areas (LGA) towards controlling the HIV epidemic. While PEPFAR relied on health-facility service data to determine its focus, failure to take patients' residence into consideration challenged the accuracy of the prioritization. A Health Facility Catchment Area Mapping (HFCAM) was conducted to inform program and policy decisions regarding epidemic control activities performed by PEPFAR Implementing Agencies and their partners in Nigeria.
Description: The HFCAM collected demographic, geo-location of patient residence (LGA) and health facility data along with HIV treatment records from 26,365 (7,163 Male; 19,202 Female) beneficiaries between June and August 2016 in 176 PEPFAR supported facilities across 31 priority LGAs. The data collected was used to develop catchment maps. The maps show the spatial distribution of clients who reside in PEPFAR prioritized LGAs overlaid with that of clients who cross LGA boundaries to access care in the prioritized LGAs. The HFCAM concluded that 27.5% of clients access services outside their LGA of residence and 70% of clients who cross LGA boundaries did so from contiguous LGAs to a PEPFAR prioritized LGAs.



[Figure: Caseload contribution to Scale up LGAs by contiguous LGAs]

Lessons learned: In response to the HFCAM findings, PEPFAR created a new category of support in Nigeria - 'Sustain Support Plus' - which joins the other categories of support ('Scale-Up' and 'Sustained Support'). The 13 'Sustain Support Plus' LGAs are contiguous to scale-up LGAs and have started to benefit from an expanded range of PEPFAR priority interventions to address the identified challenges in accessing core community-based interventions. PEPFAR has described this as "cluster-based targeting" which considers LGA catchments in planning coverage of interventions. Through the granular analysis of client records and spatial visualization, the HFCAM supported greater precision in targeting services for PLHIV.

Conclusions/Next steps: Combining facility-based coverage data with patient-level geographic data leads to improved evidence on the location of the HIV epidemic, improving program decisions towards epidemic control. Future research will explore the characteristics of individuals who seek care in their LGA versus those who do not. This will allow further refinement in effective targeting.

Evaluating large scale programmes: approaches to rigorous evaluation

TUPEE709

Implementation of "Getting 2 Zero" in Miami: A progress report

T. Brown, Z. Blair, M. Brown, T.Y. Cooke, W. Darrow, E. Dormevil, D.M. Felder, J. Garcia, M. Guzman
Florida International University, Stempel College of Public Health & Social Work, Miami, United States

Background: Miami-Dade County is currently ranked number one in the United States for new HIV infections per 100,000 residents. To reduce HIV incidence and improve other outcomes, the Mayor's Office appointed a "Getting 2 Zero (G2Z) Task Force" of 29 stakeholders to review HIV prevention, treatment, and control policies, programs, and practices in the county. The Task Force began to meet in September 2016 and concluded its work in February 2017 by proposing 16 recommendations for implementation. We followed up on the implementation of G2Z recommendations by tracking the progress of the Florida Department of Health (FDOH)-Miami and their partners.

Description: Eight members of a master's of public health class on "Health Promotion Program Planning and Intervention Design" formed a research team and divided the 16 recommendations into eight pairs. Each team member then followed up on two of the recommendations by contacting a representative of the health department or another person designated in the action plan as taking the lead. Information obtained from personal communication, meeting attendance and minutes, and other sources was used to create a timeline displaying monthly progress from June 2017 through January 2018.

Lessons learned: As of February 1, 2018, progress was reported on 13 recommendations and no progress on three. Those being implemented had achieved varying degrees of completion (Table on the next page). For example, significant strides had been made with respect to:
(1) improving access to PrEP and nPEP,
(2) routine HIV/STI testing, and
(3) providing rapid access to ARV treatment and retention in care.
Major obstacles still remained with:
(1) implementing comprehensive sex education in public schools,
(2) bridging gaps when clients move or lose eligibility, and
(3) expanding the network of housing available for PLWHA.

Conclusions/Next steps: Significant progress had occurred on implementing recommendations under the control of FDOH. Recommendations that required legislation, policy changes, and multi-agency collaboration or additional resources had made less progress. No additional resources had been allocated by FDOH, the Mayor's Office, or other agencies to assure complete implementation of Task Force recommendations in Miami-Dade County.

Recommendation	Community Partner	January 1-December 31, 2017	February 1, 2018 Update
Updates provided by Y.T. Cooke			
1. Provide comprehensive sex education throughout the Miami-Dade County Public School system (M-DCPS), recommending modifications in the M-DCPS comprehensive sex education curriculum as age appropriate. 2. Expand PrEP (Pre-Exposure Prophylaxis) and nPEP (non-occupational Post-Exposure Prophylaxis) capacity throughout Miami-Dade County, and increase utilization by all potential risk groups	Miami-Dade County Public Schools Florida Department of Health in Miami-Dade County and Gilead Sciences, Inc.	Not implemented--Why? ~Parents want control over sex education of their children. ~M-DCPS adopted an abstinence only curriculum. ~Abstinence only rule is now under review. ~Comprehensive sex education in M-DCPS is possible. Non-profit CBO could partner with Planned Parenthood. Number of PrEP locations: 25 Number of nPEP locations: 16 Number of PrEP prescriptions: • June 2017 - 907 patients (676 continuing, 119, new patients) • August 2017 - 984 patients • September 2017 - 832 patients (Hurricane Irma disruptions) October 2017 - 1044 patients	Quarterly meetings between community representatives and the Superintendent of M-DCPS have been scheduled to discuss health-related issues. Bullying is at the top of the list. Comprehensive sex education is lower down on the list of priorities The number of people using PrEP in Miami-Dade County almost doubled from 663 at the end of 2016 to an estimated 1031 people at the end of November 2017. Adherence is believed to be as good for PrEP as it is for ARV treatment, but providers are concerned about discontinuance by patients after 6 months of use.
Updates provided by Z. Blair			
3. Implement routine HIV/STI testing in healthcare settings (hospitals, urgent care centers, medical practices). 16. Identify barriers and improve access to existing HIV/AIDS services for HIV positive undocumented immigrants	Florida Department of Health in Miami-Dade County, Gilead FOCUS Project Miami-Dade County Ryan White Part A/MAI Program	Baptist Hospital Homestead, Borinquen Clinic, and Jackson Health System have implemented routine testing in ERs. Want to expand to Baptist West Kendall and Jackson Health System Adolescent Emergency Rooms. Clinic hours and weekend availability created. Increased number of participating providers and mobile units .	The number of people using PrEP in Miami-Dade County almost doubled from 663 at the end of 2016 to an estimated 1031 people at the end of November 2017. Adherence is believed to be as good for PrEP as it is for ARV treatment, but providers are concerned about discontinuance by patients after 6 months of use. Established relationship with a local immigration service provider to provide monthly HIV testing and services to clients attending immigration clinics.
Updates provided by M. Brown			
4. Create a comprehensive HIV/AIDS communications toolbox 11. Expand the network of housing available for PLWHA, with particular attention to pregnant women, released ex-offenders, youth and other high-risk HIV-positive groups.	Florida Department of Health -- Central Office in Tallahassee Miami-Dade County - Homeless Trust, City of Miami HOPWA Program, Miami-Dade County Ryan White Part A/MAI Program	Created a comprehensive HIV/AIDS communications toolbox. Plans being made for a "Getting to Zero" campaign No progress reported	Creating a marketing campaign to educate providers on Florida Statute 381.004. The Statute mandates routine HIV testing in healthcare settings unless a patient chooses to opt-out. No progress reported
Updates provided by J. Garcia			
5. Convene a multi-agency consortium of public health/academic institutions/service providers to share data/collaborate on research identifying the driving forces of the HIV/AIDS epidemic in Miami-Dade County. 6. Decrease the lag time from diagnosis to linkage to HIV/AIDS care to within 30 days or less for: (1) clients newly diagnosed, (2) clients returning to care and (3) clients post-partum with HIV/AIDS, irrespective of where clients were diagnosed and where clients seek treatment. This action recommendation includes expanding the Department of Health´s „test and treat" program and other forms of fast-track post-diagnosis clinical engagement.	Florida Department of Health in Miami-Dade County Florida Department of Health in Miami-Dade County	No progress reported In 2016, the Test and Treat Rapid Access Program was launched to help newly diagnosed clients start ARV treatment as early as possible. Early treatment slows disease progression, decreases transmission, and provides access to medical care, support services, and other benefits.	Partnering with Florida International University's Stempel College of Public Health and Social Work to identify research needs and opportunities for collaboration. A 5-year strategic plan will be developed. Partnering with Ryan White Part A to expand the Test and Treat model to sub recipients Modified all 2018 testing site contracts mandating linkage to be completed within 30 days. Creating Linkage to Care Coordinator position to oversee linkage specialists Working with Ryan White Outreach committee to address linkage areas of opportunity
Updates provided by M. Guzman			
7. Increasing system capacity to bridge the gaps in provision of treatment and medication (and maintain PLWHA in care) when changes in income and/or residence create eligibility problems. 12. Create/expand a network of internal (in-jail) and post-release HIV/AIDS service provision to inmates in the Miami-Dade County jail system, to address viral suppression while incarcerated and effective linkage to medical / mental health / substance abuse /housing care upon release, including providing sufficient medication to effectuate continual viral load suppression during post-release linkage to care.	Florida Department of Health- Central Office Florida Department of Health in Miami-Dade County and Jackson Health System Correctional Services	Correctional Health Services is modifying their process to provide inmates upon release with a 30-day supply of medication. Hiring a linkage to care specialist for post-release HIV services. Jackson Health System Correctional Services in partnership with FDOH-Miami and South Florida AIDS Network will work on a plan to extend ARV medication supplies for 30 days post-release.	Hired a Linkage to Care Coordinator. No progress reported
Updates provided by D.M. Felder			
8. Enlist commercial pharmacies as HIV/AIDS treatment partners, from making PrEP and nPEP more available (see Recommendation #2) to having pharmacists alert HIV/AIDS care clinicians and/or case managers when antiretroviral (ARV) medications are not picked up on time 15. Build a county-wide system of HIV/AIDS program effectiveness evaluation, basing it on a common set of outcome measures across all providers.	Florida Department of Health - Central Office (Beal) Miami-Dade County Ryan White Part A/MAI Program Florida Department of Health in Miami-Dade County, Government of Miami-Dade County	In August 2017, Miami- Dade County RW Partnership created a Pharmacy Workgroup to explore barriers to accessing medications through ADAPT. Walgreens Minute Clinic will be starting a PrEP/nPEP pilot program at two locations with future plans to expand to all 17 locations. The program is scheduled to start in November 2017. No progress reported	RW Partnership created a commercial pharmacy with in-house clinical services to provide PrEP and nPEP. Trying to establish an nPEP standing order at a commercial pharmacy Urging revision of Florida Statute 348.3 to allow youth to access PrEP without parental consent. No progress reported
Updates provided by E. Dormevil			
9. Partnership with Managed Care Organizations (MCOs) and Medicaid for the purpose of data-matching and to allow Florida Department of Health (FDOH) to follow HIV-positive clients in managed care plans (public and private). 10. Develop a county-wide integrated system of HIV/AIDS care, including a county-wide treatment consent form and develop county-wide data-sharing system addressing various social service needs (transportation, legal services)	Florida Department of Health - Central Office FDOH-Miami Miami-Dade County Ryan White Part A/MAI Program Miami-Dade County Miami-Dade County RW Part A/MAI Program, Florida Department of Health in Miami-Dade South Florida Behavioral Health Network	No progress reported No progress reported	Data sharing agreement initiated with the Agency for Healthcare Administration (ACHA) to obtain health outcomes for Medicaid clients. Exploring the creation of a statewide Ryan White consent form. Meeting with County official to create a county-wide consent form.
Updates provided by T. Brown			
13. Identify root causes of HIV/AIDS stigma and reduce the stigma through education and communication programs directed toward Miami-Dade County´s multicultural and multiethnic communities and providers. 14. Reform and modernize Florida's current statutes criminalizing HIV non-disclosure.	Florida Department of Health in Miami-Dade County, Miami-Dade County Ryan White Part A Florida Department of Health - Central Office, State Legislative	Educational and communication campaigns to address stigma have been created. Plans are being made to develop a measure of stigma. Senate Bill 628 was proposed in the 2017 Florida Legislative sessions, but it failed to pass.	Ryan White support agency will be launching a plan to address stigma in January 2018 and will develop an indicator to measure stigma RW Partnership signed on as a community partner for the "Untransmittable=Undetectable" (U=U) campaign A "Dear Colleague" letter will be sent to Ryan White sub recipients and community agencies educating on the significance of the U=U campaign. The bill has been filed for consideration in the 2018 Florida Legislative

[Implementing G2Z Task Force Recommendations in Miami]

TUPEE710

The impact of an interpersonal communication intervention on knowledge and uptake of the new Woman's Condom among young adults (18-24 years) in urban Zambia: A randomized evaluation

J. Pinchoff[1], C. Boyer[2], N. Taruberekera[3], N. Mutombo[4], R.N. Chowdhuri[5], T.D. Ngo[1]
[1]*Population Council, Population Gender and Youth, New York, United States,* [2]*Innovations for Poverty Action, New York, United States,* [3]*PSI, Evaluation, Johannesburg, South Africa,* [4]*Society for Family Health, Lusaka, Zambia,* [5]*Consultant, Lusaka, Zambia*

Background: There is a need to diversify contraceptive choices, particularly in settings such as Zambia which experience high rates of HIV (13.3%) and unmet need for family planning (27.1%). A new Female Condom (FC), the *Maximum Diva* Woman's Condom (WC), was introduced combined with social marketing in urban Zambia.
Methods: A cluster randomized controlled trial was implemented to determine the impact of an interpersonal communication (IPC) intervention on FC knowledge, perceptions, and use. A baseline survey (n=2,392) was conducted in March 2016. The WC was distributed throughout 40 urban wards comprising Lusaka, Zambia coupled with a mass media campaign. Twenty wards were randomly assigned the IPC intervention. After one year, an endline survey (n=2,430) was conducted. Models were fit to determine the impact of IPC on outcomes of interest including FC knowledge, male condom use, interest in trying a FC, a condom perceptions index and knowledge of modern contraception.
Results: Using an intention-to-treat approach, no change in outcomes between intervention and control wards was detected. While IPC agents were assigned to intervention wards, IPC attendees could be from any ward. Therefore, an average treatment effect on the treated approach was also explored. Using this approach to compare participants who attended IPC events to those that did not, an increase in FC knowledge (OR=2.47, 95% confidence intervals (1.36, 4.46)) and 79% improvement in perceptions of condoms index score (OR=0.21, 95% confidence interval (-0.04, 0.47)) was measured. Both models controlled for various demographic and sexual behavior characteristics. However, only 66 endline participants attended IPC events (3%). Process evaluation findings suggest low availability of the product (only 5% of randomly sampled outlets had it in stock), high variation in the intensity of the IPC, but high interest in using the product.
Conclusions: Overall, IPC resulted in a slight increase in FC knowledge among those who attended. There were several challenges to implementing an IPC intervention targeting such a general population of young adults in a large urban area, which may have resulted in insufficient saturation and intensity to see an impact comparing treatment to control areas.

TUPEE711

Trust but verify: Is there a role for active surveillance in monitoring adverse events in large-scale voluntary medical male circumcision programs?

P. Marongwe[1], C. Feldacker[2], P. Gonouya[3], T. Madoda[4], S. Balachandra[5], M. Tshimanga[4], J. Mandisarisa[5], V. Chitimbire[3], X. Sino[6], B. Makunike-Chikwinya[1], V. Murenje[1], S. Barnhart[2]
[1]*ITECH Zimbabwe, VMMC, Harare, Zimbabwe,* [2]*University of Washington, Global Health, Seattle, United States,* [3]*Zimbabwe Association of Church Hospitals (ZACH), VMMC, Harare, Zimbabwe,* [4]*ZICHIRE, VMMC, Harare, Zimbabwe,* [5]*Center for Disease Control Zimbabwe, VMMC, Harare, Zimbabwe,* [6]*Ministry of Health and Child Care, VMMC, Harare, Zimbabwe*

Background: Ensuring quality service provision is fundamental to ZAZIC's voluntary medical male circumcision (VMMC) program in Zimbabwe. ZAZIC (a name created by merging partners´ names) aims to create safe space to identify and manage adverse events (AEs); acknowledge surveillance weaknesses; and introduce quality improvement strategies. From October, 2014 -September, 2017, ZAZIC conducted 205,847 MCs. Passive surveillance recorded a moderate and severe AE rate of 0.2% and 95% follow-up visit adherence, suggesting program safety.
Description: To increase confidence in AE identification and improve reporting, ZAZIC implemented focused quality assurance (QA) at 6 conveniently-selected, high volume VMMC sites. ZAZIC Gold-Standard (GS) clinicians prospectively observed 100 post-VMMC follow-ups per site in tandem with facility-based providers to confirm and characterize AEs. Mentoring in AE recognition, reporting and management was conducted. GS clinicians also reviewed site-based routine VMMC data between Oct-Dec 2016, comparing recorded to reported AEs. Site leadership interviews noted strengths and weaknesses in AE-related issues.
Lessons learned: First, AEs identified using active prospective surveillance are considerably higher than passive surveillance: observations suggest AE rates from 1-5%. Most observed AEs were infections among clients under age 15. Second, facilities noted significant challenges in conducting VMMC follow-ups due to human resource and transport constraints. Although post-operative self-care appears to produce generally good results for adults, younger clients and guardians need additional attention to ensure quality care. Lastly, retrospective record review suggests discrepancies in AE documentation and reporting. Increased training in AE identification, management, and documentation matched with additional nurses and vehicles is needed. Evidence of missed severe AEs resulting in permanent impairment or morbidity was not found. This intensive QA activity required additional financial, transport, and human resources over routine program monitoring.
Conclusions/Next steps: Although results cannot be generalized, active surveillance suggests that AEs may be more frequent and follow-up lower than reported. Root causes for poor follow-up, poor documentation and/or poor reporting remain unclear and require further investigation. ZAZIC is responding with expanded active surveillance, accelerated refresher/retraining for clinical and data teams, improved post-operative counseling for younger clients, and creation of a Quality Assurance Task Force. ZAZIC will expand implementation of this QA effort.

Site	Reported Passive Surveillance: Oct 2014-Sept 2017			Observed Active Surveillance AE rate: Oct 2016-Dec 2016 (b)	AEs Expected** Oct 2014-Sept 2017 (ab)
	AEs*	MCs (a)	AE Rate		
1	10	14707	0.1%	5%	735
2	22	13892	0.2%	4%	556
3	30	8174	0.4%	4%	327
4	31	17908	0.2%	5%	895
5	25	11242	0.2%	5%	562
6	39	6727	0.6%	1%	67

*Moderate and severe AEs; **AEs expected (ab) was calculated by multiplying the number of MCa reported over the passive surveillance period (a) by the observed active surveillance AE rate (b) to estimate the AEs that may have actually occurred over the past reporting period.

[Table 1: Comparison of retrospective AE data to AEs observed through routine QA]

Implementation science: lessons from researcher / programme partnerships

TUPEE712

Methodological issues in data quality of cohort studies in populations of persons living with HIV: Challenges and opportunities in resource constrained settings

A. Rogers[1,2], A. Adedimeji[3], A. Dzudie[4], W. Pefura[5], N. Akindeh[4], S. Duda[6], P. Angela[7], N. Denis[8], K. Anastose[3]
[1]*Clinical Research Education and Network Consultancy, Infectious disease, Yaounde, Cameroon,* [2]*CA-International Epidemiology Database to Evaluate AIDS, Yaounde, Cameroon,* [3]*Albert Einstein College of Medicine, New York City, United States,* [4]*Clinical Research Education and Network Consultancy, Yaounde, Cameroon,* [5]*Yaounde Jamot Hospital, Yaounde, Cameroon,* [6]*Vanderbilt University, Nashville, United States,* [7]*University of North Carolina, Chapel Hill, United States,* [8]*New York City University, New York City, United States*

Background: Understanding the epidemiology of HIV infection and response to treatment is essential to optimizing the outcome of HIV treatment programs. Research in sub-Saharan Africa is increasingly

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focused on large cohorts of persons living with HIV to document and improve long-term treatment outcomes. Structural and contextual factors continue to pose challenges to the quality of data collected. We describe implementation challenges and opportunities in three hospitals in Cameroon, part of the Central Africa International Epidemiology Databases to Evaluate AIDS (CA-IeDEA).

Description: Using a mixed methods approach, including data source review, source data verification, data collection and management systems, and interviews with data collection staff and HIV care providers, we identified structural, contextual, and individual factors that impede quality data collection in the three IeDEA clinics in Cameroon. Thereafter, processes and mechanisms were implemented to address the challenges. Existing problems with data collection tools were also identified and addressed.

Lessons learned: Over 12000 patients have been consented and enrolled in the three Cameroon CA-IeDEA clinics. Patient treatment data are collected on paper forms and archived in a central location and entered in an electronic (REDCap) database. In 2017, we implemented measures to address existing challenges. These included retraining of data staff on good clinical practices and ethical conduct of research, providing standard operating procedures for data collection and management processes, implementing a rigorous monitoring and evaluation plan, and revising the staffing systems. Structural and contextual constraints to effective data collection included lack of coordination between caregivers and data collectors in various units, insufficient number of trained data processing staff, weak data tracking mechanisms, and inadequate infrastructure and equipment for collecting clinical information.

Conclusions/Next steps: Identifying and addressing structural, contextual, and personnel factors that impede the collection of quality data is essential in large cohort studies. Researchers and policy makers should be aware of and address these challenges prior to implementing cohort studies in resource limited settings.

TUPEE713

Research protocol considerations when working with male couples: Lessons learned from the field

A. Solomons, Together Tomorrow Study Team
Positive Vibes Trust, Windhoek, Namibia

Background: Two-thirds of new HIV infections among men who have sex with men (MSM) occur from primary partners. However, there is limited understanding of the unique behaviours, needs and challenges of male partnerships in African contexts. The Together Tomorrow study was the first study to our knowledge to explore the HIV risk taking behavior and prevention and treatment needs of male-male partnerships in Namibia and South Africa.

Description: This mixed methods study comprised of three phases:
1) formative work with community stakeholders;
2) focus group discussions and in-depth interviews with gay, bisexual and other MSM, and;
3) a quantitative survey, with optional HIV testing and counselling, with male couples. Recruitment and data collection was done by local implementing partners.

Lessons learned: Implementing research protocols is an iterative process that requires adaptability to various contextual (social, cultural, legal, political) considerations. In contexts where homosexuality is criminalised or highly stigmatised, community engagement and mobilisation becomes a scientific and ethical imperative. This was achieved through extensive community mobilisation with LGBT community-based organisations and gender sensitization of tribal authorities.

While the protocol initially prescribed gender-matching of researchers and participants, in practice, gender matching was not the preferred option for the male-couples who largely felt more comfortable speaking to female interviewers, mentioning that in general, men did not talk to other men about personal matters. Initial formative research also indicated that the eligibility criterion of a relationship of at least one month in duration would be too short a time to assess relationship dynamics, resulting in an amendment to 3 months for the survey phase. The uptake of optional HIV testing at both sites was considerably low. Participants' reasons for declining included concerns about pressure to disclose their status to their partner and inadvertent disclosure of an HIV positive status (a positive test takes a longer time with counsellor or emotional reactions to results).

Conclusions/Next steps: The development and application of research protocol is in itself a research activity, and should be adaptive to varying contextual factors. With LGBT+ in general, the contextual factors influencing the expression of sexual orientation and gender identity, should remain top of mind.

TUPEE714

Challenges in recruiting prisoners with opioid use disorder into HIV prevention using methadone: Lessons learned from program implementation in Kyrgyzstan

A. Kurmanalieva[1], N. Shumskaia[2], J. Rozanova[3], L. Azbel[4], K. LaMonaca[3], R. Marcus[3], J. Miceli[3], C. Bachireddy[5], F. Altice[3]
[1]AIDS Foundation East-West (AFEW) in the Kyrgyz Republic, Research Department, Bishkek, Kyrgyzstan, [2]AIDS Foundation East-West (AFEW) in the Kyrgyz Republic, Bishkek, Kyrgyzstan, [3]Yale School of Medicine, New Haven, United States, [4]London School of Hygiene & Tropical Medicine, London, United Kingdom, [5]National Clinician Scholar, Veterans Affairs Medical Center, University of Pennsylvania, Philadelphia, United States

Background: Methadone is the most cost-effective HIV prevention strategy in Eastern Europe & Central Asia (EECA), where the HIV epidemic is volatile and driven primarily by injection drug use. As criminalization of drug use results in high incarceration rates, we conducted a longitudinal MATLINK study employing SBIRT (screening, brief intervention to expand coverage of methadone maintenance therapy (MMT), and linkage to treatment) to improve primary and secondary HIV prevention among prisoners with opioid use disorders in Kyrgyzstan. Here, we critically reflect on experiences of recruiting prisoners into MATLINK in Kyrgyzstan where prison-based MMT is available.

Description: Recruitment for MATLINK in Kyrgyzstan began in March 2017 in six (including one women's) prisons. Eligibility criteria were ≤1-year pre-release, plans for release near the capital city (Bishkek) and opioid dependence based on the Rapid Opioid Dependence Screen (RODS). While target enrollment was 100 participants, only 86 out of 894 screened prisoners were eligible for study recruitment based on the RODS, time to release, and region of release criteria (and 83 consented).

Lessons learned: Among 894 screened prisoners, only 128 (14.3%) reported using an opioid within one year pre-incarceration, and 106 (11.9%) met RODS criteria for pre-incarceration opioid dependence. In comparison, according to a nationally representative biobehavioral survey of Kyrgyz prisoners, 35% reported pre-incarceration opioid use (PUHLSE, 2014). MATLINK recruitment revealed that prisoners may be reluctant to disclose pre-incarceration opioid use during screenings for a health intervention study. This may reflect a social desirability bias, with prisoners mistaking abstinence during incarceration for long-term recovery, and believing they don't need addiction treatment. Prisoners, however, may report HIV risk behaviors like injection drug use in a confidential health survey not followed by linkage to care.

Conclusions/Next steps: Prisoners may underreport pre-incarceration opioid use at screening for HIV prevention interventions circumventing opioid dependence diagnosis tools. This has implications for design and implementation of HIV prevention programs using Methadone among prisoners who have injected drugs. Future studies may compare screening via a short biobehavioral survey with using the RODS. Qualitative interviews should also explore how prisoners may perceive recruitment into HIV prevention studies and what reservations they experience.

TUPEE715

HIV case finding and linkage to care in eleme local government area, Rivers State: *a comparative analysis of facility HIV services optimization and community based HIV intervention*

A.P. Emenike[1], O.D. Ekele[2], T. Badru[2], C. Agbakwuru[3], E. Oladele[4], O. Adedokun[3], G. Owhonda[5], H. Khamofu[6]
[1]Family Health International [FHI 360], Port Harcourt, Nigeria, [2]Family Health International [FHI 360], Monitoring and Evaluation, Port Harcourt, Nigeria, [3]Family Health International [FHI 360], Monitoring and Evaluation, Abuja, Nigeria, [4]Family Health International [FHI 360], Prevention Care and Treatment, Abuja, Nigeria, [5]Rivers State Ministry of Health, Public Health, Port Harcourt, Nigeria, [6]Family Health International [FHI 360], DCOP Technical, Abuja, Nigeria

Background: A combination of effective and efficient approaches are necessary for scaling up of HIV case-identification, particularly in resource-limited settings. To increase access and coverage, communities need to be linked to facilities via community-based interventions that seek to promote health seeking behavior. This study compares the effect of community based HIV testing services (HTS) to HTS optimization at the facility level.

Description: This is a pre-and post-intervention study conducted in Eleme, one of the priority LGA supported by the USAID funded Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS) in Rivers State. The pre-intervention phase (PIP1) covers the period November 2015 - October 2016 while the post intervention phase is from November 2016 - Oct 2017. PIP1 involved community entry/mobilization, HIV screening in general population, referrals and linkage to care and treatment services from the community to the facility, while the PIP2 focused on optimization of HIV testing services within the facilities through multipoint/Provider Initiated Testing and Counselling[PITC], targeted testing in the communities, Sexual Network and Genealogy Testing and referrals by escort to Service Delivery Points. We reviewed HTS and ART commencement data to compare differences in positivity yield and linkage between both phases.

Lessons learned: The PIP1 had 107,813 individuals counselled, tested and received result, 1,406 tested HIV Positive and 964 linked to ART while the PIP2 had 24,078 individuals tested, 614 HIV positive and 610 linked to ART. Findings show increase in positivity yield from 1% to 3% and linkage from 87% to 99% in PIP1 and PIP2 respectively.

Conclusions/Next steps: Although community outreaches create awareness, a targeted approach to HTS including sexual network/genealogy testing may be a more efficient approach. In addition, PITC in health facilities yields a higher positivity and linkage rates, maximizes use of testing resources by focusing on higher risk populations.

TUPEE716

Implementing proactive HIV testing in General Practice in Amsterdam within a fast-track city initiative (H-TEAM)

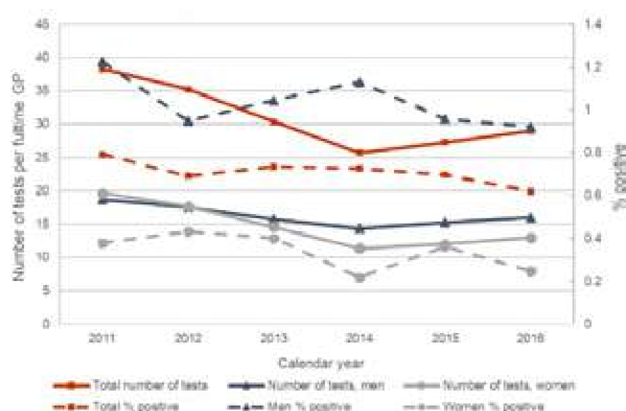
K. Groen[1], M.L. Groot Bruinderink[1], M.M. Kroone[2], G.J. de Bree[1,3], J.E.A.M. van Bergen[4,5], on behalf of the HIV Transmission Elimination AMsterdam (H-TEAM) Initiative
[1]Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, [2]Public Health Service Amsterdam, Department of Infectious Diseases, Amsterdam, Netherlands, [3]Academic Medical Centre of the University of Amsterdam, Department of Global Health and Division of Infectious Diseases, Amsterdam, Netherlands, [4]Academic Medical Centre of the University of Amsterdam, Department of General Practice, Division Clinical Methods and Public Health, Amsterdam, Netherlands, [5]STI AIDS Netherlands (Soa Aids Nederland), Amsterdam, Netherlands

Background: An estimated 300-400 individuals in Amsterdam live with undiagnosed HIV and 33% are diagnosed late. A recent study by our group showed that in the 5 years prior to HIV diagnosis, 60% consulted the GP with one or more HIV indicator conditions. To promote targeted and proactive testing by GPs we designed, implemented and evaluated several interventions, including multifaceted interactive training sessions for Amsterdam GPs using laboratory feedback.

Description: Since 2015, 171 of 545 Amsterdam GPs participated in these training sessions on HIV/STI testing behaviour, which included personal feedback and the development of practice-improvement plans. Additionally, all Amsterdam GPs receive a quarterly newsletter on HIV and can participate in an annual free HIV testing week. A unique dataset was generated by retrieving HIV and STI test request data (2011-2016) for each individual GP from all diagnostic laboratories they use (90% estimated coverage). Test request data were converted into an annual average per fulltime GP and HIV positivity rate, separated by gender.

Lessons learned: The training sessions were well-received (rating 8.5/10) and facilitated the development of quality improvement plans by GPs. Close collaboration between GPs, local GP-representing organisations and laboratories was key in developing and implementing the training sessions and database. Amsterdam GPs together request 10,000 HIV tests annually, with large inter-GP and inter-practice variation. We found a decreasing trend prior to 2015 from 38 HIV tests per GP in 2011 to 26 in 2014, followed by a slight increase to 29 in 2016 (figure, preliminary). Since 2014 more men than women are being tested. Over 30,000 tests for chlamydia and gonorrhoea are requested annually. Interestingly, anal testing for chlamydia and gonorrhoea, which GPs often neglect, doubled between 2014 and 2016.

Conclusions/Next steps: The decreasing trend in HIV/STI testing by Amsterdam GPs has reversed since 2014, coinciding with the start of the H-TEAM initiative. We are currently performing a subanalysis comparing GPs participating in training sessions to non-participating GPs. Upon receiving 2017 data we will conduct additional analysis on this unique dataset, including geospatial mapping. Detailed insight into testing behaviour by GPs will be essential for designing interventions that further curb the HIV epidemic in Amsterdam.



[Figure: Average number of HIV tests requested per fulltime GP and positivity rate in Amsterdam (total and separated by patient gender, preliminary)]

TUPEE717

Strengthening HIV and tuberculosis surveillance through intensified case finding in a prison in North-East India, 2017

T. Bhatnagar[1], M. Ralte[2], L. Ralte[3], Chawnglungmuana[4], L. Sundaramoorthy[1], L. Chhakchhuak[3]
[1]ICMR-National Institute of Epidemiology, ICMR School of Public Health, Chennai, India, [2]Mizoram State AIDS Control Society, Ministry of Health, Mizoram, Aizawl, India, [3]Govt of Mizoram, Department of Health and Family Welfare, Aizawl, India, [4]SHALOM, Aizawl, India

Background: Structural and individual level factors in prisons increase the risk of HIV/tuberculosis and create challenges towards detection and management. WHO and India's HIV/tuberculosis control programs recommend intensified case finding in prisons. The northeastern state of Mizoram in India is reported to have the highest HIV prevalence, driven by people who inject drugs. Currently low detection rates of HIV and tuberculosis points towards apparently poor infrastructure and ineffective implementation of existing surveillance strategies within the prison healthcare system in Mizoram's capital city of Aizawl. Our objectives

were to identify the barriers for routine case detection activities and assess the operational feasibility of implementing the intensified case finding strategy in Aizawl prison.

Methods: We conducted in-depth interviews and focus group discussions (FGD) with prison authorities/inmates, and state/district officials of HIV and tuberculosis control programs. Subsequently, we implemented the intensified screening through entry screening of new inmates, mass screening of resident inmates and exit screening at release for four months. We setup chest x-ray, sputum smear microscopy and HIV testing facilities within the prison and referral to external facility for Cartridge Based Nucleic Acid Amplification Test (CBNAAT). We did content analysis of transcribed text from in-depth interviews/FGDs using coding and themes and estimated proportions for key variables.

Results: We identified poor tuberculosis-related awareness among inmates, low risk perception during incarceration, negative attitude of healthcare providers, poor testing and referral infrastructure, lack of trained technicians, and absence of inmate tracking mechanism as key barriers. We screened 738 inmates (Male:626/Female:112). Of 391 (53%) having presumptive tuberculosis symptoms 145 (37%) underwent sputum microscopy. We detected 14 new tuberculosis cases; overall tuberculosis positivity 1.9%. We tested 431 (65%) of 657 inmates for HIV, of which 41 (9.5%) new cases were detected; overall HIV positivity 16.5%. Three males were HIV-tuberculosis co-infected.

Conclusions: It is feasible to implement intensified case detection in the prison setting albeit with challenges in sputum microscopy/CBNAAT and linkages with treatment facility outside the prison. Inter-departmental coordination along with upgradation of the prison health infrastructure are vital to overcome logistic, linkage & security barriers and establish a sustainable intensified surveillance system.

TUPEE718

The people living with HIV Stigma Index 2.0: Community-driven strategic information for change

B. Friedland[1], C. Mallouris[2], J. Hows[3], F. Anam[4], L. Sprague[3], L. Nyblade[5], S. Baral[6], A. Gottert[7], J. Pulerwitz[7], S. Geibel[7]
[1]Population Council, NY, United States, [2]UNAIDS, Geneva, Switzerland, [3]GNP+, Amsterdam, Netherlands, [4]ICW, Nairobi, Kenya, [5]RTI, Washington, DC, United States, [6]Johns Hopkins University, Baltimore, United States, [7]Population Council, Washington, DC, United States

Background: The People Living with HIV (PLHIV) Stigma Index is the most widely used global survey measuring stigma and discrimination among PLHIV. Launched in 2008, and administered by PLHIV to their peers, the Stigma Index has generated evidence that has been used to identify the extent of stigma and its effects, and to influence policy. Shifts in the HIV response, including an increased focus on HIV treatment and care, prompted the original developers (GNP+, ICW, and UNAIDS) to work with Population Council/Project SOAR and partners to update the tool.

Description: A small working group (SWG) was established to guide an iterative update process with representatives from GNP+, ICW, UNAIDS, USAID and researchers from the Population Council, Johns Hopkins University and RTI. The SWG outlined a process for evaluating, updating, pre-testing, and pilot-testing the revised Index.

Lessons learned: Based on a desk review of 13 country reports and 4 regional reports; input from 15 key informants; and a 2-day stakeholder consultation (April 2016), both topical and methodological aspects of the Stigma Index were identified for updating. In addition to restructuring and streamlining the original instrument, the healthcare section was expanded, with an emphasis on the impact of stigma and discrimination on access to HIV care and treatment. Modules were added to assess stigma and discrimination among sex workers, men who have sex with men, lesbians, transgender individuals and people who inject drugs. Validated scales that assess internal stigma and mental health were incorporated and a new scale to measure resilience was added. Feedback from 60 PLHIV who pre-tested a draft of the updated questionnaire was incorporated before the formal pilot study was conducted in Cameroon, Senegal and Uganda among 1207 respondents. Results of the pilots indicated good variability in responses for most questions; a few minor adjustments to the questionnaire were made and the Stigma Index 2.0 was shared in November 2017.

Conclusions/Next steps: Results from pilot testing the Stigma Index indicate the updated questionnaire performs well in sub-Saharan Africa. Other countries are encouraged to implement the Stigma Index 2.0 to expand the body of evidence from a range of experiences and settings

Effective approaches to linking population and programme data, to inform HIV programming

TUPEE719

Measuring behavioural and health seeking outcomes among people who inject drugs using the Polling Booth Survey (PBS) in Kenya

J. Musimbi[1], S.J. Malaba[1], J. Kioko[2], S. Kaosa[2], P. Bhattacharjee[3], H. Musyoki[4]
[1]Partners for Health and Development in Africa (PHDA), Key Populations, Nairobi, Kenya, [2]Partners for Health and Development in Africa, Technical Support Unit-Key Populations, Nairobi, Kenya, [3]University of Manitoba, Community Health Sciences, Nairobi, Kenya, [4]National AIDS and STI Control Programme, Key Populations, Nairobi, Kenya

Background: People who Inject Drugs (PWIDs) in Kenya are characterized by high levels of risk in terms of their injecting practices through sharing of needles and 8.8% of PWIDs are women of age 15-49 years. PWIDs have a HIV prevalence rates at 18.3% (NASCOP 2013). Kenya conducted three rounds of nationwide polling booth survey (PBS) in 2014, 2015 and 2017 to measure changes in behavior of PWIDs as a result of program interventions and understand if the PWIDs programs are achieving their intended effects.

Description: PBS is a group interview method, where individuals give their responses through a ballot box. Individual responses are anonymous and unlinked. Anonymity of the respondent improves reporting on sensitive and personal behaviors. Participants were selected using probability sampling and organized into small homogenous groups of 10-12 people. During the third PBS, we included groups for the young PWIDs. A total of 87 polling booth sessions were conducted involving 1131 PWID (both men and women), representing 97% of the sample size. The age distribution among the PWID was 25% 24 years and below and 75% 25 years and above.

Lessons learned: A new needle and syringe were used by 88% of PWID the last time they injected and there was no difference between the old and young PWIDs, but 13% of PWID shared their needle when they last injected compared to 16% who shared during the previous PBS. When asked about condom use at last sex with a non-regular partner, 76% responded that they used a condom. Condom burst when last a condom was used was at 17% for the old PWID and 26% for the young PWID. Out of those who took part in the PBS, 20% were positive, with 78% and 68% on care and ART respectively. The percentage of PWID who experienced sexual violence increased from 8% to 12%.

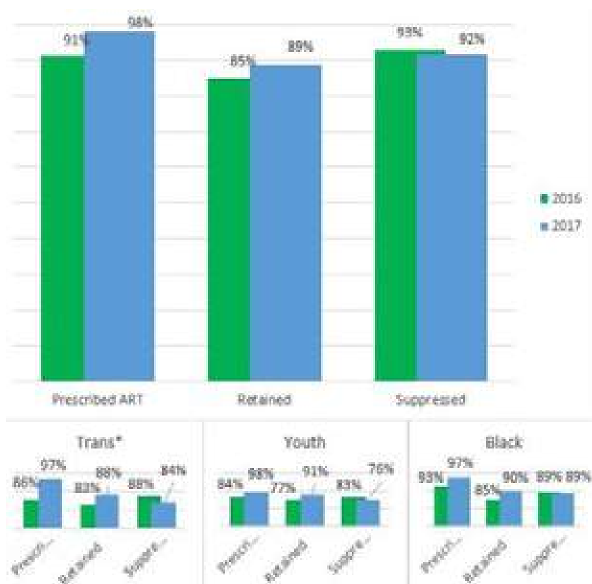
Conclusions/Next steps: Responding to HIV programming needs of PWIDs at scale is key ingredient in national HIV response. As programs with key populations scale up in Kenya, it is important to measure KP programs effectiveness. Behavioural surveys like PBS that can measure sensitive behaviours should be part routine National monitoring.

TUPEE720

HIV treatment cascades: A community health framework for addressing HIV quality improvement

P. Carneiro[1], M. Domingo[1], P. Hawley[1], S. Mosher[1], A. Fortenberry[2], P. Meacher[2], A. Radix[2]
[1]*Callen-Lorde Community Health Center, Population Health, New York, United States,* [2]*Callen-Lorde Community Health Center, New York, United States*

Background: HIV Treatment Cascades (HTCs) have tracked worldwide achievement on 90-90-90 UNAIDS goals. While HTCs are excellent visualizations to assess the impact of HIV quality improvement, little is known about their application in community health practice. In 2017, Callen-Lorde - the largest LGBTQ Community Health Center in NYC - created a strategy to improve the quality of our HIV care in 2017 based on HTCs. We discuss here the implementation, impact and outcomes of our approach.
Description: We obtained four nested indicators for 2016: Active Caseload- patients receiving HIV primary care; Prescription of Antiretroviral Therapy (ART); Retention- patients receiving a primary care visit in the 6 months prior to the end of the year; and Viral Load Suppression (VLS)- patients with viral load of < 200 copies/ml. We also investigated several subgroup categories: transgender identity, Black race, and youth (=< 25) to assess their unique outcomes. Overall, our population achieved 91-85-93. The achievement in subgroups was: Transgender (86-83-88), Black (93-85-89), Youth (84-77-83). Based on these outcomes, our HIV program team set forth a set of 2017 quality improvement initiatives including: A Rapid ART initiation program, a redesigned multidisciplinary HIV intake linking all newly diagnosed (NDs) to social support and navigation, sharing quarterly cascade data on internal systems and social media, installing an open-access program to eliminate challenges in appointment adherence and implementation of a VLS cash-incentive program for women, youth & transgender folks.
Lessons learned: HTCs can be successfully used in community health settings to assess gaps in care, guide quality improvement and organize multidisciplinary teams maximizing impact. Reducing barriers to care through open-access programs and service navigation has been key to patient retention, and Rapid ART initiation has been essential for VLS. Data sharing has contributed greatly to patient education and collective goal setting. Our cash incentive program has proven impactful in its nascent phase. Our 2017 HTC shows overall achievement of 98-89-92 (Figure 1).
Conclusions/Next steps: HTCs should be used in community health settings to develop and implement HIV quality initiatives. HTCs can support data-sharing, community education, and cooperative multidisciplinary interventions. In this, subgroup analyses are indispensable to ensuring impact on key populations.



[Figure 1. Depicting the 2016 and 2017 HIV Treatment Cascade. Selected Subgroup Analysis shown below]

TUPEE721

Virtually found: A differential approach of community mobilization for MSM and TGs on social media platform for HIV screening

S. Kandaswamy[1], U. Chawla[2], R. Sarkar[2], V. Arumugam[1], S. Mehta[3]
[1]*India HIV/AIDS Alliance, Strategic Information, New Delhi, India,* [2]*India HIV/AIDS Alliance, Program & Policy, New Delhi, India,* [3]*India HIV/AIDS Alliance, Chief Executive, New Delhi, India*

Background: The HIV epidemic in India remains concentrated to key population groups. HIV prevention among FSWs, MSM and TGH is changing rapidly. The National HIV/AIDS programme is investing heavily on focused prevention via physical outreach through targeted interventions (TIs) spread across the country for the key population. However, in the current context especially among FSW, MSM and to some extent TGH, soliciting clients and potential sexual partners is increasingly becoming virtual due to increased access to technology such as internet and mobile applications via the use of smart phones and computers.
Methods: India HIV/AIDS Alliance conducted a rapid assessment of most frequented sites on the internet used for finding potential sexual partners by MSM and TGs. We also identified potential social platforms such as Grinder, BlueD, Planet Romeo, Facebook, Instagram and Tinder to reach out MSM and TGH community. Communication materials were posted on those platforms to identify and contact individuals, offering them HIV prevention messages as well as free, confidential and community friendly HIV screening services via the Samarth programme sites for one month period. Data were collected and analysed on the output. Comparative analyses was carried out between physical contact and social media contacts.
Results: Total MSM and TGs that came to Samarth clinic via social media exclusively was 1,229 (MSM 829, TG 13 and not specified 387). This has resulted in an increase in reaching Samarth via social media exclusively from 6% to 45% (after). Majority of the respondents were between 25-34yrs (60%), graduates (50%) and salaried/employed (60%). Proportion of individuals reached by via social media strategy as compared to physical outreach under the programme and is willing to take an HIV test is 4:1.
Conclusions: India is now struggling to develop its next generation HIV prevention programming. There is a clear realisation of the fact that internet, smart phone applications etc. have to be addressed.

TUPEE722

Developing a standardized tool for data use and decision-making to estimate the human resources for health (HRH) requirements for implementing differentiated care for HIV in high burden settings

S. Kironde[1,2], R. Berger[2,3], A. Hurst[4], E. Kleinau[1,2]
[1]*University Research Co., LLC, Chevy Chase, United States,* [2]*Human Resources for Health in 2030 (HRH2030) Program, Arlington, United States,* [3]*Chemonics International Ltd., Arlington, United States,* [4]*United States Agency for International Development (USAID), Arlington, United States*

Background: The adoption of the 'Test and Start' strategy to accelerate the achievement of the 90-90-90 goals has increased the number of PLHIV receiving ART. Stable ART clients often do not require the same level of clinical oversight and could receive services through alternative models, allowing limited HRH to see those clients who require regular monitoring.
Service providers have identified differentiated service delivery (DSD) models of care for clinically stable ART clients as a way to provide services more efficiently. Estimating and optimizing available or required human resources becomes the next requirement. To aid in decision-making for implementation and resource allocation, the HRH2030 program, funded by USAID, through PEPFAR, developed a simple, client-focused tool that guides users for standardizing estimation of HRH needs.
Methods: From August to December 2017, data were collected from 20 experienced ART clinics and community-based service points in Uganda (see table) that manage about 62,000 clients. The information obtained was used to benchmark client-service provider contact time

for critical tasks performed along the HIV service delivery continuum under different DSD models. Key data collected included: annual ART client caseloads (new and current); client classifications (stable, unstable) as well as by sub-population; DSD models implemented; service provider types, numbers, task distribution and level of effort.
Client flows for 395 ART recipients were observed for a total of 1,720 critical task observations over a period of over 64,000 minutes. Using these data, a prototype tool that estimates HRH need based on the users' client load and workforce was developed and piloted in Cameroon and Uganda. Expert stakeholder interviews were also utilized to fine-tune the tool.
Results: The tool contains algorithms that enable users to estimate HRH needs from the annual ART client caseload and allows the building of scenarios for workforce mix and task- sharing/shifting for optimizing resource allocations. Results from a pilot in Cameroon suggest it helps facility staff make more informed HRH decisions.
Conclusions: Use of DSD models globally is rapidly expanding. Two country pilots have shown promising value for this tool. Implementation in additional settings will gauge further utility, accuracy, areas for additional refinement, and options for country-specific contextualization.

Respondent	Data Collection Method	No.	No. of observations of critical ART delivery tasks
Facility Managers	Interviews	18	
ART Managers	Interviews	20	
ART Clinic Staff	Interviews	130	
	Individual Timesheets	130	
	Focus Group Discussions	18	
ART Clients	Interviews	329	
	Client flows	395	1720
DSD Technical Working Group	Expert Consultations	40	
Critical ART delivery task observations by differentiated ART service delivery model			
Different ART service delivery model name			**No. of critical task observations**
Client managed community group model			508
Community individual model			232
Facility based comprehensive clinical care individual model			477
Health care worker managed facility group model			147
Facility based individual fast track model			356
Total			**1720**

[Table. Details of Data Collection from Uganda]

TUPEE723

Fast Track VCT@Work for workers in informal sector to achieve 90:90:90 in India

R. Bhushan, A. Verma, N. Goel, R. Rana, N. Rawat, N. Pandey
National AIDS Control Organization, Ministry of Health & Family Welfare, Govt. of India, New Delhi, India

Background: An emerging trend of HIV positivity among workers engaged in informal sector is a major concern. In India, the HIV positivity among workers in different occupations is much higher than national adult HIV prevalence (0.25%). Due to non-availability of adequate evidences the workers in informal sector are not reached. Early detection and linking them with preventive services is challenge.
Methods: National AIDS Control Organisation (NACO) collected data from 16000 ICTC on testing done across the country for the period of 2013-2016. The data was analysed to understand source of referrals & occupation sectors; trends across gender, age and occupation sectors across districts, and State-specific trends among various occupational groups. During the said period, around 32.45 million of HIV tested were conducted and analyzed. Out of which 20.69 million (65%) had worker representation.
Results: The analysed data showed that the overall HIV sero-reactivity among workers is 1.39% with sero-reactivity 1.61% reported during 2014-15 and 1.77% during 2013-14. Sero-reactivity is four times higher than HIV prevalence among general population. HIV positivity among truckers is 2.30% which is continue to be significantly high as compared to other groups like transport workers (1.69%), petty business (1.38%), agriculture (1.37%), hotel staffs (1.28%), domestic workers (1.06%) etc. Analysis also indicated the demarcation of specific occupations sector in geographical distribution that need focus intervention. The analysis was shared with key stakeholders at national and state levels for developing specific strategies to reaching out to these categories. As a result, partnership formalised with 16 Ministries for sustainable engagement, 315 Industries are mobilized and 55000 workers trained. Directives from national level for fast track VCT@Work with expansion of services like ICTC, STI Clinic, ART Centre are issued.
Conclusions: The analysis of HIV testing data is proven strategy to strengthen HIV/AIDS intervention targeted to workers in various occupations. Analysis and evidence helped to engage Ministries, industries and other stakeholders for worker education, prevention, reduce stigma & discrimination, early detection and link them with services as well impact mitigation through social protection.

TUPEE724

Reaching the uncircumcised through community HIV testing services (HTS): Are mobile men creating regional circumcision prevalence discrepancies?

A. Christensen[1], C. Casalini[1], D. Boyee[2], A. Mwanamsangu[3], E. Nesso[1], R. Bandio[1], I. Sanga[1], S. Mmbando[4], G. J.I.Lija[4], E. Mlanga[5], J. Zoungrana[3], A. Komba[1], J. Reed[6], K. Curran[6]
[1]Jhpiego, Program, Dar es Salaam, Tanzania, United Republic of, [2]FHI360, Dar es Salaam, Tanzania, United Republic of, [3]Jhpiego, Research, Dar es Salaam, Tanzania, United Republic of, [4]NACP, Dar es Salaam, Tanzania, United Republic of, [5]USAID, Dar es Salaam, Tanzania, United Republic of, [6]Jhpiego, Baltimore, United States

Background: Tanzania's voluntary medical male circumcision (VMMC) program reached over 2.5 million males in regions with low male circumcision coverage and high HIV prevalence. Modeling, using the Decision Makers' Program Planning Toolkit 2, indicates many scale up districts are approaching 80% male circumcision coverage. Sauti, a PEPFAR/USAID-funded project in Tanzania, offers community-based combination prevention services, including HTS, to key and vulnerable populations (KVP), including mobile men and partners of female sex workers, and refers HIV negative, uncircumcised men to VMMC services.
Methods: We reviewed program data across ten Sauti regions between August 2015 and September 2017 to determine circumcision prevalence for men served by HTS. We reviewed HIV negative male clients and their self-reported circumcision status. Further analysis was conducted determining their resident or non-resident status of region where they received HTS (as a proxy for mobility). A two-population proportions z-test was used to compare the region prevalence of circumcision between 2015 Tanzania Demographic Health Survey and Sauti.
Results: Among 578,126 men reached through HTS, 533,371 (92.3%) responded to the question about past circumcision, and 55.6% reported being circumcised. HIV negative men reached by Sauti's program self-reported circumcision at much lower rate compared to the 2015 TDHS circumcision prevalence in 9 of the 10 regions Differences were statistically significant ($p < 0.001$). The three regions with the largest differences between Sauti and TDHS estimates (Dodoma 51% vs 100%, Morogoro 41% vs. 99%, Dar es Salaam 60% vs. 93%, respectively) are all considered 'traditionally circumcising' regions; they do not have VMMC programming. Further analyses of uncircumcised men receiving HTS in these three regions indicated that 35% on average were non-resident, indicating that they had recently moved.

Region	# Males reporting to be circumcised (Sauti project 2015-17)	# Males reporting to be Uncircumcised (Sauti project 2015-17)	Total Males responding to circumcision question (Sauti project 2015-17)	% Males reporting to be circumcised (Sauti project 2015-17)	Male circumcision prevalence (TDHS 2015)	% Difference in circumcision estimates between TDHS and Sauti	P-value
Dodoma	358	340	698	51	100	49	<0.001
Arusha	5,307	5,010	10,317	51	91	40	<0.001
Kilimanjaro	28,410	24,171	52,581	54	100	46	<0.001
Morogoro	930	1,331	2,261	41	99	58	<0.001
Dar Es Salaam	73,955	48,366	122,321	60	93	33	<0.001
Iringa	12,445	9,410	21,855	57	80	23	<0.001
Mbeya	34,901	53,983	88,884	39	55	16	<0.001
Tabora	32,851	47,274	80,125	41	62	21	<0.001
Shinyanga	34,676	71,553	106,229	33	54	21	<0.001
Njombe	20,804	27,296	48,100	43	67	24	<0.001
Total	244637	288734	533371	46	-	33.7	<0.001

[Table 1. Circumcised versus uncircumcised men by region, Sauti project versus TDHS]

Conclusions: Given discrepancies in circumcision prevalence, further investigation is warranted to determine why a substantial proportion of uncircumcised males are presenting for HTS in regions where circumcision is considered nearly universal according to TDHS, and whether this is due to the mobility of these men. Community-based HTS are reaching large numbers of uncircumcised HIV negative men, suggesting a potential role for direct provision of adult circumcision services in combination prevention package in regions not typically served by VMMC programs.

TUPEE725

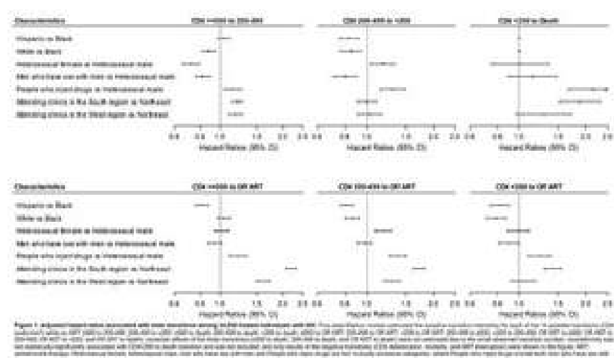
Combined estimation of disease progression and antiretroviral therapy retention among treated individuals with HIV in the United States

L. Wang[1], J. Eun Min[1], A. Nijhawan[2], C. Somboonwit[3], J. Aberg[4], R.D. Moore[5], K. Gebo[5], B. Nosyk[1,6]
[1]BC Centre for Excellence in HIV/AIDS, Health Economic Research Unit, Vancouver, Canada, [2]University of Texas Southwestern Medical Center, Department of Internal Medicine, Dallas, United States, [3]University of South Florida Morsani College of Medicine, Department of Internal Medicine, Tampa, United States, [4]School of Medicine at Mount Sinai New York, Department of Medicine, New York, United States, [5]John Hopkins University School of Medicine, Department of Internal Medicine, Baltimore, United States, [6]Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada

Background: Accurate estimates of rates of disease progression and antiretroviral therapy (ART) retention are critical to mathematical HIV models designed to inform resource allocation decisions. We aim to jointly estimate on-ART CD4 progression, mortality, and ART interruption rates, and to examine variations in these rates by geographic region and individual characteristics, using a continuous time multi-state Markov model.

Methods: Data were obtained from the HIV Research Network cohort, a consortium of adult and pediatric clinics in the United States. Individuals aged 15 years or older who were in care (having at least one CD4 test and one HIV primary care visits) and had at least one ART prescription between 2010 and 2015 were included in the analysis. Study entry was defined as the date of their first CD4 test while on ART between 2010 and 2015. Continuous-time multi-state Markov models were used to estimate the transitions among five states (on ART CD4 cells/µL: ≥500; 200-499; < 200; off ART; and death), operationalized by a matrix with 14 possible instantaneous transitions. Covariates were included to examine and adjust for differences in the transition rates by region, race/ethnicity, gender, HIV risk group, and clinical status.

Results: The median age at study entry of the 34,656 individuals included in this analysis was 44.5 years [IQR: 35.0, 51.3]. Over a median of 4.5 years of follow-up [2.8, 6.0], 44.8% of individuals interrupted ART, and 3.8% of individuals died. In the multivariable analysis, black race, people who inject drugs, and attending clinics in the south or west regions, were independently associated with increased rates of ART interruption, and faster disease progression (CD4 decline or death) (Figure1). The differences remained statistically significant after additionally adjusting for age, time since diagnosis and CD4 counts at ART initiation among a subset of study sample with known ART initiation dates.



[Adjusted hazard ratios associated with state transitions among 34,656 treated individuals with HIV]

Conclusions: This study reveals heterogeneities in disease progression on ART and ART retention rates across racial and ethnic groups, HIV risk groups and regions. These differences represent potential targets for intervention and otherwise should be incorporated in mathematical models of regional HIV micro-epidemics in the United States.

TUPEE726

Geospatial linkage of community and secondary data to focus HIV programmes for impact: The tale of two provinces

C.P. Rousseau[1], N. Slingers[2]
[1]SANAC, Edenvale, South Africa, [2]SANAC, Pretoria, South Africa

Background: Focus for Impact is the key principle described in the National Strategic Plan for HIV, TB and STIs (NSP) 2017-2022, that describes South Africa's strategy to deal with these epidemics. Focus for Impact is an innovative approach to reduce the morbidity and mortality associated with HIV by designing and packaging appropriate interventions that target the areas with the highest disease burden and populations disproportionately at risk of new infection, geospatially linking community and secondary data. The concept was piloted and refined in two provinces in South Africa.

Description: The Focus for Impact approach sets out to systematically answer four key questions:

1 - **Where** are the HIV high burden areas *(spatial location using geospatial data)*?

2 - **Why** are these high burden areas *(associated risk profile using secondary data)*?

3 - **Who** is at increased risk of new infection is these high burden areas *(population specific data)*?

4 - **What** are the multi-level multi-sectoral high impact interventions *(tailored interventions)* that should be put in place to reduce the HIV burden in this area?

Lessons learned: Differences in success of implementation of the Focus for Impact approach in the two provinces is due to differences in levels of maturity of information systems, community engagements structures and district coordination structures. One of the most important lessons learnt was that "perfect" data may not exist, yet sufficient geospatial, community and secondary data exist to lay the foundation for HIV programming decisions. For Focus for Impact to reach its potential, deliberate steps need to be taken to ensure that it receives the buy-in and support from political and administrative layers within society - from national, through provincial, district and ward layers.

Conclusions/Next steps: At its core, Focus for Impact is a useful decision-making tool that can be updated and reviewed regularly and allows decision-makers to adjust interventions and areas of focus within a specific geographical area, for timely and high impact interventions. The Focus for Impact approach has been refined, incorporating lessons learnt, and is now being implemented across all 9 provinces in South Africa where it is included in the Provincial Implementation Plans for the NSP.

TUPEE727

Facility level cascades: Uniting public health and clinical data through a government-led initiative to improve programming

B.D. Agins[1,2], D.J. Ikeda[1,2], L. Hollander[2], S. Weigl[2], S. Sawicki[2], D. Belanger[2], C. Wells[2], N.B. Magnani[2], C. Steinbock[2], N. West[2], L. O'Shea[2], J. Morne[3]
[1]UCSF, HEALTHQUAL, Institute for Global Health Sciences, San Francisco, United States, [2]New York State Dept of Health AIDS Institute, Office of the Medical Director, New York, United States, [3]New York State Department of Health, AIDS Institute, Albany, United States

Background: National and local HIV public health programs have used the HIV treatment cascade to shape implementation of strategies for epidemic control however they have not engaged clinical care facilities in this public health initiative. To address this gap, the New York State

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(NYS) Department of Health AIDS Institute developed a model of facility-level cascades that drives improvements in healthcare organizations to focus on gaps identified through measurement of indicators defined by the cascade.

Description: Quality measures were embedded in a cascade framework that included identification of PLWH accessing any service in a health-care facility, whether or not provided in an HIV program. Care status was ascertained for all patients who were subdivided into "open" (unlinked) and "active" (enrolled) groups. New and established patient cascades were required that included measures of linkage, ART and viral suppression (VS), together with formal reports on methodology and improvement plans. Quality coaches were available to provide technical support. Sites were targeted for assistance based on need.

Lessons learned: Cascades were designed and submitted from 268 sites representing 82 healthcare organizations. Among 23887 PLWH receiving non-HIV services, the care status of 17236 was not ascertained or documented to ensure engagement in care. Mean VS was 79% for active patients (range 0-100%; 75th percentile = 89%). Providers identified novel ways to combine data sources to mine information leading to identification of PLWH touching their institutions but not engaged in HIV care. When seen in emergency, acute care or non-HIV ambulatory care settings, HIV care status of "open" patients was often not ascertained to determine if they were linked to care, on ART or suppressed. Gaps were noted for established patients when results were disaggregated by key population groups. Improvement plans were refined to address all gaps identified in the cascade analysis.

Conclusions/Next steps: Facility-level cascades were successfully implemented as a NYS government-led strategy to End the Epidemic. Visual display of data facilitated engagement of healthcare providers in epidemic control activities. Engagement in care of open patients is prioritized for statewide program improvement. The facility-level cascade methodology for quality measurement offers an innovative and important tool for integrating QI into public health initiatives.

TUPEE728

Nutrition and food security status of PLHIV and gap analysis in comprehensive care clinics in Kenya

M. Josephine Muthoni[1], C. Ouma[2], M. Mumma[2]
[1]UN World Food Programme, VAM, Nairobi, Kenya, [2]UN WFP, Nairobi, Kenya

Background: Kenya is one of the UNAIDS fast track countries and global plan PMTCT countries. High levels of malnutrition and food insecurity exist in the arid and semi-arid areas in turn affecting PLHIV and their households. In 2017, Kenya experienced a serious drought leaving 3.1 million people food insecure. However, there was no clear data on the impact of the drought on PLHIV and the country's HIV response. Nutrition and food security status of PLHIV accessing treatment was assessed to guide decision making on appropriate nutrition and food support interventions for comprehensive treatment packages.

Methods: Descriptive cross-sectional national survey that sampled 3690 respondents, (2790 adults and 900 children) from 31 Comprehensive Care Clinics (CCCs) in 10 national AIDS and STI Control Programmed (NASCOP) operating regions. Target population were clients aged from 6 months onwards enrolled at CCCs. Three categories of clients considered; clients on prophylaxis not on ART; on ART < six months and on ART > six months. SPSS v.18 and WHO Anthro softwares were used.

Results: Thinness was more prevalent in males: Pre- ART 26.1%, Early ART 22.5% and Late ART (22.0 percent) than in the females (12.6 %) among Pre- ART, (14.9%) among Early ART and (13.7 %) among Late ART. Overweight/obesity was (23 %, 15.7 % and 20.4 %) in Pre- ART, Early and Late ART respectively. Late ART females presented with the highest prevalence of overweight/obesity 28.0 % and Early ART male clients had the lowest prevalence (5.8 percent). More boys (53.3%)than girls 36.9% were stunted among children 24-59 months(p=0.04). Severe thinness was higher in boys (14.3 %) compared to girls (11.3 % (*P=0.773*).

In adults, Food Consumption Score(FCS) was acceptable (>35). (88 %, 85 %, and 83 %) of Early ART, Pre- ART and Late ART respectively, had acceptable FCS (FCS>35). 10 to 13 %had borderline FCS (21.5-35), while 5 % had poor FCS (0-21).

Conclusions: Men and women are presenting different forms of malnutrition. Underweight in children and men, and overweight in females depicts the challenge of managing the double burden of malnutrition in PLHIV and calls for interventions that take into cognizance the emerging trend.

TUPEE729

Next generation HIV programming for sub to middle income countries for MSM

U. Chawla[1], R. Sarkar[1], V. Arumugam[2], S. Kandaswamy[2], S. Mehta[3]
[1]India HIV/AIDS Alliance, Programme and Policy, Delhi, India, [2]India HIV/AIDS Alliance, Strategic Information, Delhi, India, [3]India HIV/AIDS Allliance, Delhi, India

Background: The context of HIV prevention among women in sex work, men who have sex with men and transgender is changing rapidly. In urban settings, key population groups who traditionally were available to HIV services and outreach at identified "hot spots", are diminishing and away from HIV programming. In the current context, especially among women in sex work, MSM and transgenders, soliciting clients and potential sexual partners is increasingly becoming virtual due to increased access to technology such as internet and mobile applications.

Methods: Dedicated and differential approach of community mobilization on social media platform such as Grinder, BlueD, Planet Romeo, Facebook, Instagram and Tinder - via the co-investment grant to venture into virtual space with an existing campaign "Pata Lagao" - meaning "Find out" that literally translates to "Find out your HIV status" to experiment and assess, if virtual outreach has any impact on increasing uptake of services including testing for HIV.

Results: Source of information for visiting clinic being social media increased from 6% to 45% in two months. 1,229 (*MSM-828, TG-13 and not specified - 387)* new individuals were contacted and provided information on HIV prevention and the project services. Of the 1,229 reached, 44% showed interest or agreed to visit Samarth Clinics. 132 (MSM 119 and TG 13) individuals reached the clinics and were tested for HIV and provided prevention services or linked to treatment, care and support services as the case may be. The monthly average of outreach has also significantly increased from 521 (Before) to 763 (after). HIV testing as one of the most important result, the success rate is 90% for physical outreach as compared to 11% for virtual outreach.

Conclusions: Experience from an initiative in five urban sites in India provides evidence that with right messaging, focused virtual outreach and accessible community friendly HIV services - key population groups such men who have sex with men and transgender can be reached and they are willing to come forward to access services. Investing in newer approaches to HIV prevention programming is the need of hour if we need to stay ahead in fight against HIV and AIDS.

TUPEE730

Strengthening strategic information to enhance geographic prioritization of harm reduction services in Kenya

S. Ayon[1], O. Mlewa[1], J. Ndimbii[1], G. Mburu[2], B. Wang[3], A. Ragi[1], F. Muturi[4], S. Ikonya[5]
[1]KANCO, Nairobi, Kenya, [2]Lancaster University, Lancaster, United Kingdom, [3]International HIV/AIDS Alliance, Brighton, United Kingdom, [4]KANCO, Kajiado, Kenya, [5]KANCO, Nakuru, Kenya

Background: Since 2012, KANCO has been implementing HIV and Harm reduction services through a blended service provision approach which brings together county government, law enforcement and community organizations to enhance access to these services for People who use drugs (PWID) and mitigate stigma and discrimination. However, scarcity of data regarding the size and locations of drug users has limited implementation of harm reduction services. To date, harm reduction services in Kenya have been concentrated in Nairobi and Coastal towns where relatively good data exists. However anecdotal evidence indicates increasing drug use in-other parts of the country.

Methods: As part of the Alliance Integrated Harm Reduction Project (AIHRP) funded by the International HIV/AIDS Alliance, KANCO conducted a number of size estimation exercises to enhance availability of strategic information to inform harm reduction and HIV programming. A size estimation exercise was conducted in Nakuru and Kajiado Counties in 2017 using a combination of peer driven snowballing methods, focused group discussions and Key informants interviews.
Results: In Nakuru and Kajiado Counties, there are an estimated 575 and 163 People Who Use Drugs (PWUDs) respectively. Out of these, People Who Inject Drugs (PWIDs) comprised 43% (n= 249 and 70) respectively. Results also suggested that majority of these people who use drugs were unreached with HIV prevention, treatment and care services. Majority of them also reported, multiple incidences of stigma and discrimination, and difficulty accessing harm reduction services, such as clean needle and syringes, Methadone, SRHR and TB services.
Conclusions: These results show that drug use and injecting is prevalent in smaller towns in Kenya, and is not just confirmed to Nairobi and the Coast. To ensure scale-up and universal access to harm reduction interventions, enhanced capacity and coverage of harm reduction is essential even in smaller towns. In addition, continued advocacy for community involvement, collaboration with local governments to fund/implement comprehensive harm reduction services, collaboration with law enforcement agencies, and use of blended outreach are all required to facilitate ease of access to services and mitigate stigma and discrimination directed at drug users.

TUPEE731

The importance of establishing baseline data for viral load testing scale up - laboratory assessments Zambia experience

B. Gorogodo[1,2], F. Marange[1,3], L. Stewart-Isherwood[1,4,5], T. Taleng[1,5], K. Chigudu[1,6], C. Moyo[3], S. Chisala[3], W. Stevens[1,5,7]
[1]University of the Witwatersrand, Department of Molecular Medicine & Haematology, Johannesburg, South Africa, [2]Right to Care - EQUIP, Monitoring & Evaluation, Johannesburg, South Africa, [3]Right to Care - EQUIP, Programs, Pretoria, South Africa, [4]National Health Laboratory Services, Programs, Johannesburg, South Africa, [5]Right to Care - EQUIP, Programs, Johannesburg, South Africa, [6]Right to Care - EQUIP, Information Technology, Johannesburg, South Africa, [7]National Health Laboratory Services, Department of Molecular Medicine & Haematology, Johannesburg, South Africa

Background: Zambia has a population of 15 473 905 with 1.2 million adults living with HIV among whom 65% are accessing Anti-Retroviral Therapy (ART). Scaling-Up of HIV Viral Load (VL) testing in Zambia is imminent to achieve the third 90 goal as set by UNAIDS. To ensure there is baseline data for comparison of impact of intervention with regards to VL scale-up for the country; the Zambia Ministry of Health (MoH) engaged EQUIP to conduct assessments of laboratories.
Methods: An electronic Rapid Assessment Tool, hosted on ArcGIS, was used for data collection. The primary focus was to assess the role of laboratories and facilities in the VL value chain. Questions covered in the assessment varied from pre-analytic, analytic to post analytic processes including quality management and health and safety. Data illustrations into graphs and interpretation was done using excel pivot tables.
Results: A total of 653 facilities were assessed and 50% of these facilities have functional laboratories, 21% have mini labs and the remaining 29% have no laboratories. The results showed that, 73% of the facilities collected VL specimens and referred the specimens for testing; 5% of the facilities acted as hubs. The remaining 20% facilities did not offer any VL support i.e. they did not collect any VL specimens whilst only 2% laboratories offered VL testing. Overall, only 32% of the assessed facilities responded to having storage space for Consumables and Reagents. Health and safety adherence was generally a challenge with 52% of facilities having a safety manual available whilst 48% did not having one.
Conclusions: Given that at least 65% of HIV infected population are on ART; there is an urgent need for special focus on increasing the demand for VL testing in Zambia. Therefore, recommendations on how to improve pre-analytic, analytic and post analytic will inform MoH's decision making on the scaling up of VL testing to reach the third 90 UNAIDS target for Zambia.

TUPEE732

Utilizing innovative modern data collection methods to identify most-at-risk HIV positive children and adolescents in 11 districts of Zimbabwe

T. Zvirawa[1], N. Willis[2], M. Mawodzeke[1], T. Chimbidzikai[1]
[1]Africaid, Program, Harare, Zimbabwe, [2]Africaid, Management, Harare, Zimbabwe

Background: Tremendous progress has been made towards identifying children and adolescents living with HIV (CALHIV). Limited resources has necessitated the shift in HIV testing strategies from generalized testing to targeted testing. Using targeted testing enables HIV burdened countries to direct resources towards most at risk population. Africaid uses an innovative data collection tool utilizing its database to refer and link siblings and partners of children and adolescents living with HIV to HIV Testing Services (HTS).
Description: Africaid is implementing a project aimed at improving children and adolescents´ experience of HTS, diagnosis and linkage to care and treatment support across Zimbabwe. Africaid is piloting the use of innovative data collection in 11 districts to evaluate the acceptability of using index case finding in identifying CALHIV. Community Adolescent Treatment Supporters (CATS) who identify CALHIV in their communities using a network of already registered beneficiaries in the Zvandiri database as index cases.CATS enrol CALHIV in the Zvandiri program using mobile and web-based database for easy and routine tracking, follow ups and documentation of conditions upon enrolment into the program. This enables CATS to provide differentiated services to clients.
Lessons learned: The database which captures CALHIV proved to be a cost-effective mechanism of tracking most at risk adolescents. As a result of the follow ups conducted through using contacts in the database a total of 3, 033 (1, 788 females and 1, 245 males) siblings and partners were identified and linked to for HTS. This resulted in 2, 827 (1, 643 females and 1, 184 males) being tested and 860 (520 females and 340 males) tested positive and were linked onto care and treatment. The pilot also revealed that most at risk adolescent are reluctant and afraid to visit clinics for testing and hence using the database enabled their peers the CATS to sensitize, mobilize and encourage them to get tested for HIV.
Conclusions/Next steps: Pilot results demonstrated that using modern data collection methods for tracking and tracing HIV positive clients assists in identifying CALHIV in need of HTS through working with their peers. This will be scaled up through the utilization of HIV self-testing kits in the intervention districts.

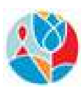
Data and accountability and transparency

TUPEE733

Using community-led participatory action research for accountability on the Global Fund´s Country Coordinating Mechanisms: CCM Scorecard and CCM Community & Civil Society Shadow Reports in Africa

P.D. Tucker[1], O. Mumba[2]
[1]AIDS Accountability International, Research, Bruxelles, Belgium, [2]East African Network of AIDS Service Organisations (EANNASO), Urusha, Tanzania, United Republic of

Background: Effective Country Coordinating Mechanisms (CCMs) are a vital part of the Global Fund architecture at country level. CCMs are responsible for submitting requests for funding and for providing oversight during implementation. CCMs are assessed using external assessors or a self-assessment and are overly concerned with box-ticking and not with impact.
Methods: The CCM Scorecard and Country CCM Shadow Reports is a nine country study that saw twenty-two community and civil society watchdogs evaluate the CCMs against the Global Fund´s own Eligibility Performance Assessment, and research for themselves how their CCMs



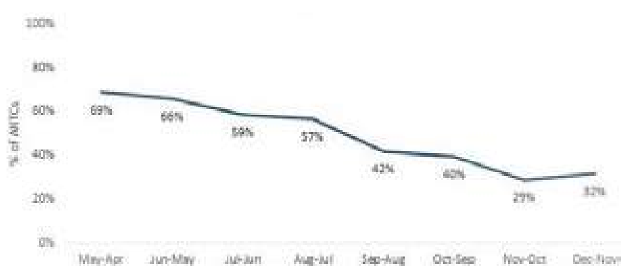
are performing, as a means to improve accountability. GFATM CCM Hub was brought in from the beginning as an advocacy target.
Results: Overall the CSO ratings of CCMs differ from Geneva ratings 36% of the time, reasonably equally distributed as both better ratings and lower ratings.
Oversight (ER4) was the area in which CCMs were most over-rated by the Geneva EPAs. The country CSOs rated CCM performance on oversight lower 26% of the time.
A close second was Conflict of Interest (ER6) where the CSO Shadow Report process graded the CCMs lower than the Geneva process did 21% of the time.
With regard to ER5, CCM membership composition, we see agreement between Geneva EPAs and CSO Shadow EPAS 59% of the time, and 26% of the time a higher rating than Geneva gave the CCM.
ER6, Adequate CSO representation and accountability to their constituency showed 75% agreement between CSO EPA and Geneva EPA. The higher rating 15% of the time, and only lower rating of 9% of the time suggests that they are satisfied with the Geneva EPA assessment in this area.
Conclusions: The research shows that there is little accuracy and reflection of circumstances experienced by stakeholders in country in the Geneva assessments of CCMs, and that the way assessments are done needs to be changed to ensure accountability. The findings hugely affected the GFATM CCM Evolve process and this demonstrates that innovative methods of including advocacy targets and community research can be powerful.

TUPEE734

Systematic data quality improvement by innovative and simple technique at large scale - an experience from world's second largest ART program

M. Bamrotiya[1], R. Gupta[1], M. Shah[2]
[1]National AIDS Control Organization-India, Department of Health and Family Welfare-Government of India, New Delhi, India, [2]UW I TECH, New Delhi, India

Background: India is a home of almost more than 2.1 million HIV positive people, of which approximately 1.2 million are on treatment from 538 government run ARTCs (Anti Retro Viral Center) across India. Improvement in data quality at ARTC level is meant to provide accurate input for program functioning and planning. An offline system of reporting from ARTC to state and national level had data quality issues which hindered its reliability for planning.
Description: To improve the data quality, a monthly feedback mechanism from national level to State officials was developed by using a simple Microsoft excel sheet that finds out errors and discrepancies between two successive monthly reports from each ARTC. State officials studied the errors and got them rectified from ARTCs gradually. At least one error was found out in 69% of ARTCs at the beginning while comparing the report of May 2017 with that of April 2017. With monthly feedback and constant technical support to the states by senior officials at national level, these errors were reported by 66%, 59%, 57%, 42%, 40%, 29% and 32% of ARTC for June, July, August, September, October, November and December respectively.
Lessons learned: Data quality improvement usually requires rigorous and resource intensive efforts especially when data system is not online or automated. It was believed that constant positive supervision and feedback has a motivating effect and usage of simple tools are more effective at large scale.



[Figure. % of ARTCs with at least one error in reporting]

Conclusions/Next steps: It is planned to share the same tool to state officials and later to ARTC with a simple guidance video for usage which should reduce these errors further. It is also envisaged to include another set of indicators in current tool for making it more comprehensive. Such efforts should bring more ownership about data among program managers and motivate them to use data for local purposes. It would also make forecasting and planning based on such data more reliable and realistic which would benefit the program and nation.

TUPEE735

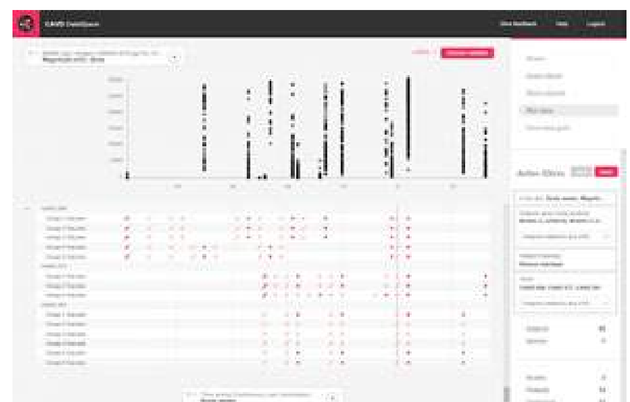
The CAVD DataSpace data sharing and discovery tool facilitates exploration of HIV immunological data from pre-clinical and clinical HIV vaccine studies

B.T. Mayer, D. Holman, W.J. Fulp, J.Y. Kim, E. Henrich, R. Gottardo
Fred Hutchinson Cancer Research Center, Vaccine and Infectious Disease Division, Seattle, United States

Background: The Collaboration for AIDS Vaccine Discovery (CAVD) is an international network whose primary mission is to accelerate the development of a safe and effective HIV vaccine through a combined effort across research institutions. The DataSpace (dataspace.cavd.org) is an integral part of the CAVD's Global Access policy which requires public access to data and information from CAVD studies.
DataSpace is a web-based, data sharing and discovery tool developed to empower researchers by increasing awareness of the breadth of HIV vaccine studies and facilitating self-guided data exploration (Table).
Description: Currently, binding antibody, neutralization antibody, and cellular immunoassay results from over 186 vaccine products tested in 61 studies conducted in the CAVD have been harmonized and are available for exploration and download. Data are included from both clinical trials and studies of non-human primates and other animals. An application programming interface (API) for the R programming language is also available through the DataSpaceR package (https://github.com/FredHutch/DataSpaceR).

Value to researchers	Core functionality
Provides quick reference for detailed information about studies, products, and assays.	Learn context - Find information about studies and assays to inform which data to analyze and how to interpret the results. Study information includes: treatment regimens, assays performed, product and assay descriptions, study objectives and findings, and publications.
Helps researchers find cohorts and data of interest.	Reference what study populations and data exist - Find which assays were performed on subjects with common attributes and what data are available for exploration. Data identified through the DataSpace application can be easily exported from DataSpace in CSV or Excel formats or by using the API in the DataSpaceR package.
Facilitates data exploration.	Standardized data facilitates comparisons across studies -Integration of harmonized data across studies provides consistent data (fields, terminology, and response call calculations), making it easier to: (1) perform meta-analyses, (2) compare assay performance over time, (3) correlate assays, (4) reproduce published results and figures, and (5) estimate sample size using historical data to inform design of future studies.

[Core functionality and value of the DataSpace]


[A screen capture of the DataSpace visualization tool illustrating study data aligned by final vaccination.]

Lessons learned: We present three case studies establishing DataSpace functionality (Table). First, we recreate published figures using the DataSpaceR API to illustrate DataSpace as a tool for study reproducibility. Second, we perform an adjuvant study power calculation to demonstrate how DataSpace can be utilized for study design. Lastly, we perform a meta-analysis of vaccine durability to highlight how to align metadata across studies, a very powerful feature of DataSpace (Figure).
Conclusions/Next steps: By publishing, collating, and annotating the immunological data from these studies, DataSpace is an invaluable resource for investigators and scientists to build upon HIV vaccine science. Cross-assay or cross-study comparisons are streamlined by ensuring that all study data are quality controlled and follow a standardized format. As we demonstrated, access to metadata is made easy, and studies with complex schemas can be easily aligned by final vaccination time points to analyze vaccine durability (Figure). The API allows seamless access to the data, facilitating more advanced statistical analysis that may require sophisticated methods from statistical programming languages. DataSpace is continually adding new studies and data, with 110 studies expected to be available by the end of 2018.

Monitoring and reporting in the SDG era

TUPEE736

Roll out and scale up of WHO-endorsed TB diagnostic technologies to diagnose TB and MDR-TB in African: From Stop TB to End TB Strategy era

J.D.D. Iragena, F. Jallow, M. Gasana, H. Lago
WHO Regional Office for Africa, CDS/HTH, Brazzaville, Congo, Republic of the

Background: To roll out and scale up diagnostic tests for TB and MDR-TB in 47 African countries requires coordinated efforts at all levels of stakeholders. The End TB Strategy aims at early diagnosis with universal DST and quality-assured laboratory network. The use of the rapid test Xpert MTB/RIF® has expanded since 2010 and it is now recommended as the initial diagnostic test in all persons with signs and symptoms of TB. More than 100 countries are now already using the test and as of 31 of December 2017, a total of 9,449 GeneXpert instruments and 34,422,850 Xpert MTB/RIF cartridges had been cumulatively procured in the public sector in 130 of the 145 countries eligible for concessional pricing.
Description: Laboratory data analysis was carried out in 47 members States. The implementation of diagnostic tests and scale-up through the laboratory network have been assessed using excel sheet and checklist. Laboratory indicators before 2015 and after 2015 were considered using data collected from countries for 2016 and 2017 WHO Global TB Reports.
Lessons learned: DOTS and Stop TB Strategies resulted in 28 member states achieving benchmark of one microscopy center per 100,000 populations, while 15 achieved 1 culture and 1 DST laboratory to 5 million populations. By the end 2015, the coverage with diagnostic technologies was still sub-optimal. Out of 42 countries, 35 (83%) had dedicated National TB Reference Laboratories with 60% of them having quality management systems in place towards accreditation. In 2017, the uptake of WHO-endorsed diagnostic tests for TB showed slower progress in some countries against 2015 as a baseline. All 47 member states in Africa have been procured with GeneXpert instruments. Beside all, fifteen countries lack capacity to diagnose and confirm XDR-TB.
Conclusions/Next steps: New diagnostic tests should be accompanied by the "know how to" implement. Political commitment to rapidly scale up tests and improve the quality of laboratory services is a key. The laboratory indicators within the End TB Strategy should be kept in mind to better monitor progress against the targets.Three phases need to be considered as important to achieve implementation and rapid uptake: laboratory preparedness, technology transfer and routine testing.

TUPEE737

Completeness rates of HIV indicator data reporting through District Health Information Software (DHIS2): Experience from military sites in Uganda

B. Lutimba Mutebi[1], J.B. Ddamulira[1], D. Bwayo[1], C. Wamundu[2], J. Akao[3], F. Young[4], M. Chen[4], R. Flueckiger[4]
[1]Research Triangle Institute International, Kampala, Uganda, [2]Uganda People's Defense Forces, Kampala, Uganda, [3]Department of Defense-US Mission, Kampala, Uganda, [4]RTI International, Research Triangle Park, United States

Background: Health facility-generated data reported through routine health information systems are the source for programmatic monitoring and evaluation in Uganda. Since 2013, the Uganda People's Defence Force (UPDF) has adopted the District Health Information Software (DHIS2), contributing to improved availability of routine health facility data at 26 military health centers. Funded by the United States President's Emergency Plan for AIDS Relief (PEPFAR), RTI International supported the UPDF to assess completeness reporting on 13 PEPFAR core HIV indicators by 26 military health centers during the past two years of implementation of DHIS2, (January 2016 to December 2017).
Methods: Data on the 13 HIV indicators reported quarterly, by 26 antiretroviral treatment (ART) military health facilities (seven military hospitals and 19 lower level health centers) were extracted from the Ugandan DHIS2 database. Completeness of reporting was analyzed for each indicator (as shown by respective cells in the database) and expressed as the percentage of data values reported over those expected. All ART-accredited health facilities are expected to report data for each indicator for each quarter. Completeness rates were calculated quarterly, and trends were measured over time. Data were extracted from DHIS2 and analyzed in MS Excel 2016.
Results: On average, completeness of reporting increased significantly by 16.8% for all HIV indicators (75-95%, p>0.0001 for TX_NEW and TX_CURR; 45-55%, p>0.0001 for TX_RET; 65-100%, p>0.0001 for TX_PVLS; 65-85%, p>0.0001 for TB_STAT, TB_SCREEN, TB_ART and PMTCT_EID, 90-100%, p>0.001 for HTS_TST, HTS_TST_POS and PMTCT_STAT). (See PEPFAR Monitoring, Evaluation and Reporting Indicator Reference Guide [Version 2.0, 2017] for definitions of the above indicators). Data on voluntary medical male circumcision completeness increased significantly from 85-98%, p>0.0001. Completeness during the period at lower-volume units was higher than that at high-volume units (95% and 85% respectively).
Conclusions: Completeness of data reporting for most key HIV indicators improved after the adoption of DHIS2, notwithstanding that other support from RTI (e.g.staff training, coaching) also contributed to improvements. However, major data gaps were identified for the treatment retention, TB, and EID indicators. Periodic orientation and on-site mentorship of all health workers on key indicator definitions need strengthening.

WEDNESDAY 25 JULY

Oral Abstract Sessions

WEAA01 Poking, prodding and purging the final reservoir frontier

WEAA0101

Chidamide reactivates and diminishes latent HIV-1 DNA in patients on suppressive antiretroviral therapy

Y. Sun[1], J. Li[1], J. Ma[2], C. Wang[1], F. Bai[1,3], K. Zhao[1,4], Z. Yu[1,5], W. Kang[6], Y. Zhuang[1], N. Yao[1], Q. Liu[1], B. Dang[1], B. Wang[1], Q. Wei[1], Z. Liu[1], L. Wang[1], W. Kang[1], L. Wang[1], J. Xia[1], T. Wang[7], T. Zhu[8]
[1]Fourth Military Medical University, Xi'an, China, [2]Xi'an Jiaotong University, Xi'an, China, [3]323th Hospital of PLA, Xi'an, China, [4]Xi'an Communication Institute, Xi'an, China, [5]Political Work Department of People's Republic of China Central Military Commission, Beijing, China, [6]Fourth Military Medical University, Department of Infectious Diseases, Tangdu Hospital, Xi'an, China, [7]Jinan University, Institute of Life and Health Engineering, College of Life Science and Technology, Guangzhou, China, [8]University of Washington, Department of Laboratory Medicine, Seattle, United States

Background: A proposed strategy to purge HIV reservoir is to reactivate provirus transcription with latency-reversing agents (LRAs), inducing viral antigen expression and allowing immune-mediated clearance of reservoir cells in the presence of combination antiretroviral therapy (cART). Here we evaluated the safety and efficacy of chidamide, a benzamide histone deacetylase inhibitor, in patients on suppressive cART.
Methods: Seven aviremic HIV-1-infected patients received eight oral doses of 10 mg chidamide twice a week (Tuesday/Friday) for 4 weeks while maintaining baseline cART. Safety was evaluated at each visit and plasma concentrations of chidamide was measured by liquid chromatography-mass spectrometry. Histone acetylation levels in $CD4^+$ T cells were analyzed by flow cytometry. Plasma HIV RNA was determined using Cobas Taqman HIV-1 Test, v2.0. Cell-associated HIV RNA (CA-HIV RNA) and total HIV DNA (CA-tHIV DNA) were quantified by the SupBio PCR test in PBMCs. Thirteen plasma biomarkers of inflammation were evaluated by luminex multiplex assays and ELISA. Changes from baseline to specific time points were compared using Wilcoxon matched-pairs signed-rank tests, and a two-sided p-value of less than 0.05 was considered significant.
Results: All participants (6 male, 1 female) completed full chidamide dosing, and showed acceptable drug tolerance with only grade 1 adverse events presented. No drug accumulation effects were detected per chidamide dosing. In addition, the cyclic increase of histone acetylation in $CD4^+$ T cells was observed. All participants showed robust and cyclic viremia (peak viremia range 147-3850 copies/mL) as well as increased CA-HIV RNA (median peak increase 9.4-fold vs. baseline, range 2.0-fold to 34.9-fold) during chidamide treatment. At day 56, plasma HIV RNA of all participants recovered to undetectable level. Furthermore, we discerned the significant reduction of CA-tHIV DNA (day 27 vs. baseline, p = 0.018, and day 56 vs. baseline, p = 0.028). Equally important was that chidamide exhibited an anti-inflammatory property as evidenced by inhibition of pro-inflammatory cytokines: MCP-1, MMP-9, IP-10, LBP, P-selectin, and CD40 ligand.
Conclusions: Chidamide can safely disrupt the latency of HIV DNA resulting in the clearance of reactivated reservoirs, which makes it a promising candidate toward the eradication of HIV reservoir.

WEAA0102

The antiretroviral CCR5-inhibitor maraviroc effectively reverses HIV latency by phosphorylation of Nf-B

J. Symons[1], S.F.L. van Lelyveld[2], W. de Spiegelaere[3], A.M.J. Wensing[4], J.M. Zerbato[1], P.M. van Ham[4], J. Drylewicz[5], A. Middel[2], A.I.M. Hoepelman[2], P.U. Cameron[1,6], H.K. Lu[1], A.I. Dantanarayana[1], J.A.M. Borghans[5], L. Vandekerckhove[3], S.R. Lewin[1,6], K. Tesselaar[5], M. Nijhuis[4]
[1]The Peter Doherty Institute for Infection and Immunity, The University of Melbourne, Melbourne, Australia, [2]University Medical Centre Utrecht, Department of Internal Medicine and Infectious Diseases, Utrecht, Netherlands, [3]Ghent University, Department of Internal Medicine, Ghent, Belgium, [4]University Medical Centre Utrecht, Department of Medical Microbiology, Virology, Utrecht, Netherlands, [5]University Medical Centre Utrecht, Department of Immunology, Utrecht, Netherlands, [6]Alfred Hospital and Monash University, Department of Infectious Diseases, Melbourne, Australia

Background: One strategy to eliminate latently infected cells in HIV-infected individuals on antiretroviral therapy (ART) is to induce HIV transcription with latency reversing agents (LRAs). Potent non-toxic LRAs are urgently warranted. The clinically approved CCR5-inhibitor maraviroc (MVC) demonstrated an increase in HIV transcription *in vitro* and may therefore act as an LRA. We investigated the effect of MVC on HIV transcription and its mechanism of action *in vitro*, *ex vivo* and *in vivo* during a MVC-intensification trial.
Methods: Activated PBMCs were infected with HXB2 (MOI 0.01) and cultured with MVC. Seven days post-infection p24 was measured in supernatant by ELISA (n=9). Changes in NF-B phosphorylation were assessed by densitometry Western-Blot (n=2). 5 million resting CD4 T-cells were isolated from HIV infected individuals on ART, treated with MVC or vorinostat and unspliced (US) and multiply spliced (MS) HIV-RNA were quantified by qPCR (n=6). In a double-blind, placebo-controlled trial, MVC or placebo was added to suppressive ART in immune non-responders (MVC=10, Placebo=5). Changes in cell-associated (CA)-US HIV-RNA and NF-B regulated gene mRNA were quantified by droplet-digital-PCR (ddPCR). Mann-Whitney-U-test and paired T-test were performed using GrapPad-Prism.
Results: *In vitro,* a significant increase in HIV production was observed when MVC (1pM-1µM (p< 0.02) to infected PBMC. A 2.5-fold increase in phosphorylated NF-B was observed in uninfected MVC treated CD4+ T-cells. Additionally, *in vivo,* a significant difference, between MVC and placebo, in NF-kB regulated gene expression, including IFN-g, IL6 and TNF-a, was observed (p=0.02, 0.03, 0.05 respectively). Patients baseline characteristics did not differ between the MVC-intensification and placebo-group. A significant difference in CA-US HIV-RNA expression was detected between baseline and week eight (MVC 1.8-fold increase; placebo 2.5-fold decrease; p=0.0121). *Ex vivo,* MVC induced a 3.5 and 1.7-fold increase in US HIV-RNA compared to DMSO (p=0.0004) and vorinostat (p=0.0496) respectively. Additionally, MVC induced a 2-fold increase in transcription of MS HIV-RNA compared to DMSO (p=0.0245).
Conclusions: MVC activates phosphorylation of NF-B and increases HIV-RNA transcription in resting CD4 T-cells. Potency for latency reversal *ex vivo* was more effective than vorinostat. Given the excellent safety profile of MVC, further studies of MVC as an LRA are warranted *in vivo.*

WEAA0103

Activation of latent HIV and SIV RNA transcription *in vitro* and *in vivo* in ART suppressed SIV-infected rhesus macaques by the Ingenol-based protein kinase C agonist, GSK445A

A. Okoye[1,2], R. Fromentin[3,4], J. Brehm[5,6], A. Maxwell[1,2], M. Vaidya[1,2], M. Pardons[3,4], V. Tai[5], J. Tang[5], J. Smedly[2], M. Axthelm[1,2], J. Lifson[7], L. Picker[1,2], L. Trautmann[8,9], D. Favre[5,6], N. Chomont[3,4]
[1]*Oregon Health and Science University, Vaccine & Gene Therapy Institute, Beaverton, United States,* [2]*Oregon National Primate Research Center, Beaverton, United States,* [3]*Centre de Recherche du CHUM, Montreal, Canada,* [4]*Université de Montréal, Microbiology, Infectiology and Immunology, Montreal, Canada,* [5]*GlaxoSmithKline, HIV Discovery Unit, Durham, United States,* [6]*University of North Carolina, HIV Cure Center, Chapel Hill, United States,* [7]*Frederick National Laboratory, Leidos Biomedical Research Inc., AIDS and Cancer Virus Program, Frederick, United States,* [8]*Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States,* [9]*Walter Reed Army Institute of Research, U.S. Military HIV Research Program, Silver Spring, United States*

Background: Induction of HIV gene expression in latently-infected CD4+ T cells is an essential step for the clearance of proviral reservoirs in virally suppressed individuals. Activation of NF-kB signaling pathway by Protein kinase C agonists (PKCa) is a potent mechanism for HIV latency disruption *in vitro*. However, significant toxicity risks and the lack of evidence supporting their activity *in vivo* have prevented further evaluation of PKCa. Extending prior results, we sort to confirm that GSK445A, a stabilized Ingenol-B PKCa derivative, can induce HIV/SIV transcription *in vitro*, and demonstrate pharmacological activity *in vivo* in ART suppressed SIV-infected RM.
Methods: CD4+ T cells from 3 virally suppressed humans were exposed to increasing concentrations of GSK445A for 30 min to measure cell-associated multiply spliced (tat/rev) RNA after 18 hours. Next, CD4+ T cells from virally suppressed humans (n=5) and RM (n=3), were exposed for 30 min at an optimal dose of 25nM GSK445A to quantify cell-associated RNA and cell free RNA in the supernatant at 18 hours. Pharmacological activity and tolerability of GSK445A IV was assessed in 5 healthy RM at doses from 10 to 20mg/kg. Finally, 4 adult RM were IV inoculated with SIVmac239, and placed on ART (tenofovir/emtricitabine/dolutegravir) starting 56 days post-infection. After 34 weeks, RM received 3 biweekly doses of GSK445A, IV at 15mg/kg. SIV DNA and RNA in cells and plasma were quantified by qPCR/qRT-PCR.
Results: CD4+ T cells exposed to GSK445A produced unspliced HIV and SIV RNA (gag) and viral particles, indicating that GSK445A efficiently reverses HIV/SIV latency *in vitro*. In vivo, GSK445A tolerability was established around 10-15mg/kg and pharmacological activity demonstrated by CD69 upregulation in CD4+ T cells in blood. In suppressed RM, 3 of 4 individuals showed blips in plasma viral loads ~0.5-1 log above threshold (15 RNA copies/ml). All but 1 RM showed increases in unspliced SIV RNA in PBMC and increases in SIV RNA/DNA ratio (average transcription per infected cell) following each dose of GSK445A.
Conclusions: These results indicate that GSK445A is a potent latency-reversing agent *in vitro* and is amenable to testing latency disruption strategies *in vivo* in RM models of HIV cure/remission.

WEAA0104

The RNA-binding proteins, SRP14 and HMGB3 play a crucial role in controlling HIV replication and latency

G. Khoury[1], M.Y. Lee[1], S. Ramarathinam[2], S. Sonza[1], A.W. Purcell[2], D.F.J. Purcell[1]
[1]*Peter Doherty Institute, Microbiology & Immunology, Melbourne, Australia,* [2]*Biomedicine Discovery Institute, Monash University, Biochemistry and Molecular Biology, Clayton, Australia*

Background: HIV latency is known to be reinforced by many impediments to RNA transcription, however translational blocks to HIV replication are less well characterised. The transactivator of transcription Tat protein is essential for progeny virion production in natural infection of HIV. RNA-binding proteins that facilitate translation of Tat may be absent or downregulated in resting CD4+ T cells, the main reservoir of latent HIV. In this study, we examined the role of Tat RNA-binding factors in expression of Tat and control of latent and productive infection.
Methods: Affinity purification-mass spectrometry analysis (nanoLC-MS/MS) was used to detect binding partners of MS2-tagged *tat* mRNA in a T cell-line model of HIV latency (J-Lat6.3). 243 interactions were identified with high confidence using the MiST three parameter scoring system at a threshold cutoff of 0.7. 13 proteins were chosen for follow-up. The effect of knockdown and overexpression of the proteins of interest on Tat transactivation and translation was assessed by luciferase-based reporter assays, and infections with a dual colour HIV reporter virus allowed investigation of the dynamics of latent (BFP+/mCherry+) and productive (EGFP+BFP+/EGFP+mCherry+) infection. Changes over time in the levels of mRNA and protein in activated CD4+ and resting CD4+ T cells after NL4.3-eGFP infection were determined.
Results: After preliminary studies, two candidate proteins, SRp14 and HMGB3 were selected for detailed investigation. Knockdown of SRP14 negatively affected translation of Tat and Tat-mediated transactivation, which led to an increase in latent infection (BFP+ expression), while the knockdown of HMGB3 resulted in an increase in Tat transactivation and translation as well as an increase in productive infection (EGFP+BFP+/mCherry+ expression). Interestingly, these effects correlated with the levels of the proteins in rCD4+ T cells following HIV-1 infection as we observed a decrease in SRp14 levels while HMGB3 peaked very quickly after infection in rCD4+.
Conclusions: Our study revealed that SRp14 is a positive regulator of Tat expression and negative regulator of latent infection, whereas HMGB3 is a negative regulator of Tat expression and positive regulator of latent infection. The role of these proteins in controlling HIV-gene expression during latency will be further assessed as potential drug targets.

WEAA0105

Using the PPARg antagonism to block/lock HIV reactivation in Th17 cells

Y. Zhang[1], D. Planas[1], H. Chen[1], A. Gosselin[1], J.-P. Routy[2], P. Ancuta[3]
[1]*Universite de Montreal and CHUM Research Centre, Microbiology, Infectiology and Immunology, Montreal, Canada,* [2]*McGill University Health Centre, Montreal, Canada,* [3]*Universite de Montreal and CHUM Research Centre, Montreal, Canada*

Background: The Th17-polarized cells represent a subset of CD4+ T-cells that orchestrate mucosal immunity against pathogens. The transcriptional profile of Th17 cells is compatible with optimal HIV replication. Th17 are strategically located at mucosal barrier surfaces and represent the first HIV infection targets during sexual transmission. Finally, Th17 cells are long lived and support HIV reservoir persistence during antiretroviral therapy (ART). Of note, the nuclear receptor PPAR is a negative regulator of HIV replication and a transcriptional repressor of the Th17 master regulator RORt. In an effort to identify novel Th17-targeted therapies, we investigated the potential use of PPAR antagonism for viral latency reversal and/or boosting Th17 functions.
Methods: Memory CD4+ T cells were isolated from peripheral blood by negative selection. Cells of HIV-uninfected individuals were stimulated via CD3/CD28 during 3 days, exposed to replication-competent or single round VSVG-pseudotyped HIV, and cultivated in presence/absence of PPAR antagonist T0070907 for 12 days. HIV reactivation from CD4+ T-cells of ART-treated individuals was measured using a viral outgrowth assay. HIV replication was monitored by HIV-DNA real-time PCR and ELISA/FACS. CCR5 expression was measured by FACS. Genome-wide tanscriptional profiling was performed using the Illumina RNA-Seq technology followed by RT-PCR validations.
Results: The PPAR antagonist T0070907 increased IL-17A production, but unexpectedly inhibited HIV replication by acting at multiple levels including CCR5-mediated entry; HIV transcription; and lipid metabolism. Transcriptional profiling and RT-PCR validations revealed that T0070907-mediated effects coincided with the induction of cholesterol-25-hydroxylase (CH25H), an enzyme converting cholesterol into 25-hydroxycholesterol (25HC), a broad inhibitor of viral replication and also an intrinsic ligand of RORt. Finally, T0070907 inhibited HIV reactivation and increased IL-17A production in CD4+ T cells from ART-treated HIV+ individuals.
Conclusions: Together, our results identify PPAR as a new therapeu-

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tic target to reduce HIV replication/reactivation in CD4+ T-cells, while boosting the Th17 effector functions. These effects are explained by the capacity of T0070907 to induce the synthesis of 25HC, while preventing PPAR-mediated RORt repression. These findings demonstrate the possibility to disconnect HIV replication from effector functions in Th17 cells and open the path for new therapeutic interventions to restore Th17-mediated mucosal immunity in HIV-infected individuals receiving ART.

WEAA02 Killers or helpers: The double life of T cells

WEAA0201

Increase in restriction factor expression in response to viral rebound after analytical treatment interruption in HIV-infected patients

M.-A. De Scheerder[1,2], C. Van Hecke[1,2], N. De Langhe[1], M. Sips[1,2], L. Vandekerckhove[1,2]
[1]UZ Gent, Algemene Inwendige Ziekten, Gent, Belgium, [2]UGent, HCRC, Gent, Belgium

Background: Restriction factors are host proteins interfering at different steps of HIV replication cycle in an attempt to limit viral production and spreading. We conducted a longitudinal analysis of the expression profile of antiviral restriction factors and cofactors in a cohort of eleven HIV-1 infected, long-term treated patients who underwent analytical treatment interruption (ATI), the HIV-STAR study(NCT02641756). The expression of known HIV-1 restriction factors (APOBEC3G, SAMHD1, MX2, PAF1, SLFN11, TRIM5 and BST2/tetherin), cofactors (NLRX1 and PSIP1) and interferon stimulated genes (ISGs) IFIT1 and MX1 were evaluated at four well-defined time points: on cART (T1), after ATI (VL< 20copies/ml, T2), at rebound (VL>1000copies/ml, T3) and after treatment restart (VL< 20copies/ml, T4).
Methods: Peripheral blood mononuclear cells were isolated from all patients at the four time points. Quantitative real-time PCR was performed to determine the expression of these HIV-1 restriction factors, cofactors and ISGs. Statistical Friedman's and post hoc Dunn's analysis were performed and Spearman correlation was employed to identify associations between restriction factor/cofactor, ISG expression levels and patient clinical characteristics.
Results: For two restriction factors a significant increase in expression between T1 and T2 (APOBEC3G, SLFN11) was observed. Furthermore, upregulation of MX2 and both ISGs were observed between T1 and T3 ($p< 0.05$). Significant positive correlations between ISG and restriction factor/cofactor expression were identified at T1, T3 and T4. In addition, a correlation between high HIV DNA load and IFIT1 at T2 and high viral load zenith and SLFN11 at T4 was found, suggesting that these virological characteristics drive a more robust restriction factor response. Furthermore, a low CD4 nadir was correlated with a higher expression of the viral co-factor PSIP1 at T2. No associations were found between the expression of restriction- or co- factors and time to viral rebound.
Conclusions: A significant difference in restriction factor expression between at least two time points was identified for SLFN11, APOBEC3G and MX2 and a trend towards difference in expression levels for most of the other restriction factors studied. In contrast to the ISGs, our data indicate that restriction factors increase earlier after ATI before time of viral rebound, potentially implicating them as markers/predictors of rebound.

WEAA0202

RhCMV-induced, SIV-specific MHC-E-restricted T cells recognize SIV through the T cell receptor

S. Abdulhaqq[1], B. Bimber[2], H. Wu[1], A. Ventura[1], K. Wisskirchen[3], A. Legasse[2], M. Axthelm[2], U. Protzer[3], S. Hansen[1], D. Douek[4], L. Picker[1], J. Sacha[1]
[1]Oregon Health and Science University, Vaccine and Gene Therapy Institute, Beaverton, United States, [2]Oregon Health and Science University, Oregon National Primate Research Center, Beaverton, United States, [3]Technical University of Munich, Munich, Germany, [4]National Institutes of Health, Vaccine Research Center, Bethesda, United States

Background: RhCMV68-1 vaccine vectors expressing SIV antigens demonstrate a profound ability to control post-challenge viremia with subsequent SIV clearance in over half of all vaccinated rhesus macaques (RM). The T cells induced by these vectors are effector-memory T cells unconventionally MHC restricted by MHC-II or MHC-E molecules. To effectively deploy these responses against HIV/SIV it is essential to garner a better understanding of how these cells function. However, the unique nature of these terminally differentiated cells complicates conventional analytical methods, e.g. antigen-specific T cell lines. Here, we employ bulk and single-cell sorting with downstream mRNA sequencing of SIV-specific MHC-E-restricted CD8+ T cells to derive full length, paired / T cell receptor (TCR) sequences and to characterize their transcriptional phenotype.
Methods: We stimulated PBMC from strain 68-1 RhCMV/Gag vaccinated RM with optimal peptide epitopes from previously identified T cell responses in the presence of TAPI-0. Antigen-specific T cells dually expressing CD69 and membrane-bound TNF- were sorted using a FACS Aria. Whole transcriptome sequencing was used to identify the CDR3 amino acid sequence and V(D)J usage. Paired TCR chains were exogenously expressed in allogeneic CD8+ T-Cells from RhCMV/Gag-naïve RM.
Results: Using our system we were able to identify, sequence, and subsequently express paired / TCRs from MHC-E-restricted, SIV-specific CD8+ T cells. We confirmed that allogeneic CD8+ T cells transduced with these exogenous TCRs secreted effector cytokines upon encountering antigen in the context of MHC-E. MHC-E TCR transductants also recognized SIV infected CD4+ T cells derived from autologous or allogeneic sources, demonstrating the presence of MHC-E-bound minimal optimal epitopes on the surface of infected cells. Total transcriptome analysis revealed distinct populations within the MHC-E restricted cells, and expression of canonical Th1 markers, consistent with conventional MHC-Ia-restricted SIV-specific CD8+ T cells.
Conclusions: Our data demonstrate that Mamu-E-restricted T cell specificity is derived from its cognate TCR, and that the mRNA profiles of these cells resemble conventionally MHC-restricted T cells. This new system facilitates downstream transcriptomic analysis of antigen-specific T cells independent of knowledge of the restricting allele and tetramers, and will shed light on the phenotype and function of unconventionally MHC-restricted CD8+ T cells induced by RhCMV vaccination.

WEAA0203

Genetic factors leading to loss of viral control in HIV elite controller patients

J.M. Benito[1,2], M. Garcia[1,2], V. de Santisteban[1,2], R. Ramos[3], C. Restrepo[1,2], M.A. Navarrete-Muñoz[1,2], A. León[4], E. Ruiz-Mateos[5], A. Cabello[6], J. Alcamí[7], M. Górgolas[6], N. Rallón[1,2], On behalf of ECRIS integrated in the Spanish AIDS Research Network
[1]Instituto de Investigación Sanitaria Fundación Jiménez Díaz, Universidad Autónoma de Madrid (IIS-FJD, UAM), Madrid, Spain, [2]Hospital Universitario Rey Juan Carlos, Móstoles, Spain, [3]Unidad de Genómica Parque Científico de Madrid, Madrid, Spain, [4]Hospital Clinic-IDIBAPS, HIVACAT, Universidad de Barcelona, Barcelona, Spain, [5]Hospital Virgen del Rocío, Sevilla, Spain, [6]Hospital Universitario Fundación Jiménez Díaz, Madrid, Spain, [7]Unidad de Inmunopatología del SIDA, Centro Nacional de Microbiología, Instituto de Salud Carlos III, Madrid, Spain

Background: Despite the ability of HIV elite controller patients (EC) to spontaneously maintain undetectable HIV plasma viral load (pVL), some of them lose this ability over time. The mechanisms underlying this phe-

nomenon are not completely understood. We investigated the association of genes related to HIV pathogenesis, with the loss of spontaneous virological control in EC.

Methods: A retrospective longitudinal study was performed in 13 EC: Six experienced loss of virological control (at least two consecutive measurements of VL above 50 copies/mL over 12 months of follow-up), named transient-controllers (TC), and 7 maintained virological control during follow-up (named persistent-controllers, PC). Cell samples were obtained at two timepoints: 1-2 years before (T1) and 1-2 years after (T2) loss of virological control for TC, and separated 1-2 years for PC. We assessed the expression of 43 genes related to HIV pathogenesis by real-time qPCR. Differential gene expression between TC and PC at the two timepoints and between timepoints was analyzed using StatMiner software (Applied Biosystems) applying a false discovery rate (FDR)< 0.05. Principal component analysis (PCA) was employed to discriminate between TC and PC at different timepoints.

Results: PCA was able to discriminate between TC and PC at T1 when both groups presented undetectable pVL. However, the discrimination was not so clear at T2 when TC already had detectable levels of pVL. On the other hand, PCA discriminated T1 and T2 samples from TC but it was not for T1 and T2 samples from PC. Interestingly, several genes involved in HIV control such as CDKN1A (p=0.024), CTR9 (p=0.006) and IFI16 (p=0.046) were down-regulated in TC compared to PC at T1, whereas there were no significant differences at T2. Moreover, gene expression did not change between T1 and T2 in PC, whereas several genes (ABCA1, IL10, IL21, PAF1,TRIM26) significantly increased its expression at T2 compared to T1 in TC.

Conclusions: Our results demonstrate a down-modulation of different genes with anti-HIV activity in EC patients that precede the loss of natural HIV replication control. These genes could be considered potential biomarkers of loss of natural control and could provide new insights for the clinical management of these exceptional patients.

WEAA0204

Frequent generation of HIV broadly neutralizing antibodies in infected children is associated with both increased help and regulation within germinal centers

J. Roider[1,2,3], T. Maehara[4], A. Ngoepe[2], D. Ramsuran[2], M. Muenchhoff[5,6], E. Adland[1], T. Aicher[4], S. Kazer[4], P. Jooste[7], F. Karim[2], W. Kuhn[8], A. Shalek[4,9,10], T. Ndung'u[2,3,4], L. Morris[11,12,13], P. Moore[11,12,13], S. Pillai[4], P. Goulder[1,3], H. Kloverpris[2,14], A. Leslie[2]

[1]University of Oxford, Department of Pediatrics, Oxford, South Africa, [2]Africa Health Research Institute, Durban, South Africa, [3]HIV Pathogenesis Programme, Durban, South Africa, [4]Ragon Institute of Massachusetts General Hospital, Massachusetts Institute of Technology and Harvard University, Cambridge, United States, [5]Max von Pettenkofer-Institute, Muenchen, Germany, [6]German Center for Infection Research (DZIF), München, Germany, [7]Kimberley Hospital, Kimberley, South Africa, [8]Stanger Hospital, Stanger, South Africa, [9]Broad Institute of MIT and Harvard, Cambridge, United States, [10]Institute for Medical Engineering & Science (IMES) and Department of Chemistry, Cambridge, United States, [11]National Institute for Communicable Diseases of the National Health Laboratory Service, Johannesburg, South Africa, [12]University of the Witwatersrand, Johannesburg, South Africa, [13]Center for the AIDS Programme of Research in South Africa, Durban, South Africa, [14]University of Copenhagen, Department of Immunology and Microbiology, Copenhagen, Denmark

Background: Understanding the T cell parameters supporting the generation of broadly neutralizing antibodies (bnAbs) against HIV-1 will help to optimize and target future vaccine strategies. Unlike HIV infected adults, who rarely make bnABS, most vertically infected children generate broad and potent neutralizing antibodies, suggesting the immune environment in these infants supports their generation.

Methods: Using blood and lymph node samples from infants and adults, we performed flow cytometry, confocal imaging and analysis of plasma markers by ELISA/ multiplex assays.

Results: As in the rare adults that make bnABs, circulating T follicular helper cells (T_{FH}) correlate with neutralization breadth in infected infants, but are much more frequent than in their adults counterparts. This is reflected in lymph nodes (LN), were germinal center T_{FH} are double the frequency in infants, irrespective of HIV status. Moreover, HIV infected infants have a clear Th2 bias in their LN T_{FH} response, with a high frequency of HIV-specific IL-21 producing T_{FH}, compared to adults, whose low frequency HIV-specific T_{FH} make IFN-gamma. Unlike in adults, T_{FH} in HIV infected infants are subject to increased regulation in LN, where the ratio of regulatory T_{FH} to T_{FH} is double that of infected adults and HIV-specific CXCR5+ CD8 T cells are frequently detected. Finally, breadth in infants correlates with plasma levels of IL-5, a cytokine that supports the induction of regulatory T and B cells.

Conclusions: The existence of differences in the immune response to natural infection of infants and adults is important, as it argues that vaccination strategy should be tailored to the group being targeted. For example, a vaccine that sought to break tolerance controls in adults might not be appropriate in infants. Furthermore, the general observation that infants make better anti-HIV antibodies should raise the question of whether infants are potentially a better target for HIV vaccination. Understanding the role of T-cell help and regulation in the process of bNab generation in infants can inform the development of vaccines targeted at this age group.

WEAA0205

Initiation of antiretroviral therapy during hyperacute HIV infection preserves germinal center T follicular (GCTfh) helper cell function

O. Baiyegunhi[1], F. Laher[1], K. Dong[2], B. Walker[2], T. Ndungu[1,3], Z. Ndhlovu[1,2,3]

[1]University of KwaZulu Natal, Nelson Mandela School of Medicine, Durban, South Africa, [2]Ragon Institute of MGH, MIT and Harvard, Cambridge, United States, [3]Africa Health Research Institute, Durban, South Africa

Background: T follicular helper (Tfh) cells are important for the development of antibody responses against HIV infection. Paradoxically, the pathologic expansion of Tfh is associated with hypergammaglobulinemia and B cell dysfunction. Many HIV induced immune dysfunctions are reversed or attenuated by antiretroviral therapy (ART) but it is unclear if early treatment restores germinal center (GC) Tfh delivery of help to B cells leading to the establishment of GC reactions and effective antibody responses.

Methods: Excisional lymph node and paired blood samples were collected from 20 treated persons at the onset of plasma viremia, in many when viral loads are less than 1000 RNA copies/ml plasma. 10 HIV negative and 8 untreated individuals were included as controls. GCTfh and B cell phenotype and *in-situ* microscopy was performed on all study subjects. MHC class II tetramer staining, digital droplet PCR and intracellular cytokine staining were used to quantify and phenotype HIV-specific GCTfh responses is a subset of donors based on MHC class II haplotype expression and sample availability.

Results: Despite prompt plasma virus suppression there was significant expansion of GCTfh frequencies in lymph nodes from early treated persons compared to HIV negative donors. Class II tetramer staining and intracellular flowcytometry analysis revealed 1% to 9% of expanded GCTfh cells was HIV-specific. Expansion of plasmablasts (p=0.0336) and GC B cells (p=0.0571) correlated with GCTfh cell frequencies (p=0.0003, r=0.9321). GCTfh/B cell cultures induced higher IgG production in early treated compared to untreated donors. HIV Gag p24 antigen was detected in CXCR3+ GC Tfh and follicular dendritic cells, almost exclusively within GCs.

Conclusions: These results demonstrate that GCTfh responses induced during treated hyperacute are qualitatively superior compared to responses untreated hyperacute HIV infection. Our results also provide hints of persistent low-level viral replication in the lymph nodes of early treated individuals despite sustained plasma viral suppression. These results have implications for HIV cure and for vaccine strategies aimed at inducing long lasting anti-HIV antibody responses.

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WEAB01 Keep your eyes on OIs and STIs

WEAB0101

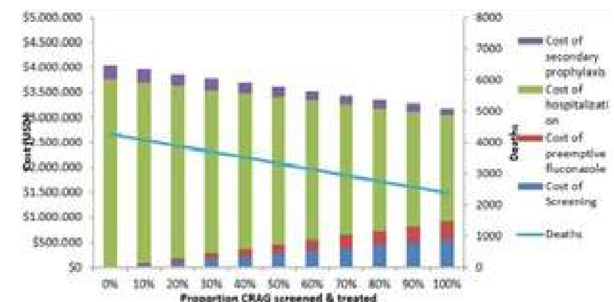
Evaluation of a national cryptococcal antigen screening program for HIV-infected patients in Uganda: A cost-effectiveness modeling analysis

R. Rajasingham[1], D. Meya[2], G. Greene[3], A. Jordan[3], T. Chiller[3], D. Boulware[1], B. Larson[4]
[1]University of Minnesota, Minneapolis, United States, [2]Infectious Diseases Institute, Kampala, Uganda, [3]CDC, Atlanta, United States, [4]Boston University, Boston, United States

Background: Cryptococcal meningitis accounts for 15% of AIDS-related mortality. Cryptococcal antigen (CrAg) is detected in blood weeks before onset of meningitis, and CrAg positivity is an independent predictor of meningitis and death. CrAg screening for patients with advanced HIV is recommended by the World Health Organization, though implementation remains limited. Our objective was to evaluate costs and mortality reduction (lives saved) from a national CrAg screening program across Uganda.
Methods: We created a decision analytic model to evaluate CrAg screening. CrAg screening was considered for those with a CD4< 100 cells/µL per international guidelines, and in the context of a national HIV test and treatment program where CD4 testing may not be available. Costs (2016 USD) were estimated for screening, preemptive therapy, hospitalization, and maintenance therapy. Parameter assumptions are based on large prospective CrAg screening studies in Uganda, and clinical trials from sub Saharan Africa.

Population screened		Prevalence	Source
CD4 count ≤100 cells/µL		0.16	(1, 2)
CD4<100 cells/µL CrAg screened		0.8	Assumption
Return to clinic for CrAg results		0.8	Assumption
Asymptomatic CrAg+ receives preemptive treatment		1.0	
CrAg prevalence			
CrAg negative		0.9675	(3)
Prior CCM		0.0019	(3)
Incident CrAg +		0.0306	(3)
Symptomatic CrAg+		0.0102	(3)
Asymptomatic CrAg+		0.0204	(3)
Of incident asymptomatic CrAg+			
High titer		0.39	(3)
Low titer		0.61	(3)
CrAg+ outcomes			
CrAg+ high titer, no preemptive fluconazole or ART, develops CM		1.0	[illegible]
CrAg+ low titer, no preemptive fluconazole or ART, subsequently develops CM		0.50	(4, 5)
CrAg+ high titer, receives preemptive fluconazole, subsequently survives		0.64	(3)
CrAg+ low titer, receives preemptive fluconazole, survives		0.86	(3)
CrAg+ symptomatic presents to hospital		0.73	(6)
CrAg+ fails fluconazole, presents to hospital		0.80	Assumption
Symptomatic Meningitis outcomes			
CM who present to hospital		0.30	Assumption
Unmasking CM on ART, survives hospitalization with treatment		0.50	(7)
Input Costs		USD	
CrAg test cost		$3.41	
	CrAg LFA	$2.00	Source - Immy (personal communication)
	Import cost	$0.80	Source - Immy (personal communication)
	Shipping	$0.03	0.03 per test to ship 20,000 tests
	Labor	$0.58	Lab worker salary for 10 minutes to perform test
Fluconazole	200mg tablet	$0.14	(3)
Preemptive fluconazole course		$39.06	Including 8 months maintenance on 200mg daily
Hospitalization			
Hospital stay	$9.94 per day x 14 days	$139.13	
Lab testing		$89.18	1 CBC, 3 Cr, 3 K, 3Na, CSF analysis, CSF culture, CrAg
Supplies	$3.41 per day x 14 days	$47.68	
LPs	$9.29 per LP x 3	$27.88	
Personnel	$6.64 per day x 14 days	$93.03	Nurse, Doctor, HIV counselor, Phlebotomist, Lab tech
Amphotericin	50mg per day x 14 days	$165.94	(8)
Hospitalization total		$562.99	
Post hospitalization consolidation and maintenance with fluconazole		$56.78	1 year

[Table 1. Input parameters for base case model]



[Figure 1: Cost of CrAg screening and preemptive treatment with differential levels of implementation. With 100% CrAg screening and treatment, 1900 lives are saved (44%) and $860,000 dollars, compared to no screening.]

Results: In the base case for 1 million persons with a CD4 test annually, 128,000 with a CD4< 100 cells/µL were screened, and 8,233 were asymptomatic CrAg+ and received preemptive therapy. Compared to no screening, CrAg screening and treatment in the base case costs $3,356,724, and saves 7,320 lives, for a cost of $459 per life saved.
Within a national HIV test and treat program, of 1 million HIV-infected persons, 5,920 were incident CrAg positive (CrAg prevalence 1.5%). The total costs of a CrAg screening and treatment program was $4.12 million dollars, with 2,229 known deaths. Conversely without CrAg screening, the cost of treating meningitis was $5.45 million dollars with 6,712 deaths. Thus, despite the very low CrAg prevalence at about 1.5% in the general HIV-infected population, CrAg screening saved over $1.32 million (i.e. 13% of total costs) and averted 67% of deaths, saving $295 per death averted.
Conclusions: CrAg screening and treatment programs are cost saving and lifesaving and could be adopted and implemented by ministries of health to reduce mortality in those with advanced HIV disease. Even within HIV test and treat programs where CD4 testing is not performed, and CrAg prevalence is only 1.5%, CrAg screening is a worthy investment.

WEAB0102

HIV-associated central nervous system infections in Indonesia: A cohort study examining etiology, presentation and outcome

D. Imran[1], R. Estiasari[1], K. Maharani[1], S. Sucipto[1], D.C. Lestari[2], R. Eddy[3], E. Yunihastuti[4], T. Harjono[4], D. Oei[1], I.S. Timan[5], D. Wulandari[5], R. Wahyuningsih[6], A. Bahri[6], A. Kurniawan[6], R. Mulyadi[3], A. Karuniawati[2], U.A. Jaya[7,8], D. Safari[7], A. van Laarhoven[9], B. Alisjahbana[10], S. Dian[10], L. Chaidir[10], A.R. Ganiem[10], D.N. Lastri[1], K.S.A. Myint[7], R. van Crevel[8,9]
[1]Cipto Mangunkusumo Hospital - Faculty of Medicine Universitas Indonesia, Department of Neurology, Jakarta, Indonesia, [2]Cipto Mangunkusumo Hospital - Faculty of Medicine Universitas Indonesia, Department of Microbiology, Jakarta, Indonesia, [3]Cipto Mangunkusumo Hospital - Faculty of Medicine Universitas Indonesia, Department of Radiology, Jakarta, Indonesia, [4]Cipto Mangunkusumo Hospital - Faculty of Medicine Universitas Indonesia, Department of Internal Medicine, Jakarta, Indonesia, [5]Cipto Mangunkusumo Hospital - Faculty of Medicine Universitas Indonesia, Department of Clinical Pathology, Jakarta, Indonesia, [6]Cipto Mangunkusumo Hospital - Faculty of Medicine Universitas Indonesia, Department of Parasitology, Jakarta, Indonesia, [7]Eijkman Institute for Molecular Biology, Jakarta, Indonesia, [8]Eijkman-Oxford Clinical Research Unit, Jakarta, Indonesia, [9]Radboud Center for Infectious Diseases, Radboud University Medical Center, Department of Internal Medicine, Nijmegen, Netherlands, [10]Faculty of Medicine Universitas Padjadjaran, TB/HIV Research Center, Bandung, Indonesia

Background: HIV infection leads to increased susceptibility and worse outcome of central nervous system (CNS) infections. We examined etiology and outcome of CNS infections and the effect of HIV in Indonesia, which is witnessing the second fastest growing HIV epidemic in Asia.
Methods: We prospectively included adults with suspected CNS infections during 15 months in a referral hospital in Jakarta. Systematic screening included HIV testing, routine cerebrospinal fluid (CSF) examination, neuroimaging, and paired HIV-RNA measurement in blood and CSF.
Results: 274 patients with suspected CNS infection (median age 26) presented with headache (77%), fever (78%), seizures (27%), loss of consciousness (71%) and focal neurological signs (40%). HIV infection was found in 147 (54%) patients with 56% newly diagnosed. Those with previously diagnosed HIV infection, 50% had a history of prior or current ART use and 18% reported cotrimoxazole PCP-prophylaxis. Lumbar puncture in HIV-positive subject was done in 80 patients (54%), and brain CT scan in 116 patients (79%). Among HIV-infected patients, we diagnosed cerebral toxoplasmosis (33%), tuberculous meningitis (22%), cryptococcal meningitis (9%), viral encephalitis (5%), brain abscess (2%), neurosyphilis (0.5%) and cerebral lymphoma (0.5%) while no diagnosis could be made in 28% of patients. HIV-RNA was done in blood and CSF of 65/147 patients (44%). Six patients have undetected HIV-RNA in their blood and CSF. Blood HIV-RNA range was 80 - $7.26.10^6$ and in CSF was 138-$1.69.10^6$ Follow-up was 97% complete. Mortality was strongly associated with HIV-infection; 37% of those with and 26% of those without HIV died dur-

ing hospitalisation, and 67% respectively 45% had died after six months follow-up (p< 0.01). Compared to patients with previously diagnosed HIV infection, those with newly diagnosed HIV had a similar CD4 cell count (median 29/ml versus 30/ml), but a higher mortality (log-rank test 0.03).
Conclusions: In this setting, patients with CNS infections came very late and with severe disease. HIV infection was very common, very advanced and associated with very poor outcome. Although 50% have ART history, only 6 patients have undetected HIV-RNA in their blood and CSF. These data underline the need to step up efforts to improve testing, ART and opportunistic infection management.

WEAB0103

Burden of sexually transmitted infections and prevalence of HIV among key population individuals presenting with STIs in Nepal

D.P. Bhandari, K.P. KC, H. Subhani, R.K. Shrestha, B.M. Shrestha, P.K. Thakur, I. Adhikary, B. Shrestha
FHI 360, Nepal, Kathmandu, Nepal

Background: Under the current global vision to control the HIV epidemic the through expanded provision of antiretroviral medications, relatively little attention has been devoted to sexually transmitted infections (STIs). Unfortunately, STIs remain a major cause of morbidity among people living with HIV, and STIs are associated with increased risk for HIV infection. This analysis assessed the burden of STIs among key populations (KPs), as well as prevalence of HIV among STI patients attending LINKAGES/Nepal-supported clinics.
Description: LINKAGES/Nepal — led by FHI 360 with support from the U.S. Agency for International Development and the U.S. President's Emergency Plan for AIDS Relief — provides HIV and STI diagnostic and case-management services to female sex workers (FSWs), clients of FSWs, men who have sex with men (MSM), male sex workers (MSWs), and transgender people in 16 districts of Nepal. The STI case-management services include counseling and syndromic management, syphilis screening using the rapid plasma reagin (RPR) test and treatment with benzathine penicillin, condom distribution to all KP members, and presumptive treatment of cervicitis for FSWs.
Lessons learned: From October 2016 to September 2017, 23,454 individuals (49 percent males, 50 percent females, and 1 percent trans people) were screened for STIs, of whom 5,475 (23 percent) were diagnosed with any STI. The most common diagnoses were vaginal discharge syndrome (69 percent) followed by syphilis (14 percent), urethral discharge syndrome (9 percent), and genital warts (4 percent). HIV prevalence among STI patients was 0.8 percent. HIV prevalence was highest among patients with syphilis at 3 percent; followed by patients with genital warts, at 2 percent; and vaginal discharge syndrome, at 0.4 percent. Out of 42 HIV-positive cases among STI patients, 21 (50 percent) had syphilis, 16 (38 percent) had vaginal discharge syndrome, 4 (10 percent) had genital warts, and one (2 percent) had urethral discharge syndrome.
Conclusions/Next steps: The STI burden among KP program beneficiaries is high, and many HIV-positive KP members are co-infected with an STI. Providing integrated services helps to link a large number of KP individuals to needed STI services in this resource-limited setting.

WEAB0104

Natural history of anogenital HPV infection and related disease among HIV-positive men: Findings from a Cohort Study in South Africa

A. Chikandiwa[1], P.T. Pisa[1], C. Tamalet[2], E.E. Muller[3], R. Kularatne[3], P. Michelow[4], M.F. Chersich[1], P. Mayaud[1,5], S. Delany-Moretlwe[1]
[1]University of the Witwatersrand, Wits Reproductive and HIV Institute, Johannesburg, South Africa, [2]Timone University, Clinical Microbiology IHU and CNRS-URMITE, Marseille, France, [3]National Health Laboratory Service, National Institute for Communicable Diseases, Johannesburg, South Africa, [4]University of the Witwatersrand, Anatomical Pathology, Johannesburg, South Africa, [5]London School of Hygiene and Tropical Medicine, Clinical Research, London, United Kingdom

Background: Persistent anogenital HPV infection causes anogenital warts (AGW), penile and anal cancers. We determined persistence of anogenital HPV infection, squamous intraepithelial lesions (SIL) and AGW among men living with HIV (MLHIV).
Methods: We enrolled 304 sexually-active MLHIV ≥18 years from Johannesburg. We collected socio-behavioral data, blood (CD4+ counts and HIV-1 plasma viral load [PVL]), anal, genital swabs (HPV DNA genotyping with Roche Linear Array and HPV16/18 viral load [VL] with RT-PCR on 22 swabs), and anal smears and examined for AGW at enrolment and 6-monthly follow-up visits for 18 months. Time to AGW incidence or clearance was estimated by Kaplan-Meier method. Correlates of persistent HPV infection, SIL and AGW clearance were evaluated with generalized estimating equations, logistic and ox regressions respectively. ROC analysis evaluated performance of HPV16/18 VL in predicting persistent SIL.
Results: A total of 260 (86%) and 259 (85%) MLHIV had anal and genital HPV results at both enrolment and final visits respectively. The median age was 38 [IQR: 22-59] years, 25% reported ≥1 sexual partners in the past 3 months and 5% reported ever having sex with other men. Most participants (65%) were on ART, with median CD4+ count 445 cells/μL (IQR: 328-567). Prevalence of anal and genital HPV infection was 39% (88/227) and 79% (224/283) respectively. The prevalence of anal SILs and AGW were 49% (120/244) and 12% (36/304) respectively. Persistence for anal and genital HPV infection were 26.2% (21/80) and 35.4% (68/192) respectively. HPV persistence was strongly associated with low enrolment CD4+ count (< 200 vs. >500 cells/μL, aOR=6.58; 95%CI: 2.41-17.94). Anal SIL incidence and persistence were 27.4% (34/124) and 30% (36/120) respectively. Prevalent anal HPV infection (aOR=5.08; 95%CI: 2.04-12.66) was associated with persistent SILs. AGW incidence was 1.4 per 100 person-years. Median time to AGW clearance was 0.7 (IQR, 0.5-1.1) years. AGW clearance was strongly associated with CD4+ count (< 350 vs.≥350 cells/μL, aOR=3.69; 95%CI: 1.44-9.47). Enrolment HPV16/18 VL performed poorly in predicting persistent SILs.
Conclusions: MLHIV have high persistence of anogenital HPV infection and related disease. HPV vaccination among boys and effective use of ART with immunological reconstitution could reduce this burden.

WEAB0105

Kaposi disease in HIV-infected patients with suppressed HIV viremia: The experience of the French national multidisciplinary committee ONCOVIH

R. Palich[1], M. Veyri[2], M.-A. Valantin[1], A.-G. Marcelin[3], F. Boué[4], A. Guihot[5], C. Solas[6], H. Ait-Mohand[1], V. Martinez[1], I. Poizot-Martin[7], D. Costagliola[8], J.-P. Spano[2], C. Katlama[1], ONCOVIH Study Group
[1]Pitié-Salpêtrière Hospital, AP-HP, Infectious Diseases, Paris, France, [2]Pitié-Salpêtrière Hospital, AP-HP, Oncology, Paris, France, [3]Pitié-Salpêtrière Hospital, AP-HP, Virology, Paris, France, [4]Antoine-Béclère Hospital, AP-HP, Clinical Immunology, Clamart, France, [5]Pitié-Salpêtrière Hospital, AP-HP, Immunology, Paris, France, [6]La Timone Hospital, AP-HM, Pharmacology, Marseille, France, [7]Saint-Marguerite Hospital, AP-HM, Clinical Immunology, Marseille, France, [8]Pierre Louis Institute of Epidemiology and Public Health (IPLESP, UMRS 1136), Paris, France

Background: Kaposi disease (KD) is among the most frequent HIV associated cancers, classically occurring in HIV-replicating individuals. Since 2014, the ONCOVIH national multidisciplinary committee (MDC) registers

cancers in HIV infected patients. We report our experience of KD occurring in patients despite sustained virological suppression.
Methods: This observational and national study enrolled all cases of individuals with a first episode or a relapse of KD, on ART for at least 12 months, with a plasma viral load (pVL) < 50cp/ml at the time of KD diagnosis.
Results: The French ONCOVIH MDC registered a total of 72 KD cases between 05/2014 and 11/2017. We included for analysis the 22/ 72 (31%) who fulfilled inclusion criteria, whereas 38/72 (53%) had pVL >50 cp/ml at the time of KD diagnostic, and 12 had missing data. They were 18 male and 4 female, born in France for 10 of them and in Africa for 12, with a median age of 51 years (IQR 34-61). HIV infection was diagnosed 12 years earlier (IQR 5-14). CD4 nadir was 200/mm^3 (IQR 73-290), and median duration of virological suppression 4 years (IQR 2-5). KD was a relapse in 59% of cases, and a first episode in 41%. KD localisations involved skin (100% of cases), lymph nodes (27%), bronchi (18%), oesophagus/stomach (14%), bone (14%), and/or palate (5%). Median CD4 count was 478/mm^3 (IQR 269-630) with a CD4/CD8 ratio of 0.58 (IQR 0.34-0.75). At time of MDC, KD therapy had included anthracyclines in 36% of cases and/or taxanes in 27% of cases. In November 2017, from the follow up of 16/22 patients, all were alive, with a KD in partial remission in 31% of cases, stability in 38% and progression in 31%.
Conclusions: Kaposi disease is observed in aging patients with suppressed viremia either as relapse or new case. HHV-8 as main cause for KD need to be further investigated. Follow up should bring information towards treatment response. Anti PD1 may deserve a pilot investigation in patients failing standard anti-KD chemotherapies.

WEAB0106

Kaposi sarcoma incidence remains unchanged among African American males in the Southern United States: U.S. Cancer Statistic Data, 2000-2014

E. Chiao, T. Aaron, Y. Dong, R. Kathryn, J. Kramer, W. Donna
Baylor College of Medicine, Houston, United States

Background: Kaposi sarcoma (KS) is the most common neoplasm of people living with HIV today. Although the overall incidence of KS has been reported to be declining in the US, KS has strong racial/ethnic, age, and regional diversity in incidence trends.
Methods: We analyzed KS incidence data from the US Cancer Statistics (USCS) registry for the years 2000-2014. The USCS registry is the official data source for federal government-reported cancer incidence statistics and covers 97% of the US population. Women were excluded because of the low numbers of KS cases in certain geographic regions, and our analyses only included 20 to 54 year-old age-group as prior validation studies indicated that ~94% of KS cases in this age-range are HIV-related. We calculated adjusted incidence rates and assessed annual trends among sociodemographic and geographic subgroups using joinpoint regression analysis.
Results: During the study period, 12,549 men were diagnosed with KS. The overall incidence of KS among men decreased from 1.42/100,000 in 2000 to 0.95/100,000 in 2014, decreasing by 3.60% (95% confidence interval [CI], -4.00% to -3.13%) annually. The overall annual percent change (APC) for men significant decreased (-6.27%, p<0.05) from 2007-2010 and again (-2.13%, p<0.05) from 2010-2014. Among African American, non-Hispanic Caucasian, and Hispanic men, the incidences in 2014 were 2.37/100,000, 0.49/100,000, and 1.22/100,000, respectively. Although there was a decrease in the APC among African American men from 2000-2014 (-3.31%, p<0.05), there were differences in the rate of change among African American men by region. In the Northeast, the APC was noted to have 3 joinpoints, with non-significant decreases in incidence in years 2009-2012 (APC=-0.23%, p< 0.05), followed by a significant decrease in years 2012-2014 (APC=-26.17%, p<0.05). In the Midwest and West there were significant decreases throughout years 2000-2014 (APC=-3.4%, p<0.05, and APC=-5.59%, p<0.05, respectively). However, in the South, there has been no significant change in incidence (APC=-0.86%, p>0.05) of KS among African American men.
Conclusions: Geographic disparities in KS incidence remain for African American men in the U.S. Between the years 2000-2014, unlike other regions, the incidence of KS has remained unchanged in the southern U.S.

WEAB02 ART in infants and children

WEAB0201

Developmental and cognitive effects of type of antepartum and postpartum ARV exposure for Ugandan and Malawian IMPAACT PROMISE HIV-exposed versus unexposed children at age 12, 24 and 48 months

M. Boivin[1,2], L. Maliwichi-Senganimalunje[3,4], L. Wambuzi Ogwang[5], R. Kawalazira[3], A. Sikorskii[6], I. Familiar-Lopez[7], A. Kuteesa[5], M. Nyakato[5], A. Mutebe[5,8], M. Makitende[5], M. Mallewa[3], H. Ruisenor-Escudero[7], J. Aizire[9], T. Taha[9], M.G. Fowler[10]
[1]Michigan State University, Psychiatry and Neurology & Ophthalmology, East Lansing, United States, [2]University of Michigan, Psychiatry, An Arbor, United States, [3]Malawi College of Medicine - Johns Hopkins University, Blantyre, Malawi, [4]University of Malawi, Chancellor College, Zomba, Malawi, [5]Makerere University - Johns Hopkins University, Kampala, Uganda, [6]Michigan State University, Psychiatry and Statistics & Probability, East Lansing, United States, [7]Michigan State University, Psychiatry, East Lansing, United States, [8]Global Health Uganda, Kampala, Uganda, [9]Johns Hopkins University, Bloomberg School of Public Health, Baltimore, United States, [10]Johns Hopkins University, Pathology and Infectious Diseases, Baltimore, United States

Background: Triple ARVs during pregnancy and breastfeeding dramatically decrease the risk of HIV transmission from mothers to infants. However, prolonged antepartum and postpartum exposure to Triple-ARV prophylaxis may disrupt infant neurodevelopment. The present study evaluates developmental outcomes for HIV-exposed uninfected (HEU) and unexposed uninfected (HUU) Ugandan and Malawian children enrolled in the IMPAACT PROMISE RCT study.
Methods: Pregnant HIV-infected mothers were randomized to Triple-ARV prophylaxis (3TC-ZDV/LPV-RTV or FTC-TDF/LPV-RTV), versus Zidovudine (ZDV). Postpartum, the mother/newborn dyads were randomized to maternal Triple-ARV or infant Nevirapine (NVP) during breastfeeding. 942 children were enrolled between 9 and 12 months of age: 465 were unexposed/uninfected (HUU) (49%) and 454 (48%) were girls. HEU and age-matched HUU children were enrolled at the two IMPAACT PROMISE study sites: 465 (49%) in Blantyre, Malawi, and 477 (51%) in Kampala, Uganda. Mullen Scales of Early Learning (MSEL) was used for developmental assessment at 12, 24, and 48 months of age, and the Kaufman Assessment Battery for Children (KABC) for cognitive assessment at 48 months only.
Results: Controlling for sex, study site, and age at assessment, there were no significant MSEL differences among PMTCT ante- and postpartum treatment arms at 12 and 24 months (Table 1). There were significant differences among the treatment arms at 48 months for the MSEL composite cognitive score (p=0.04) and Fine Motor scale (p=0.001). For the KABC at 48 months, there were significant differences among the study groups for all the global scales except the nonverbal index. However, the maternal Triple-ARV (antepartum and postpartum) children were not at a significant disadvantage to the HUU group on any of the pairwise comparisons. Among all significant p values in Table 1, only MSEL fine motor remained significant after a Bonferroni adjustment for multiple comparisons. Again, the maternal Triple-ARV exposed children were not at a significant disadvantage.
Conclusions: Both ante- and postpartum maternal triple-ARV exposure did not result in greater developmental or cognitive risk for their HEU children through 48 months of age compared to HUU children. Overall, HUU and HEU children were developmentally comparable. These findings are reassuring as PMTCT programs using maternal ART are widely rolled out in resource-constrained settings.

Table 1. The standardized cognitive composite and the scale least square (LS) means and standard errors (SE) for the Mullen Scales of Early Learning (MSEL) are presented at 12, 24, and 48 months by row; along with the Kaufman Assessment Battery for Children, 2nd edition (KABC) global domains LS means for the 48-month assessment. Probability (P) values for the analysis of covariance (ANCOVA) controlling for age at assessment, gender, and study site (Uganda, Malawi) are presented for the between-group comparison among the four antepartum & postpartum ARV treatment arm combinations (3rd column from right) and for the between-group differences when adding the HUU group.

Outcome	Time point, in months	Triple ARV, infant NVP, LS mean (SE)	Triple ARV, maternal triple ARV, LS mean (SE)	Zidovudine, infant NVP, LS mean (SE)	Zidovudine, maternal triple ARV, LS mean (SE)	P-value for comparison by exposure	HIV-unexposed uninfected (HUU), LS mean (SE)	P-value for comparison of all groups
Mullen Scales of Early Learning (MSEL)								
Standardized cognitive composite score	12	76.45 (2.36)	74.84 (2.40)	75.22 (2.47)	74.49 (2.37)	.90	77.88 (2.05)	.13
	24	84.30 (1.50)	85.37 (1.51)	88.35 (1.66)	87.24 (1.55)	.25	87.39 (0.79)	.25
	48	110.71 (3.36)	116.20 (3.37)	113.85 (3.34)	109.90 (3.35)	.04	112.67 (2.97)	.07
Gross motor scale T-score	12	47.42 (1.21)	46.62 (1.25)	46.30 (1.31)	44.72 (1.24)	.31	45.37 (0.64)	.36
	24	48.30 (1.18)	49.89 (1.21)	50.62 (1.31)	49.38 (1.24)	.35	50.72 (0.79)	.39
Fine motor scale T-score	12	43.84 (1.47)	43.65 (1.71)	44.71 (1.79)	44.67 (1.71)	.87	45.85 (1.47)	.21
	24	40.81 (1.08)	40.42 (1.08)	39.95 (1.20)	41.90 (1.12)	.67	42.00 (0.57)	.35
	48	49.24 (2.43)	53.20 (2.44)	51.24 (2.42)	47.73 (2.42)	<.01	51.55 (2.16)	.01
Visual reception scale T-score	12	36.03 (1.55)	34.88 (1.58)	35.48 (1.62)	34.25 (1.56)	.58	36.69 (1.34)	.15
	24	38.81 (0.97)	38.02 (0.98)	39.51 (1.09)	39.20 (1.01)	.74	39.99 (0.32)	.38
	48	58.57 (2.21)	61.32 (2.22)	60.24 (2.20)	58.60 (2.21)	.30	60.05 (1.95)	.42
Expressive language scale T-score	12	32.76 (1.46)	32.86 (1.49)	32.92 (1.53)	33.44 (1.47)	.95	33.18 (1.26)	.98
	24	40.39 (0.92)	41.75 (0.93)	42.79 (1.02)	40.86 (0.95)	.28	42.23 (0.49)	.22
	48	42.36 (2.08)	45.72 (2.09)	44.35 (2.07)	42.32 (2.08)	.07	42.72 (1.84)	.06
Receptive language scale T-score	12	31.80 (1.47)	32.99 (1.50)	30.54 (1.54)	30.84 (1.48)	.34	32.39 (1.27)	.39
	24	46.70 (0.93)	46.91 (0.94)	48.06 (1.03)	47.93 (0.96)	.64	48.06 (0.49)	.61
	48	35.77 (2.10)	38.35 (2.10)	38.12 (2.08)	35.02 (2.09)	.29	35.73 (1.00)	.29
Kaufman Assessment Battery for Children, 2nd edition (KABC)								
Mental Processing	48	76.52 (1.26)	80.33 (1.26)	79.63 (1.34)	77.76 (1.31)	.03	78.38 (0.39)	.03
Non-verbal Index	48	71.77 (1.50)	75.13 (1.50)	75.49 (1.59)	74.04 (1.56)	.12	73.14 (0.70)	.12
Sequential Processing	48	78.50 (1.63)	84.52 (1.64)	84.04 (1.76)	82.33 (1.73)	.02	81.97 (0.77)	.02
Simultaneous Processing	48	71.51 (1.47)	75.65 (1.48)	76.10 (1.56)	72.47 (1.53)	.04	73.49 (0.69)	.02
Learning	48	83.27 (1.95)	88.02 (1.94)	88.67 (2.07)	83.77 (2.04)	.02	87.54 (0.91)	.02

[Table 1 of the developmental outcomes for the Mullen Scales of Early Learning and the Kaufman Assessment Battery for Children]

WEAB0202

Central nervous system toxicity of efavirenz in HIV-infected children in Tanzania

L. Van de Wijer[1], D.N. Mchaile[2], A.F.A. Schellekens[3,4], N.N.J. Lambregts-Rommelse[3], Q. de Mast[1], B.T. Mmbaga[5], A.J.A.M. van der Ven[1], G.D. Kinabo[2]
[1]Radboud University Medical Center, Department of General Internal Medicine, Nijmegen, Netherlands, [2]Kilimanjaro Christian Medical Centre, Department of Pediatrics, Moshi, Tanzania, United Republic of, [3]Radboud University Medical Center, Department of Psychiatry, Nijmegen, Netherlands, [4]Nijmegen Institute for Scientist Practitioners in Addiction, Nijmegen, Netherlands, [5]Kilimanjaro Clinical Research Institute, Moshi, Tanzania, United Republic of

Background: The World Health Organization recommends efavirenz as part of the first-line combination antiretroviral therapy (cART) for HIV-infected children. Awareness of central nervous system (CNS) side effects in adults is increasing. Reliable data on CNS toxicity in children, however, remain sparse. We compared neuropsychological symptoms, cognitive performance as well as adherence between long-term treated HIV-infected Tanzanian children on efavirenz vs. control regimens.

Methods: Cross-sectional observational study among HIV-infected children (6-12 years) on cART for ≥6 months and with viral loads ≤ 1000 copies/ml in Kilimanjaro, Tanzania. We used the Child Behavior Checklist (CBCL6-18) to evaluate behavioral and emotional problems. Cognitive performance was assessed using the Raven's Colored Progressive Matrices and the Digit Span test. Non-adherence was defined as any reported missed doses over the previous 3 days or < 100% adherence since the last clinical visit. Our study was powered to show a group difference of 0.5 SD in CBCL6-18 total problem scores. MANCOVA and logistic regression were used to assess differences between groups. Analyses were adjusted for age, sex, being treatment naïve, duration of cART, history of TB treatment, parental loss, and HIV disclosure.

Results: One-hundred-forty-one children were enrolled of whom 72 (51%) used efavirenz. Groups did not differ in age, sex, nadir CD4+ or general demographics. We found no differences in the CBCL6-18 behavioral and emotional problem scores (total/internalizing/externalizing), cognitive performance tests or adherence. Efavirenz-treated children had lower CBCL 6-18 competence scores (P=0.025), which was mainly due to lower scores on school performance with mean (SD) 4.1 (1.4) and 4.7 (0.9) (P=0.001) for efavirenz and controls respectively.

Conclusions: Overall, we did not see differences in emotional and behavioral problems, cognitive performance scores or adherence between efavirenz-treated children and controls, which is in contrast to earlier studies in adults. The lower school performance scores in efavirenz-treated children, however, warrant further study.

WEAB0203

Outcomes of second-line antiretroviral therapy (ART) in HIV-infected children: A CIPHER cohort collaboration global analysis

K. Patel[1], C. Smith[2], I.J. Collins[2], R. Goodall[2], E. Abrams[3], A. Sohn[4], T. Mohamed[5], R. Van Dyke[6], P. Rojo[7], K. Wools-Kaloustian[8], J. Pinto[9], A. Edmonds[10], I. Marete[11], M. Paul[12], H. Nuwaqaba-Biribonwoha[13], V. Leroy[14], M.-A. Davies[15], R. Vreeman[16], Collaborative Initiative for Paediatric HIV Education and Research (CIPHER) Cohort Collaboration Duration of Second-line Proj
[1]Harvard T.H. Chan School of Public Health, Epidemiology, Boston, United States, [2]University College London, MRC Clinical Trials Unit, London, United Kingdom, [3]Columbia University Medical Center, Epidemiology and Pediatrics, New York, United States, [4]TREAT Asia/amfAR, Foundation for AIDS Research, Bangkok, Thailand, [5]Hospital Kuala Lumpur, Paediatric Institute, Kuala Lumpur, Malaysia, [6]Tulane University School of Medicine, Pediatrics, New Orleans, United States, [7]Hospital Universitario 12 de Octubre, Pediatrics, Madrid, Spain, [8]Indiana University School of Medicine, Infectious Diseases, Indianapolis, United States, [9]School of Medicine, Federal. University of Minas Gerais, Pediatrics, Belo Horizonte, Brazil, [10]UNC Gillings School of Global Public Health, Epidemiology, Chapel Hill, United States, [11]Moi University School of Medicine, Child Health and Paediatrics, Eldoret, Kenya, [12]Baylor College of Medicine, Pediatrics, Houston, United States, [13]Columbia University, Mailman School of Public Health, ICAP, New York, United States, [14]Institut de Santé Publique, d'Epidémiologie et de Développement (ISPED), Université Bordeaux, Centre de Recherche Inserm U 897, Bordeaux, France, [15]University of Cape Town, Centre for Infectious Disease Epidemiology and Research, Cape Town, South Africa, [16]Indiana University School of Medicine, Pediatrics, Indianapolis, United States

Background: There are limited data describing characteristics at second-line ART initiation and subsequent outcomes among children, particularly in resource-limited settings.

Methods: Data through 2015 on HIV-infected children aged < 18 years initiating ART from 11 cohort networks were pooled. Characteristics at second-line ART initiation and immunological and clinical outcomes measured at one and two years after initiation were summarized by region: North America, Latin America (Caribbean, Central & South America), Europe, Asia, Southern Africa (South Africa & Botswana) and the rest of sub-Saharan Africa (SSA). Results were not adjusted for censoring due to loss to- or end of- follow-up.

Results: Of 85,389 children who started first-line ART, 3,555 (4%) switched to second-line, primarily with protease inhibitors (92%). Median [interquartile range (IQR)] age at second-line ART initiation varied from 4.1 [1.9, 7.5] years in North America to 10.3 [6.7, 13.8] years in Latin America (Table). The lowest CD4 counts at second-line initiation were in SSA and Latin America (235 [81, 561] and 239 [63, 661] cells/mm³, respectively). Overall, the median [IQR] follow-up after second-line ART initiation was 29 [12, 51] months, with the shortest follow-up in SSA (21 [8, 39] months) and the longest in North America (63 [32, 101] months). In the first year after initiation of second-line ART, observed mortality was higher in Latin America (4.9% [1.8, 10.6]) and SSA (2.8% [2.0, 4.0]) compared to Southern Africa (0.7% [0.3, 1.4]); progression to AIDS was highest in SSA (12.1% [9.4, 15.4]) followed by Asia (4.6% [2.2, 8.4]). Median CD4 counts one year after second-line initiation improved and were >500 cells/mm³ in all regions.
No deaths were observed between one and two years of follow-up after second-line ART initiation in North or Latin America, while there were increases in cumulative mortality through two years in the other regions. There were continued improvements in CD4 counts in most regions at two years of follow-up.

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Conclusions: We found wide regional variations in age and CD4 count at second-line ART initation among children. Immunological restoration was observed in all regions after switch to second-line. However, deaths continued to be observed in some regions through two years of follow-up.

	North America	Latin America	Europe	Asia	Southern Africa	SSA	Total
At start of second-line ART (baseline)							
Age (years), median (IQR)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CD4 (cells/mm³)*							
N (%)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Median (IQR)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AIDS diagnosis, N (%)							
Yes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Prior to start of first-line ART	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Between first and second-line ART	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 year after second-line start							
Mortality through 1 year, N (%)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CD4 (cells/mm³)*							
N (%)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Median (IQR)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Progression to AIDS from baseline							
N at risk	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N with AIDS (% of those at risk)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2 years after second-line start							
Mortality through 2 years, N (%)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N deaths from baseline-1 year	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N deaths between 1-2 years	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CD4 (cells/mm³)*							
N (%)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Median (IQR)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Progression to AIDS from baseline							
N at risk	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N with AIDS (% of those at risk)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N AIDS from baseline-1 year	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N AIDS between 1-2 years	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

*The denominator used to calculate percent is the number of children without observed mortality up through the relevant time period.

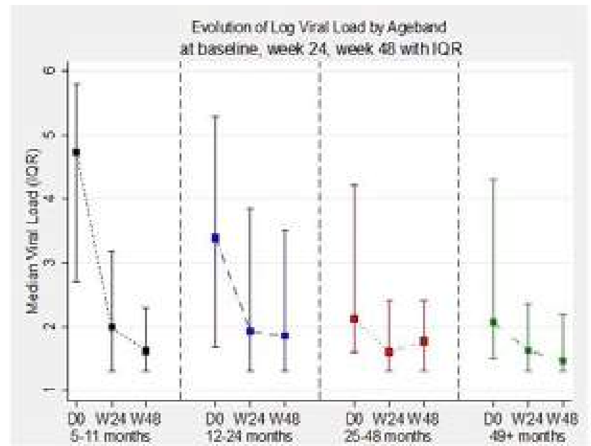
[Table. Characteristics at start of second-line ART and immunological and clinical outcomes measured at one and two years after second-line ART initiation]

WEAB0204

Pellets' formulation of Lopinavir/ritonavir in children: 48-week evolution of viral suppression across age categories in the LIVING study

I. Andrieux-Meyer[1], O. Salami[2], R. Omollo[3], T. Egondi[3], M. Waweru[3], S. Odiambo[3], M. Wasunna[3], V. Musiime[4], E. Obimbo[5], E. Bukusi[6], P. Oyaro[6], J. Mwanga-Amumpaire[7], J. Mbuthia[8], J. Lee[1], F. Kyhomuhendo[3], F. Simon[1], W. Nyandiko[9], A. Kekitiinwa[10], M. Lallemant[1], D. Wamalwa[5], LIVING Study Group
[1]Drugs for Neglected Diseases Initiative, Geneva, Switzerland, [2]Drugs for Neglected Diseases Initiative, Paediatric HIV, Nairobi, Kenya, [3]Drugs for Neglected Diseases Initiative, Nairobi, Kenya, [4]Joint Clinical Research Centre, Kampala, Uganda, [5]University of Nairobi, Nairobi, Kenya, [6]Kenya Medical Research Institute, Nairobi, Kenya, [7]EPICENTRE, Mbarara, Uganda, [8]Gertrude's Children's Hospital, Nairobi, Kenya, [9]AMPATH, Moi University, Eldoret, Kenya, [10]Baylor Centre of Excellence in Pediatric HIV, Kampala, Uganda

Background: The pellets' formulation of LPV/r which is palatable, heat-stable and easy-to-administer has received tentative USFDA approval for use in infants and young children. However, there is a paucity of clinical data on its effectiveness and safety in routine care. The LIVING study is evaluating the effectiveness, safety, PK and acceptability of LPV/r pellets + ABC/3TC (or AZT/3TC) dispersible tablets, in HIV+ children unable to swallow tablets in Kenya and Uganda.
Methods: An open-label, single-arm, prospective, multi-centre, phase-3b implementation study. Inclusion criteria: ARV naïve, on liquid LPV/r-based or failing NNRTI based ART; Weight ≥3 and < 25kg. ART dosing based on WHO weight bands. Children assessed at baseline, 1 month then 3-monthly. AEs were graded using DAIDS tables. We evaluated viral suppression across 4 age categories (months): 5-11, 12-24, 25-48 and ≥49.
Results: As of 31/10/2017, 723 patients had been enrolled, of whom 459 and 303 had reached WK24 and WK48 respectively, with a cohort retention of 88.6% (follow-up on going, 7 deaths,). Baseline and WK 48 VL available in 266 children (136 (51.0%)females, median age 43 months (95% CI 25-62), 5 (9.4%) ART naïve, 229 (86.1%) switched from LPV/r syrup, and 12 (4.5%) from NVP based ART.
At baseline, Viral load parameters were as follows: median (IQR) (log10 cp/ml) and proportion with VL< 50 and < 400 cp/ml across age categories were 4.7(2.7-5.8), 14.0% and 28.5% in the 5-11months, 3.4(1.7-5.3) , 25.0% and 45.0% in the12-24 months, 2.1(1.6-4.2) 27.0% and 57.0% in the 25-48 months and 2.1(1.5-4.3), 36.0% and 57.0% in the≥ 49 months.
At WK48, VL parameters were 1.6 log (1.3-2.3), 52.0% and 76.0% in the 5-11months, 1.9(1.3-3.5)52.5% and 62.5% in the12-24 months, 1.8(1.3-2.4), 49.0% and 80.0% in the 25-48 months and 1.5(1.3-2.2) 60.0% and 81.0% in the ≥ 49 months. 36 children had 103 AEs grade 3/4, 2 leading to treatment stoppage.
Conclusions: LPV/r Pellets-based ART in children is associated with very levels of HIV viral suppression regardless of age at initiation.



[Viral suppression stratified by age at enrolment]

WEAB0205

Pharmacokinetics, safety, and efficacy of bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) single-tablet regimen in HIV-1-infected children (6 to < 12 years)

M. Cotton[1], A. Liberty[2], C.A. Rodriguez[3], K. Chokephaibulkit[4], P. Kosalaraksa[5], E. Hellstrom[6], E. Natukunda[7], P. Wong[8], S.R. Majeed[8], E. Quirk[8], H. Graham[8], C. Pikora[8]
[1]Stellenbosch University, Tygerberg Hospital, Cape Town, South Africa, [2]Chris Hani Baragwanath Academic Hospital, Soweto, South Africa, [3]University of South Florida, Morsani College of Medicine, Tampa, United States, [4]Siriraj Hospital, Mahidol University, Bangkok, Thailand, [5]Khon Kaen University, Khon Kaen, Thailand, [6]Be Part Yoluntu Centre, Western Cape, South Africa, [7]Joint Clinical Research Centre, Kampala, Uganda, [8]Gilead Sciences Inc., Foster City, United States

Background: Bictegravir (BIC, B), a novel, unboosted integrase strand transfer inhibitor (INSTI) with a high barrier to resistance and low potential for drug interactions, has been coformulated with the recommended NRTI backbone of emtricitabine (F, FTC) and tenofovir alafenamide (TAF) (B/F/TAF) into a once-daily (QD), single-tablet regimen (STR). We report pharmacokinetics (PK), safety and efficacy in children who switched from a stable antiretroviral regimen to B/F/TAF.
Methods: We conducted a prospective, single-arm, open-label, 2-part, 48-week (W) clinical trial to evaluate switching to the adult formulation of B/F/TAF (50/200/25 mg) QD in virologically suppressed children (6 to < 12 years) weighing ≥25 kg. Intensive PK was evaluated at W2 or W4. PK parameters were compared to B/F/TAF-treated adults to confirm BIC dose. Adverse events (AE), laboratory tests, HIV-1 RNA, were assessed. We report follow up data through W12.
Results: 25 children enrolled; median (range) age 10 (6-11) yrs, median (range) weight 28.4 (25.0-39.0) kg, 52% female, 64% Black, median CD4 count 928 cells/μL. BIC AUC_{tau} was similar, C_{max} 77% higher, and C_{tau} 22% lower in children ≥25 kg than adults. BIC C_{tau} was well above protein-adjusted effective concentration for wild-type virus (162 ng/mL) in all children. FTC and TAF exposures were within safe and efficacious ranges of adults (table). Through median (Q1, Q3) exposure to study drug of 16.1 (15.9, 17.7) weeks, most common AEs were grade 1 diarrhea and upper respiratory tract infection (each 16%, 4/25); no other AE occurred in >2 participants. No participant discontinued for an AE. All (100%) had HIV-1 RNA < 50 c/mL at W12; none met criteria for resistance testing.
Conclusions: B/F/TAF maintained virologic suppression and was well tolerated in children through at least 12 weeks. Similar to adults, therapeutic plasma concentrations of all B/F/TAF components of B/F/TAF were achieved. Efficacy and safety in children are consistent with phase 3 B/F/TAF results in adults and adolescents, showing high proportions with viral suppression, excellent tolerability, and no resistance. B/F/TAF may be an important unboosted INSTI, STR option for HIV-infected children due to its small tablet size, high barrier to resistance and lack of food requirement.

	Parameter	Children[a]	Adult[b]	%GLSM Ratio (90% CI)
BIC	AUC_{tau}, ng*h/mL	121034 (36.4)	102001 (26.9)	116 (104, 130)
	C_{max}, ng/mL	10989 (28.3)	6146 (22.9)	177 (162, 194)
	C_{tau}, ng/mL	2367 (78.8)	2610 (35.2)	78.3 (63.4, 96.7)
FTC	AUC_{tau}, ng*h/mL	17565 (36.9)	12294 (29.2)	142 (127, 159)
	C_{max}, ng/mL	3888 (31.0)	2127 (34.7)	185 (162, 210)
	C_{tau}, ng/mL	227 (323)	96.0 (37.4)	95.0 (69.9, 129)
TAF	AUC_{tau}, ng*h/mL	435 (94.9)	229 (63.0)	175 (136, 226)
	C_{max}, ng/mL	582 (99.9)	277 (62.4)	170 (120, 241)

Parameters are presented as arithmetic mean (%CV); GLSM, geometric least-squares mean [a] n=25 from intensive PK substudy in current cohort of children (6 to <12 years) weighing ≥25 kg [b] From population PK modeling (BIC, n=1193) or pooled intensive PK (FTC and TAF, n=74-77) data from 4 Phase 3 Studies in HIV-infected adults Statistical comparisons of the PK parameters in children (test) versus adults from Phase 3 studies (reference) were made using GLSM ratios and associated 90% confidence intervals (CI) with PK equivalence boundary of 70-143%.

[PK parameters of BIC, FTC and TAF after B/F/TAF single-tablet regimen administration in children and adults]

WEAC01 The new high risk populations: Who are they?

WEAC0101

Reaching out to hidden population in Malaysia: MSMs, transgender and sex workers in Muslims majority setting where sex is a crime

Y. Md Yusralhakim
Malaysian AIDS Council, Global Fund, Kuala Lumpur, Malaysia

Background: Malaysia has 31 million populations with 61.3 % Muslims, Homosexuality and sex out of marriage are illegal and criminalised under both civil and Shariah Laws. Because of this criminalisation, MSM, Sex Workers and Transgender go hidden. In 2016, Malaysia estimated number of MSM is 170 000 and number of transgender remains unknown, however a Delphi-exercise in 2014 determined that there were 24,000 transgender sex workers and 21 000 female sex workers. MSM saw HIV prevalence rise from 3.9 to 8.9% between 2009 and 2014. Sexual transmission of HIV in general, has recorded a 2.5 fold increase, accounting for 84% of new HIV infection in 2016 compared to 32% in 2006.
Description: Reaching out to MSMs,Transgender, PWID and sex workers is one of the biggest challenges. In response to this, The Malaysian AIDS Council (MAC) implemented the Case Management Program for Key Populations funded by The Global Fund that aims to reach out to these hard-to-reach populations and refer them to services at government clinics by using a peer-to-peer approach. 85 peer caseworkers were trained to link KP clients to 52 government clinics which been branded as Community Friendly Clinics. The programme involves series of empowerment trainingfor caseworkers, desensitisation workshops for healthcare providers and removing legal barriers advocacy.
Lessons learned: Through this programme, from January to December 2017, 10,656 KP clients were reached either through online or venue based approaches, of this number, 5461 went for HIV screening, and 467 were diagnosed positive and 131 has initiated HIV treatment. 56% were from sexual transmission groups (MSM, SW and TG) and of those, 57% Malays (Islam), 18%, Chinese, 11% Indian and 12% others, this never been captured before since sexual transmission took over IDU as the main driver for HIV infection.
Conclusions/Next steps: In ensuring the sustainability of HIV response, a continuous creation of enabling environment in every angles for KPs should be in place, peer-to-peer and personalised care for KPs should come hand in hand with removing legal barriers and community friendly services that is stigma and discrimination free.

WEAC0102

Geosocial networking app use among men who have sex with men in China: Findings from the T2T study

H. Zou[1,2,3], X. Meng[4], Y. Lu[2], Z. Wang[2], T. Jia[4], H. Yin[4], Z. Luo[5], Y. Ding[5], W. Chen[5], S. Huang[6], H. Zheng[6], B. Yang[6], A. Grulich[3], The T2T Study
[1]Sun Yat-sen University, School of Public Health (Shenzhen), Shenzhen, China, [2]Sun Yat-sen University, School of Public Health, Guangzhou, China, [3]University of New South Wales, Kirby Institute, Sydney, Australia, [4]Wuxi Municipal Centre for Disease Control and Prevention, Wuxi, China, [5]Shenzhen Nanshan Center for Chronic Disease Control, Shenzhen, China, [6]Dermatology Hospital, Southern Medical University, Guangzhou, China

Background: Men who have sex with men (MSM) are increasingly using geosocial networking (GSN) mobile applications (app) to socialize in the community. Our study aimed to describe app use among MSM in China to provide reference for app-based HIV interventions.
Methods: MSM aged ≥18 years old who had ≥2 male sex partners were recruited between January and August, 2017 in 3 metropolitan cities: Guangzhou, Shenzhen and Wuxi. A self-completed tablet-based questionnaire was collected about socio-demographic characteristics, sexual behavior characteristics and app use. A blood sample was collected to test for HIV and syphilis, and an rectal swab and urine sample were collected to test for gonorrhea and chlamydia. Anogential warts were checked by a clinician.
Results: A total of 603 subjects were enrolled (mean age=27.9 years, SD=7.8). Some 80% of MSM had ever used an app, 76.7% of whom had been using an app for more than 12 months, and 41.6% spent >30 minutes per day on apps. The proportion of app use increased significantly with increasing age, longer time of stay in the study city, higher educational level and more frequent alcohol use (P< 0.05 for all). MSM engaging in receptive anal intercourse were more likely to use an app over the past 6 months (P< 0.001). There was no difference in the proportion of patients with or without regular partner who used an app (P=0.348). App users had more sex partners (P< 0.001), higher usage of Rush (P=0.006) and marijuana (P=0.046), and more HIV tests (P< 0.001) in the past 6 months, compared to non app users. Prevalence of HIV (10.7% vs 7.1%), syphilis (9.9% vs 5.8%), urethral chlamydia (5.2% vs 8.3%), rectal gonorrhea (3.5% vs 2.4%), urethral gonorrhoeae (3.1% vs 4.1%) and anogenital warts (5.0% vs 3.3%) were similar in the two groups (P>0.1 for all). App users had significantly more rectal chlamydia (15.6% vs 6.6%, P=0.035).
Conclusions: The majority of MSM had frequent and long-term use of GSN app. Partnered status did not affect men's app use behaviors. GSN app should be used as a platform to carry out interventions aimed at reducing HIV and rectal sexually transmitted infections.

WEAC0103

Extended risk network testing to find HIV cases among key populations in Ukraine: Predicting recruitment of HIV-positive clients with machine learning

P. Smyrnov[1], Y. Sereda[2], I. Sazonova[1], K. Boiko[1], Y. Kuznetsova[1], K. Slobodianiuk[1], O. Denisiuk[1], S.R. Friedman[3]
[1]Alliance for Public Health, Kyiv, Ukraine, [2]Independent Consultant, Kyiv, Ukraine, [3]National Development and Research Institutes, New York, United States

Background: Alliance for Public Health implements extended risk network testing during community-based outreach to improve HIV case-finding among key populations. We aimed to develop a prediction model for finding HIV-positives in the recruitment network using machine learning.
Methods: Since 2016, 51,069 people who inject drugs and their extended risk network peers were recruited in 12 regions of Ukraine. Initial recruitment started from HIV positive cases found in harm reduction program. Enrollment criteria for seeds were 14+ years, people who inject drugs, HIV positive rapid test. Participants got coupons to invite their peers defined as an injecting partner, sexual partner, sexual or injecting partner of somebody from the social network who can be also at risk of HIV. Recruitment was stopped if there were two HIV-negative cases next to

each other in a chain. Data on recruitment chains and participants' characteristics were collected in real-time using Syrexcloud mobile application. Random Forest machine learning algorithm was used for predicting presence of HIV-positives within two waves of recruitment among the subset of participants who received coupons (N=22,236).

Results: Among participants who received coupons, 80% of them (n=17,872) recruited at least one peer and 35% of them (n=7,678) recruited at least one HIV-positive participant within two waves of recruitment network. The full random forest model with 17 predictors yielded an accuracy of 84.9% for classification of HIV-positives and negatives (sensitivity of 83.2% and specificity of 85.8%). The most informative predictors of recruitment of HIV-positives included size of recruited network for each participant (mean minimal depth (MMD) = 1.33), result of HIV rapid test at screening (MMD=2.00), region (MMD=2.12), experience of HIV testing before screening (MMD=2.78), and age (MMD=2.95). Sex (MMD=4.37), group of key population (MMD=3.97) and marital status (MMD=3.56) had the lowest contribution to prediction.

Conclusions: High level of prediction model accuracy suggests that application of Random Forest machine learning algorithm during recruitment could improve HIV-positive yield among recruited participants. Further validation of Random Forest prediction algorithm includes its implementation as a decision-making tool for improving recruitment strategy, such as distributing more coupons to participants with high probability of recruitment of HIV-positives.

WEAC0104

When and why? Timing and determinants of post-migration HIV acquisition among sub-Saharan immigrants in France

A. Gosselin[1,2], A. Ravalihasy[1,2], J. Pannetier[1], F. Lert[1],
A. Desgrées du Loû[1,2], Parcours Study Group
[1]CEPED (Université Paris Descartes, IRD, Inserm), Paris, France, [2]Institut de Recherche pour le Développement, Marseille, France

Background: Mounting evidence has recently highlighted the fact that many HIV-positive immigrants in Europe acquired their infections post migration, in relation to experiences of social hardship that entail at-risk sexuality (e.g. transactional). However, the timing of these infections is not known. This study aims to estimate the timing of post-migration HIV infection among Sub-Saharan immigrants in France, who are particularly affected by HIV, and to understand the correlates of post-migration infection.

Methods: Life-event and clinical information were collected in 2012-2013 from a random sample of 277 HIV-infected outpatients infected after arrival in France and 431 patients not diagnosed with HIV, born in Sub-Saharan Africa and living in the Paris area. The 6th year in France was chosen as the settlement delay based on previous analysis. We assumed HIV infection after six years (i.e. after the settlement period) in France if at least one of the following criteria was fulfilled: (i) HIV diagnosis at least 11 years after the six years in France, (ii) at least one negative HIV test in the 6 first years in France, (iii) sexual debut after 6 years in France. Otherwise, time of HIV infection was based on statistical modeling of first CD4 T-cell count. We assessed the determinants of HIV acquisition after six years in France using multinomial logistic regression models.

Results: Overall, 58% of Sub-Saharan immigrants who acquired HIV in France had been infected during the first six years in the country (55% of men and 61% of women). Conversely, about 42% of immigrants had contracted HIV after settlement. Factors associated with post-settlement infection were arrival in France at a younger age (between 18 and 27 years old versus later (OR=2.40[1.08-5.31]) and arriving with a long-term permit versus being undocumented (OR=2.23[1.12-4.43]). Bivariate models showed that post-settlement infection was associated with occasional and transactional relationships (OR=1.98[1.04-3.79]) and concurrent partnerships (OR=1.91[1.01-3.60]).

Conclusions: The majority of post-migration HIV acquisition occurs during the settlement period. Therefore, HIV prevention efforts should target newly arrived immigrants. However, long-time immigrants are also at risk for HIV, and specific prevention tools and interventions should be directed at this population.

	Bivariate models		Multivariate models	
	RRR [IC 95%]	p	RRR [IC 95%]	p
Legal permit at arrival in France				
Undocumented	ref		ref	
Short term permit	1.21 [0.63-2.34]	0.557	1.11 [0.62-2.00]	0.724
Long term permit or French nationality	2.60 [1.43-4.74]	0.002	2.23 [1.12-4.43]	0.023
Had at least one casual or transactional partnership after 6 years in France (ref. No)				
Yes	1.98 [1.04-3.79]	0.039	1.49 [0.64-3.51]	0.348
Had at least one concurrent partnership after 6 years in France (ref. No)				
Yes	1.91 [1.01-3.60]	0.047	1.31 [0.67-2.56]	0.416

[Factors associated with the probability to be infected after settlement (in reference to the non infected group)]

WEAC0105

Patterns of substance use among young men who have sex with men and their associations with HIV risk behavior and sexually transmitted infections

M. Newcomb, G. Swann, B. Mustanski
Northwestern University, Medical Social Sciences, Chicago, United States

Background: Young men who have sex with men (YMSM) carry a heavy burden of HIV in the United States. Substance use predicts condomless anal sex (CAS) and HIV incidence, but little is known about patterns of polysubstance use and individual differences in patterns of use, particularly among YMSM under age 21. The current study used longitudinal data to describe patterns of polysubstance use, examine demographic differences in patterns of use, and predict HIV risk across groups of substance users.

Methods: We utilized an analytic sample of 601 YMSM aged 16-20 from the RADAR cohort study of YMSM in Chicago (N=1,125, age range 16-29). Participants completed study visits every 6 months between 2015 and 2017, at which time we assessed past 6-month substance use and sexual behavior. STI testing was conducted annually. We used latent class analysis (LCA) to empirically derive groups of individuals who tend to use similar substances. We included the most frequently endorsed substances as latent class indicators (binge-drinking, chronic marijuana use, stimulants, ecstasy, prescription drugs). We then conducted one-way ANOVA and chi-square analyses to examine demographic differences in class membership and negative binomial and logistic regression models to predict HIV risk.

Results: LCA revealed 4 latent classes of substance users. Binge-Drinkers (N=166) were more likely to be White and gay-identified; Binge-Drinkers and Prescription Drug Users (N=144) were more likely to be White; Polysubstance Users (N=70) were more likely to be gay-identified and the least likely to be Black; and Low Substance Users (N=221) were the most likely to be Black, younger and bisexual. Polysubstance Users had the highest rates of CAS and STIs concurrently and longitudinally, followed by Binge-Drinkers and Polysubstance Users, Binge-Drinkers, and Low Substance Users (all comparisons p< .05).

Conclusions: The YMSM groups reporting use of multiple substances had the highest HIV risk. Polysubstance use has consistently been linked to HIV, but these analyses point to prescription drug use as another important target for HIV prevention among YMSM. Importantly, low substance use and CAS among Black YMSM contrast with their high HIV incidence in Chicago. Patterns of substance use cannot fully explain racial disparities in HIV.

WEAD01 Justice on the margins: Legal strategies to address barriers to HIV services

WEAD0101

Innovative paralegal and advocacy program enhancing access to justice and harm reduction services in Mombasa county

H. Tayab[1], A. Badhrus[1], F. Jeneby[1], M. Fahmy[1], F. Abdulrahman[1], M. Handulle[2]
[1]Muslim Education and Welfare Association (MEWA), Health and Harm Reduction, Mombasa, Kenya, [2]Mainline, Harm Reduction, Amsterdam, Netherlands

Background: Criminalization of drug use, denial of health services, gross human right violations by law enforcers and community increases PWUD risk of premature death and morbidity.
Kenya has an estimated 18,327 People Who Inject Drugs (PWIDs), of whom 8500 are in Coast region. Their HIV prevalence is 18.6% compared to 5.6% for general population.
In 2015, growing threat of terrorism in Kenya triggered Presidential directive to control drugs menace in Mombasa. This led to massive indiscriminate arrests of PWUDs and also threating the safety and security of Outreach workers, thereby triggering disruption in service delivery.
Scarcity of drugs led to shift in to injecting while shortage of HIV preventive commodities resulted it to sharing and unprotected sex.
Over 300 PWUDs incarcerated in three days, some of whom were under HIV, TB, treatment and care and on OST/MAT Program.
Description: MEWA initiated Paralegal and Advocacy Program, whereby its staff, Judiciary and law enforcers were trained on provision of harm reduction services, health and human rights of PWUDs in accordance to Kenya Constitution.
MEWA also provided hygiene kits and legal aid, set up support groups and lobbied for alternative sentencing for PWUDs in prison, with assistance to secure national identity cards.
MEWA with Judiciary and Kenyan Prison Services established a framework for improved PWUDs access to justice, fair trials, alternative sentencing and access to MAT.
Lessons learned: The Climax of our achievement is the issuance of court order obliging the Prison service, the MAT Clinic and MEWA to ensure accused PWUDs are enrolled on MAT and access all other relevant Harm Reduction services.
A total of 2493 (F:365M:2128) PWUDs reached with biomedical and harm reduction services, 305(F:53M:252) with legal aid and 194(F:14M:180) economic empowerment and 99(F:15M:84) supported to receive identity cards and 5 male children with birth certificates.
Hundreds of PWUDs understand their constitutional rights, can now vote, access revolving funds and freely move without police harassment.
Conclusions/Next steps: However, rogue law enforcers and routine public servants transfer undermines effective service delivery.
There is need to scale up Paralegal training to enforce respect of health and human rights of PWUD in Mombasa County.

WEAD0102

Paralegal community in the epidemic of injustice: The role of paralegals from drug users communities in the fulfillment of drug users rights

A. Qisthi
Persaudaraan Korban Napza Indonesia, Legal Advocacy, Jakarta, Indonesia

Background: In the beginning 2015, President Joko Widodo declared the "War on Drugs" as respond to "Drugs Emergency Situation" in Indonesia. This declaration further enhances repressive actions and punitive policies for drug users. the lack of access to justice (access to legal aid) resulted in the increasing number of drug users ending up in prison. This resulted in overloading in prisons, which in turn resulted in further larger impacts. The lack of access to health toward drug users with special needs, for example, the lack of Anti Retroviral Therapy (ART) for drug users living with HIV/AIDS, lack of Opiate Substitution Therapy (OST), and sterile needles has resulted in the deteriorating health of drug users and resulting in deaths from other infectious diseases.
Description: In 2017, Persaudaraan Korban Napza Indonesia (PKNI) as a national network of 26 drug user communities spread across the country implement community paralegal program in 10 cities. as an effort in breaking the barriers, community paralegals are giving legal assistance to drug users when they are dealing with the law to promote the access to justice. In addition to legal assistance, paralegals are also trying to meet access to health services for drug users with special needs such as with HIV / AIDS and Hepatitis C, and drug users who require OST. From 145 drug users assisted, there are 133 men and 12 women, and the age average of drug user was 18-35 years old. Paralegals have a role to minimize the use of a criminal approach. During the program execution of 53 completed paralegal cases succeeded in stopping criminal proceedings in 37 cases with details of 19 cases declared free in the absence of evidence and 13 cases successfully stopped by encouraging the authority of the investigator to place the client into the rehabilitation site.
Lessons learned: The existence of paralegals contributes significantly to the fulfillment of the right to justice and the right to health of drug users.
Conclusions/Next steps: Community paralegal must remain sustainable, surely with the increasing role and number of paralegals in the region in Indonesia as the front guard of primary justice.

WEAD0103

Street lawyers from the harm reduction project at the ARF and their contribution to the fight for the right to health of PWUD and people living with HIV

M. Malyshev[1,2]
[1]Andrey Rylkov Foundation for Health and Social Justice, Harm Reduction, Street Social Work, Moscow, Russian Federation, [2]Tver Government University, Tver, Russian Federation

Background: The street lawyers program offers social support and rights protection to PWUD and people living with HIV - based on the only harm reduction project in Moscow, a city of 12 million.
Description: Several years after the launch of the Harm Reduction Moscow project, the problem of stigmatization of drug users and people living with HIV in various spheres of public life in Russia has become more pressing. As a result, rights violations, denial of medical care and criminal prosecution became widespread. To counteract that, a project was launched in 2013 to provide legal assistance and support.
Street lawyers are social workers engaged in outreach work and social support who also motivate representatives of vulnerable groups to protect their rights and dignity.
The work of street lawyers includes several consecutive stages:
- Informing
- Mediation
- Official appeals to the authorities
- Judicial protection.
In 2017, 651 clients received legal advice, 149 violations of rights were documented, a total of 58 appeals to the authorities were filed and 44 clients achieved the desired result.
Lessons learned: Four years of work have shown that social workers play a key role in protecting the rights of vulnerable groups. They motivate, offer support and provide a link between lawyers, legal knowledge in general and stigmatized groups. During the course of the project, an algorithm was developed to protect the rights of clients, which proved an effective model of interaction between representatives of vulnerable groups, social workers and lawyers. Important and successful cases are those where the client feels motivated to resist stigmatization and stand up for their rights when making decisions and acting on them.
Conclusions/Next steps: The project showed that the most effective way to provide legal assistance to vulnerable groups is to link clients with social workers and lawyers, where the main role for the protection of rights lies with the client and the social worker. This approach helps achieve positive results in rights protection at the same time empower-

ing clients and the community. That's why we recommend this approach for use in other projects aimed at protecting the rights of of PWUD and PLHIV.

WEAD0104

A novel method of working with judges to build their capacity on HIV and human rights in Africa

D. Patel[1], P. Patel[2], A. Saha[1], C. Grant[3], D. Owolabi[1]
[1]UNDP, Istanbul, Turkey, [2]Consultant, Istanbul, Turkey, [3]Consultant, Johannesburg, South Africa

Background: In 2014, judges in Africa with the United Nations Development Programme (UNDP) created the Regional Judges' Forum for Africa. The goal of the Forum, led by a small number of senior judges from African countries, was to develop the HIV/TB and related human rights expertise of a core group of judges, who would then sensitise fellow judges nationally and regionally, and support institutionalizing this expertise.
Description: The Forum has met annually since 2014, created a database to provide judges with relevant reference materials, and developed an online space for the judges to communicate and share information. Annual meetings cover many topics, including the rights of key populations. Each topic includes discussion of the relevant scientific information; personal experiences from members of the affected population, and latest judicial rulings. The sessions consist of presentations, with time allotted for discussion among the judges. Resource people include HIV/TB clinicians and scientists, PLHIV, members of key populations, lawyers, and judges.
The number of judges in the Forum and the countries represented in the Forum increased from 11 to 33 and from 8 to 19, respectively.
Lessons learned: Such Forums should be convened and run by judges with the support of non-judicial organisations. Judges were most interested in learning about the developments in HIV-related jurisprudence; the science related to HIV and TB and their treatments; and hearing directly from key and vulnerable populations about their lived realities.
The Forum resulted in numerous, rights-respecting judicial decisions; training of judicial officers by members of the Forum; increased personal awareness and development on key HIV legal issues; greater judicial access to reference materials; a stronger relationship between judges and civil society; and the organisation of judicial oversight of prisons to address overcrowding.
Conclusions/Next steps: To ensure sustainability, UNDP and the South African Judicial Education Institute (SAJEI) are working to institutionalise the HIV-related judicial capacity building within the SAJEI and other national judicial training institutions.
This model is a low-cost method for effectively building the capacity of judges, and it can and should be replicated in other regions.

WEAD0105

Assessing HIV key populations' participation in seeking justice to test the effectiveness of human rights redress mechanism in Indonesia

A. Wirya, F. Aotari
LBH Masyarakat (Community Legal Aid Institute), Jakarta, Indonesia

Background: Indonesia has established several redress mechanisms to address human rights violations; many of which are relevant to the problems faced by HIV key populations. However, the effectiveness of these systems is still in questions.
This research documented human rights violations withstood by HIV key populations (people living with HIV, drug users, sex worker, and men who have sex with men) and their efforts to seek justice in order to understand the potentials and weaknesses of utilizing Indonesian redress mechanism.
Methods: This research used quantitative data collected by thirty enumerators in seventeen districts in Indonesia. They were selected from HIV key population groups who had received training on human rights, redress mechanism, and documentation method. They were tasked to document human rights violations in their districts which took place between January 2016 and October 2017 using structured interview. In total, this research documented 151 human rights violations.
Results: Only 46 out of 151 victims seek remedy after violations occurred (30.46%). Thirty of them (65.22%) reported their cases to non-governmental organizations (NGO), where twenty eight reports were then followed up to the relevant state agencies by asking clarification, condemning the abuse, reprimanding the perpetrators, or demanding compensation. Seven victims directly complained to the institution whose employees violated their rights. The rest sought help to independent governmental bodies, such as Provincial Health Department, Provincial AIDS Commission, and police. Around 39.13% of victims felt satisfied, 39.13% felt unsatisfied, and 21.74% felt neutral toward the result. Victims are disappointed because their cases which were not followed up seriously, the perpetrator were not caught, or they were unable to gain remedy. Victims are satisfied when they got information about the follow-up, they could access antiretrovirals which they were unable to obtain before, and discriminations ceased.
Conclusions: Key populations who experienced human rights abuses mostly did not pursue remedy or protection. They believed that redress would be useless and even harmful - a belief that is proven true by more than one third of victims who sought justice. However, many victims were satisfied with NGOs which did not hesitate to reprimand the government and demand compensation.

WEAD02 Time for a youthquake in HIV prevention and treatment

WEAD0201

The association between incarceration and transactional sex among HIV-positive young men who have sex with men (YMSM) in the United States

M. Philbin[1], E. Kinnard[1], A. Tanner[2], S. Ware[2], B. Chambers[3], A. Ma[4], J.D. Fortenberry[5]
[1]Columbia University Mailman School of Public Health, Sociomedical Sciences, New York, United States, [2]University of North Carolina Greensboro, Greensboro, United States, [3]University of California, San Francisco, United States, [4]Southern Illinois University, Edwardsville, United States, [5]Indiana University School of Medicine, Indianapolis, United States

Background: Criminal justice practices in the United States disproportionately affect sexual and racial/ethnic minority men, who are at higher risk of incarceration. Previous research demonstrates associations between incarceration and sexual risk behaviors for men who have sex with men (MSM). However, little of this work focuses on young MSM (YMSM), particularly HIV-positive YMSM, even though one-third report having ever engaged in sexual risk behaviors such as transactional sex. We therefore explored the association between incarceration and transactional sex among HIV-positive YMSM.
Methods: As part of the CATCH study, we recruited 97 HIV-positive YMSM across 14 Adolescent Trials Network clinical sites from August 2015 to February 2016. Following consent, youth completed an ACASI survey on psychosocial characteristics and medical/behavioral history. We used multivariate logistic regression to examine the association between incarceration (i.e., ever been in jail/prison) and transactional sex (i.e., ever exchanged sex for money or drugs) among YMSM; the Minority Stress Model informed control variable selection.
Results: The majority of YMSM were 24 years old (78%), identified as racial/ethnic minority (95%), not in school (54%), single (74%), and earned < $12,000/year (67%); nearly half had ever been homeless (41%). Additionally, 42% had been incarcerated and 28% had engaged in transactional sex. In the multivariate model, having ever been incarcerated remained independently associated with having engaged in transactional sex (aOR=3.20; 95% CI: 1.07-9.63). Being 24 years old versus younger (aOR=9.68; 95% CI: 1.42-65.78) and having ever been homeless (aOR=3.71; 95% CI: 1.18-11.65) also remained independently associated with having engaged in transactional sex.

Conclusions: Incarceration may represent a particularly severe stressor for young men with multiple marginalized identities—HIV-positive, MSM, and racial/ethnic minority—and put them at higher risk for engaging in transactional sex. Tracing the relationship between incarceration and transactional sex highlights a potential key source of health disparities among HIV-positive YMSM; it also identifies important targets for subsequent intervention studies—e.g., housing, mental health, employment—that place this population at risk of incarceration and transactional sex. Facilitating HIV-positive YMSM's engagement with community-level and HIV clinic-specific services may serve as a key strategy to promote health and mitigate harms related to incarceration and transactional sex.

WEAD0202

Gendered powerlessness in at-risk adolescent and young adult women: An examination of condom use behavior

D. Chiaramonte[1], R.L. Miller[1], C.B. Boyer[2], K.S. Lee[3], O.J. Santiago-Rivera[4], Adolescent Medicine Trials Network for HIV/AIDS Interventions

[1]Michigan State University, Psychology Department, East Lansing, United States, [2]University of California, Department of Pedatrics, San Francisco, United States, [3]Michigan State University, University Outreach and Engagement, East Lansing, United States, [4]Michigan State University, East Lansing, United States

Background: The burden of HIV among adolescent women remains unacceptably high. Although researchers have established that adult women's social powerlessness influences their ability to negotiate the use of condoms effectively, researchers have seldom examined this effect using multidimensional higher-order models or among adolescents. Informed by Connell's Theory of Gendered Powerlessness, we derived a developmentally appropriate model of gendered powerlessness for adolescents. Connell proposes three components of powerlessness: cathexis (e.g., gendered social norms and expectations), sexual division of power (e.g., gendered subordination in sexual situations), and division of labor (e.g., gendered economic subordination).

Methods: Anonymous ACASI surveys were administered in community venues in 14 U.S. cities to at-risk adolescent women aged 12-24 years (N=1,101). The young women in this sample were primarily Black (82%) and heterosexual (87%). We used exploratory and confirmatory factor analyses to determine the dimensionality of gendered powerlessness and structural equation models to examine its association to condom use.

Results: Three latent factors (financial independence, sexual division of power, structure of cathexis) provided an optimal fit to the data (ppp=0.118 with 95% CI [-25.06, 107.63]). Controlling for age, sexual division of power and structure of cathexis were negatively associated with using condoms with main partners (ppp=0.135 with 95% CI [-32.84, 113.75]); as powerlessness increased, as indicated by the sexual division of power and structure of cathexis, condom use declined.

Conclusions: We find general support for Connell's theory of gendered powerlessness among adolescents. Our results provide convincing evidence for a three-component model of gendered powerlessness for adolescent women and that two of these components are highly relevant to predicting their condom use with their primary sexual partner. Prevention efforts targeting at-risk adolescent women would benefit from overturning sexual divisions of power and countering the structure of cathexis that undermines young women's sexual agency.

WEAD0203

Ethnographic study for HIV prevention reveals a typology consisting of five distinct types among South African adolescents and young women

K. Crowley[1], J. Piper[2], J. Cummins[2], G. Gao Guodong[3], L. Burn[4], K. Igumbor[5], R. Agarwal[6], F. Veronese[7]

[1]University of Maryland Robert H. Smith School of Business, Center for health Information and Decision Systems, College Park, United States, [2]National Institute of Allergy and Infectious Diseases, Division of AIDS, Prevention Science Program, Rockville, United States, [3]University of Maryland Robert H Smith School of Business, Center for Health Information and Decision Systems, College Park, United States, [4]KantarTNS, Cape Town, South Africa, [5]Kantar TNS, Cape Town, South Africa, [6]University of Maryland Robert H. Smith School of Business, Center for Health Information and Decision Systems, College Park, United States, [7]National institute of Allergy and Infectious Diseases, Division of AIDS, Prevention Science Program, Rockville, United States

Background: The uptake of HIV prevention products among adolescents and young women in Sub-Saharan Africa has been problematic. Suboptimal product use in recent prevention trials highlights the challenges for conferring protection to targeted users. It has become clear that current methods of assessing acceptability are not useful at predicting actual use by this population. New approaches are needed to better understand the sociocultural context of young women in Sub-Saharan Africa.

Methods: We conducted a detailed ethnographic study among low income South African girls and women between the ages of 14 and 25 in three urban and peri-urban locations (Living Standards Measure 4-7). Data were collected for each participant through a qualitative study consisting of interviews with 11 industry experts, 32 depthnographic interviews and observations with low income females across both in-home and out of home contexts, 8 auto-ethnographic interactions (including digital and social media autobiographies), 12 hostess focus groups and influencer in depth interviews, and finally 6 partner in-depth interviews. Data were analyzed using qualitative methods including discursive and thematic analysis.

Results: Our data revealed a psychographic typology derived out of the complex dynamic between female vulnerability and socio-economic privilege:"The Good Girl," "Responsible Mother," "Material Girl," "Protection Savvy," and "Gender Prisoner." Each type carries a distinctive psychographic profile, home life, critical events related to sexual activity and family life, and relationship statuses. Together, the unique attributes that define a type are associated with different forms and levels of vulnerabilities to sexually transmitted infections. The data also suggest that each type may require differentiated and targeted education reflecting the variability across the typology with regards to sexual education, partners, products, and influences.

Conclusions: Current HIV prevention product promotion strategies have generally adopted a "one-size-fits-all" approach that does not include a nuanced understanding of the context, needs, and motivations underlying the behavior of different user types. Development of typologies for target populations may allow a more targeted approach for designing, marketing, and promoting HIV prevention products to adolescents and young women, and their partners.

WEAD0204

Should I take PrEP? A mental models assessment of young African women's motivations for and barriers to PrEP initiation and adherence

N. Argo[1], T. Krishnamurti[2], B. Fischhoff[1], L.-G. Bekker[3], S. Delany-Moretlwe[4], E. Bukusi[5], L. Myers[3], J. Imrie[6], J. Odoyo[7]
[1]*Carnegie Mellon University, Engineering and Public Policy, Pittsburgh, United States,* [2]*University of Pittsburgh, Pittsburgh, United States,* [3]*Desmond Tutu HIV Foundation, Cape Town, South Africa,* [4]*3Wits Reproductive Health and HIV Institute, Johannesburg, South Africa,* [5]*Kenya Medical Research Institute, Nairobi, Kenya,* [6]*Wits Reproductive Health and HIV Institute, Johannesburg, South Africa,* [7]*Kenya Medical Research Institute, Nairobi, South Africa*

Background: Young women in sub-Saharan Africa have among the highest HIV incidence rates globally, yet in previous trials they have exhibited some of the lowest PrEP uptake and adherence. What are the motivations for and barriers to PrEP usage for young African women? How can such knowledge be used to effectively design scalable PrEP demonstration projects?
Methods: Employing the mental models methodology, our team conducted surveys with 15 experts to characterize young women's decision making about initiation and adherence to PrEP, followed by in-depth interviews with 48 young women (age 16-25) and 45 men (age ≥18 p) in Kisumu, Kenya and Cape Town and Johannesburg, South Africa. Interviews were coded, theme frequencies were calculated, and linked themes were diagrammed into "mental models." Expert and women's models were compared. Lastly, a follow-up survey (n=444; 243 F, 201 M) was conducted at each field site to establish prevalence of beliefs and attitudes identified in the interviews and identify demographic correlates to those beliefs.
Results: While the expert mental models focused on more rational decision themes such as PrEP's role in health outcomes, the young women's mental models were driven by present bias (valuing the costs and benefits of now), particularly pertaining to relationships and influenced by affect or feelings. Overall, women rated the benefits of taking PrEP (e.g., feelings of safety, individual and community empowerment, health) as more influential on their decision to try PrEP than potential costs (side effects, clinic visits, relationship uncertainties, and daily pill-taking). Factors predictive of women's interest in PrEP included: living in Cape Town, previous knowledge of PrEP, the woman's perceived risk of HIV in the next year, PrEP efficacy beliefs, and the expectation that she would use a condom less if she takes PrEP.
Conclusions: PrEP messaging should highlight the immediate and positive emotional benefits of PrEP usage. Findings support the creation of a decision tool that would provide women with personalized recommendations based on risk and preferences, allowing them to answer the question of whether PrEP would be good for them before introducing questions about how it will work in their life.

WEAD0205

Experiences and outcomes of group psychotherapy as an antiretroviral adherence support intervention among young people failing on ART at Newlands Clinic, Harare, Zimbabwe

B.M. Kasimonje[1], T. Shamu[2], C. Chimbetete[2]
[1]*Newlands Clinic, Mental & Social Health, Harare, Zimbabwe,* [2]*Newlands Clinic, Harare, Zimbabwe*

Background: Adherence to antiretroviral therapy (ART) is a major challenge faced by young people living with HIV (YPLHIV). We examined the experiences and outcomes of an Enhanced Adherence Counselling Group Intervention (EACGI) prior to regimen switch among adolescents failing first line ART.
Description: We analysed records for (YPLHIV) aged between 13 and 25 years with confirmed virological failure (VF) who were invited to EACGI. This intervention was a 12-week curriculum of weekly 1.5-hour sessions which accommodated 8-15 people per group. The aim of the intervention was to facilitate readiness to switch treatment to second line ART, and improve adherence through Phenomenological, Motivational Interviewing and Cognitive Behavioural Therapy principles. Each participant had an HIV viral load (VL) test pre and post EACGI and at 3, 6, 9 and 12 months post switch to assess virological outcomes.
Lessons learned: Fifty-nine patients (57.6% female, n=34) were followed up for 46.8 person-years. Median duration of first line ART was 6 years (IQR: 4 - 8) at time of invitation to EACGI. Twenty-two patients (37.3%) did not attend a session, 8 were female and 14 were male. The most common reasons for not attending were lack of interest and school or work schedules. The main reasons for poor adherence among the 37 attendees were hopelessness, family dysfunction, lack of illness, an aversion to a daily routine attached to stigma, and medication side effects. Among patients who attended >75% of sessions, 76%, 94%, 94% and 100% achieved viral suppression (VL< 50 copies/ml) at 3, 6, 9 and 12 months, respectively, compared to 50%, 55%, 55% and 50% among those who attended at least one but ≤75%. Those who did not attend any session had suppression rates of 32%, 41%, 41% and 39%, respectively.
Conclusions/Next steps: Patients who attended >75% EACGI had better second-line virological outcomes compared to those who attended less or none in this small cohort. EACGI is a promising tool for preparing patients within this key population for second line treatment, increasing the likelihood for improved adherence and improved treatment outcomes for second line therapy.

WEAD03 Treatment politics and financing in 2018

WEAD0301

A political economy of HIV treatment policy: Drivers of health policy diffusion

M. Kavanagh[1], S. Gupta[2], K. Parish[3]
[1]*Georgetown University, O'Neill Institute for National & Global Health Law, Washington, United States,* [2]*International Association of Providers in AIDS Care, Delhi, India,* [3]*University of Pennsylvania, Political Science, Philadelphia, United States*

Background: Why do some countries rapidly adopt policies suggested by scientific consensus while others are slow to do so? HIV treatment is a particularly salient case in point. Scientists, physicians, and the World Health Organization (WHO) spend significant effort identifying the optimal standards of medical care—yet the guideline policies that govern public health and medical practice often lag far behind evidence. Efforts to address differences in adoption of "evidence-based" policy focuses on variation in the capacities for adoption and interpretation of scientific evidence. We challenge this view, hypothesizing that socio-political institutions are often decisive in how quickly countries will adapt science into policy.
Methods: We used a mixed methods strategy. First, we constructed a database of national HIV treatment guidelines, collecting 290 published national ART guidelines for adults and adolescents from 122 countries (98% of global HIV burden). Using this database, we built a model to reflect the epidemiologic, economic, and political context and used a Cox-Proportional Hazards Model to test our hypothesis. Second we conducted interviews with 24 key informants with direct knowledge of guidelines processes to establish causality in our study.
Results: Neither HIV prevalence nor national wealth is a significant driver of policy change in our quantitative or qualitative results. Qualitative analysis shows neither interpretation of medical evidence nor formal cost-benefit analysis explain differences. Instead, the formal structures of government and the degree of ethnic cleavages predict the speed with which new medical science is translated into policy. More veto points in government is strongly associated with faster policy adoption—with a full swing in the data associated with a 275% increase in adoption speed. HIV policy change is slower in contexts with complex racial/ethnic divisions—as much as 60%, *ceteris paribus*.
Conclusions: Our findings challenge expectations in scholarship and practice that policy divergence and inequities are primarily addressed through greater evidence and dissemination channels. That political

factors are systematic, rather than random, suggests a new approach is needed by agencies such as the WHO and UNAIDS. Building diffusion strategies, messages, and policy networks that are tailored to national political context is possible when systematic socio-political factors are identified.

WEAD0302

Using TRIPS-flexibilities as a leverage to improve access to HIV and hepatitis C medicines in Ukraine

S. Kondratyuk
All-Ukrainian Network of People Living with HIV/AIDS, Advocacy Team, Kiev, Ukraine

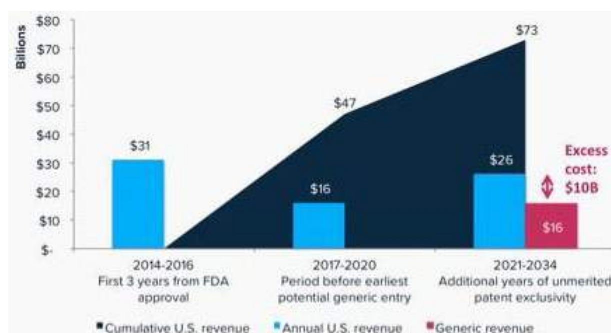
Background: Significant treatment gaps persist for HIV (63%) and hepatitis C (>99%) in Ukraine. High prices for patented ARVs and DAAs contribute to inefficiency of country HIV and hepatitis C response.
Description: To ensure better affordability of HIV and hepatitis C medicines, the All-Ukrainian Network PLWHA (the 'Network') used patent oppositions and compulsory licensing (CL) request as leverage in negotiations with patent holders. The national HIV program experienced a funding gap in HIV medicine procurement in 2016.
In February 2016, in response to potential drug shortages the Network organized a meeting with the Ministry of Health and originators (Abbvie, GlaxoSmithKline, MSD, and Janssen). Network shared information about treatment gap, called the companies to lower the prices and called government consider using CL. As the response to this action, ViiV included Ukraine in the MPP DTG license (April 2016). In addition, the Network requested GSK/ViiV to include Ukraine in the license for ABC for adults in May 2016. The negotiations with GSK were conducted simultaneously with preparation of a patent opposition on ABC.
The Network repeatedly emphasized to MSD and GSK representatives that the patent monopolies on TDF/FTC/EFV, ABC and ABC/3TC are unjustified, as the patents do not comply with patentability requirements and were already opposed in other countries. All these efforts may have encouraged MSD and GSK to provide the Network with a patent rights non-enforcement letters in May-July 2016 and procurement of generic products began in 2017. This has reduced the price by 83%, 59% and 56% on TDF/FTC/EFV, ABC and ABC/3TC respectively, generating annual savings up to 13,9 mln USD.
Successful pre-grant patent oppositions in relation to SOF filed by the Network and consequent temporary generic competition for SOF may have encouraged originator to add Ukraine to the VL and caused price decrease for 77%.
Lessons learned: When patent holders provide non-enforcement letters or include country in VL, it causes significant price reduction as it creates an opportunity for generic competition.
Conclusions/Next steps: Patients´ organizations work on patent oppositions and compulsory licensing is a powerful leverage in efforts to improve access to HIV and hepatitis C treatment.

WEAD0303

America's $10 billion overspend on sofosubvir-based hepatitis C treatment resulting from unmerited patents

A. Pattillo, J. Fortunak, D. Ravicher, M.H. Hughey, T. Amin, P. Radha Krishtel
Initiative for Medicines, Access and Knowledge, New York, United States

Background: About one quarter of the estimated 1.2 million HIV-infected persons in the United States are also infected with Hepatitis C virus (HCV). Co-infection of HCV is especially common (50%-90%) among HIV-infected injection drug users. With the introduction of direct-acting antiviral sofosbuvir (Sovaldi™, SOF) in 2013 and additional SOF-based combination therapies since, the cure for HCV became reality. To date, SOF-based therapies have accounted for approximately three out of four of all DAA prescriptions written for HCV patients in the U.S.
However the high price of the SOF-based therapies has resulted in payer rationing and limited access to the medicines, particularly among HCV patients on Medicaid and those in the correctional systems.
Methods: Our team of patent lawyers, scientists and health market experts
a) Examined the patent portfolio of sofosbuvir,
b) Analyzed the commercial market dynamics for sofosubivr-based products,
c) Assessed the current landscape of patient access to HCV medicines in the U.S., and
d) Modeled the projected overspend on SOF-based products in the U.S.
Results:
1) Nearly all (26 of the 29) of the patents on Sovaldi™ are secondary patents that relate to various prodrugs, processes, and crystalline forms that are distinct from the base compound sofosubvir. These along with the three patents on the base compound were analyzed by technical experts and found to be likely unmerited given obviousness and prior art in the field.
2) The average net price paid in the U.S. across all SOF-based products by public and private payers from Q316 to Q317 was $40,200. Our analysis suggests that net prices will continue a downward trend toward $30,000 for 2018.
3) 85% of patients in the U.S. that have been diagnosed with HCV will not get access to treatment in the coming year.
4) U.S. payers are projected to spend an excess of $10 billion for branded SOF-based products in 2021-34 as compared to treatment costs with generic sofosbuvir.
Conclusions: Unmerited patents have been identified on Sovaldi™ resulting in prolonged exclusivity periods that prevent generic product entry, burden payers with billions in overspend, and generate significant access problems for HCV patients in the U.S.



[Summary of U.S. revenue from Sovaldi®-based combination drugs and estimated excess costs for branded versus generic products]

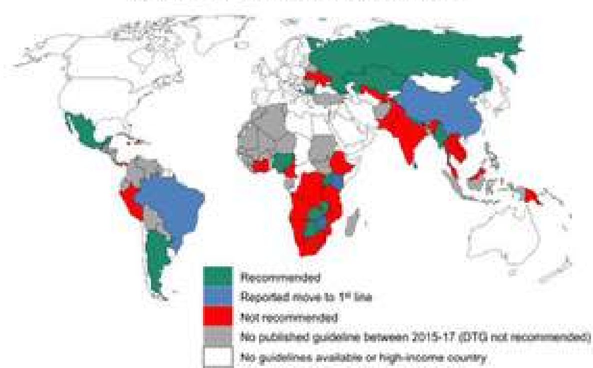
WEAD0304

Dolutegravir and the universal antiretroviral regimen: Good may be the enemy of perfect

R. Granich[1], S. Gupta[2], L. Kosicki[3], B. Williams[4], M. Ruffner[5]
[1]Senior Public Health Consultant, San Francisco, United States, [2]Independent Consultant, Delhi, India, [3]SGAC/PEPFAR, Washington DC, United States, [4]SACEMA, Stellenbosch, South Africa, [5]SGAC/PEPFAR, Washington, United States

Background: Tenofovir, Lamivudine and Dolutegravir (TLD) is the best potential global universal treatment regimen. Dolutegravir's tolerability, durability, effectiveness, simplicity, cost-savings and high resistance barrier could accelerate progress towards 90-90-90.
Methods: We searched Internet, PubMed, national surveillance reports, UNAIDS/WHO reports, President´s Emergency Plan for AIDS Relief (PEPFAR) 2017 operational plans, and conference abstracts for nationally representative information regarding DTG. We describe policy/implementation status for the 94 low- and middle-income countries (LMICs) with published national guidelines (92% global HIV burden). We compare PEPFAR 2019 and 2018-2019 cost savings for Tenofovir-Lamivudine-Efavirenz (TLE) 600 vs. TLD for people living with HIV on ART for 16 PEPFAR supported countries in sub-Saharan Africa. A similar comparison was done assuming achievement of 90-90-90.

Results: DTG is already widely used in the higher income settings and increasingly a first-line drug in LMICs (Table 1). DTG is recommended in all of the high-income countries as part of an optimal first line regimen, as an alternate option in WHO 2015 guidelines, and in 17 LMICs including Botswana, Lesotho, Nigeria, Uganda and Zambia. Despite not having formal published recommendations, DTG is already being procured in Kenya, Zimbabwe and other LMICs. Although 2018 transition to TLD will likely be incomplete, transitioning all patients supported by PEPFAR in 16 countries in sub-Saharan Africa to TLD ($75 pppy) when compared with current TLE costs ($79 pppy), could save $63,107,532 and $175,925,064 for 2020 and 2018-2020, respectively. Assuming achievement of the 90-90-90 target, cost-savings for 2020 for the 16 countries would be $42,411,600. DTG and alternative service delivery models (e.g., reduced clinic visits, laboratory testing and viral load costs), could reduce overall treatment costs to well below $200 per person per year in Sub-Saharan Africa. Cost savings that would accompany the decrease in the development and transmission of resistant virus are likely to be even greater.
Conclusions: Rapidly transitioning from current 1st line treatment to the DTG universal regimen represents an opportunity to make a major impact on the epidemic of HIV if done swiftly. Other disease control efforts have made concerted efforts across multiple regions and countries when faced with the need for rapid action, why not HIV?



[Global Dolutegravir 1st Line Recommendations for 94 Countries]

WEAD0305

Review of national guidelines in 16 sub-Saharan African countries for inclusion of the adolescent HIV care continuum

J. Kottutt[1], E. Rivadeneira[2], S. Hrapcak[2]
[1]Emory University, Rollins School of Public Health, Hubert Department of Global Health, Atlanta, United States, [2]Centers of Diseases, Control and Prevention, Division of Global HIV and TB, Center for Global Health, Atlanta, United States

Background: Adolescents living with HIV (ALHIV) have poorer HIV-related outcomes than adults due to unique developmental, psychosocial, and clinical needs that are often not addressed. The 2016 WHO consolidated HIV guidelines recommend provision of adolescent-friendly HIV services to improve these poor outcomes. The purpose of this review was to assess national HIV/ART guidelines from sub-Saharan African countries for inclusion of recommendations targeting services for ALHIV along the HIV cascade.
Methods: National ART/HIV guidelines from PEPFAR-supported countries in sub-Saharan Africa that have pediatric/adolescent HIV programs were reviewed. All documents were publically available and in English. Pertinent information on five areas (Table 1) were abstracted by two authors (JK and SH) and inconsistencies resolved.
Results: Data were available and abstracted for 16 countries (Table 1). Kenya was the only country whose guidelines included all five recommendations. Recommendations on frequency of HIV testing in sexually active adolescents were included in 50% of countries (n=8); however, the recommended frequency was not consistent (annual testing n=6, every 6-12 months n=1, every 3-6 months n=1). Although 14 countries (88%) included a section on disclosure to children/adolescents, only 8 (50%) included recommended age of full disclosure. The age varied across countries: 8-10 years (n= 1), ≥10 years (n=3), 10-12 years (n=1), 10-14 years (n=1), 11-14 years (n=1), and 13 years (n=1). Age of consent for treatment initiation was clearly defined in only 3 countries (19%), all recommending 12 years old. The majority (n=15; 94%) included recommendations on frequency of viral load (VL) testing, with 9 (56%) following WHO recommendations for testing at 6 and 12 months after ART initiation, then annually; however, 5 (31%) recommended more frequent VL testing every 6 months in ALHIV due to higher rates of virologic failure. 44% (n=7) included guidance on transition to adult services, although only 25% (n= 4) included recommended age of transition which varied from 15 to 20 years.
Conclusions: There is currently a lack of consistency in national HIV/ART guidelines to address the unique needs of ALHIV. More specific guidance should be included in national guidelines for healthcare workers to provide appropriate adolescent-friendly HIV services to improve clinical outcomes in ALHIV.

Recommendation	Countries including recommendation in national HIV/ART guidelines
Frequency of HIV testing in sexually active adolescents	Lesotho, Kenya, South Africa, Tanzania, Rwanda, Swaziland, Uganda, Zambia
Recommended age of full disclosure	Lesotho, Cameroon, Ethiopia, Kenya, Namibia, Tanzania, Rwanda, Zambia
Age of consent for treatment initiation	Kenya, Rwanda, Swaziland
Frequency of routine viral load (VL) in adolescents	Malawi, Lesotho, Cameroon, Kenya, Namibia, Nigeria, South Africa, South Sudan, Tanzania, Rwanda, Zimbabwe, Swaziland, Botswana, Uganda, Zambia
Recommended age for transition from adolescent to adult services	Kenya, Namibia, Uganda, Zambia

[Inclusion of the Adolescent HIV Care Continuum in National HIV/ART Guidelines in 16 countries in sub-Saharan Africa]

WEAE01 Reaching men: Yes we can!

WEAE0101

Multiple disease screening to destigmatize HIV testing and increase identification of persons living with HIV in Kisumu, Kenya

K. Ndede[1], D. Naitore[2], F. Lugalia[1], C. Wells[3], B. Senyana[3], J. Otieno[4], R. Fayorsey[3], M. Hawken[2], E. Abrams[3]
[1]ICAP at Columbia University, Kisumu, Kenya, [2]ICAP at Columbia University, Nairobi, Kenya, [3]ICAP at Columbia University, New York, United States, [4]Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu, Kenya

Background: There are approximately 1.5 million people living with HIV in Kenya, and approximately
1 million are on ART. Attainment of the 90:90:90 goals depends on identifying the remaining HIV-infected population, the majority of which are asymptomatic and do not access health services routinely. Adult HIV Testing Services (HTS) at Jaramogi Oginga Odinja Teaching and Referral Hospital (JOOTRH) in Kenya, have predominately been offered via universal opt-out provider-initiated testing and counseling (PITC) of out-patients. This has resulted in testing a predominance of women and a yield of < 1%. To de-stigmatize HIV testing and reach more men, ICAP initiated a strategy of providing HTS as part of screening for multiple diseases.
Description: In March 2017, a multiple disease screening program was established at JOOTRH, offering a package of wellness services including screening for obesity (weight, height), hypertension (blood pressure), and symptomatic TB and HIV testing. The service was advertised by radio and billboard as a free health check. Located at the entrance to

JOOTRH, clients and visitors (>15 years old) were eligible to access the service which was available from 8am to 9pm daily including weekends.
Lessons learned: From July to December 2017, 5645 adults were screened. The mean age was 32.9 years (SD 11.7, range 15-78). Of those screened 100% were eligible for an HIV test (never tested or tested >3 months ago) and 2% (113/5645) tested HIV-positive. Of those tested, 46% (n=2604) were female and 54% (n=3041) were male (p< 0.01), with a positivity yield of 2.2% (58/2604) in women and 1.8% (55/3041) in men. The extended hours were utilized, with 15.4% (n=867) being tested after 5pm on weekdays and 15.4% (n=868) being tested on weekends. Amongst those tested on the weekends, 54% (465/868) were men and 46% (403/868) were women (p< 0.01).
Conclusions/Next steps: Providing HTS within a multiple disease screening package is an innovative approach that successfully tested a high number of men, a group that does not routinely access health services. Proportionally, more HIV-positive individuals were identified with this strategy than out-patient PITC. A higher testing yield may be possible if the project targets high-risk populations and first time testers.

WEAE0102

Cracking the code to increase men's uptake of HIV testing: Providing convenient and confidential outreach HIV testing services through mobile clinics

E. Geoffroy[1], N. Khozomba[2], J. Jere[2], E. Schell[3,4], T. Schafer[3], J. Goldman[5], K. Kabwere[6]
[1]Global AIDS Interfaith Alliance (GAIA), Programs, Marblehead, United States, [2]Global AIDS Interfaith Alliance, Blantyre, Malawi, [3]Global AIDS Interfaith Alliance, San Rafael, United States, [4]University of California, San Francisco, United States, [5]Elizabeth Taylor AIDS Foundation, Beverly Hills, United States, [6]Mulanje District Hospital, Mulanje District Health Office, Mulanje, Malawi

Background: In Malawi only 66% of men age 15-64 have been tested for HIV compared with 76% of women. With funding from the Elizabeth Taylor AIDS Foundation, in July 2014, Global AIDS Interfaith Alliance (GAIA) introduced a program to increase rates of male testing by reaching out to men with weekend HIV testing services (HTS) at convenient times and locations.
Description: Working in partnership with the District Health Offices, sites in need of HTS are identified. The mobile clinic is staffed by a driver and three trained health providers who travel to where men (and their partners) gather, including markets, tea estates, and churches/mosques, to provide HIV testing. Program data is collected using Magpi, a mobile app on a secured phone. Encrypted data is uploaded in real time using wi-fi or cell connection.
Lessons learned: Through December 2017, there have been 106 male targeted testing events, testing 6,166 people, of which 71% were male, compared to 26% males tested at weekday mobile clinics over the same period. Notably, 38% of males tested were aged 15-24 and of these, 42% had not previously been tested. Across all ages, 30% of males had not been previously tested. Three percent of men were found positive, with 5% of men over 25 testing positive, and all were referred to the nearest clinic providing antiretroviral therapy. The percentage of men attending these events has increased over time from 69% in 2014 to 78% in 2017. Convenience of location (38%), publicity surrounding the event (35%) and convenience of time (23%) were cited as primary reasons for attending.
Conclusions/Next steps: Men can effectively be reached for HIV testing in order to achieve the first UNAIDS "90" target by making testing convenient, providing a gender-segregated space, and providing male counselors. Using a secure mobile data collection app allows for real time data analysis to improve program performance and target geographical areas where incidence is high and enables rapid in home follow up visits for those who consent. The next phase of the project will link treatment initiation and adherence data with testing data to assess time from diagnosis to treatment to adherence.

WEAE0103

Engaging young men in health care and HIV testing: The SHAZ! HUB youth drop-in-centre

M.S. Dunbar[1], G. Chapwanya[1], G. Kumalo-Sakutukwa[2], I. Mahaka[1], A. Mpakati[1], M. Lightfoot[2]
[1]Pangaea Zimbabwe AIDS Trust, Harare, Zimbabwe, [2]Center for AIDS Prevention Studies, UCSF, San Francisco, United States

Background: HIV testing efforts in sub-Saharan Africa have focused on young women. However, studies show that young men face challenges in accessing preventative health care, including HIV testing, tending to be diagnosed late and presenting for HIV treatment with advanced disease. At the SHAZ! HUB, a youth drop-in center and clinic in urban Zimbabwe, the majority of the clients are male.
We explored factors contributing to this high uptake of services among young men.
Methods: We summarized information from clinical intake forms and conducted four focus group discussions, two with males aged 16-19 years and two with males aged 20-24, on topics related to health seeking behavior, facilitators and barriers to accessing services, and favorable and facilitative aspects of service delivery.
Results: From July 2016, the SHAZ! HUB provided sexual health and HIV services to 2,243 clients, 1,332 (60%) of whom were male. Seventy percent were between the ages of 16-19 years, and the majority of clients sought HIV testing. The main barriers mentioned to seeking services generally were lack of confidentiality, fears of being embarrassed or made to feel uncomfortable, and the notion that clinics are "for women and babies".
When asked about favorable aspects of the SHAZ! HUB, participants cited factors focusing on environment, health care workers, and additional recreational services/benefits offered. For example, participants highlighted the privacy afforded by the HUB, and that services were "male friendly" - meaning the young men were not judged and given factual information and support on how to reduce risk that focused on the male perspective (e.g., no judgement when disclosing multiple sex partners).
Participants also appreciated that they were allowed to be "loud," and that they were not chastised for "misbehaving." Other appealing aspects of the HUB included being able to access wi-fi, relax with friends and watch satellite TV, and access workshops on life skills and financial literacy.
Conclusions: These lessons learned suggest that programs seeking to engage young men could consider combining health services with recreational opportunities, non-judgmental information and support within a private, youth friendly environment. Such factors create openings for young men to engage in prevention and care.

WEAE0104

Home-based testing identifies more previously undiagnosed older men than mobile testing in Botswana

M. Roland[1], L. Block[2], P. Bachanas[2], M.G. Alwano[1], W. Abrams[1], K. Wirth[3], T. Gaolathe[4], J. Makhema[4], M. Mmalane[4], S. Lockman[3], S. El-Halabi[5], J. Moore[2]
[1]Centers for Disease Control & Prevention, Gaborone, Botswana, [2]Centers for Disease Control & Prevention, Division of Global HIV/AIDS & TB, Atlanta, United States, [3]Harvard T.H. Chan School of Public Health, Boston, United States, [4]Botswana Harvard Partnership, Gaborone, Botswana, [5]World Health Organization, Geneva, Switzerland

Background: UNAIDS estimates that 85% of HIV-positive individuals in Botswana know their status. As countries approach UNAIDS 95-95-95 targets, it is important to employ the most effective HIV testing strategies to reach the remaining undiagnosed people of all ages and sexes.
Methods: The Botswana Combination Prevention Project (BCPP) is a randomized controlled trial in 30 matched rural or semi-urban communities. We describe newly identified HIV-positive community residents by age, sex and testing strategy in the 15 intervention communities where mobile and home testing strategies were employed between October 2013 and September 2017. Chi-square tests account for possible community-level intra-cluster correlations.

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Results: 49,693 participants did not know or have documentation of their negative HIV status in the prior 3 months and were tested for HIV with home (19,349; 39%) or mobile (30,344; 61%) testing. Among these, 1,870 (3.8%) were newly diagnosed. Similar absolute numbers of women and men, 956 and 916 respectively, were diagnosed (Table 1). The proportion of new diagnoses was higher in the oldest age categories as compared to the 16-24 year olds (p< .0001). Older males yielded the highest proportion of new diagnoses among all categories (p< .0001). When examining testing by venue, home testing represented 39% of the total tests conducted and yielded 46% of the new positives identified. The testing yield for new HIV diagnoses in the home (4.5%) was significantly higher than the 3.3% yield with mobile testing (p< .0001). Similar absolute numbers of males and females were newly diagnosed with the 2 testing modalities. However, home testing yielded more new diagnoses among older persons compared to mobile (p< .0001).

Conclusions: In this rural and semi-urban population, home testing yields were greater than mobile testing yields particularly among older males, suggesting that this strategy remains important for identifying HIV-infected individuals in a country with high HIV identification coverage. While a similar absolute number of males and females overall were identified with each strategy, absolute numbers and proportionate yield varied across age-sex categories and testing approach. Similar granular data may be used to select testing strategies specific to the first 95 gap across age-sex categories within local geographic areas.

	Total Females	Total Males	Females 16-24	Females 25-34	Females 35-64	Males 16-24	Males 25-34	Males 35-64
Total Tested N=49,693	24,582	25,111	10,339	6,707	7,536	10,020	7,817	7,274
New HIV+ N= 1,870 (3.8%)	954 (3.9%)	916 (3.6%)	279 (2.7%)	308 (4.6%)	367 (4.9%)	91 (0.9%)	334 (4.3%)	491 (6.8%)
Tested in Home N=19,349	11,168	8,181	3,974	2,817	4,377	3,301	2,165	2,715
HIV+ in Home N=869 (4.5%)	466 (4.2%)	403 (4.9%)	99 (2.5%)	141 (5.0%)	226 (5.2%)	35 (1.1%)	126 (5.8%)	242 (8.9%)
Tested in Mobile N=30,344	13,414	16,930	6,365	3,890	3,159	6,719	5,652	4,559
HIV+ in Mobile N=1,001 (3.3%)	488 (3.6%)	513 (3.0%)	180 (2.8%)	167 (4.3%)	141 (4.5%)	56 (0.8%)	208 (3.7%)	249 (5.5%)

[Table 1. Newly Diagnosed Participants Identified in 15 Rural and Semi-Urban Botswana Communities, By Age, Sex, and Testing Venue]

WEAE0105

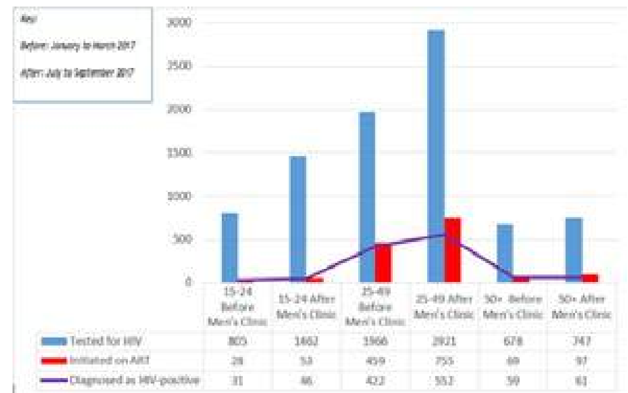
Male engagement works to improve HIV services uptake among men

T.A. Lekhotsa[1], B. Oguntoyinbo[2], M. Mputsoe[3], M.G. Mefane[4], V. Tukei[5], E. Tumbare[1]
[1]Elizabeth Glaser Pediatric AIDS Foundation, Programs, Maseru, Lesotho, [2]Elizabeth Galser Peddiatric AIDS Foundation, Research, Maseru, Lesotho, [3]Elizabeth Glaser Pediatric AIDS Foundation, Strategic Information and Evaluation, Maseru, Lesotho, [4]Ministry of Health, Sexual and Reproductive Health Ministry of Health Lesotho, Maseru, Lesotho, [5]Elizabeth Galser Pediatric AIDS Foundation, Research, Maseru, Lesotho

Background: HIV testing services (HTS) are a critical entry point to HIV care and treatment. However, in Lesotho uptake of HTS is lower among men than women (36% of men were tested compared to 58% of women: DATIM, October 2015-September 2016) because cultural and social barriers can prevent or delay men from getting an HIV test. Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) established Men's Clinics in June 2017 for the provision of comprehensive health services for men in health facilities as part of the DREAMS initiative to increase uptake of HIV services among men.

Methods: Routine program data were analyzed to examine changes in HIV testing and antiretroviral treatment (ART) uptake among men before (January to March 2017) compared to after (July to September 2017) implementation of the men's health services in seven selected health facilities (two hospitals and five clinics) in Lesotho. Data on HIV testing and ART initiation were abstracted from routine aggregate program data and downloaded into Stata for review and analysis. The Men's Clinics intervention consisted of dedicated clinic space for male clients only to receive services by male nurses and counsellors to help men feel more comfortable accessing services. Comprehensive clinical services (STI Screening and treatment, HTS, care and treatment, Pre-P and PEP, TB Services, treatment for other co-infections, Condom distribution, and counselling for HIV prevention, Education on PMTCT and Index family testing, and Referral Male Medical Circumcision) were offered at unconventional hours of service (morning, evening, and weekend hours), and through innovative appointment scheduling to reduce waiting times and improve client satisfaction.

Results: The results indicate that since Men's Clinics were introduced in June 2017 there was a 49% increase in the number of men tested for HIV; a 29% increase in the number of men diagnosed as HIV-positive; and a 63% increase in the number of men initiated on ART by the end of September 2017.



[Figure 1: Number of men tested for HIV, diagnosed as HIV-positive, and initiated on ART before and after introduction of the Men's Clinic, by age]

Conclusions: Providing male-only comprehensive clinical services is a promising strategy for increasing men's access to HIV testing and linkages to care. Future scale-up of Men's Clinics could help in identifying large numbers of men who are living with HIV.

WEAE02 Tough choices, smart decisions, maturing responses

WEAE0201

Impact of the PEPFAR geographic pivot on HIV & non-HIV health services in Uganda

J. Wilhelm[1], L. Paina[1], M. Qiu[1], M. Makuru[2], F. Ssengooba[2], S. Bennett[1]
[1]Johns Hopkins Bloomberg School of Public Health, Department of International Health, Baltimore, United States, [2]Makerere University School of Public Health, Health Policy & Management, Kampala, Uganda

Background: In Uganda, PEPFAR implemented a geographic prioritization (GP), which discontinued support for outreach, training, supervision, and staff incentives to roughly 730 health facilities, shifting them to government central support (CS). CS facilities are located in low HIV-prevalence districts or did not provide high-volume HIV care.

Methods: In order to assess the impacts of the GP, we fielded a survey at 262 health facilities across Uganda in mid-2017. The survey collected information on PEPFAR support, service delivery, commodities, laboratory, time-allocation, motivation, and human resources. We also obtained DHIS2 records on select HIV and non-HIV services (2013-2017) and HRHIS staffing data (2015-2017). We conducted difference-in-difference analysis comparing CS facilities to those maintained on PEPFAR before and after GP using random intercept regression models.

Results: Relative to maintained facilities, CS facilities are significantly more likely to report termination of workers, declining frequency of supervision, and worsening financial status. CS facilities are also signifi-

cantly more likely to report discontinuing HIV outreach (52% vs. 4%, p< 0.001), worsening quality of HIV care (42% vs. 0%, p< 0.001), less improvement in the quality of maternal neonatal and child health care (34% vs. 70%, p< 0.001), and increased disruption of viral load (23% vs. 5%, p=0.002) and sputum (22% vs. 6%, p=0.026) testing. More workers at CS facilities report less time on HIV care (32% vs. 11%, p=0.004) and declines in satisfaction (27% vs. 1%, p< 0.001) since transition.
However, the HRHIS data shows that adjusted difference-in-difference in staffing ratios for CS facilities relative to maintained facilities was small and not statistically significant. According to DHIS2 data, there were no significant differential trends in volume of HIV tests, current on ART, OPD visits, ANC visits, Facility-based deliveries, or DPT/Pentavalent-3rd dose.
Conclusions: Early results suggest that the PEPFAR GP in Uganda has had limited immediate impacts on service delivery and staffing levels at CS facilities, despite the impacts reported in our survey. However, discontinuation of outreach, reduced access to supervision, weakened links to lab hubs, and declining time-allocation for HIV care may ultimately hinder the ability to identify and retain HIV patients and jeopardize Uganda's progress towards the 90-90-90 goals.

WEAE0202

From 90-90-90 towards HIV elimination with boosted-integrated active HIV case management (B-IACM) in Cambodia

P.S. Ly[1], V. Ouk[1], C. Kaoeun[2], S. Samreth[3], B. Ngauv[3], S. Seng[4], D. Nhim[5], S. Wignall[5]
[1]NCHADS, NCHADS, Phnom Penh, Cambodia, [2]NCHADS, AIDS Care Unit, Phnom Penh, Cambodia, [3]NCHADS, Technical Bureau, Phnom Penh, Cambodia, [4]FHI 360, LINKAGES Project, Phnom Penh, Cambodia, [5]FHI 360, LINKAGES, Phnom Penh, Cambodia

Background: The National HIV Program in Cambodia has been successful in reducing HIV prevalence in the general adult population from 1.7% in 1998 to 0.6% in 2016 with strong prevention programs, expansion of HIV testing, and optimization of the continuum of care with ART coverage reaching more than 80% PLHIV. In 2016 AEM modeling, 70,498 individuals were estimated to be HIV infected; 58,338 (83%) knew their status; and, 56,754 (97%) of these on ART1 but 12,000 PLHIV do not yet know their HIV status and new approaches are needed to find them. Cambodia's HIV program, having achieved UNAIDS 90-90-90 targets, is focused on elimination of HIV transmission by 2025 and B-IACM is central to that plan.
1. Spectrum/AEM modelling 2016
Description: The BIACM strategy, implemented at the Operational District (OD) level, involves an HIV Case Management Coordinator (CMC) assisted by a Case Management Assistant (CMA) work daily with HIV Case Management Service Providers (CMPs) who coordinate, communicate, and share information concerning HIV cases. Their efforts ensure timely enrollment in care and initiation of ART and support adherence and achievement of viral load suppression. Pregnant women, HIV-exposed infants, and PLHIV partners are targeted for testing, enrollment in HIV care and treatment if HIV+. Coordination meetings between CMC and CMPs and broader stakeholders review site performance and identify solutions to improve care and retention. Direct data reporting to the National Center for HIV/AIDS, Dermatology and Sexually Transmitted Infections (NCHADS) is used to generate a dashboard that allows offsite monitoring and intervention as necessary.
Lessons learned: B-IACM has doubled previous yield, increasing new HIV case detection from 444 (pre-B-IACM from February 2014 - September 2015) to 753 (B-IACM from October 2015 to May 2017) in Battambang and Siem Reap. The B-IACM strategy has: improved targeting for HIV testing and the achievement of the first 90%[2]; improved ART initiation rates to 96% (1,577/1,647), the second 90; and, increased adherence achieving viral load suppression to undetectable levels in 97% of cases, the third 90.
2. http://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2017/july/20170720_PR_Global_AIDS_Update_2017
Conclusions/Next steps: NCHADS will scale up B-IACM implementation to all provinces in Cambodia as it moves toward achieving 95-95-95 by 2025.

WEAE0203

Reaching the first "90": Decentralizing and strengthening provider initiated testing services at primary health care facilities in Ukraine

M. Makovetska, A. Vasylkova, N. Davydenko, O. Yaremenko, N. Avaliani
Deloitte Consulting, LLP, USAID HIV Reform in Action Project, Kiev, Ukraine

Background: As of October 2017, an estimated 98,600 people living with HIV (PLWH) in Ukraine are not aware of their diagnosis. To achieve the first "90" of the UNAIDS targets, it is necessary to diagnose 74,806 PLWH. However, the current HIV detection system in Ukraine has several gaps and limitations, including a limited number of "entry points" into the cascade of HIV prevention and care. The USAID HIV Reform in Action project sought to decentralize HCT services to increase HIV service entry points and accelerate progress towards the first "90" target.
Description: Decentralizing HTC services from regional level AIDS centers and local hospitals to the expanded network of primary health care centers (PHC) sites was implemented in 14 cities across 7 regions of Ukraine between March 2016 and December 2017. The decentralization strategies included allocation of funds for rapid HIV tests from local budgets; training for PHC personnel in HIV testing services; and removing local procedural barriers for the provision and scale-up of HCT services through the introduction of policies to use two rapid tests for HIV diagnosis.
Lessons learned: By the end of the pilot, all sites allocated funds for procurement of rapid test kits resulting in a 6-time increase in rapid test supply compared to the previous year. The number of PHCs providing HCT increased from 25 PHCs across 14 cities in 2015 to 225 PHCs in 2017. The comprehensive strategy, including workforce training, funding allocations and decentralization of patient's entry points, was critical to achieving successful outcomes.
Conclusions/Next steps: Increasing the number of HTC service delivery and patient entry points to the health care system will expand testing services beyond traditional entry points and help detect HIV patients coming to HCF for regular primary health care services. Plans are underway to disseminate pilot results to all 7 study regions, including districts and cities, to share lessons learned. To sustain the outcomes, local authorities need to invest in training of human resources, infrastructure, and other health-system-strengthening components, as well as increase local budget allocations for HIV services.

WEAE0204

Monitoring viral load for the last mile: What will it cost?

B.E. Nichols[1,2], S.J. Girdwood[2], T. Crompton[3], L. Stewart-Isherwood[4,5], L. Berrie[4,5], D. Chimhamhiwa[3], C. Moyo[6], J. Kuenhle[7], S. Rosen[1,2], on behalf of EQUIP
[1]Boston University, Global Health, Boston, United States, [2]Health Economics and Epidemiology Research Office, Department of Internal Medicine, School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, [3]Right to Care, GIS Mapping Department, Johannesburg, South Africa, [4]National Health Laboratory Service, Johannesburg, South Africa, [5]Wits Health Consortium, Johannesburg, South Africa, [6]EQUIP Zambia, Lusaka, Zambia, [7]United States Agency for International Development, Lusaka, Zambia

Background: Routine viral load testing is the WHO-recommended method for monitoring HIV-infected patients on ART, and many countries are rapidly scaling up testing capacity. Providing testing access to the most remote populations (the "last mile") is especially challenging. Using a geospatial optimization model, we estimated the incremental costs of reaching the hardest-to-reach 20% of patients in Zambia by expanding the transportation network required to bring blood samples from ART clinics to centralized laboratories and return results to clinics.
Methods: The model first optimized a sample transportation network (STN) that can transport 80% of anticipated sample volumes to centralized viral load testing labs on a daily or weekly basis, in line with the Zambia 2020 viral load targets. Data incorporated into the model included the location and infrastructure of all 2,500 Zambian health facilities and laboratories, measured distances and drive times, expected future

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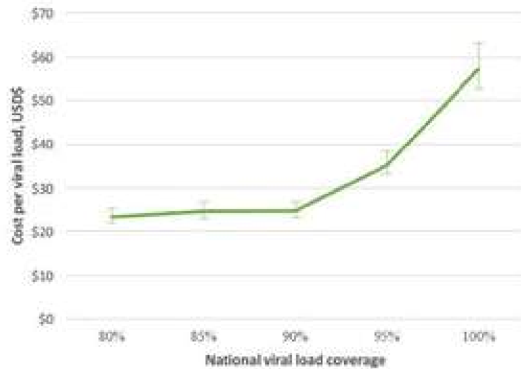
viral load demand by health facility, and local cost estimates. We then continued to expand the modeled STN in 5% increments until 100% of sample volumes were met.

Results: The cost per viral load test when reaching 80% patient volumes using centralized viral load testing was a median of $23.43 (IQR $21.92-$25.42). With an expanded STN, the incremental cost per test rose to $24.72 ($23.08-$26.90) for 80-85% and $24.82 ($23.28-$26.94) for 85-90%. Above 90% coverage, the incremental cost per test increased substantially to $35.17 ($33.17-$38.35) for 90-95% and $57.23 ($52.67-$63.16) for 95-100%. The high numbers of kilometers driven per sample transported increases the costs dramatically for reaching the clinics that serve the last 5% of patients.



[Median incremental cost per viral load (and interquartile range) in Zambia when increasing coverage in 5% increments ($US)]

Conclusions: Providing sample transport services to the most remote clinics in low- and middle-income countries is likely to be cost-prohibitive. Other strategies are needed to reduce the cost and increase the feasibility of making viral load monitoring available to the last 10% of patients. The cost of alternative methods for reaching the last patients, such as optimal point-of-care viral load equipment placement and usage, dried blood spot specimen utilization, or use of drones in geographically remote facilities, should be evaluated.

WEAE0205

The impact of PEPFAR PMTCT funding on reduced infant mortality and improved ANC care in Kenya: A quasi-experimental evaluation

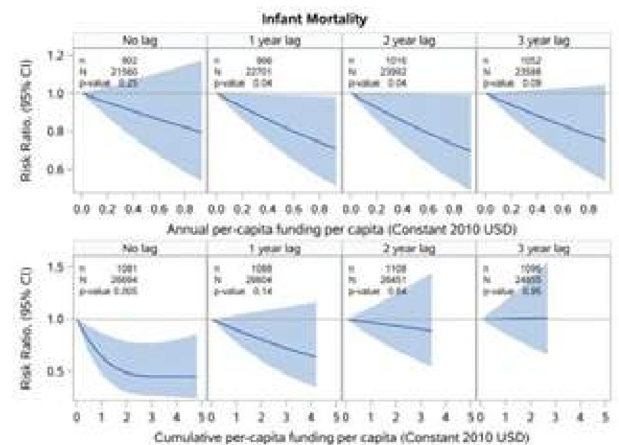
D.A. Barnhart[1], I. Tsikhutsu[2,3], F. Sawe[2,3], J. Muli[2,3], D. Kirui[2,3], W. Sugut[2,3], N. Abboud[4], T. Hamm[5,6], P. Coakley[5,6], P.W. Hickey[5], V. Wolfman[5,6], E. Lee[5,6], D. Spiegelman[7]
[1]Harvard T.H. Chan School of Public Health, Department of Epidemiology, Boston, United States, [2]Walter Reed Program-Kenya, Kericho, Kenya, [3]U.S. Military HIV Research Program, Silver Spring, United States, [4]Office of the U.S. Global AIDS Coordinator and Health Diplomacy, Washington, United States, [5]U.S. Military Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [6]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [7]Harvard T.H. Chan School of Public Health, Departments of Epidemiology, Biostatistics, Nutrition, and Global Health, Boston, United States

Background: From 2004-2014, the President's Emergency Plan for AIDS Relief (PEPFAR) invested over $240 million in Prevention of Mother to Child Transmission of HIV (PMTCT) in Kenya. During this same time, child mortality in Kenya decreased by half. The extent to which this decrease is attributable to PEPFAR is unknown.

Methods: We mapped annual PEPFAR funding for PMTCT to Kenyan provinces using 2004-2014 Country Operational Reports and linked funding to Demographic and Health (DHS) and AIDS Indicator Surveys (AIS). We used a quasi-experimental dose-response analysis to evaluate the impact of annual (ANN-PC) and cumulative (CUM-PC) per capita PEPFAR funding for PMTCT on infant mortality, neonatal mortality, and HIV counseling, testing, and receipt of test results during antenatal care (HIV testing at ANC). Risk ratios were estimated using generalized estimating equations, and regression models were adjusted for year, province, and respondent characteristics.

Results: Our secondary analysis included 30,424 infants and 21,048 mothers. We found that a $0.33 increase in ANN-PCF, or the difference between the 75th and 25th (IQR) percentiles of annual funding levels, was significantly associated with an 11% (95% CI: 1-21%) reduction in infant mortality after a 1-year lag. This reduction was sustained after a 2-year lag. An $0.83 increase in CUM-PCF, or the IQR of cumulative funding levels, was significantly associated with a 31% decrease in infant mortality (95% CI: 11-46%), with the estimated associations attenuating with successive lags. A $0.33 increase in ANN-PCF was also associated with a 6% increase in HIV testing at ANC after a 3-year lag (95% CI: 2-10%), with similar findings for CUM-PCF. As expected, funding was not associated with neonatal mortality.

Conclusions: We found evidence that PEPFAR funding for PMTCT may be causally associated with reduced infant mortality and increased HIV testing at ANC in Kenya. The full impact of PMTCT funding may not be felt for several years after it is allocated. Our methods, paired with routine, publicly available data sets like DHS and AIS, can be extended to other countries and health challenges to demonstrate the impact of large-scale donor programs like PEPFAR and to inform resource allocation by policymakers.



[Infant mortality and per capita PEPFAR funding for PMTCT in Kenya]

WEAE03 Money, money, money: Dynamic financing solutions

WEAE0301

Global optimization of the response to HIV

J. Stover, Y. Teng
Avenir Health, Center for Modeling and Analysis, Glastonbury, United States

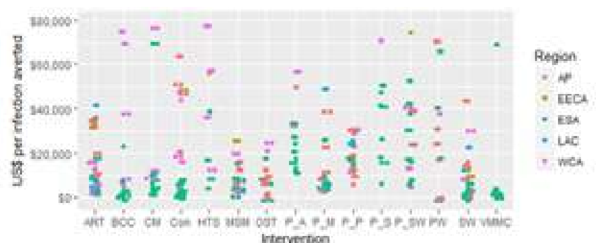
Background: Over $20 billion is spent annually on HIV programs in low- and middle-income countries. The allocation of resources by country and intervention depends on a mixture of need, funding sources, capacity, effectiveness, policy, politics and social factors. We investigated how well the current allocation is optimized for cost-effectiveness.

Methods: We applied an HIV simulation model, Goals, to 55 countries accounting for about 90% of all new infections to determine the cost per infection, death and DALY averted for each of 13 interventions. Units costs were based on Investment Cases for each country. The models were fit to surveillance and survey data and UNAIDS official estimates. Cost-effectiveness ratios were calculated by country and intervention by scaling up each intervention, one-at-a-time, over five years and recording the incremental costs, infections, deaths and DALYs compared to a counterfactual of no scale up of any interventions. The results comprise a database of total cost and cost-effectiveness measures for 716 country/intervention pairs.

Results: Cost-effectiveness varies widely across countries and interventions as shown in Figure 1 for cost per infection averted. Six percent of these combinations are cost savings because the total cost of the

intervention is less than the savings generated due to treatment costs averted. ART dominates cost per death and DALY averted and also ranks high in cost-effectiveness for infections averted. The most cost-effective prevention interventions are generally VMMC, PMTCT, outreach to sex workers and condom promotion. These programs currently receive about 14% of direct intervention funding, which is about two-thirds of the need. The most cost-effective programs are in East and Southern Africa where incidence is high and costs are generally low. Currently almost 60% of all resources and 70% of donor resources are focused on ESA. About 15% of donor resources go to West and Central Africa where cost-effectiveness can be considerably worse.

Conclusions: Resources for HIV prevention and treatment are generally targeted appropriately but more focused allocation of resources could improve cost-effectiveness by about a quarter. Resource allocations should be continually assessed because cost-effectiveness can change significantly as incidence patterns change.



Regions: AP=Asia/Pacific, EECA=Eastern Europe and Central Asia, ESA=East and Southern Africa, LAC=Latin America and Caribbean, WCA=West and Central Africa

Interventions: ART=Antiretroviral therapy, BCC=behavior change communications, CM=community mobilization, Condom=condom promotion, HTS=HIV testing services, MSM=outreach to MSM, OST=opioid substitution therapy, P_A=PrEP for adolescents, P_M=PrEP for MSM, P_P=PrEP for people who inject drugs, P_S=PrEP for sero-discordant couples, P_SW=PrEP for sex workers, PW=outreach to people who inject drugs, SW=outreach to sex workers, VMMC=voluntary medical male circumcision

[Figure 1. Cost per infection averted by intervention and region]

WEAE0302

How does domestic HIV/AIDS financing respond to declines in development assistance for HIV/AIDS?

A. Haakenstad[1], M. Moses[2], T. Tao[2], A. Chapin[2], J. Dieleman[2]
[1]Harvard T.H. Chan School of Public Health, Boston, United States, [2]Institute for Health Metrics and Evaluation, University of Washington, Seattle, United States

Background: Development assistance for HIV/AIDS aims to complement and enhance domestic spending. However, prior analyses have shown that development assistance displaces government financing: as aid grows, increases in government spending are not as large as they would be in the absence of aid. Furthermore, when aid retracts, government funds do not necessarily fill the gap in financing. While this dynamic has been studied for the health sector overall, we know little about whether it extends to the HIV/AIDS sector. We analyze this relationship using newly available HIV/AIDS financing data.

Methods: Our data consist of estimates of HIV/AIDS financing by source and treatment generated by IHME. The number of people living with HIV/AIDS and ten-year lag-distributed income data are sourced from the Global Burden of Disease Study 2016. General government expenditure estimates are drawn from the World Bank's World Development Indicators. We use fixed effects and system generalized methods of moments regression to analyze the relationship between external and government financing for HIV/AIDS overall, broken down by treatment, and with an interaction capturing the distinct effect of declines of aid.

Results: Unlike the broader health sector, the development assistance disbursed to fight HIV/AIDS is associated with increases in the rate of change of government spending on HIV/AIDS - for each additional dollar of development assistance for HIV/AIDS, an estimated 9 (95% UI: 2-16) additional cents are spent by governments on HIV/AIDS. This effect is even stronger for spending on HIV/AIDS treatment. However, when external assistance declines, so does domestic financing. And declines in domestic expenditure transpire at approximately the same rate - or even faster - than increases.

Conclusions: Our analysis suggests that the declines in HIV/AIDS aid over the past five years are associated with decreases in the domestic financing available for HIV/AIDS. Domestic sources of HIV/AIDS funding are not filling the financing gaps created. If the decreases in development assistance continue, and are accompanied by sustained declines in government financing, treatment and prevention efforts and the major reductions in incidence and mortality achieved over nearly two decades may be at risk.

WEAE0303

Forecasting the cost of financing ART in sub-Saharan Africa under differential funding scenarios

T. Frank, A. Carter
Institute for Health Metrics and Evaluation, Seattle, United States

Background: Amid stagnated international funding for HIV and longer lifespans for people living with HIV (PLHIV), quantifying future antiretroviral therapy (ART) needs is vital for HIV program design and financing. With the present study we summarize the expected cost of financing ART for each country through 2040 by predicting the price of ART, projecting funding under different scenarios, and modeling the HIV epidemic for each scenario.

Methods: We estimated ART prices using a frontier analysis based on Global Price Reporting Mechanism data. We projected current levels of government health expenditure and development assistance for health for HIV treatment based on 15th (pessimistic), 50th (reference), and 85th (optimistic) percentile rates of change across 46 countries, which then informed ART coverage projections by translating predicted funding into expected treatment using our cost projections. We used each scenario as inputs into Spectrum, a cohort component model that applies disease progression parameters to an age- and sex-specific population over time. Spectrum results provided a full time series of HIV prevalence by country through 2040.

Results: Estimated median annual ART price per patient was projected to decrease from $82.51 USD in 2016 to $26.74 in 2040. Country-specific ART cost varied considerably, from $21.03 to $41.64, with the highest prices predominantly in western sub-Saharan Africa (SSA). In the reference scenario, the number of PLHIV in SSA increased from 14.3 million in 2016 to 40.5 million in 2040, a trend primarily fueled by population growth and extended survival of PLHIV. Conversely, incidence was projected to decrease from 1.4 per 1,000 population in 2016 to 0.75 per 1,000 in 2040. Compared with the reference scenario, by 2040, the optimistic scenario estimated 29.4 million PLHIV in SSA whereas the pessimistic scenario projected 81.5 million. Cumulatively, the estimated cost of purchasing ART for SSA exceeded $30 billion for the 2016-2040 reference scenario.

Conclusions: The large disparity in the number of PLHIV in 2040 between the optimistic and pessimistic scenarios underscores the vital impact of HIV funding. Despite declines in projected HIV incidence, demographic factors and greater survival stresses the importance of sustained - if not heightened - HIV funding in the future.

Location	Male PLHIV (thousands)	Female PLHIV (thousands)	Price of ART (USD)
South Africa	3602.1	5326.4	21
Nigeria	2342.4	3437.3	28.6
Tanzania	1358.6	1886.8	26.6
Uganda	1291	1858.8	27.3
Kenya	1170.8	1743.1	23.8
Mozambique	1130.8	1731.3	29.3
Zimbabwe	1039.7	1456.3	22.4
Malawi	953.4	1411.9	23.7
Zambia	928.2	1294.7	27.8

[Forecasted ART Price and number of PLHIV by Sex of Highest Burden Countries in 2040 (Reference Scenario)]

WEAE0304

Achieving sustainable Workplace HIV/AIDS Programmes through a phased out catalytic financing model: Case of Swedish Workplace HIV/AIDS Programme in sub-Saharan Africa

D.M. Mwaura
International Council of Swedish Industries (NIR), Swedish Workplace HIV/AIDS Programme, Nairobi, Kenya

Background: The Swedish Workplace HIV and AIDS Programme (SWHAP) is a joint initiative by the International Council of Swedish Industry (NIR) and the Swedish Industrial and Metalworkers' Union (IF Metall). It is a strategy to contribute to the establishment and/or support of HIV workplaces programmes in sub-Saharan Africa; an example of how management and employees can contribute to a successful intervention that saves lives and secures future markets. The programme helps companies invest in workplace programmes that reverse the negative impact of HIV and AIDS making the programmes sustainable and best practice. It is a case of how transitional funds can establish sustainable programmes and catalyse further investments from private sector into HIV/AIDS and wellness programmes.
Description: The funding model entails a three phase formula where after the start-up engagement, the activity budgets are funded 60% during the first phase, 50% in the second phase and 40% during the third and final phase of the co-funding. This scaled-down approach ensures commitment to continuation of the programme through mainstreaming into the company sustainability plan. The funding is also on reimbursable claims based on actual implementation and expenditure thus a result based financing.
Lessons learned: During 2016, 361 workplaces in 116 companies benefited from the transitional financing. A total of 29,705 employees got information and awareness with HIV testing at 52% average. 9,793 family members were educated on HIV/AIDS and tested. 8,704 key populations reached while 367,830 condoms distributed. On transition, 99% of the companies funded have sustained the programmes becoming best practice examples in contribution to the National frameworks of HIV/AIDS responses and winning various awards; Examples of workplaces that uphold rights of infected employees and non-discrimination practices. The steering committees in the various workplaces have promoted social dialogue even in addressing matters pertaining to management/workers relationship leading to harmonious working environment.
Conclusions/Next steps: This transitional financing model exemplifies how to start sustainable programmes past the partnership,speaks to the business benefits, leading to increased funding from the companies and into sustainability plans.
Next is is to share the model widely with development partners in Public-Private Partnerships. The model infrastructure is applicable for other programmes for sustainability.

WEAE0305

Optimizing resource allocation for HIV prevention programs: Proof of concept of an analytical framework using data from Mexico

A. Salas-Ortiz[1], G. La Hera-Fuentes[1], S.A. Bautista-Arredondo[1,2]
[1]*National Institute of Public Health, Centre for Health Systems Research, Cuernavaca, Mexico,* [2]*UC Berkeley, School of Public Health, Berkley, United States*

Background: Annually, the National Centre for the Prevention and Control of HIV/AIDS of Mexico (CENSIDA) invites Civil Society Organizations (CSOs) to apply for funding to implement HIV prevention projects. Given Mexico's concentrated epidemic in key populations, CSOs play a fundamental role in delivering prevention services to these communities. Even though this program has been implemented for a long time, there is no evidence regarding its performance.
The present analysis shows how decision-makers can use monitoring data to improve the allocation of domestic resources to HIV prevention interventions.
Methods: The conceptual framework proposed by Bautista-Arredondo et al., (2008) was used to evaluate the program's efficiency. The approach assesses the level of efficiency considering three dimensions: cost-effectiveness, targeting and technical efficiency. The approach consists of comparing an observed indicator to a normative one (benchmark). Data from 142 funded projects in 2016 were analysed from the CENSIDA's monitoring tool. Data abstracted from the records included: input costs by category, number of outputs by key populations and interventions delivered by each project. These facets were identified through content analysis and used to calculate unit costs. Benchmarks for the cost-effectiveness and targeting dimensions were constructed based on prior literature and HIV prevalence data; minimum unit costs were considered the benchmark for the technical efficiency dimension. Observed indicators were compared with each respective benchmark.
Results: Current literature suggests that interventions to diagnose HIV are the most cost-effective in contexts of concentrated epidemics; yet, only 24% of interventions implemented in the sample focused on testing. Regarding targeting, men who have sex with men and male sex workers received less funds proportional to their HIV prevalence and size. There was considerable heterogeneity in unit costs within interventions, suggesting significant inefficiencies in service delivery.
Conclusions: These findings allowed stakeholders to re-design the 2017 call to incentivize CSOs to: propose a higher number of the required interventions, intervene in difficult-to-reach key populations, and carry out cost-effective prevention services. This study highlights how monitoring data has the potential to better inform the decision-making process. Moreover, it is an example for middle-income countries in which a financial transition from international donors to domestic funding is occurring.

WEAE04 PrEP: Work in progress

WEAE0401

Factors influencing initiation, continuation & discontinuation of oral PrEP at selected facilities in South Africa

D. Pillay[1], S. Jenkins[2], M. Murire[1], K. Stankevitz[3], H. Subedar[4], S. Mullick[1]
[1]*Wits Reproductive Health and HIV Institute, Johannesburg, South Africa,* [2]*Clinton Health Access Initiative, Pretoria, South Africa,* [3]*FHI 360, Durham, United States,* [4]*South Africa National Department of Health, Pretoria, South Africa*

Background: Sex workers (SW) and men who have sex with men (MSM) in South Africa are at substantial risk of HIV. Hence oral pre-exposure prophylaxis (PrEP) was launched for SW in 2016 and MSM in 2017. Programmatic data shows variability in initiation and continuation between these populations. This study examines factors related to PrEP initiation, continuation, and discontinuation during the national PrEP rollout.
Methods: A cross-sectional survey was administered September 2017-January 2018 among clients (ages 18-62) and providers at 9 facilities implementing oral PrEP in South Africa. The client survey captured PrEP initiation, continuation and discontinuation. The provider survey captured knowledge, attitudes and practiced behaviors towards PrEP. Descriptive analyses were performed on survey data. Continuation and discontinuation questions allowed for multiple responses.
Results: 288 clients (152 SW, 68 MSM, 68 other) and 30 providers (3 clinicians, 13 nurses, 6 counselors, 8 peer-educators) participated. Of 152 SW, 57 (37.5%) self-identified as current PrEP users and 46 (30.2%) as past users. Of 68 MSM, 25 (36.8%) self-identified as current PrEP users and 34 (50%) as past users. Primary reasons current and past users initiated PrEP included: being sexually active (SW 33%; MSM 18.6%), having multiple sexual partners (SW 26.2%; MSM 8.5%), and perceiving HIV risk (SW 22.3%; MSM 8.5%). Reasons current users continued PrEP were similar to initiation reasons: being sexually active (SW 50.9%; MSM 76.0%), having multiple sexual partners (SW 35.1%; MSM 24%), and perceiving HIV risk (SW 40.4%; MSM 40%). The primary reason for past users discontinuing PrEP was that side effects were too great (SW 71.7%; MSM 79.4%). The

majority of providers (n=29; 96.7%) said that participants experienced minimal side effects on PrEP and only 8 (26.7%) identified side effects as a barrier.

Conclusions: SW and MSM in South Africa identify their sexual behavior and perception of HIV risk as reasons to initiate oral PrEP. However, side effects appear to be a challenge among users for oral PrEP continuation, and appear underestimated by providers. This highlights the need to better sensitize providers on user perceptions about side effects in order to inform their counseling messages and side effect management.

WEAE0402

PrEP uptake among pregnant and postpartum women: Results from a large implementation program within routine maternal child health (MCH) clinics in Kenya

J. Kinuthia[1,2], J. Pintye[2], F. Abuna[3], H. Lagat[3], K. Mugwanya[2], J. Dettinger[2], M. Serede[3], J. Sila[3], J.M. Baeten[4], G. John-Stewart[4], PrEP Implementation for Young Women and Adolescents (PrIYA) Program
[1]Kenyatta National Hospital, Nairobi, Kenya, [2]University of Washington, Department of Global Health, Seattle, United States, [3]University of Washington-Kenya, Nairobi, Kenya, [4]University of Washington, Departments of Global Health, Epidemiology and Medicine, Seattle, United States

Background: Very few examples of PrEP delivery to pregnant and postpartum women have been reported. The PrEP Implementation for Young Women and Adolescents (PrIYA) Program provides real-world evidence on delivering PrEP to pregnant and postpartum women in Kenya.

Methods: PrIYA is part of the DREAMS Innovation Challenge funded by PEPFAR managed by JSI Research & Training Institute, Inc. We approached HIV-uninfected pregnant women seeking routine antenatal (ANC) and postnatal (PNC) services at 16 maternal and child health clinics in Kisumu, Kenya from June to December 2017. At each patient encounter, screening for behavioral risk factors and willingness to consider PrEP was conducted per national PrEP guidelines. Those who were willing to consider PrEP were assessed for medical eligibility and those eligible were offered PrEP at the same visit. Logistic regression models determined correlates of PrEP initiation.

Results: In total, we conducted 9,704 assessments among pregnant/postpartum clients for behavioral risk factors and willingness to consider PrEP. The median age was 24 years (IQR 21-28); 31% did not know their male partner's HIV status and 84% were married. Overall, 1,856 (19%) of encounters led to PrEP initiation; only 6 women (< 0.01%) were medically ineligible (creatinine clearance < 50 min/mL). Frequency of PrEP initiation differed by male partner HIV status (HIV-negative 7%, unknown 43%, HIV-positive 79%, p< 0.001). PrEP initiation was more common in the postpartum period than during pregnancy (23% vs 16%, p< 0.001). Women younger than 24 years of age were more likely than older women to initiate PrEP (OR=1.18, 95% CI 1.08-1.28, p=< 0.001). Initiating PrEP was also associated with having an STI (OR=2.66, 95% CI 1.48-4.77, p=0.001) and being forced to have sex in the last 6 months (OR=3.69, 95% CI 1.69-8.06, p=0.001). The most frequently reported reasons for declining PrEP were the perception that HIV risk was low (46%) and the partner was HIV-negative (43%); few women accepting PrEP feared intimate partner violence as a result (2%).

Conclusions: In this pregnant and postpartum population, a substantial number of women desired and started PrEP. PrEP initiators were younger and more likely to have HIV risk factors than those who declined PrEP.

WEAE0403

How long will they take it? Oral pre-exposure prophylaxis (PrEP) retention for female sex workers, men who have sex with men and young women in a demonstration project in Kenya

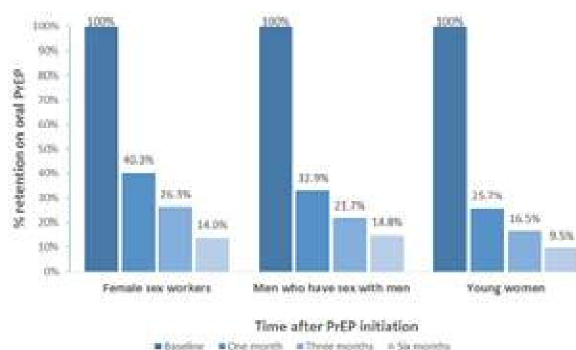
J.K. Kyongo[1], M. Kiragu[2], R. Karuga[1], C. Ochieng[1], A. Ngunjiri[1], C. Wachihi[3], H. Musyoki[4], L. Digolo[1], L. Otiso[2], L. Gelmon[3], N. Kilonzo[5], W. Mukoma[6]
[1]LVCT Health, Research & Strategic Information, Nairobi, Kenya, [2]LVCT Health, HIV Services, Nairobi, Kenya, [3]Partners for Health and Development in Africa, Nairobi, Kenya, [4]National AIDS and STIs Control Program (NASCOP), Nairobi, Kenya, [5]National AIDS Control Council (NACC), Nairobi, Kenya, [6]LVCT Health, Directorate, Nairobi, Kenya

Background: Female sex workers (FSW), men who have sex with men (MSM) and young women (YW) account for majority of new infections in Kenya. Oral PrEP effectively protects against HIV infection but data on PrEP retention and influencing factors in real-world settings is limited. We present data on retention on PrEP in a prospective oral PrEP demonstration project in Kenya.

Methods: Between August 2015 and October 2016, we enrolled 1585 participants; 528(33%) FSW, 438(28%) MSM and 619(39%) YW; on oral PrEP. Two public and four private health facilities were used as points of care, with monthly PrEP refill and adherence/risk behavior counselling visits. Follow up duration was one year and participants did not receive reimbursements. Retention was defined as returning for PrEP refill as scheduled and assumed to imply PrEP use. Reasons for drop-out and continuous use were documented through facility registers and in-depth interviews and focus group discussions with PrEP users and health care workers (HCWs). Data was analysed using STATA (quantitative) and NVivo (qualitative).

Results: Retention at one, three and six months was 40.3%, 26.3% and 14% for FSW; 32.9%, 21.7% and 14.8% for MSM and; 25.7%, 16.5% and 9.5% for YW. For all populations, the instantaneous hazard rate of terminating PrEP use was lowest at twenty weeks. FSW < 23 years were more likely to drop out compared to older FSW (HR 0.76 (95% CI: 0.60 to 0.97) p < 0.029). No age variations were observed among MSM and YW. Reasons for choosing to stop using PrEP included reduced self-perception of risk, sexual partner on successful antiretroviral therapy, community stigma, PrEP myths and misconceptions, risk of social harm, negative attitude from HCWs, challenges accessing study site and tedious procedures at health facilities. Motivators for continuous PrEP use include peer/guardian/partner support, access to combination HIV prevention services and social responsibility.

Conclusions: In our context, we observed high attrition from oral PrEP use by all populations but especially by young women. There are individual, community and health system barriers and enablers of continuous PrEP use. Most of these are modifiable and need to be considered by countries and programs scaling up oral PrEP.



[Retention on oral pre-exposure prophylaxis (PrEP)]

WEAE0404
Cost and impact of PrEP implementation in Haiti to adopt WHO recommendations: Results from EQUIP

R. Kolesar[1], K. Rebe[2], D. Lauture[3], S.N. Magwaza[4,5], W.J. Domercant[3], E. Emmanuel[3], M. Leonard[3], M.-L. Excellent[6], F.J. Louis[3], EQUIP PrEP Technical Working Group
[1]University of Boston (Affiliation), Public Health (Health Economics), El Malecón, Dominican Republic, [2]ANOVA Health Institute, Health4Men, Cape Town, South Africa, [3]Maternal Adolescent and Child Health Systems, EQUIP Innovation for Health, Port au Prince, Haiti, [4]Maternal Adolescent and Child Health Systems, EQUIP Innovation for Health, Durban, South Africa, [5]University of Witswaterand, School of Public Health, Johannesburg, South Africa, [6]Maternal Adolescent and Child Health Systems, EQUIP Innovations for Health, Port au Prince, Haiti

Background: The World Health Organization expanded its recommendation on the provision of Pre-Exposure Prophylaxis (PrEP) to include all people at substantial risk of HIV exposure to achieve the UNAIDS' "Fast-Track" strategy . The Haitian National AIDS Control Program included PrEP for key populations (KP) in the HIV/AIDS national strategic plan (2018-2023). Hence, EQUIP-Haiti, conducted PrEP impact and cost modeling studies to measure effects of PrEP implementation to inform policy decision in Haiti.

Methods: *Goals* module of *Spectrum*, the UNAIDS analytical software, was used for estimating the effects of interventions on HIV infections and resource requirements. Key parameters included, unit cost, population size estimates, epidemiological and behavioral data, intervention coverage by sex, risk group, year, and effectiveness. The Haiti *Integrated Biological and Behavioral Surveillance* survey for KPs was used. . Comparison made of 3 scenarios for annual direct service costs between 2019 - 2023; proportion of KP-initiated on PrEP and HIV infections averted by 2023. A 3-step process estimated potential costs and impact of PrEP implementation:

· A cost component-based approach identifying the specific cost elements to estimate an annual unit cost per person on PrEP;

· Simulations with different adherence rate measures and HIV treatment coverage assumptions with increments from 2018-2023;

· Estimating the impact and cost of scaling up condom use in the general population, and comparing result against the current status.

Results: The estimated first year PrEP unit cost per client is $228.87 that declines to $173.85 annually thereafter. Of the 3 scenarios, the 2nd was feasible for Haiti assuming 80% adherence and 5% coverage in 2017 with a 10% increase from 2018-2023. The total direct cost was estimated at $2.9-$3.1 million annually for direct service provision to 10% of KPs initiated within 2 years between the 2018-2023 period. This translates to 16,263 people on PrEP with a projected HIV aversion of 2, 528 cumulative infections by 2023.

Conclusions: The study results informed policy decision for PrEP implementation in Haiti. In the future, the proposed scenarios must consider integrated services and health system issues affecting implementation.

WEAE0405
The cost-effectiveness of multi-purpose HIV and pregnancy prevention technologies in South Africa

M. Quaife[1,2], F. Terris-Prestholt[1], R. Eakle[2], M. A Cabrera Escobar[2], M. Kilbourne-Brook[3], M. Mvundura[3], G. Meyer-Rath[4,5], S. Delany-Moretlwe[2], P. Vickerman[6]
[1]London School of Hygiene and Tropical Medicine, Global Health and Development, London, United Kingdom, [2]University of the Witwatersrand, Wits RHI, Johannesburg, South Africa, [3]PATH, Seattle, United States, [4]Boston University, Center for Global Health and Development, Boston, United States, [5]University of the Witwatersrand, Health Economics and Epidemiology Research Office, Johannesburg, South Africa, [6]University of Bristol, Bristol, United Kingdom

Background: A number of antiretroviral HIV prevention products are efficacious in preventing HIV infection. However, the sexual and reproductive health needs of many women extend beyond HIV prevention and research is ongoing to develop multi-purpose prevention technologies (MPTs) that offer dual HIV and pregnancy protection. We do not know if these products will be an efficient use of constrained health resources. In this paper we estimate the cost-effectiveness of combinations of candidate multi-purpose prevention technologies (MPTs), in South Africa among general population women and female sex workers (FSWs).

Methods: We combined a cost model with a static model of product impact based on incidence data in South Africa to estimate the cost-effectiveness of five candidate co-formulated or co-provided MPTs: oral PrEP, intravaginal ring, injectable ARV, microbicide gel, and SILCS diaphragm used in concert with gel. We accounted for the preferences of end-users by predicting uptake using a discrete choice experiment (DCE). Product availability and protection were systematically varied in five potential rollout scenarios. The comparator for each scenario was current levels of male condom use, while a health system perspective was used to estimate discounted lifetime treatment costs averted per HIV infection. Product benefit was estimated in disability-adjusted life years (DALYs) averted. Benefits from contraception were incorporated through adjusting the uptake of these products based on the DCE and through estimating the costs averted from avoiding unwanted pregnancies.

Results: At central incidence rates, all single- and multi-purpose scenarios modelled were cost-effective among FSWs and women aged 16-24, at a governmental willingness-to-pay threshold of $1,175/DALY averted (range: $214 to $810/DALY averted among non-dominant scenarios), however none were cost-effective among women aged 25-49 (minimum $1,706/DALY averted). The cost-effectiveness of products improved with additional protection from pregnancy. Estimates were sensitive to variation in incidence assumptions, but robust to other parameters.

Conclusions: To our knowledge, this is the first study to estimate the cost-effectiveness of a range of potential MPTs; suggesting that MPTs will be cost-effectives amongst higher incidence FSWs or young women but not lower incidence older women. More work is needed to make attractive MPTs available to potential users who could use them effectively.

WEAE05 I want you back: Improving retention on HIV programmes

WEAE0501
10 years of Community ART Groups (CAG): Retention and viral load uptake in Tete, Mozambique

L. Haldna, A. W. Torrens
Medecins Sans Frontieres, Operational Center Brussels, Brussels, Belgium

Background: Community ART groups (CAG), peer support groups involved in community ART distribution and mutual psychosocial support, were piloted by MSF in 2008 to respond staggering ART attrition in Tete, Mozambique. 10 years later, outcomes of CAG were analyzed - whether community-based care in rural setting has increased retention and improved clinical outcomes.

Methods: Retrospective cohort design was used with data from HIV electronic register and CAG group register. A total of 2167 patients from 2008 to 2017 ever registered in CAG in Changara and Marara districts were included in the analysis. Kaplan-Meier techniques were used for estimating mortality and lost to follow-up (LTFU) rates per 100 person-years. Individual level predictors of attrition were assessed using logistic regression and chi-square tests.

Results: Mortality, LTFU and returning to individual care rates among 2167 CAG members were, respectively, 2.3, 1.6 and 1.6 per 100 person-years. Long-term retention in HIV care was found high: 93.1% at 2 years, 90.2% at 4 years and 87.5% at 9 years. Retention did not decrease significantly after 4th year (p=0.4006) in care. Patients who never had viral load (VL) monitored (*a*OR 4.266, 95%CI 3.34-5.46) or had unsuppressed VL (*a*OR 3.954, 95%CI 2.58-6.07) were at higher risk of LTFU or death. 53.9% of patients with VL >=1000 cp/ml were part of CAG, while unsuppressed VL is CAG exclusion criteria. 15.32% of patients had joined CAG with advanced HIV (CD4 < 200 cells/µl), these patients were at higher risk of attrition (*a*OR 1.861, 95%CI 1.36-2.54).

Conclusions: Long-term retention was exceptionally high, especially for a rural population, confirming positive results from previous studies. Nevertheless, finding about outcomes indicate that to reduce attrition, efforts are needed to strengthen the detection of PLWHA on earlier stage and to ensure clinical follow-up and VL routine monitoring. Risk factors associated with attrition demonstrate crucial added value of CAG model as peer-to-peer support and not only as community provision of ART. Results of this study have potential benefit to the global HIV response to provide out-of-clinic treatment to increasing number of patients, moreover it is a comprehensive insight how community-based care has functioned over a long period of time.

WEAE0502

Increasing retention in care through community systems strengthening: Lessons learned from 15 districts in South Africa

M.R. Manganye[1], S. Berrada[1], A. Wagner[1], S. Gombarume[2], C. Wylie[1], A. Make[1]
[1]Hospice Palliative Care Association of South Africa, CaSIPO - Care and Support for Improved Patient Outcomes, Cape Town, South Africa, [2]USAID/Southern Africa, Care and Treatment, Pretoria, South Africa

Background: The United States Agency for International Development-funded Care and Support to Improve Patients Outcomes Project (CaSIPO) aims to maximize the quality of life for patients on antiretroviral treatment (ART) through provision of comprehensive care and support services in the community. As the South African Government vows to provide access to treatment to all people living with HIV and AIDS, adherence to treatment and retention in care are critical to the sustainability of the ART program.
Description: CaSIPO works with 15 high burden Districts to strengthen community systems to promote patients' retention in care. Community adherence clubs (CACs) offer a much-needed adherence support structure to stable patients on ART along convenient access to their medications. CaSIPO uses innovative approaches to adapt to local context and establish CACs in rural, semi-rural and urban settings. Working closely with community based organizations (CBOs), ward based outreach teams and clinics, CaSIPO developed their skills and knowledge to provide adherence support, health promotion, nutrition assessment counselling and support, screening for tuberculosis and sexually transmitted infections, family planning education and active referral.
Lessons learned: CaSIPO undertook various capacity development strategies to strengthen the CBOs' systems and structures and empower them with the necessary tools to provide patients-centred sustainable adherence support. Between June 2016 and December 2017, CaSIPO empowered 194 CBOs across 15 Districts to provide quality comprehensive care and support services to 110,994 HIV stable patients attending 4,526 CACs. Quality is a key driver of retention in care. Through training, mentorship and intensified technical assistance program, CaSIPO established a quality assurance system for community based services resulting in 96% retention in CACs (n=106,781; d= 110,994; December 2017). Over 18-month period, 4,213 of 110,994 CACs patients had exited the clubs, with 69% (2,907) transferred to other decanting modalities and only 7% (295) lost to follow up.
Conclusions/Next steps: South Africa unique and complex public health dynamic led CaSIPO to adopt a mixed approach to provide sustainable and scalable community adherence support structure to ART patients. Strengthening the community system and facilitating linkages between community and health facilities has proven to be critical in promoting retention in care.

WEAE0503

Same day ART initiation does not reduce 12-month retention among HIV-infected children in Uganda

A. Kekitiinwa[1], P. Elyanu[2], E. Nazziwa[3], G.P. Kisitu[2], R.N. Ssebunya[2], C. Katureebe[4], G. Namayanja[5], I. Lukabwe[4], E.N. Magongo[4], A. Namale[3], P.N. Ntege[2], M.R. Adler[3]
[1]Baylor College of Medicine Children's Foundation, Pediatrics and Child Health, Kampala, Uganda, [2]Baylor College of Medicine Children's Foundation, Kampala, Uganda, [3]Centre for Disease Control, Entebbe, Uganda, [4]Ministry of Health, Kampala, Uganda, [5]Centre for Disease Control, Kampala, Uganda

Background: Countries have adapted the WHO Test and START guidelines for antiretroviral therapy (ART) initiation, but there is limited evidence on how soon to start ART in children without jeopardizing retention. Uganda has implemented Test and START guidelines for children which included same day initiation since 2014. We compared 12-month probability of retention in HIV-infected children aged < 15yrs initiated on ART on the same day of diagnosis versus 2-14 days or >14 days from diagnosis during HIV Test and START policy implementation in Uganda.
Methods: We retrospectively reviewed clinic charts for HIV-infected children diagnosed and initiated on ART from June 2014 to March 2015 in 42 health facilities in Uganda. Retention was defined as being alive and on ART during the 12th month on ART. Kaplan-Meier estimates were used to calculate the 12-month probability of retention (overall and stratified by health facility level and age at diagnosis) and the log-rank test to compare groups.
Results: Of 899 HIV infected children, 115(12.8%) were excluded for missing diagnosis date and 784(87.2%) were included in the analysis. Of these 784 children, 56% were girls, median ages (IQR) at diagnosis and ART initiation was 3(1, 7) years and 4(1, 7) years respectively. Three hundred and seventeen (40.4%) children started ART on the same day they were diagnosed, 155(19.8%) started within 2 to 14 days and 312(39.8%) started after 14 days. The overall probability of one-year retention was 89.9%; Retention was similar among children who initiated ART on the same day (89.7%) compared to those initiated 2-14 day's (94.0 %) and >14 days (90.2 %), p=0.3. Retention was highest in those diagnosed at age 5-14yrs (93.5%) and at health centres (96.0%); and lowest in children under 2 years of age (85.9%) and regional referral hospitals (89.7%). Retention in each age and health facility stratum did not differ by time from diagnosis to initiation (table 1).
Conclusions: Starting ART in children on the same day of diagnosis does not jeopardize retention on treatment.

Characteristic		All		Same Day N=317	2-14 Days N=312	>14 days N=312	P-Value*
		# Retained/ Total	Incidence (95%CI)	Incidence (95% CI)	Incidence (95%CI)	Incidence (95%CI)	
Overall	Crude	713/784	89.9% (87.5%, 91.8%)	89.7% (85.8%, 92.6%)	94.0% (88.8%, 96.9%)	90.2% (86.3%, 93%)	0.3
Health Facility	Regional referral hospital	395/435	89.7% (86.6%, 92.1%)	90.6% (85.3%, 94.1%)	92.6% (85.2%, 96.4%)	89.1% (82.8%, 93.2%)	0.6
	General Hospital	192/208	90.3% (85.8%, 93.4%)	90.7% (81.4%, 95.4%)	97.0% (81.0%, 99.0%)	91.8% (84.2%, 95.8%)	0.5
	Health centres	126/141	96.0% (88.6%, 98.8%)	85.6% (73.3%, 92.5%)	95.5% (71.9%, 99.0%)	90.3% (79.7%, 95.5%)	0.4
By age at diagnosis	under 2 years	220/255	85.9% (81.0%, 89.7%)	85.7% (77.1%, 91.3%)	90.4% (76.4%, 96.3%)	84.4% (76.1%, 90%)	0.7
	2-4 years	195/211	92.3% (87.8%, 95.2%)	90.9% (82.6%, 95.3%)	95.6% (83.4%, 98.9%)	92.0% (83.0%, 96.3%)	0.6
	5-14 years	298/318	93.5% (90.1%, 95.8%)	92.0% (85.6%, 95.8%)	95.3% (86.0%, 98.4%)	94.2% (88.2%, 97.2%)	0.7

[12 month ART retention by time from diagnosis to ART initiation in HIV infected children aged under 15 years, Uganda 2017 (N=784)]

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WEAE0504

Community patient tracking by Lay Community Health Workers (CHWs) is an effective strategy towards the 2nd & 3rd 90

B.M. Morapedi, G. Morineau, C. Lesedi, J.M. Irige, B. Mantu, O. Sokwe, C. Pheko, K. Poloko
FHI 360, APC Botswana Project, Gaborone, Botswana

Background: In June 2017, Botswana introduced 'Treat all' to facilitate universal coverage of antiretroviral treatment (ART) towards the 90-90-90 targets. Treat all provides access to ART to Botswana citizens irrespective of CD4 count. FHI 360, Advancing Partners and communities (APC) project, funded by PEPFAR through USAID in Botswana built the capacity of communities towards epidemic control by introducing community health workers (CHWs) to support health facilities trace patients with known sero-positive status who never started ART and defaulters, in eight districts. Health facility staff traditionally trace defaulters through phone calls.

Description: Working in collaboration with the Ministry of Health & Wellness (MoHW) District Health Management Teams (DHMTs), CHWs were trained on community HIV care including patient tracking strategies and provided standard operating procedures (SOPs) for guidance. Senior Community Health Workers (SCHWs) were posted in health facilities and together with nurses in the infectious Disease Control Centres (IDCC) identified patients that were in the registers but never started ART or defaulted.

A team of CHWs was assigned a caseload of patients to track in the community. Successfully traced patients were linked to facilities through unaccompanied and accompanied referrals. They were also provided information on "Treat All" to support them to opt for ART initiation.

Lessons learned: During the period October 2016 to September 2017, out of 1,277 clients referred to APC CHWs for tracing, 584 (46%) included sufficient information in their clinical file for tracing. From those traced, 317 (54%) linked back to health facilities and initiated on ART, 146 (25%) were found already on ART, 46 (8%) were referred but did not link, 40 (7%) had changed physical address, 27 (5%) declined to be linked back to care, and eight were reported deceased.

Conclusions/Next steps: Implementation of community patient tracking contributed to linkage of PLHIV to ART and updating patient facility records. Home visits by CHWs increases uptake of ART services. CHWs are critical to fill the human resource constraints within the health system and their knowledge of their community ensures successful tracing of those lost by the health system. Tracking patients that have defaulted from ART is resource intensive but worth it.

WEAE0505

'My best friends and my worst enemies': Understanding the roles of families in retaining South African adolescents living with HIV in care

T.D. Ritchwood[1], N. Ntlapo[2], M. Atujuna[2], S. Letoao[3], A. Oduro[2], L.G. Bekker[2]
[1]*Medical University of South Carolina, Public Health Sciences, North Charleston, United States,* [2]*University of Cape Town, Desmond Tutu HIV Centre, Observatory, South Africa,* [3]*Information Health Measurement, Mbabane, Swaziland*

Background: Adolescents living with HIV (ALWH) are less likely than their child or adult peers to be retained in HIV care and adhere to their medication regimens. While familial involvement is critical to the treatment success of ALWH, most of interventions for this group focus only on individual-level factors and do not include family members. This current study investigated the role of families in ALWHs' treatment retention and adherence and solicited strategies from ALWH, their caregivers, and local stakeholders to better integrate families in intervention efforts.

Methods: Fifty-nine semi-structured, in-depth interviews were conducted to qualitatively determine how the families of ALWH support or hinder their treatment retention and adherence and to determine how best to include them in intervention efforts. Participants were ALWH (n=20; 13-19 years of age), their caregivers (n=19), and local stakeholders (n=20) from Cape Town, South Africa. Data were coded and analyzed using inductive content analyses. We then grouped codes into perceived positive and negative familial roles, and suggestions on how families could help to improve ALWH treatment retention and adherence.

Results: Findings revealed several positive roles that family members served in supporting ALWH, including: reminding them to take their pills; reinforcing notions of personal accountability; providing informational, instrumental, and emotional support; assisting youth when their primary caregiver was unavailable; and normalizing pill taking. While most participants identified their families as sources of support, a number of participants expressed negative familial roles, including being sources of discrimination, ridicule, and discord; and lacking a role entirely. Moreover, participants reported that HIV disclosure within families is often challenging, leaving many ALWH with no one with whom they can confide within their social networks, limiting their family's ability to provide critical support. ALWH suggested that their families assist with retrieving medications from pharmacies and commit to unconditional acceptance, regardless of whether they adhere to their treatment regimens.

Conclusions: Families play an important role in the adolescent HIV treatment cascade and could both facilitate and derail treatment retention and adherence. This study highlights the need for systematic, intergenerational approaches that incorporate socio-structural factors in efforts to retain ALWH in HIV care.

WEDNESDAY 25 JULY

Poster Discussions

WEPDA01 All fired up: Tackling inflammation

WEPDA0101

Antiretroviral treatment did not restore functionality of cervical mucosal cells for Th17-related cytokines altered after HIV infection

M.P. Caruso[1], M.P. Holgado[1], J. Falivene[1], J. Salido[1], D.H. Zurita[2], A. Nico[2], V. Fink[2,3], N. Laufer[1,2], H.M. Perez[2], P. Cahn[2,3], O. Sued[3], G. Turk[1], M.M. Gherardi[1]
[1]Universidad de Buenos Aires, Consejo Nacional de Investigaciones Científicas y Técnicas, Instituto de Investigaciones Biomédicas en Retrovirus y SIDA (INBIRS), Facultad de Medicina, Buenos Aires, Argentina, [2]Hospital General de Agudos 'Dr. JA Fernández', Buenos Aires, Argentina, [3]Fundación Huésped, Buenos Aires, Argentina

Background: Th17 and Treg cells play a key role in HIV infection and mucosal defenses. A reduction of Th17 cells in the female genital mucosa(FGM) of HIV+ women has been previously described.
Aim: To analyze the effects of antiretroviral treatment(ART) in these T-cell subsets in FGM in different groups of individuals.
Methods: Cervical mononuclear cells(CMCs) and exocervical swabs from FGM were obtained from the following groups: HIV- (n=21), HIV+ART+(n=32) and HIV+ART- (n=12). Cytokines(CKs) secreted by CMCs after stimulation with PMA+Ionomycin and chemokines in exocervical swabs were quantified by Cytometric Bead Array.
Results: CMCs production of Th17-related-CKs (IL17A, IL17F, IL21 and IL22) and Treg-related-CKs (IL10 and TGF-1) were evaluated. HIV+ART- group showed diminished proportions of positive responses for Th17-related-CKs compared to HIV- (IL17A, IL17F and IL21:p< 0.01). Minor proportions were still found in HIV+ART+ group (IL17A and IL17F:p< 0.05). In Treg-related-CKs, reduction was only found for IL10 in both HIV+ groups (p< 0.05).
Analysis of global pattern of secretion of Th17-related-cks, indicated that in HIV+ART- the secretion pattern was severely modified (p=0.0297). In HIV+ART+ the Th17-related-cks pattern tend to be restored, but a significant lower percentage of samples secreted 4CKs (HIV-:62.5% vs HIV+ART+:16.67%; p=0.0281). By contrast, when Treg-related-CKs pattern was compared none significant differences were found.
Thirteen different chemokines were evaluated in exocervical swabs. Differences in both HIV+ groups vs HIV- were detected: minor levels of CXCL5 and CXCL1 (neutrophil recruitment); major levels of CCL17 (homing of Treg-cells).
To inquire if CMCs function deterioration could be related with minor chemokine levels observed, HIV+ART+ group was divided in two according to the number of Th17-related-CKs secreted: "at least 3CKs" and "1 or less CKs".
Interestingly, for CXCL5 and CXCL1, significant lower levels were found in the "1 or less" group (compared to HIV- and to "at least 3", all p< 0.05). Also in HIV+ART+, positive correlations were found between logCXCL5 vs logIL17A(r=0.5666, p=0.0241), logCXCL1 and logIL17A(r=0.7273, p=0.0006) and logCCL17 vs logIL10(r=0.5700, p=0.0186).
Conclusions: These results suggest that HIV infection severely affects the functionality of cervical mucosal cells, and ART was not able to totally restore it. Earlier ART start might mitigate this HIV infection effect.

WEPDA0102

Effect of ART on reducing fungal translocation in HIV-infected patients

J.P. Routy[1,2], V. Mehraj[1,2], R. Ramendra[3], C. Costiniuk[1], B. Lebouché[1], . Chen[1,4], R. Ponte[2], R. Thomas[5], B. Trottier[6], J. Szabo[5], P. Coté[6], R. LeBlanc[7], J.-G. Baril[6], N. Bernard[2], D. Sheppard[2,3], C. Chartrand-Lefebvre[8], M. El-Far[8], M. Durand[8], H. Lu[4], C. Tremblay[8,9], Montreal Primary HIV-infection Study and Canadian HIV and Aging Cohort Study Groups
[1]Chronic Viral Illness Service, McGill University Health Centre, Montréal, Canada, [2]Research Institute of McGill University Health Centre, Montréal, Canada, [3]McGill University, Department of Microbiology and Immunology, Montréal, Canada, [4]Shanghai Public Health Clinical Center, Infectious Diseases, Shanghai, China, [5]Clinique Médicale l'Actuel, Montréal, Canada, [6]Clinique Médicale Quartier Latin, Montréal, Canada, [7]Clinique Médicale OPUS, Montréal, Canada, [8]Centre de Recherche du Centre Hospitalier de l'Université de Montréal, Montréal, Canada, [9]Université de Montréal, Département de Microbiologie, Infectiologie et Immunologie, Montréal, Canada

Background: LPS, LBP, and sCD14 are validated markers of microbial translocation in HIV-infected persons. (1-3)--d-glucan (DG) is a major component of most fungal cell walls that binds to the extracellular domain of myeloid cells, Dectin-1. We and others have shown that DG plasma levels may be considered as a marker of gut fungal translocation in HIV-infected persons. However, the contribution of ART in improving gut fungal translocation remains to be defined. Herein, we look to assess the role of ART on normalization of DG levels when initiated during acute (AHI) and chronic HIV infection (CHI).
Methods: 177 participants (42 AHI, 93 CHI, and 42 controls) without suspicion of fungal/bacterial infection nor colitis were assessed in a cross-sectional analysis. 32 AHI patients were longitudinally assessed. Plasma levels of DG were quantified using Fungitell® assay and were compared with age, sex, viral load, CD4, CD4/CD8 ratio, marker of gut damage (I-FABP), microbial translocation (LPS, LBP and sCD14), and inflammation (IL1-, IL-6, IL-8 and TNF-).
Results: The mean age of participants was 47.9±12.6 years with 86.4% being male. Plasma DG levels were elevated during AHI (59.4±33.6 pg/mL, p=0.002) and further increased in CHI (135.6±48.6 pg/mL, p< 0.001) vs. seronegative controls (26.7±9.7 pg/mL). We observed a positive correlation of DG with age (r=0.351; p< 0.001) and with viral load (r=0.429; p< 0.001) as well as a negative trend for CD4 counts (r=-0.135; p=0.125). DG levels correlated with sCD14 (r=0.404; p=0.002), IL-6 (r=0.404; p=0.001), and IL-8 (r=0.640; p< 0.001) among HIV-infected persons. DG levels increased over 2-years in the untreated AHI (111.2±96.4 pg/mL p< 0.001) and remained stable in the early treated group. Similarly, CHI persons on 13.5±7.0 years of ART did not show a decrease in their DG levels (135.2±47.3 pg/mL, p< 0.001). Multivariate analysis showed DG elevation was independent of age, sex, CD4 and CD8 counts.
Conclusions: The elevation of plasma DG levels observed during acute and chronic infection did not decrease with early ART initiation nor long-term ART usage. Elevated DG levels, which correlated with markers of immune activation, may be directly involved in HIV pathogenesis via Dectin-1 mediated protein kinase C pathway in myeloid cells.

WEPDA0103

Persistence of myeloid cell-associated inflammation in HIV-infected children after 8 years on early initiated therapy - the key role players in HIV persistence?

S. Naidoo[1], K. Veldsman[1], M.F. Cotton[2], R.H. Glashoff[3]
[1]Stellenbosch University, Medical Virology, Cape Town, South Africa, [2]Stellenbosch University, Tygerberg Children's Hospital, Cape Town, South Africa, [3]Stellenbosch University, Division of Medical Microbiology, Cape Town, South Africa

Background: Combination antiretroviral therapy (ART) does not completely eradicate HIV latently infected cells. Resting CD4+ T cells remain the most studied source of residual viremia. Research evaluating the role of myeloid lineage cells, such as monocytes and macrophages, in HIV persistence is limited. These long-lived cell types provide optimal hide-

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outs for the virus and are less susceptible to HIV-induced cytopathic effects and death. Evaluating the interplay of the immune mechanisms of myeloid cells and HIV persistence within a pediatric population may provide valuable insight into therapeutic targets for eradicating latent reservoirs.

Methods: Plasma samples originating from the Children with HIV-Early Antiretroviral Therapy (CHER) trial were evaluated. ART was initiated at < 1 year of age and children sustained viral suppression at 7-8 years. Cytokines (IL-1b, IL-6, IL-8, IL-10, INF-, TNF-a, TGFb1,2,3, sCD14, sCD163, GCSF, CMCSF, VEGF) and chemokines (MCP-1, MIP-1a, MIP-1b, LBP) involved in monocyte/macrophage activation and trafficking were measured using Luminex® Multiplex assays. Age-matched controls were measured for the same biomarkers. A subset of HIV-infected participants was tested for total HIV-1 DNA using qPCR targeting a conserved region in HIV integrase. Statistical analysis employed a Wilcoxon matched paired test for nonparametric data.

Results: 163 samples (88 HIV-infected and 75 HIV-uninfected controls) were evaluated. The median baseline viral load at ART initiation was 738,500.5 copies/ml. Median CD4-percentage at baseline was 36.9% (range: 23.1-57.1%). At 7-8 years of age, there were no significant differences between the CD4-percentage of the HIV-infected (38.3%) and control groups (40.0%) (p=0.261). HIV-infected children showed highly significant (p< 0.001) levels of IL-1, IL-6, TGF3, sCD14, sCD163, MCP-1, MIP-1a, MIP-1b, GCSF, CMCSF, LBP, and VEGF when compared to controls. Significant increase in IL-8 (p=0.0450), TNFa (p=0.0033), TGFb1 (p=0.0140) and TGF2 (p=0.0042) were also observed. Among 32 children assessed for HIV-1 DNA at follow-up, a median of 32.5 copies/million cells (range: 0-562.6) was observed at 7-8 years of age.

Conclusions: Despite early therapy initiation, long-term viral suppression, low cell-associated HIV-1 DNA detection and normalized CD4 counts, HIV-infected children display persistent myeloid-cell associated inflammation which may drive ongoing low-level replication. The increase in sCD14 and LBP levels implicate bacterial gut translocation.

WEPDA0104

Immune activation parameters are differentially expressed across four countries in sub-Saharan Africa and are associated with comorbidities in HIV+ and HIV- individuals

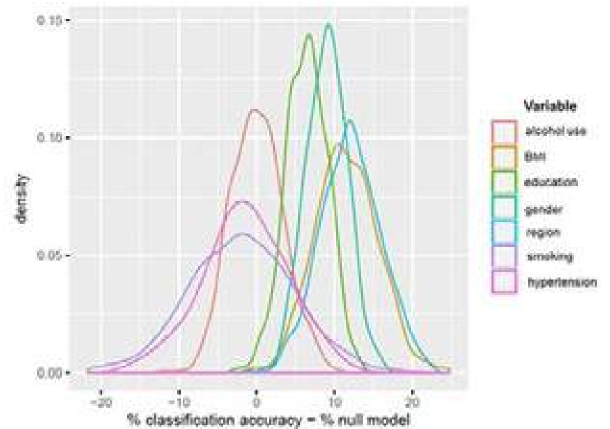
H. Streeck[1], G. Son[1], D. Habermann[2], T.A. Crowell[3,4], A. Esber[3,4], L.A. Eller[3,4], M.A. Eller[3,4], A.P. Parikh[3,4], P.A. Horn[5], L. Maganga[6], Y. Adamu[7], F. Kiweewa[8], J. Maswai[3,9,10], J. Owuoth[3,10,11], M.L. Robb[3,4], N.L. Michael[3], D. Hoffmann[2], C.S. Polyak[3,4], J.A. Ake[3]
[1]Institute for HIV Research, University Hospital, University Duisburg-Essen, Essen, Germany, [2]Bioinformatics and Computational Biophysics, University Duisburg-Essen, Essen, Germany, [3]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [4]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [5]Institute for Transfusion Medicine, University Hospital, University Duisburg-Essen, Essen, Germany, [6]Mbeya Medical Research Centre, Mbeya, Tanzania, United Republic of, [7]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Abuja, Nigeria, [8]Makerere University-Walter Reed Project, Kampala, Uganda, [9]Henry M. Jackson Foundation Medical Research International, Kericho, Kenya, [10]Kenya Medical Research Institute, Nairobi, Kenya, [11]Henry M. Jackson Foundation Medical Research International, Kisumu, Kenya

Background: Immune activation is a significant contributor to HIV pathogenesis and disease progression. In ART virally-suppressed individuals, low-level immune activation has been linked to several non-infectious comorbid diseases (NCDs). However, such studies have not been systematically performed in sub-Saharan Africa and thus the impact of demographics, cART and regional endemic co-infections on immune activation is not known. We therefore comprehensively evaluated in a large multinational African cohort markers for immune activation and its distribution in various settings.

Methods: In total, 2747 specimens from 2240 HIV-positive (1492 on cART, 748 without cART) and 477 HIV-negative individuals from the observational African Cohort Study (AFRICOS) were analyzed for 13 immune parameters. Samples were collected together with medical history, sociodemographic and comorbidity data at 11 HIV clinics across 5 programs in Uganda, Kenya, Tanzania and Nigeria. Data were analyzed with univariate and multivariate methods such as random forests and principal component analysis.

Results: Immune activation was markedly different between HIV-positive with detectable viral load and HIV- individuals across sites (p< 0.001), but only differed in some markers between HIV+ cART+ (< 50 copies/ml) and HIV- individuals. Random Forest analysis revealed that immune activation parameters could successfully predict the country origin of the specimens (P< 0.001) as well as to lesser degree the level of education. In particular, CCL2 and IL2RA were significantly diametrically expressed in the five regions (P< 0.001). This was the case across HIV-positive and HIV-negative individuals and was not due to other infections such as hepatitis B, C, tuberculosis or co-trimoxazole prophylaxis. Within the 2240 HIV-positive individuals, our study revealed significant gender specific immune activation expression patterns that were not present in HIV-negative individuals. Moreover, when we compare HIV-negative individuals and HIV-positive individuals with fully suppressed viremia, the latter group has a significantly larger number of NCDs, an effect that increases with age(p=0.0069). These two groups can be distinguished based on diverging immune parameters such as CXCR10 and IL2RA .

Conclusions: We demonstrate region-specific, gender-specific and education-specific differences in immune activation expression. Furthermore, several immune activation markers are differentially expressed in individuals with NCDs an effect that significantly increases with age.



[Random Forrest Analysis of Immune Parameters Predicting Region, Gender and Education in HIV+ individuals]

WEPDA0105

Anticoagulant therapies alleviate SIV-associated hypercoagulation as well as immune activation and inflammation

T. He[1,2], G. Haret-Richter[2], B. Andrade[3], C. Xu[2], B. Policicchio[2], P. Sette[2], K. Raehtz[2,4], E. Falwell[2], T. Dunsmore[2], K. Martin[2], G. Padovani[2], I. Francischetti[5], C. Apetrei[2,4], I. Sereti[6], I. Pandrea[1,2]
[1]University of Pittsburgh School of Medicine, Pathology, PITTSBURGH, United States, [2]University of Pittsburgh, Center for Vaccine Research, Pittsburgh, United States, [3]Instituto Brasileiro para a Investigação da Tuberculose, Multinational Organization Network Sponsoring Translational and Epidemiological Research (MONSTER) Initiative, Salvador, Brazil, [4]University of Pittsburgh School of Medicine, Department of Microbiology and Molecular Genetics, Pittsburgh, United States, [5]National Institute of Allergy and Infectious Diseases, Laboratory of Malaria and Vector Research, Bethesda, United States, [6]National Institute of Allergy and Infectious Diseases, HIV Pathogenesis Section, Laboratory of Immunoregulation, Bethesda, United States

Background: Cardiovascular disease remains one of the leading non-AIDS causes of death among chronically HIV-infected subjects, fueled by a hypercoagulable state along with persistent immune activation and inflammation (IA/INFL). Tissue factor (TF) and its downstream thrombin

production may bridge IA/INFL and hypercoagulation via protease-activated receptor (PAR) signaling. We hypothesize that anticoagulant therapies targeting these coagulation pathways can break the vicious cycle of hypercoagulation and IA/INFL and reduce the risk of cardiovascular comorbidity in HIV infection.
Methods: We experimentally administered a thrombin inhibitor (Dabigatran) and a PAR-1 inhibitor (Vorapaxar) in five SIV-infected pigtail macaques (PTMs) each, and compared with a TF inhibitor (Ixolaris) treatment in PTMs reported before. Five untreated SIV-infected PTMs were used as controls. Treatments were initiated at the time of infection for at least 80 days. Coagulation markers (D-dimer, sTF), endothelial and platelet activation markers (sICAM-1, sP-selectin), as well as immune activation (CD38/HLA-DR, Ki-67, CD80, CD86) and inflammation markers [C reactive protein (CRP), proinflammatory and anti-inflammatory cytokines] were measured throughout and after treatment.
Results: All three anticoagulant therapies resulted in a different extent of reduction in hypercoagulation, marked by lower levels of D-dimer, sTF, sICAM-1 and sP-selectin compared with controls after SIV infection. Treated PTMs also showed lower CRP, lower proinflammatory cytokines and chemokines (IL-1, IL-17, Eotaxin, MIP-1, VEGF) and higher protective cytokine IL-12.
Meanwhile, treated PTMs had lower activated monocytes marked by CD80 and CD86. Among the anticoagulant therapies, Ixolaris had the best effect in reducing D-dimer levels and IA/INFL markers. Additionally, besides reduced monocyte activation, Ixolaris also lowered T cell activation ($CD38^+$ HLA-DR^+ coexpression). Ixolaris-treated PTMs also had a better survival, with no progression to AIDS within 100 days post infection.
Conclusions: Our results reinforced the close causative relationship between hypercoagulation and IA/INFL in SIV pathogenesis. Anticoagulant therapies may thus represent effective strategies not only for reducing hypercoagulation but also to alleviate IA/INFL. Targeting TF directly, exerted a better effect compared with anticoagulant therapies targeting downstream players of the coagulation pathway, indicating that interventions prior to the establishment of coagulation-inflammation vicious cycle may be more successful. Future studies to the effect of anticoagulants in viral-suppressed setting are warranted.

WEPDB01 Acute infection and viral reservoir

WEPDB0101

Validation of Alere ™ q HIV-1/2 detect for detection of acute HIV infection at Anonymous Clinic, The Thai Red Cross AIDS Research Centre

I. Srila-Or[1], T. Pankam[1], S. Pattanachaiwit[1], S. Barisri[1], P. Raprasert[1], J. Jantarapakde[1], S. Areeyowattana[1], S. Sirivichayakul[2], P. Phiayura[1], R. Ramautarsing[1], N. Phanuphak[1,3], P. Phanuphak[1,2]
[1]The Thai Red Cross AIDS Research Centre, Laboratory, Bangkok, Thailand, [2]Chulalongkorn University, Faculty of Medicine, Bangkok, Thailand, [3]SEARCH, Bangkok, Thailand

Background: Diagnosis of acute HIV (AHI) is important to facilitate early linkage to treatment, to reduce onward HIV transmission and to reduce the risk of developing drug resistance in people taking pre-exposure prophylaxis (PrEP). Qualitative detection of HIV type-1 and type-2 by nucleic acid amplification test (NAAT) for the diagnosis of AHI is labor intensive and is limited to facility-based testing. The Alere™q HIV-1/2 Detect (Alere™q) is a point-of-care, qualitative, cartridge-based NAAT which allows its use in community-based settings. We assessed the performance of Alere™q in AHI detection.
Methods: Ten HIV-uninfected and 90 AHI (30 4th generation immunoassay (G)+/3rdG+/2ndG-, 30 4thG+/3rdG-/2ndG-, and 30 4thG-/NAAT+) stored plasma samples (at -80°C for up to 5 years prior to use) were selected. All samples were tested by Alere™q. Sensitivity, specificity, NPV, and PPV were calculated. NAAT was performed using APTIMA HIV-1 Qualitative Assay. Quantitative HIV-RNA (Roche Molecular Systems, Inc., Mannheim, Germany) measured from all 90 AHI samples on the day of diagnosis were retrieved from database.

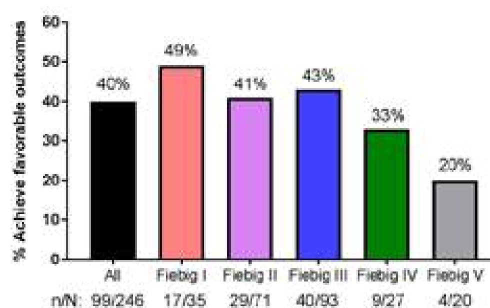
Results: Alere™q was detectable in 80/90 (88.9%) AHI samples: 29/30 (96.7%) 4thG+/3rdG+/2ndG-, 30/30 (100%) 4thG+/3rdG-/2ndG-, and 21/30 (70%) 4thG-/NAAT+ samples. Sensitivity, specificity, PPV, and NPV for AHI detection were 88.9%, 100%, 100% and 50%, respectively. Median (IQR) HIV RNA level of 10 AHI samples with undetectable Alere™q was 282 (29-40,311 copies/ml) which mainly (9/10) had HIV-RNA < $\log_{10}$ 3.40 and the other one had HIV RNA 40,311 copies/mL ($\log_{10}$ 4.61). Median (IQR) HIV RNA of 80 AHI samples with detectable Alere™q was 630,276 (165-17,515,700 copies/ml which mainly (75/80) had HIV-RNA > $\log_{10}$ 3.40).
Conclusions: Alere™q demonstrated high specificity and PPV to detect AHI from stored samples. The low sensitivity was 88.9% in our study, although could not completely exclude potential HIV RNA degradation due to storage, could be a concern if Alere™q will be used to screen for AHI. Alere™q missed one AHI cases who had HIV RNA above 2,500 copies/mL ($\log_{10}$ 3.40). More data on the sensitivity of Alere™q on real-time samples from HIV testing or PrEP facilities is needed to inform its potential role in community-based testing.

WEPDB0102

Favorable clinical phenotype reached in less than half of people treated in acute HIV infection

J. Ananworanich[1,2,3], S. Pinyakorn[1,2], A. Avihingsanon[4], J. Sophonphan[4], C. Sacdalan[5], E. Kroon[5], D. Colby[5], D. Suttichom[5], P. Prueksakaew[5], S. Ubolyam[4], R. Trichavaroj[6], M. de Souza[1,2,5], N. Michael[2], M.L. Robb[1,2], P. Phanuphak[4,5], N. Phanuphak[5],
on behalf of the RV254/SEARCH 010 and HIV-NAT 006 Study Groups
[1]The Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [2]United States Military HIV Research Program; Walter Reed Army Institute of Research, Silver Spring, United States, [3]Department of Global Health, University of Amsterdam, Amsterdam, Netherlands, [4]HIV-NAT, The Thai Red Cross AIDS Research Center, Bangkok, Thailand, [5]SEARCH, The Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [6]Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand

Background: Antiretroviral therapy (ART) in acute HIV infection (AHI) improves immune recovery. Viral load (VL) suppression, CD4 T cell count (CD4) and CD4/CD8 ratio are clinical markers for HIV-associated morbidity and mortality. There are limited data on the proportion of treated AHI individuals who attain a favorable clinical phenotype (FCP).
Methods: Analysis included data from participants in the RV254/SEARCH 010 AHI cohort in Thailand who were enrolled between 04/2009 to 06/2017 and were ART naïve at enrollment and on ART for ≥ 24 weeks. FCP was defined as fulfilling all 3 criteria:
1) VL < 20 copies/ml at all visits from week 24 onwards,
2) Last CD4 > 500 cells/mm³,
3) Last CD4/CD8 ratio > 1.
CD4, CD8 and VL were performed every 3 months. Mann-Whitney U and Fisher's exact tests were used to compare continuous and binary outcomes, respectively, between groups. Logistic regression determined factors associated with favorable outcomes.
Results: 246 AHI participants in Fiebig stages I to V were included of whom 96% were male. Baseline median (IQR) values were age of 27 (23-32) years, CD4 of 376 (267-505) cells/mm³, CD4/CD8 ratio of 0.8 (0.4-1.1), and VL of 5.8 (5.3-6.8) $\log_{10}$ copies/mL. The majority (99%) initiated efavirenz-based regimens. The median (IQR) ART duration was 3.2 (2.6-4.4) years. FCP was achieved in 40% with differences between Fiebig I and Fiebig V (p=0.046) (Figure).



[Proportions with favorable clinical phenotype after treatment]

Proportions achieving each outcome were 76% for VL suppression, 81% for CD4 > 500 cells/mm³and 59% for CD4/CD8 ratio > 1. FCP was associated with pre-ART CD4 (OR 1.27, 95% CI 1.11-1.46, p=0.001) and CD4/CD8 ratio (OR 4.31, 95% CI 2.42-7.67, p< 0.001) but not VL, age or sex. In comparison, FCP was less likely in a chronic HIV Thai cohort (25%, p =0.002) of 271 males who were older (31 years [25-37]) but had longer duration of ART (5.3 years [4.0-6.3]).
Conclusions: Despite initiating ART as early as Fiebig I/II AHI, less than half achieved favorable clinical markers of persistent viral suppression, normalized CD4 and CD4/CD8 ratio. Understanding the pathogenesis that distinguishes these clinical phenotypes may be important in improving therapy and developing remission strategies.

WEPDB0103

Increasing contribution of integrated forms to total HIV1-DNA in blood, in primary infection during natural history - ANRS PRIMO and SEROCO cohorts

P. Tremeaux[1], T. Lenfant[1], F. Boufassa[2], A. Essat[3], A. Melard[4], M. Gousset[4], O. Delelis[5], J.-P. Viard[1], M. Bary[6], C. Goujard[7], C. Rouzioux[4], L. Meyer[8], V. Avettand-Fenoel[4,9], SEROCO and PRIMO ANRS Cohorts
[1]Paris Descartes University, Paris, France, [2]Université Paris Sud, Bicetre, France, [3]Inserm CESP U1018, Bicetre, France, [4]Université Paris Descartes, Paris, France, [5]Centre National de la Recherche Scientifique UMR8113, Cachan, France, [6]AP-HP, Hôpital Bicêtre, Kremlin Bicetre, France, [7]AP-HP, Hôpital Bicêtre, Bicetre, France, [8]INSERM CESP U1018, Bicetre, France, [9]Necker Hospital, APHP, Paris, France

Background: HIV1-DNA persistence in infected cells is the main hurdle preventing eradication. Markers estimating HIV reservoir size have been mostly studied in treated patients but less in natural history. Total cell-associated HIV-DNA includes integrated forms and more labile unintegrated forms, while integrated HIV-DNA represents the most stable and productive form in infected cells. This study aimed to describe the blood dynamics over years of total HIV-DNA and integrated HIV-DNA during primary infection (PHI) and in recent to chronic infections and to AIDS, in untreated patients.
Methods: Both markers were quantified from frozen PBMC of 74 PHI patients from the ANRS-PRIMO cohort and 97 recent seroconverters (< 12 months since contamination) from the ANRS-SEROCO cohort for whom at least two cell samples were available. Total HIV-DNA and integrated HIV-DNA evolutions were modeled (mixed-effect linear models) and their predictive values were studied (Cox models).
Results: High levels of total HIV-DNA (median 3.59 $\log_{10}$ copies/10^6 PBMCs [IQR: 3.29-4.03]) were observed at PHI with low levels of integrated forms among total HIV-DNA for most patients (2.15 $\log_{10}$ copies/10^6 PBMCs [IQR: 0.95-3.16]), suggesting a major proportion of unintegrated forms in PHI. Among recent seroconverters, those who progressed towards AIDS during the study (Rapid Progressors, n=34) had higher total HIV-DNA and integrated HIV-DNA levels at inclusion compared to others (Progressors, n=63), and higher integrated/total HIV-DNA ratio (100% *vs* 44%, respectively). In multivariate analysis, integrated HIV-DNA load was strongly associated with the risk of developing AIDS (aRR=2.6, p=0.002). A total of 340 sequential samples were available. Parallel rates of increase were observed for both markers over six years follow up in Rapid Progressors and Progressors, with the highest levels observed in patients with AIDS (ratio at 100%).
Conclusions: The low contribution of integrated forms at PHI indicates that the stable reservoir is not completely established. These results may partly explain the high benefice of early treatment on total HIV-DNA, preventing its progressive increase and controlling formation of unintegrated HIV-DNA. The risk of "rapid" or "slow" progression seemed to be determined early in the course of infection, enhancing the crucial need for early diagnosis and treatment implementation.

WEPDB0104

Intermittent viremia after treatment interruption increased risk of ART resumption in post-treatment HIV-1 controllers. ANRS VISCONTI study

L. Hocqueloux[1], V. Monceaux[2], V. Avettand-Fènoël[3,4], S. Orr[5], F. Boufassa[5], O. Lambotte[6], T. Prazuck[1], P. Miailhes[7], D. Salmon[8], C. Lascoux-Combes[9], A. Lafeuillade[10], L. Meyer[5], M. Müller-Trutwin[2], C. Rouzioux[3,4], A. Saez-Cirion[2], ANRS VISCONTI Study
[1]CHR d'Orléans - La Source, Infectious and Tropical Diseases, Orléans, France, [2]Institut Pasteur, HIV Inflammation and Persistance, Paris, France, [3]CHU Necker - Enfants Malades, APHP, Virology, Paris, France, [4]Université Paris Descartes, Paris, France, [5]INSERM CESP U 1018, University Paris Sud, APHP Bicetre Hospital, Le Kremlin-Bicetre, France, [6]ImVA UMR 1184, Le Kremlin-Bicetre, France, [7]CHU de la Croix-Rousse, Service des Maladies Infectieuses, Lyon, France, [8]CHU Cochin, APHP, Service des Maladies Infectieuses, Paris, France, [9]CHU Saint-Louis, APHP, Service des Maladies Infectieuses, Paris, France, [10]Hôpital Général, Service des Maladies Infectieuses, Toulon, France

Background: Some HIV-1-infected individuals achieve durable virological remission after discontinuation of antiretroviral therapy (ART). Because remission is a major objective in the global strategy towards an HIV cure, a better characterization of this phenomenon is necessary. We report here the long-term outcome of 23 post-treatment controllers (PTC) since their enrollment in a French study.
Methods: PTC were defined as HIV-1-infected individuals who achieved viral suppression (plasma viral load [pVL] < 400 copies/ml) for at least 12 months after treatment interruption. These cases have been prospectively followed in the ANRS VISCONTI study since 2008. Intermittent viremia was defined after treatment interruption as a transient pVL >400 copies/ml, and virologic failure (VF) as 2 consecutive pVL >400 copies/ml. Inflammation markers (IL-18, sCD14, CRP, IP-10, I-FABP and sCD163) were analyzed in plasma from 11 PTC at enrollment in the VISCONTI study.
Results: Twenty-three PTC (one case of mother-to-child transmission) were included, all of whom had started ART at the time of primary-infection (PHI). Main characteristics (median or %) at PHI were: age = 34 years, sex male = 65%, Caucasian = 70%, MSM = 48%, symptomatic PHI = 87%, pVL = 5.2 log copies/ml. ART was stopped after a median 3.7 years. Thereafter, PTC were followed-up for a median 11.9 years (until last visit or ART resumption). Overall, CD4 count and CD4/CD8 ratio were stable over time. Median total HIV-DNA was 1.85 log copies/10^6 PBMC at enrollment. Intermittent viremia was noted in 7 PTC (30%). Five patients (22%) resumed ART after a median 8.6 years off-ART: four because of VF, one for a non-AIDS defining cancer. Patients who had intermittent viremia were more likely to resume ART than those without: 5/7 versus 0/16, respectively (p=0.0006). PTC without intermittent viremia presented low levels of inflammation when compared to HIV controllers or HIV-infected individuals on ART (p< 0.05 for IL-18, sCD163 and sCD14).
Conclusions: Among PTC, one third presented an intermittent viremia after treatment interruption and were at increased risk of ART resumption. By contrast, the other PTC who had tighter control of viral replication maintained their status during follow up and had close to normal inflammation levels.

WEPDB0105

Auranofin plus nicotinamide impact HIV reservoir among ART suppressed HIV individuals

L.B. Giron[1,2], J. Hunter[2], J. Galinskas[2], D. Dias[2], P.R.A. Ferreira[2], S. Tenore[2], G. Gosuen[2], S. Samer[2,3], M.S. Arif[2,4], E.D. Libera[2], A. Savarino[5], L.M.R. Janini[2], M.C.A. Sucupira[2], R.S. Diaz[2]
[1]The Wistar Institute, Philadelphia, United States, [2]Federal University of Sao Paulo, Sao Paulo, Brazil, [3]Emory University, Atlanta, United States, [4]North Western University, Chicago, United States, [5]Istituto Superiore di Sanità, Rome, Italy

Background: Multiple interventional strategies may be fundamental to decrease the size of HIV-1 reservoir along with antiretroviral therapy (ART). To measure the impact of isolated and combined strategies in decreasing total HIV-1 DNA, we investigated the effect of treatment in-

tensification with Dolutegravir (DTG) with and without Maraviroc (MVC), Nicotinamide (NA), and Auranofin. NA is a class III HDAC inhibitor with anti-lymphoproliferative effect, and Auranofin induced decay in viral DNA of ART treated SIVmac251-infected macaques.
Methods: Data from six arms of NCT02961829 with 5 patients each followed every 4 weeks for a total of 48 weeks were analyzed. Selected patients were ART suppressed for >2 years, with CD4 nadir >350. Groups were: 1) continuation of ART, 2) intensified ART (ART+DTG and MVC), 3) intensified ART and HDACi (ART+DTG+MVC+NA), 4) intensified ART and Auranofin (ART+DTG+MVC+Auranofin), 5) partially intensified ART (ART+DTG), 6) partially intensified ART (DTG)+NA+Auranofin. Auranofin was used for the first 24 weeks of the study in G4 and G6. After week 48, Total viral DNA was measured by qPCR in PBMCs and rectal biopsy tissues, this latter performed at baseline.
Results: Treatment intervention was well tolerated, and main adverse events (AE) were anxiety and sleep disorders, attributable to efavirenz/dolutegravir interaction. There were transient non-statistic significant decreases in CD4 counts at weeks 8 and 12 from baseline in auranofin groups, (week 8: -119.3 ±194.7; week 12: -187 ±210.7 cells/mL). A decrease in viral DNA was observed in G6 as compared to all other groups. (p= 0.022; Odds ratio: 9.75, 95%CL: 1.1-72.39). Intensified ART with DTG+MVC presented higher decrease in the total DNA as compared to intensified ART with DTG only (G2 vs G5, p=0014). All individuals presented undetectable viral loads throughout the study, but G1 showed a significant linear trend towards an increase of the viral reservoir (p< 0.05). There was no correlation between proviral DNA from PBMCs and rectal biopsy tissues at baseline.
Conclusions: The interim analysis of this phase II trial suggests that NA+auranofin administration in combination with intensified ART is well tolerated, and an impact on the proviral reservoir size is possible.

WEPDB02 Antiretrovirals: Pharmacokinetics and generics

WEPDB0201

TB/HIV co-treatment with super-boosted lopinavir and anti-tuberculosis treatment lowers abacavir concentration in children

H. Rabie[1], T. Tikiso[2], H. McIlleron[2], J. Lee[3], I. Andrieux-Meyer[3], M. Cotton[1], M. Lallemant[3], P. Denti[2]
[1]University of Stellenbosch,Tygerberg Hospital and Family Clinical Research Unit, Department of Pediatrics and Child Health, Cape Town, South Africa, [2]University of Cape Town, Division of Clinical Pharmacology, Cape Town, South Africa, [3]Drugs for Neglected Diseases Initiative (DNDi), Geneva, Switzerland

Background: The available data describing the pharmacokinetics and efficacy of abacavir given with super-boosted lopinavir (LPV/r plus additional ritonavir), rifampicin, and other anti-TB drugs is limited. Our objective was to compare pharmacokinetics of abacavir during treatment with standard doses of LPV/r vs. anti-TB treatment and super-boosted lopinavir.
Methods: 87 TB/HIV-infected South African children (median, range age: 2.8, 0.25-6 years; weight: 9.4, 4-16 kg) were sampled on 3 separate visits: after at least 2 weeks on TB treatment and super-boosted lopinavir during the intensive phase and end of TB treatment; and one month after TB treatment completion on standard doses of LPV/r dose without additional ritonavir. Abacavir twice-daily was co-administered throughout. All drugs were dosed according to the South African weight-band dosing recommendations. At each visit, blood samples were collected immediately before dosing and 1, 2, 4, 6, 8, and 10 hours after. NONMEM 7.3 was used to develop a population pharmacokinetic model.
Results: Abacavir pharmacokinetics was best described by a two-compartment model with first-order elimination and transit compartment absorption. Allometric scaling was used to adjust for the effect of body size, after which maturation could be identified: clearance was predicted to reach half its mature value at around 2 months after birth and to be fully mature by around 2 years of age. The typical clearance in a 9 kg child co-treated with normal dose LPV/r is estimated at 8.8 L/h. During co-administration of TB treatment with lopinavir super-boosting, a 38% decrease in bioavailability (and AUC) was found. Finally, the trough concentrations observed just before the morning dose were higher than the extrapolated values predicted 12 h after a morning dose, best explained by a 24% reduction in clearance overnight.
Conclusions: The proposed model successfully characterised the PK of abacavir, including the effect of body weight and age. Abacavir exposure was decreased by concomitant administration of rifampicin and super-boosted lopinavir. Larger trough concentrations were observed in the morning, possibly indicating circadian variation in the pharmacokinetics. Although 67 (82%) children were virologically suppressed at the end of TB treatment compared to 6 (6%) at study entry, further investigation should address whether dosing adjustments are necessary.

WEPDB0202

Efavirenz plasma exposure and immunologic outcome during anti-tuberculosis co-therapy: Role of ethnicity and pharmacogenetic variations

S. Mugusi[1], W. Amogne[2], A. Habtewold[3], E. Ngaimisi[4], G. Yimer[2], O. Minzi[4], E. Makonnene[3], F. Mugusi[5], C. Sudfeld[6], M. Janabi[7], J. Burhenne[8], E. Aklillu[9]
[1]Muhimbili University of Health and Allied Sciences, Clinical Pharmacology, Dar es Salaam, Tanzania, United Republic of, [2]Addis Ababa University, Internal Medicine, Addis Ababa, Ethiopia, [3]Addis Ababa University, Pharmacology, Addis Ababa, Ethiopia, [4]Muhimbili University of Health and Allied Sciences, Clinical Pharmacy and Pharmacology, Dar es Salaam, Tanzania, United Republic of, [5]Muhimbili University of Health and Allied Sciences (MUHAS), Internal Medicine, Dar es Salaam, Tanzania, United Republic of, [6]Harvard T.H. Chan School of Public Health, Global Health and Population, Boston, United States, [7]Muhimbili University of Health and Allied Sciences, Internal Medicine, Dar es Salaam, Tanzania, United Republic of, [8]University of Heidelberg, Clinical Pharmacology and Pharmacoepidemiology, Heidelberg, Germany, [9]Karolinska Institutet, Division of Clinical Pharmacology, Department of Laboratory Medicine, Stockholm, Sweden

Background: Efavirenz (EFV) containing antiretroviral therapy (ART) is the regimen of choice for tuberculosis (TB)-HIV co-infected patients on anti-TB therapy. Efavirenz is primarily metabolised via hepatic cytochrome P450 and has considerable interpatient variability. We investigated the role of ethnicity and pharmacogenetic variations in EFV plasma exposure.
Methods: We conducted a multi-centred prospective cohort study of TB-HIV co-infected adults with a CD4 count of < 200cells/mL in Ethiopia and Tanzania. Patients were initiated on rifampicin-based anti-TB therapy, and 4 weeks later EFV-based ART was also initiated and there patients were followed for 1 year. Efavirenz plasma concentrations were measured at 4 and 16 weeks post ART initiation. Genotyping for functional *CYP2B6, CYP3A5, ABCB1, UGT2B7* and *SLCO1B1* variant alleles was conducted.
Results: A total of 427 TB-HIV co-infected patients were included in the analysis (231 Tanzanians and 196 Ethiopians). In the sample 44% of the patients had smear positive TB and 54% of patients had a CD4 count of < 100cells/mL. Genotypic distribution of *CYP2B6* was similar between the two countries with 50% having the *CYP2B6*1/*1* genotype; however, there was a significantly larger proportion of *CYP3A5*0/*0* among the Ethiopians compared to Tanzanians (61% vs 28%).
In the sample 28% and 35% of patients had EFV levels < 1000ng/mL at weeks 4 and 16 respectively. In multivariate regression analysis, participants with *CYP2B6*1/*6* and **6*6* allele had 0.50 (95% CI:0.29-0.87) and 0.23 (95% CI:0.05-1.03) times the risk of EFV concentrations < 1000ng/mL at 4 or 16 weeks as compared to those with **1/*1* respectively. In addition, 44% of patients with both *CYP2B6*1/*1* and *CYP3A5*0/*0* had EFV < 1000ng/mL which is a 2.2 higher risk compared to those who did not have both alleles.
Conclusions: *CYP2B6* and *CYP3A5* appear to be the primary determinants of plasma EFV concentrations among TB-HIV patients. After adjustment for these alleles there was no difference in EFV concentration by country, suggesting other genetic differences may not significantly

contribute to EFV metabolism. Individual-level genotyping of *CYP* alleles is cost prohibitive in most treatment programs in Africa; however, provider knowledge of the population distribution of *CYP* alleles can help guide TB-HIV treatment in low-resourced African settings.

WEPDB0203

A randomized, open-label, balanced, two-treatment, single-dose, crossover oral bioequivalence study of Lopinavir/Ritonavir Granules 40mg/10mg with KALETRA® (Lopinavir/Ritonavir) Oral Solution 80 mg/20mg per mL in normal healthy adults under fed conditions

D. Abhijit[1], C. Santanu[1], D. Akhilesh[1], K. Umakant[1], R. Bangaru[2], A.K. Datla[2], P. Deshpande[3], A. Kanda[3], E. Patras[3]

[1]*Mylan Laboratories Limited, R&D, Hyderabad, India,* [2]*Mylan Laboratories Limited, Clinical Research Center, Hyderabad, India,* [3]*Mylan Laboratiories Limited, Business Development, Hyderabad, India*

Background: The development of pediatric fixed-dose combinations (FDCs) for all lines of therapy has become a priority to simplify dosing, increase adherence and thus improve pediatric care. The use of LPV/r oral solution is limited by taste aversion and requires special storage conditions -refrigeration. Alternative palatable oral solid formulations as granules/pellets for small children are wanted. The objective of this study was to evaluate the relative oral bioavailability and safety profiles of Lopinavir/Ritonavir Granules 40 mg/10mg (2 Sachets with 40/10mg, Mylan Laboratories Limited, India) with KALETRA® (Lopinavir/Ritonavir, AbbVie Inc.) Oral Solution 80mg/20mg/mL.

Methods: In this open label, 1:1 randomized, two-period, two-treatment, cross-over, single dose evaluation, the relative oral bioequivalence was tested in 68 healthy adult subjects under fed conditions. In each study period, a single oral dose of either test product (T) or reference product (R) was administered orally under fed conditions. Subjects were monitored for safety and tolerability until completion of the study. Serial blood samples from pre-dose 0.00 hour up to post-dose 36.00 hours were collected in each period.

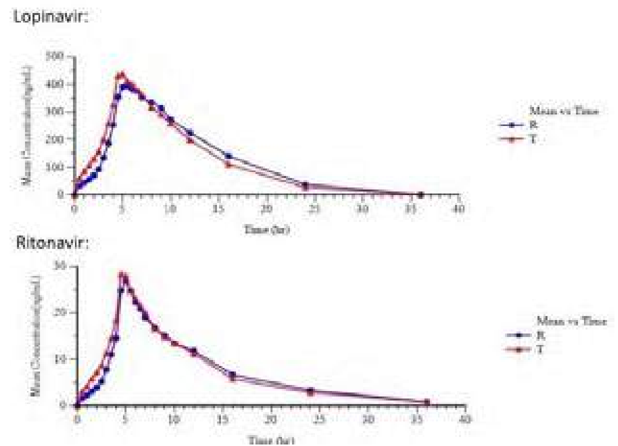
Geometric least squares mean, ratio of test product (T) and reference product (R), (T /R) , 90% confidence intervals, Intra Subject Variability (CV in %) and power (in %) for the Intransformed pharmacokinetic parameters Cmax, AUC0-t and AUC0-inf for Lopinavir and Ritonavir

Parameters (units)	Geometric Least Squares Means Test product (T)	N	Geometric Least Squares Means Reference product (R)	N	T vs. R (90% CI)	T/R (%)	Intra Subject CV %	Power (%)
	Lopinavir							
Cmax (ng/mL)	389.809	68	369.967	68	94.15-117.91	105.36	40.9	94.7
AUC0-t (ng. hr/mL)	3144.695	68	2955.001	68	94.48-119.86	106.42	43.4	92.6
AUC0-inf (ng. hr/mL)	3215.917	67	3076.989	63	92.58-117.99	104.52	43.2	91.7
	Ritonavir							
Cmax (ng/mL)	27.859	68	25.242	68	100.91-120.72	110.37	32.1	99.2
AUC0-t (ng. hr/mL)	219.562	68	201.972	68	98.53-119.94	108.71	35.4	98.1
AUC0-inf (ng. hr/mL)	226.160	68	208.668	68	98.36-119.42	108.38	34.9	98.3

[Table 1: Mean and SD of pharmacokinetic parameters estimated for test product and reference product]

Drug concentrations in plasma were quantified by using a validated method for test product (T) and reference product (R). Pharmacokinetic parameters (Cmax, AUC0-t, AUC0-inf, Tmax, Kel, t½ and AUC_%Extrap_obs) were computed using the non-compartmental model of Phoenix® WinNonlin® software version 6.3 (Pharsight Corporation, USA) for T and R. Statistical comparison of the pharmacokinetic parameters of both formulations were carried out by using PROC GLM from SAS® statistical software version 9.2 to assess the bioequivalence of T and R.

Results: The 90% confidence interval for the ratio of the test and reference product averages pharmacokinetic parameters Cmax, AUC0-t and AUC0-inf were between 80% and 125% for the ln-transformed data with respect to Lopinavir and Ritonavir.



[Linear plots of mean plasma concentration versus time curves of Lopinavir - Ritonavir after administration of test product (T) and reference product (]

Both the test and reference products were well tolerated, when administered as single dose under fed conditions.

Conclusions: Under fed conditions, the test product Lopinavir/Ritonavir Granules 40 mg/10 mg of Mylan Laboratories Limited, India was bioequivalent to the Reference product KALETRA® (Lopinavir/Ritonavir) Oral Solution 80 mg/20mg/mL of AbbVie Inc., USA, with regard to rate and extent of absorption. This new pediatric FDC could provide an easy-to-use treatment for small children.

WEPDB0204

Single-dose fed bioequivalence study of Lamivudine, TenofovirDisoproxilFumarate and Dolutegravir tablets (300mg/300mg/50mg) versus EPIVIR® tablets (300mg; ViiV-Healthcare), VIREAD® tablets (300mg; Gilead Sciences) and TIVICAY® tablets (50mg; ViiV-Healthcare) in healthy adult volunteers

D. Abhijit[1], C. Santanu[1], R. Chetan[1], G. Sachin[1], R. Bangaru[2], A.K. Datla[2], P. Deshpande[3], A. Kanda[3], E. Patras[3]

[1]*Mylan Laboratories Limited, R&D, Hyderabad, India,* [2]*Mylan Laboratories Limited, Clinical Research Center, Hyderabad, India,* [3]*Mylan Laboratiories Limited, Business Development, Hyderabad, India*

Background: Dolutegravir (DTG) is one of the most frequently used recommended antiretrovirals for the treatment of HIV in high-income countries. WHO and several national guidelines recommend DTG/3TC/TDF as an alternative first- and third-line in low-and middle-income countries. The objective of this study was to compare the relative bioequivalence and safety profile of Mylan's lamivudine, tenofovirdisoproxilfumarate and dolutegravir tablets, 300 mg/300 mg/50 mg FDC tablets (T) with the reference combination (R) of EPIVIR® (300 mg), VIREAD® (300 mg) and TIVICAY® (50mg).

Methods: In this open label, randomized, two-period, two-treatment, cross-over, single dose evaluation, the relative oral bioequivalence was tested in 33 healthy adult human subjects under fed conditions. In each period, each subject received a single, oral dose of T (Mylan's 3TC/TDF/DTG tablets) or R. Serial blood samples were collected pre-dose and at 21 timepoints until 72 hours post dose. Subjects were monitored for safety and tolerability. Single-dose pharmacokinetic parameters for FTC/TAF/DTG were calculated using non-compartmental techniques.

Results: All statistical analyses of these data reveal that the 90% confidence intervals are within the acceptable bioequivalent range of 80.00% and 125.00% for the natural log transformed parameters LNAUCL, LNAUCINF, and LNCPEAK for lamivudine, tenofovir and dolutegravir. (Table 1).

Product	Parameter	Arithmetic Mean (%CV) T= Mylan	Arithmetic Mean (%CV) R = Reference	LSMEANS Ratio (T/R)	90% Confidence Interval
3TC	AUCL (ng•hr/mL)	11648 (18.64)	11911 (18.84)	0.98	96.41% - 100.29%
3TC	AUCINF (ng•hr/mL)	12062 (19.04)	12206 (18.26)	0.99	96.94% - 101.15%
3TC	CPEAK (ng/mL)	1960 (27.94)	2064 (24.37)	0.94	88.17% - 100.59%
TNF	AUCL (ng•hr/mL)	3124 (19.55)	3107 (19.45)	1.01	98.10% - 103.80%
TNF	AUCINF (ng•hr/mL)	3311 (19.74)	3269 (19.85)	1.01	98.69% - 104.32%
TNF	CPEAK (ng/mL)	318.7 (24.99)	278.9 (20.60)	1.11	104.08% - 119.12%
DTG	AUCL (ng•hr/mL)	71099 (24.79)	70780 (26.25)	1.00	95.64% - 104.78%
DTG	AUCINF (ng•hr/mL)	74636 (25.55)	73486 (26.72)	1.01	96.51% - 105.45%
DTG	CPEAK (ng/mL)	4025 (18.75	3840 (18.14)	1.03	99.05% - 107.71%

[Table 1: Pharmacokinetic Results 3TC, TNF and DTG]

The AEs were mild in severity. Overall both R and T were well tolerated administered as a single, oral dose under fed conditions.
Conclusions: This study demonstrates that Mylan's 3TC/TDF/DTG 300 mg/300 mg/50 mg tablets are bioequivalent to a combination of EPIVIR® (300 mg), VIREAD® (300 mg) and TIVICAY® (50 mg) as separate tablets following administration of a single, oral dose administered under fed conditions.

WEPDB0205

Population pharmacokinetics of cabotegravir in adult healthy subjects and HIV-1 infected patients following administration of oral tablet and long acting intramuscular injection

K. Han[1], P. Patel[2], M. Baker[3], D. Margolis[2], W. Spreen[2], S. Ford[4]
[1]ViiV Healthcare, Upper Merion, United States, [2]ViiV Healthcare, Research Triangle Park, United States, [3]ViiV Healthcare, Münchenbuchsee, Switzerland, [4]GlaxoSmithKline, Research Triangle Park, United States

Background: Cabotegravir is an integrase inhibitor currently in Phase 3 development as an oral tablet and an intramuscular long-acting injection (LAI_{IM}) for HIV treatment and prevention. The aim was to characterize cabotegravir population pharmacokinetics (PopPK) using data from Phase 1 and 2 studies, evaluate the association of intrinsic and extrinsic factors with the variability of cabotegravir PopPK, and perform simulations to inform dosing strategies.
Methods: All analyses were implemented in NONMEM 7.3 and R. Covariate relationships were evaluated using a forward addition (p< 0.01) and backward elimination (p< 0.001) approach. Model adequacy and predictive performance was assessed using bootstrapping and visual predictive check. Clinical relevance of covariates was assessed using tornado plots. Simulations were performed using parameter estimates from the final model.
Results: A total of 12,294 cabotegravir plasma concentrations were collected from 881 healthy (44%) and HIV infected (56%) adults in 11 studies at 9 dose levels (5mg to 60mg for oral tablet; 100mg to 800mg for LAI_{IM}). LAI_{IM} was administered in 64% of the subjects. A two-compartment model with first-order oral and intramuscular absorption and elimination including inter-occasion variability adequately described the data. Clearances and volumes were scaled to body size. Relative bioavailability of the oral to LAI_{IM} formulation was >70%. Residual variability was higher following LAI_{IM} administration. Race and age were not significant covariates. LAI_{IM} absorption rate constant was lower in females, in subjects with higher BMI and if the LAI_{IM} dose was given as one single injection instead of two "split" injections. However, gender, BMI or split dose alone was associated with less than 15% of change in exposure at steady-state following oral or LAI_{IM} administration. Simulations supported dosing strategies for ongoing Phase 3 studies.
Conclusions: A robust PopPK model for cabotegravir was developed and used for simulations to support dosing recommendations for HIV treatment. Gender, BMI, and split LAI_{IM} dosing were statistically significant covariates on cabotegravir LAI_{IM} absorption, but the magnitude of their impact on cabotegravir exposures was not clinically relevant. No dose adjustment of cabotegravir is recommended based on gender, BMI or body size, split LAI_{IM} dosing, race, or adult age group.

WEPDC01 From online to IRL: Social media, sex apps and surfing to enhance cascades

WEPDC0102

Implementation and impact of a technology-based HIV risk-reduction intervention among Thai men who have sex with men using 'Vialogues': A randomized controlled trial

T. Anand[1], C. Nitpolprasert[1], J. Jantarapakde[2], R. Meksena[2], S. Phomthong[2], P. Phoseeta[2], P. Phanuphak[2], N. Phanuphak[2]
[1]Adam's Love, Bangkok, Thailand, [2]PREVENTION, The Thai Red Cross AIDS Research Centre, Bangkok, Thailand

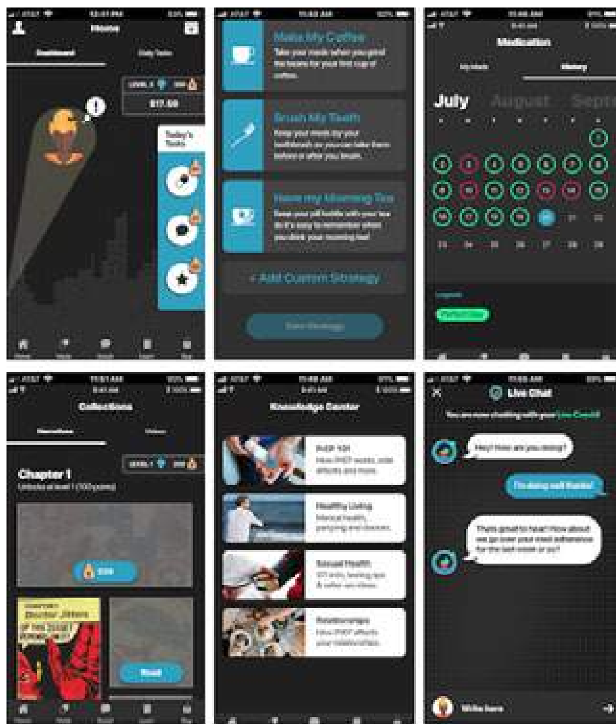
Background: To conduct a randomized control trial to evaluate the impact of a novel technology-based intervention on HIV/AIDS knowledge, self-perceived risk, condom use attitudes, self-efficacy intentions, sexual risks and condom use behaviors among Thai MSM.
Methods: The technology-based HIV risk reduction intervention was piloted by Adam's Love (www.adamslove.org). Participants aged 18 years or above, and having engaged in unprotected sex in the past six months were enrolled and randomly assigned to control or intervention arm, and received private clinic-based HIV counseling and testing at baseline, month 6 and month 12. Intervention arm participants engaged in 12 monthly HIV/STI prevention and educational sessions delivered via Vialogues.com (using online time-based videos followed by time-stamped discussions around the video content with a health educator, focusing on applying knowledge and skills learned during the session in setting long-term goals to reduce sexual risks). The differences in behavioral outcomes between the arms over the 12-month period were assessed.
Results: Of 76 MSM enrolled, 37 were randomized to intervention and 39 to control arm. Median age was 28 (IQR 24-32) years. Of 37 intervention arm participants, 33 (89.2%) completed all 12 monthly Vialogues sessions. Mean session duration was 37.45 minutes. Retention rates at month 12 among intervention and control arms were 97.3% and 79.5%, respectively. At month 12, median percentage of condom use for anal intercourse was higher in the intervention versus control arm (100% vs. 93.3%, p=0.023). Over the 12-month period, intervention arm reported significant reduction in self-perceived risk for HIV (3.08 on 5-point LIKERT scale to 2.6, p=0.001), popper usage (29.7% to 13.9%, p=0.002), seeking sex online (59.5% to 44.4%, p=0.01), median number of sexual partners in the past three months (2 to 1, p=0.003), and increased median percentage of condom use (88.9% to 100%, p=0.006). Process measures yielded high participant satisfaction of Vialogues (mean 4.67 on a 5-point scale, SD 0.48).
Conclusions: Our study provides clear evidence that 'Vialogues' intervention significantly reduced number of sexual partners and increased condom use rates among MSM. HIV program implementers are encouraged to harness the potential of free, online learning technologies used in this study.

WEPDC0103

P3 (Prepared, Protected, emPowered): Feasibility and acceptability of a PrEP adherence app featuring peer-to-peer sharing, game-based elements and in-app adherence counseling

S. Legrand[1], K. Knudtson[2], K. Muessig[3], M. Dixon[4], A. Mcgee[2], J. Dormitzer[5], R. Jackson[6], E. Adam[7], L. Hightow-Weidman[2]
[1]Duke University, Duke Global Health Institute, Durham, United States, [2]University of North Carolina-Chapel Hill, Medicine/Infectious Diseases, Chapel Hill, United States, [3]University of North Carolina-Chapel Hill, Health Behavior, Chapel Hill, United States, [4]Ayogo, Vancouver, Canada, [5]Fenway Health, Boston, United States, [6]Cook County Hospital, Chicago, United States, [7]Emory University, Atlanta, United States

Background: To date, efficacious interventions to promote and sustain pre-exposure prophylaxis (PrEP) adherence among youth are limited. Smartphone apps provide a platform to address adherence barriers by delivering tailored strategies and culturally-relevant content in an engaging format. App-based interventions that also allow for intensified interactions through direct communication with adherence counselors may improve outcomes among nonresponsive youth.
We describe the development and initial testing of a PrEP adherence app for young men who have sex with men (YMSM) and young transgender women who have sex with men (YTWSM) that includes provision of adherence counseling delivered within the app through a provider texting interface.
Methods: P3 (Prepared, Protected, emPowered) is an app built upon an established theory-based, health platform, optimized through our teams' prior work with HIV+ YMSM and with youth advisory board (YAB) members at 7 Adolescent Trials Network for HIV Interventions (ATN) sites. P3 includes interactive components to encourage peer-to-peer sharing and the development of daily medication self-monitoring behaviors. Game-based elements, including virtual and real-world rewards, based on established behavioral economics principles, incentivize engagement. Strengths-based adherence counseling delivered by a centrally-located adherence counselor via two-way text messaging through the app addresses individuals' unique barriers to PrEP adherence.
Results: Usability testing was conducted with 12 YMSM/YTWSM (mean age 20.9, 10 male), either PrEP experienced or considering, at 2 ATN sites using a clickable app prototype (screenshots presented in Figure 1).



[Figure 1. Screen Shots of the P3 app]

Most (92%) found the app highly acceptable, particularly the tailored medication reminders, the daily medication tracking with corresponding medication history calendar, and the accessibility, comprehensiveness and tone of the information provided. Youth were enthusiastic about connecting directly with an adherence counselor and provided concrete recommendations for rapport building, session duration and explicitly defining the counselors' role.
Conclusions: P3 represents, to our knowledge, the first theoretically-based PrEP adherence app for YMSM/YTWSM that includes features to increase intervention engagement (e.g. gamification, financial incentives, social connectivity) and provides in-app adherence counseling. Interventions that capitalize on technology-based platforms have great potential to encourage health promotion behaviors. A technical pilot of P3 will be conducted in Summer 2018 followed by an efficacy trial if feasibility/acceptability is achieved.

WEPDC0104

Effectiveness of community-led sex-positive campaign on HIV testing for young men who have sex with men (YMSM) in Metro Manila (MM), Philippines: TestMNL

L.-A.F.M. Lomarda[1,2], R.G. Pagtakhan[1], P.J. Tanpoco[1]
[1]LoveYourself Inc., Mandaluyong City, Philippines, [2]APCOM, Bangkok City, Thailand

Background: In a predominantly Catholic country like the Philippines, HIV prevention campaigns use stigma and fear to educate the public about HIV. There is an absence of sex-positive HIV prevention efforts in the Philippines that use internet and social media to engage YMSM. This campaign is an attempt to leverage on online platforms to drive sex-positive HIV prevention efforts while engaging YMSM. Due to the concentration of HIV infections in MM, this campaign is focused on young gay men (18-24 years old) who regularly seek out male sexual partners online.
Description: In 2015, TestBKK has been a successful campaign in Thailand to encourage YMSM to get tested for HIV. LoveYourself, a community-based LGBT organization, partnered with APCOM to test the effectiveness of this sex-positive HIV prevention model in the Philippines. After a series of focus group discussions, LoveYourself and APCOM adapted TestBKK's simple, clear, and easy-to-remember slogan to encourage YMSM to get tested for HIV: "SUCK. F*#K. TEST. REPEAT". The campaign is promoted in campaign websites, social media, gay networking apps, and offline events.
The campaign reached 46,910 individuals to learn about HIV testing in MM via www.TestMNL.org; 18,369 individuals were tested for HIV (38.25% are YMSM); and 1,343 turned positive (7.31%). On social media, TestMNL created 79,934+ views on campaign videos on Facebook and YouTube, 7,642 Facebook likes, and 3,155 Twitter followers.
Lessons learned: Partner clinics of TestMNL reported an average increase in HIV testing of 62.05% compared to previous months the year before. Meetings with community groups, clinical partners, private partners and YMSM also reported the effectiveness of the campaign in their engagements on the importance of sexual health promotion, creating a shift to a more sex-positive environment in the gay community in MM. Formative assessment is essential to determine the type, tone, theme, and approach of campaign that will work.
Conclusions/Next steps: The campaign concludes the need for more community-led sex-positive campaigns that will educate YMSM about their sexual health, and encourage them to get tested for HIV. Scale up of the program is needed to provide more opportunity to develop new campaign messages that address key barriers to HIV continuum of care.

WEPDC0105

Internet-based self-testing model - "Easy Test": A cross-sectional survey targeting MSM who never tested before in 14 provinces of China

X. Jin[1], D. Xiao[2], X. Xiu[1], Z. Ding[1], Y. Zhang[1], Y. Jie[1], Y. Liao[1], H. Wu[3], N. Cao[4], B. Shepherd[5], J. Vandenhombergh[5], Y. Bao[1]
[1]AIDS Healthcare Foundation (AHF), AHF China Office, Beijing, China, [2]Tongzhi Welfare, Beijing, China, [3]Beijing Youan Hospital, Beijing, China, [4]Hospital of Dermatology, Chinese Academy of Medical Sciences & Peking Union Medical College, Nanjing, China, [5]AIDS Healthcare Foundation (AHF), Los Angeles, United States

Background: HIV prevalence among men who have sex with men (MSM) increased rapidly from 2006 to 2016 in China. While about half of MSM have never been tested HIV, even though facility-based HIV testing sites had been greatly scaled up by public health services. With the country's explosive internet growth, MSM often socialize and search for casual sexual partners through online activity, cellular phone applications and social media. To reach an MSM community whose members rarely access traditional, offline testing facilities, innovative and convenient HIV testing models are urgently required.
Methods: An Internet-based Self-testing Model ('Easy Test') was developed by AIDS Healthcare Foundation (AHF) to provide free online applications with instructed testing from October to December 2017 in 14 Chinese Provinces. Clients were required to complete a questionnaire and pay a $5 deposit when applying for a blood-based HIV test. Upon uploading an image of the client's test result to the online applications, the deposit would be refunded. For clients with an HIV-positive result, a one-on-one accompanied referral was provided for further status confirmation and medical services.
Results: A total of 879 MSM applied a self-testing test kit and completed the questionnaire. Of the total tested, 78% (683/879) of clients provided feedback of their test results, of which 52% (352/683) had never before been tested for HIV. HIV prevalence was 14% (98/683) with 72% (71/98) of those found positive linked and enrolled in treatment. For all testers, the median age was 28 years (IQR, 24-34 years); Han ethnicity (92%); single (74%); college-educated and above (69%); monthly income between $450-$750 US dollars (51%). Of those never tested before, 37% (108/295) reported seldom or never using condoms during anal sex in the past three months. Reported condom use during most recent anal intercourse was 76% (266/352), and of those, 48% (128/266) failed to consistently use condoms during the entire process of anal intercourse.
Conclusions: The online 'Easy Test' model is an innovative, effective remedial measure for high-risk MSM who are reluctant to be HIV tested at stationary facilities. It effectively increases access to HIV treatment services for HIV-positive MSM in China.

WEPDC0106

From online reach to offline services: Using social media strategies to increase uptake of and access to HIV testing among MSM in Vietnam

T.T. Tran[1], K. Green[1], V.D. Nguyen[2], N.B. Vu[1], T.T. Nguyen[3], T.T. Doan[4], M.T. Le[5], M.T. Ngo[6]
[1]PATH, Ha Noi, Vietnam, [2]PATH, Ho Chi Minh City, Vietnam, [3]KOL, Ho Chi Minh City, Vietnam, [4]Lighthouse, Ha Noi, Vietnam, [5]G-Link, Ho Chi Minh City, Vietnam, [6]USAID, Ha Noi, Vietnam

Background: Rates of HIV are increasing among the estimated 330,000 men who have sex with men (MSM) in Vietnam. Face-to-face outreach only reaches a fraction of at-risk MSM. A 2015 USAID/PATH Healthy Markets (HM) study found that 98% of MSM surveyed across four provinces regularly used Facebook, and preferred social media as a source of HIV and health information. HM and MSM leaders co-created a fun, sex-positive HIV prevention and service awareness, trust, and uptake campaign—"My Future, My Choice"—that utilized a Facebook community (Rainbow Village), online influencers trained as HIV lay testers, and an HIV service booking application (I Reserve), to allow for a measurable online-to-offline HIV testing-treatment cascade.
Methods: Three techniques were applied to characterize the online-to-offline cascade in Ho Chi Minh City (HCMC) and Hanoi from 2016-2017 (18 months):
1) an online Facebook user survey;
2) a rapid survey assessing MSM self-reported motivation for HIV testing when they presented for an HIV test;
3) results from online peer influencers and I Reserve app, applying an HIV testing-treatment cascade analysis.
Results: By December 2017, Rainbow Village had over 232,000 members; 88% were aged 25 or over and 70% were HCMC/Hanoi residents. The Facebook user study (n=424) found 50% of respondents visited Rainbow Village at least once a week, 75% were not in contact with HIV outreach workers/peers, and 38% self-assessed at substantial HIV risk. The rapid survey on primary HIV testing motivators (n=3,989) found that 35% stated online content as the reason for testing, 8% of whom tested HIV-positive—compared to 5% of those motivated by face-to-face peer interactions/referrals. Among 2,454 people reached by online peer influencers or the I Reserve app, 73% tested, 11% of whom were HIV-diagnosed and enrolled in treatment (100%). This compares to an overall 6% HIV positivity yield among MSM seeking HIV lay or self-testing.
Conclusions: Online interventions effectively reach MSM who may never be contacted through conventional face-to-face peer outreach, and are more effective in reaching higher risk MSM. Online strategies should be further scaled and adapted alongside face-to-face interventions to reach more diverse segments of at-risk MSM.

WEPDC0107

Online supervised HIV self-testing identified high HIV yield among Thai men who have sex with men and transgender women

J. Jantarapakde[1], K. Himmad[1], T. Sungsing[1], S. Promthong[1], W. Waiwinya[1], P. Meekrua[2], S. Sukthongsa[2], S. Hongwiangchan[3], N. Upanun[4], D. Trachunthong[1], S. Barisi[1], S. Jirajariyavej[5], S. Charoenying[6], S. Mills[6], R. Vannakit[7], M. Cowing[8], S. Buchbinder[8], N. Phanuphak[1]
[1]The Thai Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand, [2]Service Workers in Group Foundation, Bangkok, Thailand, [3]Rainbow Sky Association of Thailand, Bangkok, Thailand, [4]Sisters Foundation, Chonburi, Thailand, [5]Taksin Hospital, Bangkok, Thailand, [6]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [7]Office of Public Health, U.S. Agency for International Development Regional Development Mission Asia, Bangkok, Thailand, [8]The Foundation for AIDS Research (amfAR), New York, United States

Background: Online technology has high potential to enhance access to HIV counseling and testing among members of key populations whose HIV status is undiagnosed. We evaluated HIV-positive/reactive rates and confirmed successful linkage to antiretroviral treatment (ART) among MSM and TGW in an implementation research study ('Online Supervised HIV Self-Testing') in Thailand.
Methods: During December 2015-June 2017, MSM and TGW self-selected to enroll into 1 of 3 groups:
1) clinic-based HIV testing and counseling (Offline group);
2) online pre-test counseling and clinic-based HIV testing (Mixed group); and
3) online pre-test counseling and supervised HIV self-testing (Online group).
Linkage to ART was provided immediately after HIV-positive/reactive test results were known. Online retention and support were provided to the Mixed and Online groups only. Sociodemographic data, beliefs and experiences around stigma and discrimination related to HIV and/or being MSM or TGW, sexual and drug use behaviors, perceived barriers and facilitators for access to HIV testing were collected by self-administered questionnaires. Factors associated with unsuccessful linkage to ART were identified using binary logistic regression method.
Results: Of 564 participants (465 MSM and 99 TGW), 200 selected the Offline group, 156 selected the Mixed group, and 208 chose the Online group. Mean (±SD) age was 27.9 (7.2) years. Baseline HIV-positive/reactive result was higher in the Offline (13.0%) and Online (14.4%) groups, compared to the Mixed group (3.2%), p=0.001. Linkage to ART, however, was least successful in the Online group (52.8%), compared to the Offline (83.9%) and Mixed (75.0%) groups, p=0.02. Being in the Online

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group (aOR=8.54, 95%CI 1.08-67.59, p=0.04), aged < 17 years at first sex (aOR=13.16, 95%CI 1.62-107.08, p=0.02), and having single partner (aOR 12.61, 95%CI 1.52-104.9, p=0.02) increased risk for unsuccessful linkage to ART. Stigma and discrimination experiences did not reduce the chance of successful ART linkage.
Conclusions: Offering online supervised HIV self-testing successfully engaged MSM and TGW with high HIV-reactive yield into HIV testing service. Linking clients tested HIV-reactive online to come out for offline HIV confirmation and ART initiation proved to be a real challenge. Innovative methods to support transition of these clients from online to offline services are urgently needed.

WEPDC02 Sex and drugs: Ongoing syndemics in the PrEP and treatment era

WEPDC0201

Syndemics predict bio-behavioral HIV sexual transmission risk (TRB) longitudinally in US HIV clinics

S. Satyanarayana[1], S.A. Safren[1], B.G. Rogers[1], S.A. Bainter[1], K.A. Christopoulos[2], R.J. Fredericksen[3], W.C. Mathews[4], R.D. Moore[5], M.J. Mugavero[6], S. Napravnik[7], M.J. Mimiaga[8], K.H. Mayer[9], H.M. Crane[3]
[1]*University of Miami, Psychology, Coral Gables, United States,* [2]*University of California, San Francisco, United States,* [3]*University of Washington, Seattle, United States,* [4]*University of California, San Diego, United States,* [5]*Johns Hopkins University, Baltimore, United States,* [6]*University of Alabama at Birmingham, Birmingham, United States,* [7]*University of North Carolina at Chapel Hill, Chapel Hill, United States,* [8]*Brown University, Providence, United States,* [9]*Harvard University, Boston, United States*

Background: Syndemic conditions are co-occurring psychosocial conditions that interact synergistically to exacerbate the risk for HIV transmission. Little is known about the role syndemics play in HIV transmission risk in resource-rich clinic settings. While antiretroviral therapy (ART) is key to treatment-as-prevention, to attain the 90-90-90 goals for HIV control, HIV care clinics will likely need to identify individuals most in need of psychosocial interventions. Syndemics could potentially aid providers in identifying these individuals.
Methods: Data were obtained from 15,739 HIV-positive individuals receiving care through the Centers for AIDS Research Network of Integrated Clinical Systems (CNICS) at seven US sites between July 2000 and April 2017. Syndemic conditions (substance abuse, at-risk drinking, depression, anxiety) and sexual risk behaviors were collected using validated instruments through patient-reported outcomes completed at clinical visits at least 6 months apart. Because sexual orientation data were only available for some of the sample, sexual risk groups were classified iteratively by examining self-identified sexual orientation and then sexual behaviors depending on sex of partner(s) and sex acts. Using multilevel modeling, we modeled time, number of syndemic conditions, and HIV risk group as predictors of bio-behavioral transmission-risk behavior (TRB; condomless anal or vaginal sex while virally detectable [HIV RNA>400]) with a partner of negative or unknown status.
Results: Between-person and within-person effects of syndemics on TRB emerged. Patients who, on average, had more syndemics had greater odds of engaging in TRB, such that each syndemic condition endorsed increased the odds by 1.61 (OR=1.61; 95%CI=1.51, 1.72). Additionally, within individuals, each additional syndemic condition endorsed at any given time point resulted in 1.75 odds greater of engaging in TRB (OR=1.75; 95% CI = 1.52, 2.02). Compared to females (referent), heterosexual males had 41% lower odds of engaging in TRB (OR=0.59; 95%CI=0.43,0.80). There were no other risk-group differences.
Conclusions: Across risk groups, identifying syndemics via patient-report-outcome measures in HIV clinics is feasible. Integrating the treatment of syndemic conditions with approaches to promote sexual and behavioral health in HIV clinic settings carries potential for reducing the number of new infections via TRB.

	Overall
N	15,739
Age (mean (sd))	43.64 (10.81)
Gender (%)	
Cisgender Female	2,733 (17.4)
Cisgender Male	12,880 (81.8)
Transgender Female	114 (0.7)
Transgender Male	12 (0.1)
Risk Group (%)	
Cisgender Female	2,733 (17.4)
Transgender Female	114 (0.7)
Cisgender Heterosexual Male	1,193 (7.6)
Cisgender MSM	5,397 (34.3)
Cisgender Male (Sexual Orientation Unknown)	6,290 (40.0)
Transgender Male	12 (0.1)
Race (%)	
White	8,578 (55.7)
Black	5,772 (37.5)
American Indian	130 (0.8)
Asian / Pacific Islander	372 (2.4)
Multiracial	87 (0.6)
Other	457 (3.0)
Hispanic = yes (%)	2,069 (13.2)

[Summary of Demographics]

WEPDC0202

Correlates of benzodiazepine and opioid co-prescription among people living with HIV in British Columbia, Canada

S. Parent[1], S. Nolan[2,3], N. Fairbairn[2,3], M. Ye[1], A. Wu[4], J. Montaner[1,3], R. Barrios[1,5], L. Ti[1,3], STOP HIV/AIDS Study Group
[1]*British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada,* [2]*British Columbia Centre for Substance Use, Vancouver, Canada,* [3]*University of British Columbia, Department of Medicine, Vancouver, Canada,* [4]*British Columbia Centre for Excellence in HIV/AIDS, Canada, Canada,* [5]*Vancouver Coastal Health, Vancouver, Canada*

Background: The co-prescription of opioids and benzodiazepines is relatively contraindicated due to possible overdose risk. However, people living with HIV (PLWH) may have concurrent psychiatric or chronic pain diagnoses that require the use of either opioids or benzodiazepines for symptomatic treatment. Consequently, some PLWH may be at-risk for the health harms associated with the co-prescribing of these medications. Given this, the objective of this study was to characterize patient factors associated with the co-prescribing of opioids and benzodiazepines among PLWH in British Columbia (BC), Canada.
Methods: Using data derived from the Seek and Treat for Optimal Prevention HIV/AIDS in BC cohort, we used bivariable and multivariable generalized estimating equation models to establish the prevalence of a concurrent opioid and benzodiazepine co-prescription and determine factors associated with this practice.
Results: Between April 1996 and February 2015, a total of 14 484 PLWH were included in the study. A total of 3835 (26.5%) participants were prescribed both medications at least once during the study period. At baseline, 45.5% were prescribed opioids only, 19.9% were prescribed benzodiazepines only, and 30.8% were prescribed neither medication. A concurrent opioid and benzodiazepine prescription was independently and positively associated with depression/mood disorder (adjusted odds ratio [AOR]=1.32, 95% confidence interval [CI]: 1.22-1.43) and anxiety disorder (AOR= 1.45, 95%CI: 1.27-1.66), whereas female sex (AOR=0.76, 95%CI: 0.64-0.91) and substance use disorder (SUD) (AOR=0.82, 95%CI: 0.74-0.90) were negatively associated with the outcome.

Characteristic	Unadjusted Odds Ratio (95% Confidence Interval)	Adjusted Odds Ratio (95% Confidence Interval)
Sex (male vs female)	0.78 (0.67-0.90)	0.76 (0.64-0.91)
Age at baseline (10 years)	1.16 (1.11-1.22)	1.11 (1.04-1.18)
Calendar year (10 years)	0.73 (0.68-0.79)	0.65 (0.59-0.72)
Depression/mood disorder (no vs yes)	1.47 (1.37-1.57)	1.32 (1.22-1.43)
Anxiety (no vs yes)	1.48 (1.33-1.66)	1.45 (1.27-1.66)
Substance use disorder (no vs yes)	0.95 (0.88-1.03)	0.82 (0.74-0.90)
Charlson comorbidity index	1.08 (1.06-1.10)	1.09 (1.07-1.11)
CD4 cell count (100 cells/mm3)	1.00 (0.98-1.03)	1.02 (1.00-1.05)
Viral load (log10 copies/ml)	1.04 (1.02-1.07)	1.03 (1.00-1.07)

[Bivariable and multivariable generalized estimating equation analyses of factors associated with opioids and benzodiazepiness co-prescription]

Conclusions: Our findings indicate that co-prescription of opioids and benzodiazepines was seen in a high proportion of patients. Concurrent prescription was positively associated with anxiety and depression/mood disorder, but negatively associated with being female and presence of a SUD. These findings hint towards groups to target for prevention of harms stemming from co-prescription. However, given the risks associated with co-prescribing and the common comorbidities among PLHIV where these medications may be indicated, careful consideration should be taken prior to co-prescribing. Future research should seek to further explore co-prescription practices in order to determine their appropriateness in these circumstances.

WEPDC0203

When sex, drugs and violence overlap: Assessing the syndemic and synergistic effects of intimate partner violence, crystal methamphetamine, and depression on HIV sexual risk among women who inject drugs

C. Stoicescu[1], L.D. Cluver[1], R. Ameilia[2]
[1]University of Oxford, Social Policy & Intervention, Oxford, United Kingdom, [2]University of Indonesia, Department of Criminology, Depok, Indonesia

Background: Women who inject drugs are disproportionately affected by concomitant intimate partner violence (IPV), depression and substance use. Little is known about the synergistic effects of these conditions on women's HIV risk in low- and middle-income countries. The Perempuan Bersuara study assessed additive and interactive effects of syndemic health conditions on HIV risk in Indonesia's largest sample of drug-using women.

Methods: 731 women aged ≥18 years and injecting drugs in the preceding year were recruited from Jakarta and Bandung using respondent-driven sampling. Logistic regressions and marginal effects models tested associations and predicted probabilities of exposure to depression, IPV and crystal meth on 3 sexual risk outcomes. Additive interaction was assessed using relative excess risk due to interaction (RERI), attributable proportion due to interaction (AP) and synergy index (S).

Results: Prevalence of concurrent exposure to IPV, crystal meth and depression was 26%. Relative to the absence of these conditions, simultaneous exposure to all 3 increased rates of HIV risk: STI symptomatology (from 12% to 60%), inconsistent condom use (from 3% to 22%), and survival sex (from 6% to 25%). Additive interaction was detected between: (a) IPV x crystal meth on inconsistent condom use (AP=0.38,p< 0.05), such that 38% of inconsistent condom use among women reporting IPV and crystal meth was attributable to the interaction between these exposures; (b) depression x crystal meth on STI symptomatology (RERI=2.04,p< 0.001; AP=0.61,p< 0.001) and survival sex (RERI=1.20,p< 0.01; AP=0.53,p< 0.01), meaning that 61% of STI symptoms and 53% of survival sex participation among women reporting depression and crystal meth use was attributable to interaction between those exposures; and IPV x depression on STI symptomatology (RERI=3.01,p< 0.01; AP=0.52,p< 0.001; S=2.70,p< 0.01) and survival sex (RERI=1.21,p< 0.05; AP=0.40,p< 0.05), suggesting the joint effect of IPV and depression resulted in a 3-fold increase in STI symptoms and 1.2x increase in survival sex compared to each exposure's main effect.

Conclusions: This study provides new empirical evidence showing the syndemics of IPV, depression and crystal meth interact synergistically to heighten HIV risk among women who inject drugs. Interventions that consider the full scope of syndemic vulnerabilities, rather than addressing individual afflictions separately, are essential.

WEPDC0204

Combination prevention for women who use alcohol in South Africa: Outcomes from the Women's Health CoOp Plus Study in Pretoria, South Africa

W. Wechsberg[1], W. Zule[1], C. van der Horst[2], C. Peasant Bonner[1], J. Ndirangu[3], F. Browne[1], T. Kline[4], B. Howard[1], N. Rodman[5]
[1]RTI International, Substance Use, Gender & Applied Research, Durham, United States, [2]UNC School of Medicine, Chapel Hill, United States, [3]RTI International, Substance Use, Gender & Applied Research, Washington, United States, [4]RTI International, Statistics and Epidemiology, Durham, United States, [5]RTI International, Research Computing Division, Durham, United States

Background: Women who use substances, are at heightened risk for HIV but have been largely ignored by HIV primary and secondary prevention efforts. They are also more likely to experience gender-based violence (GBV) and sexual risk, with many reporting sex work - increasing their HIV risk and decreasing their access to HIV care and antiretroviral (ARV) adherence. The purpose of this study was to determine the efficacy of voluntary HIV counseling and testing (HCT) compared to the Women's Health CoOp (WHC+; 2 sessions) a gender focused prevention package to reduce substance use, GBV, sexual risk, and increase linkage to HIV care and adherence for women; hypothesizing that the WHC+ will report less substance use, GBV, sexual risk and more ARV adherence.

Methods: This NIH cluster randomized trial recruited 641 Black African women (Mean age = 29.9 SD = 0.31 from 2013-2016) across the 14 geographic zones in Pretoria. Women completed interviews, drug, alcohol, pregnancy and HIV screening at baseline, 6- and 12-months in both arms with over 90% follow-up. CD4 tests were added to assist clinical staging in linkage to local clinics. Dried blood spots were obtained for viral load (VL) testing from a subset of women who were HIV positive.

Results: Over 90% of women completed the study. Multiple and logistic regression using robust standard errors to account for clustering at the zone level and controlling for sex work and HIV status revealed that women in the WHC+ arm were less likely to report frequent heavy drinking (p< .001); physical beating by boyfriend (p< .001); and reported more protected condom use (p< .03) with main partner at 6-month follow-up compared to those in the HCT arm. Of those linked to HIV treatment, 81% of participants in the WHC+ arm reported adhering to their ARVs compared to 65% of participants in the HCT arm (p=.07). There was a relationship between reduced heaving drinking and ARV adherence.

Conclusions: The WHC+ combination prevention was found efficacious reducing intersecting risks, linking women who tested HIV+ to care and helping with adherence. It could have further impact with booster sessions after 6 months with larger implementation.

WEPDC0205

Behavioral activation integrated with sexual risk reduction counseling for high-risk MSM with crystal methamphetamine dependence: An initial randomized controlled trial

M. Mimiaga[1,2,3], D. Pantalone[3,4], K. Biello[3,5], J. White Hughto[3,6], J. Frank[2,5,7], C. O'Cleirigh[3,8], S. Reisner[9,10,11], A. Restar[5,7], C. Santostefano[7], K. Mayer[3,12], S. Safren[3,13]

[1]Brown University, Providence, United States, [2]Brown University School of Public Health, Department of Psychiatry and Human Behavior, Providence, United States, [3]The Fenway Institute, Boston, United States, [4]University of Massachusetts, Department of Psychology, Boston, United States, [5]Brown University School of Public Health, Department of Behavioral & Social Health Sciences and Epidemiology, Providence, United States, [6]Yale University School of Public Health, Department of Epidemiology, New Haven, United States, [7]Brown University, Center for Health Equity Research, Providence, United States, [8]Harvard Medical School/Massachusetts General Hospital, Department of Psychiatry, Behavioral Medicine Service, Boston, United States, [9]Boston Children's Hospital, Division of General Pediatrics, Boston, United States, [10]Harvard Medical School, Department of Pediatrics, Boston, United States, [11]Harvard T.H. Chan School of Public Health, Department of Epidemiology, Boston, United States, [12]Harvard Medical School/Beth Israel Deaconess Medical Center, Department of Infectious Diseases, Boston, United States, [13]University of Miami, Department of Psychology, Coral Gables, United States

Background: Men who have sex with men (MSM) continue to be the largest risk group for HIV infections in the U.S., where crystal methamphetamine abuse heightens risk for HIV infection through greater engagement in condomless anal sex (CAS). One potential contributor to the intractability of existing crystal methamphetamine treatments may be a lack of attention to replacement activities or the role of depressed mood. Behavioral activation (BA) is an evidence-based approach for depression that involves identifying and participating in pleasurable, goal-directed activities. The hypothesis was that, for MSM abusing crystal methamphetamine, re-learning how to engage in non-drug-using aspects of life would facilitate their ability to benefit from sexual risk reduction (SRR) counseling.

Methods: Project IMPACT was a pilot randomized controlled trial. Forty-six MSM at sexual risk of acquiring HIV who met DSM-IV criteria for crystal methamphetamine dependence were enrolled. Of those MSM, 41 were randomized: 21 were assigned to the intervention, consisting of two sessions of SRR, ten sessions of BA with SRR, and one session of relapse prevention (13 sessions total); 20 participants were assigned to a control condition (two sessions of SRR).

Results: At the acute post-intervention visit, intervention participants reported an average of 3.2 CAS acts with men who were HIV-infected or whose status they did not know, compared to 4.5 among control participants (=-0.36;95%CI:-0.69,-0.02;p=0.035). At the 6-month post-intervention visit, intervention participants reported 1.1 CAS acts with men who were HIV-infected or whose status they did not know compared to 2.8 among control participants (=-0.95;95%CI:-1.44,-0.46;p< 0.0001). Similarly, intervention participants reported 1.0 CAS acts under the influence of crystal methamphetamine with men who were HIV-infected or whose status they did not know compared to 2.5 among control participants (=-0.87;95%CI:-1.38,-0.36;p=0.0005). Lastly, intervention participants reported more continuous days abstaining from crystal methamphetamine compared to control (50.1 vs. 39.0, respectively) (=0.25;95%CI:0.16,0.34;p< 0.0001).

Conclusions: Findings are encouraging, provide evidence of feasibility (98% retention at 6 months) and acceptability (93% of counseling sessions attended; all participants rated the intervention as "acceptable" or "very acceptable"), and demonstrate initial efficacy for reducing sexual risk for HIV and crystal methamphetamine use. Future testing in a fully-powered efficacy trial is warranted.

WEPDC0206

Association between syndemics (of alcohol and drug use, and violence) and HIV-related sexual risk among men who have sex with men in India: Findings from a large-scale national bio-behavioural survey

V. Chakrapani[1], P.V.M. Lakshmi[1], P. Kumar[2], V. Srinivas[2]

[1]Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India, [2]National AIDS Control Organisation (NACO), New Delhi, India

Background: Despite more than a decade of HIV prevention interventions among men who have sex with men (MSM) in India, consistent condom use is suboptimal (about 50%). Syndemics theory states that multiple co-occurring psychosocial health problems could synergistically increase negative outcomes (e.g., HIV risk). We examined whether syndemic conditions such as alcohol use, drug use (including injecting drug use), and violence victimisation contribute to HIV-related sexual risk among MSM.

Methods: We used data from a national Integrated Bio-Behavioural Surveillance (IBBS), a cross-sectional survey among 23,081 MSM recruited through probability-based sampling from 24 states in India. We used three syndemic indicators:

1) alcohol use (at least once in the past week);
2) drug use (including injectable drugs in the past year); and
3) violence victimisation (physical and/or sexual violence in the past year).

Inconsistent condom use in anal sex ('sexual risk') was assessed by how frequently condoms were used in the past month ('every time' coded as consistent; the rest as inconsistent). Logistic regression was used predict to predict inconsistent condom use with three syndemic indicators and their interaction terms (alcohol use x drug use x violence victimisation).

Results: Participants' mean age was 27.6 years (SD 7.4). Most had completed secondary school, and 37% had paying partners. Prevalences of alcohol use, drug use, and violence victimisation were 48.8%, 11.1% and 24.7%, respectively. With the interaction terms of 3 syndemic conditions in the model (Table 1), alcohol use (aOR = 1.09,
p< .01), drug use (aOR = 1.26, p< .001), and violence victimisation (aOR = 1.46, p< .001) were found to significantly predict inconsistent condom use. Further, the interaction terms of the three syndemic indicators were also significant and positive in sign, indicating the synergistic effect of co-occurring syndemic conditions in heightening the sexual risk.

Conclusions: Syndemic conditions are highly prevalent and synergistically increase sexual risk among MSM. While HIV prevention interventions that address one or two of these syndemic conditions (alcohol and drug use, and violence victimisation) could reduce sexual risk, integrating interventions that jointly screen for and address syndemics, in addition to routine condom promotion interventions, could substantially reduce sexual risk among MSM.

Variables	Syndemic variables + Interaction terms	
	B (S.E.)	aOR (95% CI)
Syndemic indicators		
Syndemic indicator 1: Alcohol use - **A**	.08 (.03)	1.09* (1.01, 1.17)
Syndemic indicator 2: Drug use - **D**	.36 (.13)	1.43** (1.09, 1.88)
Syndemic indicator 3: Violence victimisation - **V** (sexual and/or physical)	.38 (.05)	1.46*** (1.30, 1.64)
Interactions terms of 3 syndemic indicators		
A x D x V	.48 (.23)	1.62*** (1.02, 2.57)
A x V	.01 (.08)	1.01 (.86, 1.19)
A x D	-.13 (.15)	.87 (.64, 1.19)
D x V	-.24 (.20)	.78 (.52, 1.16)
Constant	-.04 (.06)	.95
Note. Adjusted for age, education, marital status and sexual identity (kothi, panthi, double-decker and bisexual). Age, education, and sexual identity were statistically significant. *p <.05, **p <.01, ***p<.001		

[Table 1. Multivariable logistic regressions: Sexual risk regressed on syndemic indicator variables and their interaction terms (N = 23,801 MSM) *inconsistent condomm use in the past month with any type of male partners]*

WEPDD01 Occupy the epidemic: Economic inequality and HIV

WEPDD0101

Examining the socioeconomic gradient in viral suppression in Malawi

L. Sithole[1], A. Palma[2], D. Payne[3], E. Kim[3], C. West[3], M. Nzima[4], G. Bello[5], MPHIA Study Team

[1]National AIDS Commission, Planning, M&E and Research, Lilongwe, Malawi, [2]Columbia University, ICAP, New York City, United States, [3]Center for Diseases Control, Lilongwe, Malawi, [4]UNAIDS, Lilongwe, Malawi, [5]Ministry of Health, Lilongwe, Malawi

Background: Achieving viral suppression is associated with better health outcomes for people living with HIV. Studies in some countries have revealed socioeconomic disparities in viral suppression. Due to lack of valid measures of socioeconomic status, most studies construct wealth indices based on household asset variables often collected in population-based surveys. There are, however, multiple techniques for constructing a wealth index and there is lack of consensus regarding which technique is superior. This study examined the socioeconomic gradient in viral suppression in Malawi, checking robustness of results to choice of method for constructing the wealth index.

Methods: The Malawi Population-based HIV Impact Assessment (MPHIA) was a nationally representative survey conducted in Malawi in 2015-2016. Among 17,187 adults aged 15-64 who were interviewed and tested for HIV using the national algorithm, 2227 (13%) tested HIV positive, and 2220 (99.7%) of these had a viral load test performed. The Erreygers Index (EI) for income-related health inequality was computed for viral suppression under three scenarios based on statistical procedures for deriving the wealth index: Standard Principal Components Analysis (PCA), Multiple Correspondence Analysis (MCA) and Uncentered Principal Components Analysis (UPCA). All analyses were adjusted for the survey's complex design using jackknife replicated weights. These weights were also applied to calculation of viral suppression rates within the quintiles.

Results: Across the PCA and MCA scenarios, viral suppression rates appear to slightly increase monotonically from lowest to the highest wealth quintile while in the UPCA scenario, viral suppression rates vary only marginally and non-monotonically across the quintiles. On the other hand, the EI for viral suppression using the standard PCA wealth index was statistically insignificant (EI value= 0.0120; p-value= 0.2860). The EI for the MCA and UPCA indices were also not statistically significant (EI values= .00743 and -0.0204; p-values of 0.5128 and 0.0860 respectively).

Conclusions: Based on the inequality index used in this study, there were no substantial differences with respect to the socioeconomic gradient in viral suppression across the three scenarios, which implies there are no socioeconomic disparities in viral suppression among PLHIV in Malawi. This result is robust to choice of method for constructing the asset index.

		PCA	MCA	UPCA
Viral suppression rates across wealth quintiles	Lowest	15.44%	15.85%	21.91%
	Second	16.64%	16.81%	18.42%
	Middle	18.8%	20.02%	20.67%
	Fourth	22.23%	21.83%	18.84%
	Highest	26.89%	25.49%	20.16%
Socioeconomic disparities	EI	0.012	0.00743	-0.0204
	p-value	0.286	0.5128	0.086

[Socioeconomic Gradient in Viral Suppression in Malawi]

WEPDD0102

Food insecurity is common and associated with unsuppressed viral load in HIV-infected pregnant women in Kenya

K. Ronen[1], L. Osborn[2], B. Khasimwa[2], B. Chohan[2,3], D. Matemo[2], J. Unger[1], A. Drake[1], J. Kinuthia[2,4], G. John-Stewart[1]

[1]University of Washington, Seattle, United States, [2]Kenyatta National Hospital, Nairobi, Kenya, [3]Kenya Medical Research Institute, Nairobi, Kenya, [4]University of Nairobi, Nairobi, Kenya

Background: Viral suppression in HIV-infected pregnant women is essential to elimination of mother-to-child transmission. Limited data exist on the impact of food insecurity on viral suppression in pregnant women. We evaluated prevalence of food insecurity and its association with viral suppression among pregnant women in Kenya.

Methods: We conducted a cross-sectional analysis of enrollment data from a trial evaluating mHealth strategies to improve ART adherence (Mobile WAChX, NCT02400671). Participants were age ≥14, HIV-infected, pregnant and had daily access to a mobile phone. Participants were recruited from 6 public MCH clinics in Nairobi and Nyanza region. Self-report questionnaires and plasma viral load (VL) were collected. Viral suppression was defined as VL < 1000 copies/ml among women on ART ≥6 months. Food insecurity, depression and social support were assessed using the Household Food Insecurity Access Scale (HFIAS), PHQ9 and MOS respectively. HFIAS scores were categorized per instrument guidelines and dichotomized into secure/mildly-insecure versus moderately/severely-insecure. Correlates of food insecurity were assessed by univariable Poisson regression with robust standard errors.

Results: Eight-hundred twenty-five women were enrolled, of whom 820 had complete data for this analysis. Median age was 27 (IQR 23-31), gestational age was 24.3 weeks (18.3-29.6), monthly income was 8000 KSh (~80 $US). Women had a median of 2 (1-2) living children and 695 (84.3%) were married/cohabiting. Overall, 336 (41.0%) were food secure, 72 (8.8%) mildly insecure, 179 (21.8%) moderately insecure, and 233 (28.4%) severely insecure. Prevalence of moderate/severe insecurity was associated with older age (RR 1.02, 95%CI 1.01-1.03, per year), lower income (RR 0.95, 0.94-0.97, per $10 increase), more children (RR 1.17, 1.12-1.22, per child), ≥mild depression (RR 1.64, 1.44-1.86), and lower social support (RR 0.81, 0.76-0.86, per 1-point increase on 4-point scale). Of 442 women on ART ≥6 months, 385 (87.1%) were virally suppressed. Moderate/severe food insecurity was associated with unsuppressed VL (RR 1.88, 1.10-3.22).

Conclusions: Our findings suggest that approximately half of pregnant HIV-infected women in Kenya experienced moderate or severe food insecurity. Food insecurity was significantly associated with older age, lower income, more children, lower social support, depression and unsuppressed VL. Nutrition assistance may be useful to support viral suppression in pregnant women.

WEPDD0103

The impact of homelessness in achieving viral suppression among extremely low-income HIV-infected women living in a well-resourced US city: A longitudinal perspective of overlapping risks

E.D. Riley[1], E. Vittinghoff[2], K.A. Christopoulos[1], A. Clemenzi-Allen[1], S.E. Dilworth-Johnson[1], C.A. Koss[1], A.W. Carrico[3]

[1]University of California, Medicine, San Francisco, United States, [2]University of California, Epidemiology and Biostatistics, San Francisco, United States, [3]University of Miami, Department of Public Health Sciences, Miami, United States

Background: Current best practices and high-impact interventions focus on retention in care and ART adherence to improve HIV outcomes. Simultaneously, research consistently indicates non-clinical conditions due to poverty as predictors of clinical outcomes. We considered social, structural and clinical factors as predictors of unsuppressed viral load (VL) in a community-recruited cohort of homeless and unstably housed women living with HIV/AIDS (HUH-WLWHA). The study was conducted in San Francisco, a well-resourced US city where unsuppressed VL among HIV-infected persons is estimated to be 12-28%.

Methods: Using three years of biannual data, paired with electronic VL data from routine clinical care, we estimated the odds of unsuppressed VL (HIV RNA >200 copies/ml) between 2008 and 2012. Time periods before/after the introduction of universal ART (1/1/10) were considered. Time-dependent covariates included homelessness, food insecurity, incarceration, insurance, outpatient visits, case management, polysubstance use and violence (emotional, physical, sexual), all evaluated 0-3 months before VL assessments. Logistic models with robust standard errors were used to assess the associations of covariates with detectable VL.
Results: Among 120 HUH-WLWHA, 508 VL assessments were analyzed (median=3/patient; IQR=2-6). Median baseline age was 47 and 72% of participants reported non-Caucasian race/ethnicity. Unsuppressed VL was observed among 60% of participants during follow-up and 19% were unsuppressed at all visits. In adjusted longitudinal analysis, the odds of unsuppressed VL increased 11% for every 10 nights homeless (OR=1.11, p< 0.001) and were over 4-fold higher among recently incarcerated women (OR=4.46, p< 0.001). Adjusting for substance use, odds were also 3-fold higher among participants experiencing recent sexual violence by someone who was not a primary intimate partner (OR=3.10, p=0.009).
Conclusions: In a city where 72-88% of HIV-infected persons have undetectable viremia, only 40% of HUH-WLWHA remain undetectable for three years. Homelessness, incarceration, sexual violence and drug use increase the odds of unsuppressed VL over time; other social/structural factors and healthcare do not. Current best practices and high-impact interventions do not address the root of the problem for impoverished WLWHA in a resource-rich setting. Considered alongside prior research, results suggest multi-component interventions that prioritize housing as being critical to optimizing health outcomes in this high-risk population.

WEPDD0104

Unstable housing associated with injection risk behaviors among PWID in Ukraine

A. Mazhnaya[1,2], J. Owczarzak[1]
[1]Johns Hopkins School of Public Health, Department of Health, Behavior and Society, Baltimore, United States, [2]ICF Alliacne for Public Healtj, Treatment, Kyiv, Ukraine

Background: In Eastern Europe and Central Asia new HIV infections occur at a high rate among people who inject drugs (PWID). Moreover, PWID account for most hepatitis C (HCV) cases in EECA. Injection risk behaviors are considered to be a product of 'risk environment' which includes socioeconomic factors, such as housing. There has been, however, limited attention towards exploring association between PWID's housing situation and injection risk behaviors in Ukraine which has HIV prevalence 21-42%, and 60% HCV prevalence among PWID.
Methods: This study is based on a data from a baseline survey of PWID (n = 684) recruited to participate in a behavioral HIV prevention intervention in 4 urban settings across Ukraine. Using poisson regression model we estimated independent association between housing situation (stable vs. unstable) and injection risk behaviors within last 30 days controlling for age, sex, city, drug of choice and education.
Results: : Participants who reported unstable housing also reported more injection risk behaviors within last 30 days, including using old syringe (33% vs. 10%, p-value < 0.001), sharing cooker/cotton/water (25% vs. 15%, p-value 0.1), front/backloading (73% vs. 62%, p-value 0.1), using preloaded syringe (64% vs. 48%, p-value 0.06). In multivariable analysis having unstable housing was associated with almost 2-fold increase in using needles/syringes after someone or sharing injecting equipment (cooker, cotton, water) within last 30 days (prevalence ratio (PR) 1.91, 95% CI 1.14-3.20).
Conclusions: Understanding and addressing structural context associated with injection risk behaviors should be part of research and intervention agenda to fight HIV and HCV in Ukraine. National programs would benefit from expanding models to include structural determinants of health.

WEPDD0105

Displacement, urban gentrification and declining access to HIV/STI, sexual health and outreach services amongst women sex workers between 2010-2014: Results of a community-based longitudinal cohort

S. Goldenberg[1,2], O. Amram[3], M. Braschel[1], S. Machat[1], K. Shannon[1,4], on behalf of the AESHA Study Team
[1]Gender and Sexual Health Initiative, BC Centre for Excellence in HIV/AIDS, St. Paul's Hospital, Vancouver, Canada, [2]Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada, [3]Washington State University, Elson S. Floyd College of Medicine, Spokane, United States, [4]University of British Columbia, Faculty of Medicine, Vancouver, Canada

Background: Despite increasing gentrification across North American cities, little is known about its impacts on work and living environments and health access amongst sex workers (SWs). Using a spatial epidemiological approach, we
(1) explored changes in land use and work/living environments in relation to gentrification exposure, and
(2) modeled the independent effect of gentrification exposure on utilization of HIV/STI testing and sexual/reproductive health (SRH) and SW-tailored services.
Methods: Data were drawn from a community-based longitudinal cohort of SWs (AESHA) and publically available land use data. Analysis was restricted to 2010-2014, given legal changes in December 2014. Changes in land use and SWs' residential and working environments were mapped for the pre-gentrification (2010) vs. gentrification (2014) periods. Using a before-and-after design, confounder modeling with multivariable logistic regression using generalized estimating equations (GEE) assessed the independent effect of gentrification exposure on utilization of HIV/STI testing and SRH and SW-led/tailored services. Analyses were restricted to 203 SWs who participated in both study periods; spatial analyses were further restricted to those who provided data on work/residential locations.
Results: In the Downtown Eastside (DTES) and Strathcona neighborhoods, major shifts away from industrial/commercial land use towards residential, newly built housing were observed. Increases in the distance between the DTES core and SWs' place of residence (547 vs. 764 meters, p=0.03) and servicing clients (528 vs. 1894 meters, p=0.06) were found; shifts away from street/public (72.9% vs. 30.5%) towards online/off-street solicitation (15.8% vs. 28.6%, p< 0.001) were also documented. In separate multivariable GEE models adjusted for key confounders, gentrification exposure was correlated with reduced utilization of HIV (AOR:0.33, 95%CI: 0.21-0.51) and STI testing (AOR:0.39, 95%CI: 0.26-0.61), and use of SRH (AOR:0.36, 95%CI: 0.23-0.56) and SW-led/tailored services (AOR:0.43, 95%CI: 0.25-0.75).
Conclusions: Observed decreases in use of HIV, STI, SRH and SW-tailored services occurred despite ongoing efforts to scale-up HIV cascade interventions for key populations in BC, Canada. Results suggest these declines may be linked to gentrification-related displacement of SWs from areas where services for key populations are concentrated. Health and housing policies that promote marginalized women's access to safe working/living environments and investment in SW-led and SW-friendly health and social services are critically needed.

WEPDE01 Keeping it up: National ownership and financial sustainability

WEPDE0101

Lessons learned from sustained global health investments

A. Downer[1], J. Johnstone[1], M. McDowell[1], E.M. Reyes[2]
[1]University of Washington, Global Health, Seattle, United States, [2]University of California, Global Health Institute, San Francisco, United States

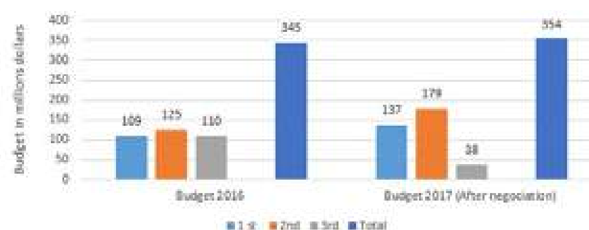
Background: There is emerging evidence to support those factors in global development that are related to successful transition and sustainability of aid investments. At the 15 year mark, the scale and scope of the the US President's Emergency Plan for AIDS Relief (PEPFAR) program provides ample opportunity to explore these factors and to confirm or identify those that can be incorporated early in project design to increase the sustainability of investments.
Description: The International Training and Education Center for Health (I-TECH) at the University of Washington in Seattle, USA, has been a PEPFAR partner since 2002. I-TECH has transitioned more than 300 programs, products, and tools to local ownership in that time. In 2017, I-TECH undertook to explore the degree to which a sub-set of these improvements have been sustained by local partners over time. Case examples were selected on the basis of geographic diversity, type of intervention, and sufficient time from transition to make an assessment. Key informants were interviewed, and the four domains and 15 elements of the PEPFAR Sustainability Index Dashboard (SID) were used to provide a framework and starting point for better understanding each example.
Lessons learned: Case studies were drafted on transitioned interventions in six resource limited countries to illustrate lessons learned on the long-term sustainability of health systems improvements, including both successes and failures. The cases reinforce the relevance of the SID in planning for sustainability, in particular the elements of advanced planning and coordination (1); human resources for health (7); quality management (9); domestic resource mobilization (11); and performance data (15). In addition, we found the actions of the implementing partner during transition to be a critical component.
Conclusions/Next steps: While aid investments in low and middle income countries can clearly be transitioned successfully to local ownership, they may not remain beneficial over time unless key elements of sustainability planning are intentionally addressed at the outset. Such lessons learned are instructive to a wide set of global audiences, from health and development specialists, government officials, economists, and social scientists to diplomats and security professionals worldwide. As such, lessons should be regularly disseminated.

WEPDE0102

How it was possible to offer Integrase Inhibitor as first line ART while maintaining the sustainability of the Brazilian policy of universal access to drugs

C.J.B. Batista[1], R.G. Corrêa[2], E. Malheiros[2], M.D.A. Freitas[2], A.S. Benzaken[2]
[1]Ministry of Health, STI/AIDS and Viral Hepatitis, Brasília, Brazil, [2]Ministry of Health, Brasília, Brazil

Background: Brazilian antiretroviral therapy is free and offered to 100% by Federal Government. In December 2016, about 500,000 people were on antiretroviral therapy (ART) and it was estimated that 100,000 new patients would be included in 2017. The Brazilian protocol recommended EFZ/TDF/3TC regimen as first line ART, and Integrase Inhibitors (II) as rescue therapy (Raltegravir - RAL 400 mg). As a result of the advances in international studies about the benefits of incorporating II in first line ART,
the Brazilian government initiated the negotiations to offer II, even considering the impossibility of generic drugs acquisition due to patent laws.
Methods: With an annual budget of approximately 350 million dollars to purchase antiretroviral drugs, the objective of the government was to offer II without significantly increasing the budget. Therefore, two strategies were used: a) price negotiation through bidding processes for the two II options available in Brazil (DTG 50mg and RAL 400mg) - only one of these would be included in the guidelines as a preferential first line drug and the same medication would be indicated for rescue regimens; b) reorganization of the guideline drug portfolio, including the removal of obsolete drugs and recommendations on switching patients to the new regimens.
Results: In 2016, treatment cost with available II in Brazil was US 8.8 dollars/day; the negotiation allowed a reduction to US 1.50/day - purchase of DTG. DTG was then included in the guidelines as the preferential drug for first line ART; switching RAL to DTG as rescue regimens was also recommended. In relation to the portfolio reorganization, the following were excluded: Fosamprenavir, Didanosine, Stavudine, and Saquinavir as well as the change in the recommendation of Atazanavir as the preferential drug for second line ART. These actions permitted ART procurement for 2017, including DTG, without significantly increasing the budget, as shown in Figure I.



[Figure I: Comparison of budget used to purchase ARV per line of ART in the years of 2016 and 2017, Brazil.]

Conclusions: The strategies used by Brazil proved advantageous and made it possible to offer a better antiretroviral treatment without significant budget changes.
Even with the increase in cost with the first and second lines, the economy generated in the third line was decisive for the expansion of the use of II.

WEPDE0103

Cost of HIV care and treatment in Mozambique

A. Berruti[1], A. Krivelyova[2], F. Mbofana[3], D. Single[4], A. Vergara[4]
[1]U.S. Centers for Disease Control and Prevention, Division of STD Prevention/NCHHSTP, Atlanta, United States, [2]ICF, Atlanta, United States, [3]Mozambique Ministry of Health, Maputo, Mozambique, [4]U.S. Centers for Disease Control and Prevention, DGHT, Atlanta, United States

Background: In 2016, approximately 990,000 adults and 76,000 children in Mozambique were receiving antiretroviral therapy. This study quantified costs of HIV treatment and care of different patient groups incurred in publicly funded HIV treatment facilities.
Methods: We collected data on the costs of the HIV treatment program, volume, and types of patients being treated. Data were collected retrospectively for two 6-month periods during 2016. Costs were categorized by source of support, type of expenditure, and program activity. Analyses focus on: total per-patient costs, cost across categories, and costs over time. Per-patient cost calculation was based on resource use intensity and allocation of costs across different patient categories.
Results: The median economic cost per patient-year was $96.73 (2017 USD) for ART patients and $22.09 for pre-ART patients. Costs were higher for newly initiated adult and pediatric patients compared to established patients. ARVs cost a median of $67.07 for ART patients, the largest single cost component for these patients. With ARVs excluded, laboratory services constituted the most substantial cost category for ART and pre-ART patients, at a median of $11.10 and $10.82, respectively. No substantial investments were made over the study period in equipment, training, or infrastructure. Per-patient cost comparisons across different types of facilities revealed lower costs in rural facilities ($88.13 versus $115.49 and $109.33 in peri-urban and urban facilities, respectively). Costs were higher in secondary level facilities ($121.07 versus $85.65 and $99.33 in primary and tertiary facilities, respectively). Analysis of costs by patient volume indicated that some economics of scale were present with larger facilities having smaller per patient costs.

Conclusions: Treatment costs varied widely between facilities, reflecting differences in the clinical models used, intensity of services, and types of drugs provided. While the costs of antiretroviral drugs may still dominate the cost per-patient, personnel and laboratory supplies costs are not insignificant. The study results indicate that HIV services can be optimized as the number of patients grows without substantial increases in investment. Under the test and start model, this study demonstrates that efficiency can be achieved if more patients start treatment, and this will in turn improve allocative efficiency.

WEPDE0104

Building sustainable HIV service delivery model at a local level in Ukraine

O. Iaremenko, A. Vasylkova, L. Khomych, N. Avaliani, N. Davydenko, M. Makovetska
USAID Project HIV Reform in Action, Deloitte, Kyiv, Ukraine

Background: In 2018, Ukraine remains the second highest-burden HIV epidemic country in Europe, with an estimated 241,000 people living with HIV/AIDS (PLWH). The significant financial dependence on external donor resources (67.41% of total HIV funding) threatens the sustainability of critical HIV services provision in the near future. As donor funding for HIV programming continues to decline in middle-income countries, Ukraine needs to revise its national HIV/AIDS response strategy and funding allocations, and optimize current service delivery models.
Description: Between February 2016 and December 2017 the USAID-funded HIV Reform in Action Project supported 14 local state administrations in 7 high-burden regions of Ukraine in developing and piloting a sustainable model for provision and scale-up of critical HIV services for PLWH and key populations.
The key components of the sustainable model include:
(1) advocacy for increased local funding for HIV rapid testing and social services;
(2) removal of policy and legal barriers to service provision by local government and NGOs;
(3) introducing new financing models for local state administrations;
(4) decentralization and integration of HIV services, and
(5) optimizing human resources for community-level service delivery.
To facilitate the pilot, we established mechanisms to coordinate efforts across regional and local authorities, primary and secondary level health care providers and civil society service providers.
Lessons learned: Local level advocacy efforts resulted in strengthening partnerships between government and civil society in HIV service delivery and increased 14 local budgets for HIV response from $225K in 2015 to $1.96M in 2017. Bridging local policy gaps in provision of HIV services at primary healthcare centers (PHCs), education and the local resource allocation allow to 10-fold increase in the number of HIV rapid testing sites at PHCs, with a 6-fold increase in the quantity of HIV rapid tests procured with local budgets. Thirty five new opioid substitution therapy (OST) sites were opened, with an increase of 536 people who inject drugs receiving OST services (compared to 2015).
Conclusions/Next steps: Pilot results and a replication plan are being shared with local state administrations beyond the pilot regions to fast-track comprehensive, integrated and sustainable HIV response at a national level.

WEPDE0105

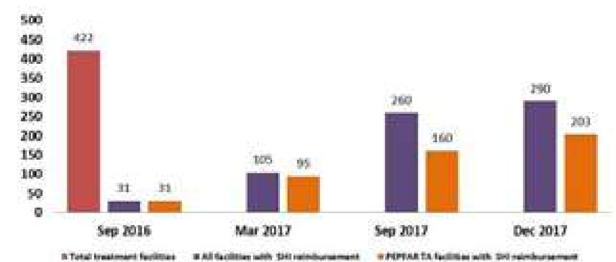
Sustainable financing of the HIV response in Vietnam: Integration of donor funded treatment facilities into public health system and the social health insurance scheme

H.T. Nguyen[1], H.T. Nguyen[1], A.T.C. Nguyen[2], H. Pham[1], A.N. Le[1], L. Dam[1], D. Nguyen[1], N. Todini[1], N.T. Do[3], H.T.T. Phan[3], T.M. Hammett[1]
[1]USAID/Health Finance and Governance Project, Abt Associates, Hanoi, Vietnam, [2]USAID Hanoi, Vietnam, Hanoi, Vietnam, [3]Vietnam Administration of HIV/AIDS Control, Ministry of Health, Hanoi, Vietnam

Background: As international donors reduce support for the HIV response in Vietnam (currently ~70%) and many other countries, the Government of Vietnam (GVN) is implementing a unique and innovative transition strategy: strengthen domestic governance and financing by integrating donor-funded HIV treatment facilities into the public health system with coverage of services through an expanded Social Health Insurance (SHI) scheme. Implementing partners of PEPFAR, including the Health Finance and Governance (HFG) project, have been providing technical assistance in support of this transition since 2015.
Description: HFG provides technical assistance to the Vietnam Administration of HIV/AIDS Control (VAAC) and other departments of the Ministry of Health (MoH), Vietnam Social Security (VSS), and 9 provinces including Hanoi and Ho Chi Minh City, the two provinces with the highest HIV burden. Beneficiaries include >51,000 ART patients (~46% of the total in Vietnam) in 115 treatment facilities. Technical assistance at national level includes: development of an integration monitoring tool and ongoing assessment of transition progress. HFG assists provinces and treatment facilities to achieve key integration steps of SHI contracting and reimbursement, and expansion of SHI coverage among PLHIV. The table and graph show the dramatic integration progress in the 9 HFG-supported provinces and the predominant contribution of PEPFAR TA to national progress on SHI reimbursement for HIV services. SHI coverage among ART patients in the 9 HFG supported provinces increased from 36% in 2016 to73 % in 2017.
Lessons learned: Multi-sectoral and multi-level technical assistance on integration of parallel systems of HIV treatment and expansion of population and service coverage of SHI can achieve remarkable progress in the transition from predominantly donor-funded to locally-funded and operated HIV responses.
Conclusions/Next steps: In Vietnam, full integration will only be completed when all HIV treatment services including viral load testing and ART are covered and reimbursed by SHI (expected to start in 2018 for VL testing and in 2019 for ART) and all PLHIV are enabled to obtain SHI through appropriate subsidies. PEPFAR and HFG will continue to provide TA to GVN at all levels to achieve these objectives, which will in turn help Vietnam achieve the 90-90-90 goals.

Indicators	Baseline (December 2015) (n/%)	December 2016 (n/%)	December 2017 (n/%)	Expected June 2018 (n/%)
HIV treatment facilities with SHI contracts	0	47/109 (43%)	83/115 (72%)	106/115 (90%)
HIV treatment facilities with SHI reimbursement	0	24/109 (22%)	70/115 (61%)	93/115 (81%)

[Integration progress in HFG-supported provinces]



[PEPFAR TA contribution to SHI reimbursement for HIV services]

WEPDE0106

PEPFAR's Sustainability Index and Dashboard: Results from SID 3.0

C. Hart, M. Ruffner, J. Timberlake, M. Wollmers
US Department of State/PEPFAR, Washington, United States

Background: The achievement of sustained control of the HIV epidemic is a critical goal for individuals, communities, and governments. However, defining sustainability and measuring progress over time has proved challenging. PEPFAR's Sustainability Index and Dashboard (SID) defines critical elements that contribute to sustainability, and enables its users to assess the current state of national HIV/AIDS responses while identifying strengths and vulnerabilities over time. After its third iteration, SID 3.0 provides results that reveal important insights into common challenges and advances across countries.

Description: SID 3.0 was implemented in 40 countries in 2017 through a participatory process. PEPFAR country teams worked with UNAIDS country directors to convene partner governments, multilateral and bilateral donor organizations, civil society organizations, private sector partners, and PEPFAR country staff. These stakeholders completed the 90-question SID tool to assess sustainability across 15 elements organized into four domains.

Lessons learned: The results of SID 3.0 demonstrate that countries are making progress towards a sustainable response to the epidemic. When analyzed by income level, low income countries generally scored lower than middle income countries on SID elements related to national health systems. Additionally, differences were observed by type of PEPFAR support, with technical assistance and technical collaboration countries generally performing better than long-term strategy countries. Among thirteen PEPFAR partner countries that are poised to reach epidemic control, scores from SID 2.0 (2015) to SID 3.0 (2017) increased significantly, by an overall average of 0.40 points (from 5.97 to 6.37, on a 0.00-10.00 scale) across all elements.

Conclusions/Next steps: PEPFAR has designed an original index that enables important cross-country comparisons that highlight which critical variables support advancement of sustainable systems to control the HIV epidemic. The SID provides essential data used to determine health systems investments and metrics to track the impact of those investments over time. Its regular implementation leads to results that in combination with epidemiologic data yield valuable insights about the most efficient path to sustained epidemic control. At the country level, the SID framework orients national stakeholders to their sustainability strengths and challenges, and facilitates informed decisions about where to target effort and resources to respond to the HIV epidemic more efficiently.

WEDNESDAY 25 JULY

Poster Exhibition

Systemic immune activation and inflammation

WEPEA001

High-resolution metabolomics analysis of plasma and stool reveals marked differences in metabolism in adults with chronic, untreated HIV infection versus uninfected controls: A pilot study

T.R. Ziegler[1], K. Uppal[1], C. Ma[1], S. Mann[2], S. Serrano-Villar[3], N.S. Utay[4], T. Sainz[5], Z.-M. Ma[6], P. Troia-Cancio[2], A. Gewirtz[7], R.B. Pollard[2], C.J. Miller[6], A. Landay[8], D.M. Asmuth[9]
[1]Emory University, Atlanta, GA, United States, [2]University of California Davis Medical Center, Sacramento, CA, United States, [3]University Hospital Ramon y Cajal, Madrid, Spain, [4]University of Texas Houston Medical Center, Houston, TX, United States, [5]University Hospital La Paz, Madrid, Spain, [6]University of California Davis, Davis, CA, United States, [7]Georgia State University, Atlanta, GA, United States, [8]Rush University, Chicago, IL, United States, [9]University of California Davis Medical Center, Internal Medicine - Infectious Diseases, Sacramento, CA, United States

Background: High-resolution metabolomics (HRM) enables comprehensive evaluation of small-molecule metabolism in health and disease. In this pilot study, we hypothesized that whole-body (plasma) and gut-specific (stool) differences in metabolism would be evident using HRM in HIV-positive adults naive to ART versus HIV-negative controls.
Methods: Plasma (n=27 individuals) and stool (n=29) samples were available for HRM analysis from 32 ART-naive adults. Plasma (n=4) and stool (n=6) samples were available from 6 HIV-negative subjects similar in age and lifestyle. HRM was performed using hydrophilic interaction liquid chromatography (HILIC)-mass spectrometry (MS) for plasma and C18 LC-MS for stool analysis. Significant plasma and stool metabolites differentially expressed between groups were identified using Linear Models for Microarray Data analysis (LIMMA), followed by 2-way hierarchical clustering analysis (HCA) for data visualization. Differences in endogenous metabolic pathways were identified using the Mummichog pathway analytic package.
Results: In plasma, 11391 specific metabolites were identified, with 696 metabolites different between HIV-positive and HIV-negative ($P< 0.05$). Of these, 413 metabolites were increased and 283 decreased in HIV+ subjects vs. controls, respectively. HCA showed clear metabolite separation between the two groups. Significant differences between groups were seen in plasma Vitamin D3, Vitamin E, Vitamin B3 (niacin), histidine, linoleate, butanoate, carnitine shuttle, and squalene and cholesterol biosynthesis metabolic pathways. Stool HRM revealed 7135 specific metabolites, with 480 metabolites different between HIV-positive and HIV-negative subjects. Of these, 327 metabolites were increased and 153 decreased in HIV+ subjects vs. controls. HCA showed clear separation between groups. Stool pathway analysis showed significant differences in C21-steroid hormone biosynthesis/metabolism, glycerophospholipid metabolism, carnitine shuttle, and TCA cycle metabolism.
Conclusions: HRM analysis of plasma revealed marked differences in systemic metabolism of essential vitamins, histidine, and several lipid metabolic pathways in adults with HIV infection versus controls. Stool HRM revealed differences between groups in steroid hormone and phospholipid metabolism, and in pathways related to energy metabolism (carnitine shuttle and TCA cycle). Analysis to determine the specific metabolites within these pathways, their directionality and correlations with immune and inflammation biomarkers is underway. This data and approach have promising potential to differentiate the diverse effects of HIV on multiple systems.

WEPEA002

SIV-infected African green monkeys avoid disease progression through maintenance of the mucosal barrier integrity and prevention of intestinal dysfunction

K. Raehtz[1], G. Haret-Richter[1], C. Xu[1], B. Policicchio[1], A. Valentine[2], W. McFadden[2], E. Brocca-Cofano[1], A. Trichel[2], E. Falwell[1], F. Barrenas[3], B. Keele[4], J. Estes[4], I. Pandrea[1], C. Apetrei[1]
[1]University of Pittsburgh, Center for Vaccine Research, Pittsburgh, United States, [2]University of Pittsburgh, Pittsburgh, United States, [3]University of Washington, Department of Microbiology, Seattle, United States, [4]NCI-Frederick, AIDS and Cancer Virus Program, Frederick, United States

Background: Unlike HIV infection in humans, SIV infection of the African green monkey (AGM), a natural host of SIV, is generally nonpathogenic, with no disease progression, despite life-long viral replication. Lack of disease progression was reported to rely on the ability of SIV-infected AGMs to maintain gut integrity and avoid microbial translocation (MT), thereby preventing systemic immune activation and chronic inflammation. Yet, to date, maintenance of gut mucosal integrity in AGMs has never been proven. Our goal was to investigate the early events that may lead to the lack of disease progression in AGMs, particularly the impact of SIVagm infection on the gut mucosa.
Methods: Twenty-nine adult male AGMs were intrarectally infected with plasma containing 10^7 copies of SIVsab92018 and serially sacrificed at key time points of acute SIV infection: preramp, ramp-up and peak viremia, and early chronic SIV infection. Immunohistochemistry (IHC) was performed on histologically prepared sections of the gut and peripheral LNs for markers of immune activation, apoptosis, epithelial damage and microbial by-products. Qualitative and software-based quantitative analysis was used to assess changes in the tissues during acute and early chronic infection. Viral loads and plasma cytokine levels were also measured over the course of infection.
Results: AGMs did not display any significant increases in apoptosis of either mucosal enterocytes or lymphocytes and sustained virtually no damage or breakage of their mucosal epithelium. Little to no increases of immune activation or inflammation were observed in the gut mucosa postinfection, along with a strong but transient interferon-based response. No increase in the translocation of either microbes or microbial by-products across the mucosal barrier was detected.
Conclusions: We directly confirm, for the first time, that natural hosts preserve the integrity of their gut epithelium during the early stages of infection. These data corroborate our previous results demonstrating a superior mucosal healing capacity of the SIVagm infected AGMs. Preservation of the gut architecture in natural host limits immune activation and inflammation of the gut mucosa in response to infection. This prevents the increases in MT, and thus the generalized chronic immune activation and inflammation that drive disease progression in pathogenic infections.

WEPEA003

Unique plasma secretome of apolipoproteins in HIV-1-infected patients with two decade long successful antiretroviral therapy

M. Sperk[1], A. Sönnerborg[2], P. Nowak[2], U. Neogi[1]
[1]Karolinska Institutet, Department of Laboratory Medicine, Stockholm, Sweden, [2]Karolinska Institutet, Department of Medicine, Stockholm, Sweden

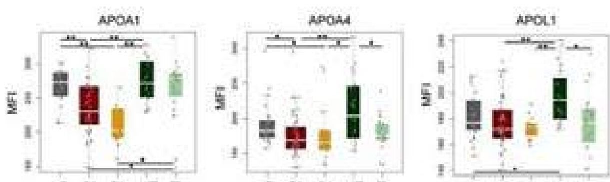
Background: Soluble plasma biomarkers could be useful to understand HIV-1 pathogenesis as they provide insights into ongoing immune responses. The effects of long-term successful combination antiretroviral therapy (cART) and the linkage between levels of plasma biomarkers remain unclear. The aim of this study is to assess the host plasma secretome by affinity antibody array from HIV-1-infected patients on successful long-term cART (>15 years) and compare it with individuals with different HIV-1 disease progression and healthy controls.
Methods: Plasma samples were obtained from five categories of individuals; elite controllers, who are able to control viral replication without ART (EC, n=19), treatment-naïve patients with viremia in primary infection

(PHI, n=15) or in chronic stage of HIV-1 infection (CHI, n=40), patients on long-term cART (cART, n=19) median (IQR) 19 (17-20) years and HIV-1-negative persons (HC, n=24) and were analyzed using antibody bead array targeting 380 plasma proteins. Only 92 could be detected and were used for statistical analyses.

Results: Among the factors members of apolipoproteins (ApoA1, ApoA4, ApoL1) showed distinct characteristics in patients both with chronic and primary HIV-1 infection and normalized to the healthy state following long-term cART (Figure 1). Apolipoprotein levels were significantly higher in individuals on long-term cART compared to PHI ($p< 0.001$ for ApoA1 and ApoL1, $p=0.019$ for ApoA4) and CHI ($p\leq0.001$) and to some extent also compared to EC ($p=0.011$ for ApoL1, $p=0.034$ for ApoA4). No difference was seen between HC and EC for any of them.

Conclusions: Our data indicates that HIV-1 infection impaired the apolipoproteins that coordinate lipid metabolism and transport of lipids at the very early stages of infection. However they normalize to a healthy level following cART. The level of ApoL1, which plays roles in lipid exchange and transport and reverse cholesterol transport from peripheral cells to the liver, is high in most of the cART patients.

As plasma ApoL1 levels correlated positively with plasma triglycerides and total cholesterol, cART patients are at high risk of lipid disorders that increases the risk of cardiovascular diseases and diabetes. In addition to its role in lipid metabolism, ApoA1 has been shown to possess broad antiviral activity.



*[Figure 1. Level of Apolipoproteins in different HIV-1 patient groups. MFI: Mean fluorescence intensity. *p≤0.05, **p≤0.001]*

WEPEA004

Small intestinal gastrointestinal-associated lymphoid tissue (GALT) Immune reconstitution and changes in systemic inflammation in a cohort of MSM initiating a protease inhibitor-based regimen compared to MSM controls

R. Güerri-Fernandez[1,2], N.S. Utay[3], T. Sainz[4], Z.-M. Ma[5], S. Mann[1], P. Troia-Cancio[6], A. Somasunderam[3], T. Yotter[1], M. Pion[7], R.B. Pollard[1], D.M. Asmuth[1]

[1]University of California Davis Medical Center, Sacramento, United States, [2]Hospital del Mar Research Institute, Infectious Diseases, Barcelona, Spain, [3]University of Texas Medical Center, Houston, United States, [4]University Hospital La Paz, Madrid, Spain, [5]California National Primate Research Center, Davis, United States, [6]University of California Davis Medical Center, Internal Medicine-Infectious Diseases, Sacramento, United States, [7]Hospital General Universitario Gregorio Marañon, Madrid, Spain

Background: The impact of protease inhibitor-based ART regimens on small intestinal immune reconstitution and changes in systemic inflammation has not been reported. To control for HIV-risk group, we matched MSM in both treatment and HIV-negative cohorts.

Methods: Participants with chronic HIV infection naïve to ART underwent upper endoscopy for duodenal biopsies before and 12-months after initiating open-label darunavir/ritonavir/tenofovir-DF/emtricitabine once daily regimens. HIV-negative controls underwent identical procedures one time. Biopsy specimens were digested in collagenase for single-cell suspension for flow cytometry (%) or preserved for T-lymphocyte immunohistochemistry (IHC) density (cells/mm²) staining in lamina propria zones. A panel of inflammatory biomarkers was measured in plasma by ELISA. Values are expressed as median values [interquartile range] and non-parametric tests were used where appropriate.

Results: 18 HIV-positive men with a median baseline CD4+ count of 431 cells/dL[272-559] and HIV load of 40,500 copies/mL[19,750-84,250], were enrolled. HIV load became undetectable and CD4+ increased to 742 cells/mm³[561,861] at 12-months. 17 HIV-negative controls were of similar demographics and age. Duodenal CD4 percent lymphocytes (flow-cytometry) and density (IHC) were lower in HIV-positive at baseline (2%[1.1-5.12]; 65 cells/mm² [34-163]) and at 12-months (7% [3.5-7.34]; 221 cells/mm² [141-293]) compared to controls (24% [19.6-37.9]; 478 cells/mm² [389-627])(all $p< 0.001$).

As expected, sCD163, IP-10, IL-6, and sCD14 levels were significantly higher in the HIV-positive cohort compared to controls and only sCD163 and IP-10 declined significantly after 12-months of protease-based cART (see table). No correlations were found between peripheral CD4 counts and any measurements of GALT CD4 count population suggesting that these two compartments are not in equilibrium. Higher baseline IL-6 levels correlated negatively with the duodenal CD4+ density (Spearman's rho=-0.458,$p< 0.05$). Duodenal immune reconstitution as measured by increases from baseline in CD4%/CD8% ratios density correlated with largest declines in sCD14 (Spearman's rho=-0.71,$p< 0.05$).

Conclusions: Correlations between the GALT immune populations and monocyte/macrophage activation biomarkers were observed in this cohort after 12-months of effective protease inhibitor-based cART. Future research must be directed to identifying the underlying mechanisms for these associations. Analysis of GI tract microbiome composition will provide insight into potential mechanisms linking mucosal and systemic compartments.

	HIV-negative n=17	HIV-positive n=18	p-value	HIV-positive 12-mo	p-value**
Age (years)	37 (33-47)	40(31-51)	0.485		
dCD4ihc	478(389-627)	80(34-163)	<0.0001	219 (141-293)^{b}	0.001
dCD4 %	24% (19.6-38)	2.1%(1.2-5.1)	<0.0001	6.05(3.51-7.34)^{b}	<0.0001
dCD4/CD8	0.95(0.7-2)	0.07(0.03-1.17)	<0.0001	0.24(0.11-0.53)^{b}	<0.0001
CD163 (µg/ml)	0.267 (0.18-0.40)	0.717(0.47-1.61)	0.0003	0.49(0.33-0.93)^{a}	0.07
IP10 (pg/ml)	6.84(4.11-13.56)	83.19(53.5-131.2)	<0.0001	24.3 (12-39)^{a}	0.01
IL-6(pg/ml)	0.66(0.5-0.81)	1.74(1.42-2.15)	0.0003	1.58 (1.34-2.23)^{a}	0.332
sCD14(µg/ml)	0.59(0.44-0.75)	1.37(0.99-1.73)	0.0003	1.35(1.06-1.62)^{a}	0.159

pCD4 – peripheral CD4+ T-lymphocyte counts cells/mm³
dCD4ihc – Duodenal CD4+ T-lymphocyte density cells/mm²
dCD4% – Duodenal CD4 T-lymphocyte % flow-cytometry(%)
dCD4/CD8 – Duodenal C4/CD8 ratio
*Median (Interquartile Range (IQR))
**Compared to baseline
^{a}p<0.05 when compared to HIV-
^{b}p<0.001 when compared to HIV-

[Baseline characteristics and 12-months comparison in treated HIV-individuals]

T cell depletion and reconstitution, and immune ageing

WEPEA005

Translational immunometabolism offers novel tools to understand mechanisms of HIV disease pathogenesis

C.S. Palmer[1,2,3], H.L. Yeoh[2], G. Duette[4], H. Albargy[1], T. Butterfield[5], J. Alzahrani[1], N. Nagy[1], M. Kargren[1], R. Palchaudhuri[1], D. Henstridge[6], C. Pereira[1], J. Zhou[1], S. Lewin[7], C. Cherry[1,2], A. Landay[8], J. Anzinger[5], J. Hoy[2], J. McCune[9], M. Ostrowski[4], S. Crowe[1,2]

[1]Burnet Institute, Life Sciences, Melbourne, Australia, [2]Monash University, Melbourne, Australia, [3]University of Melbourne, Melbourne, Australia, [4]Instituto de Investigaciones Biomédicas en Retrovirus y SIDA, Buenos Aires, Argentina, [5]University of the West Indies, Kingston, Australia, [6]Baker IDI Heart and Diabetes Institute, Melbourne, Australia, [7]The Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [8]Rush University Medical Center, Chicago, United States, [9]University of California, San Francisco, United States

Background: A growing body of evidence highlights the crucial role of immune cell metabolic reprogramming during infections. These metabolic changes switch the cell from oxidative phosphorylation to glycolytic metabolism to modulate immune functions and inflammatory responses.

We use immunometabolic tools to gain novel insights into pathways that control CD4 T cell susceptibility to HIV, factors controlling immune functions, and inflammatory responses associated with age-related comorbidities in HIV+ persons.

Methods: Metabolic characterization was done by evaluating mitochondrial dynamics (e.g. density and membrane potential), metabolic signalling pathways (e.g PI3Kinase/Akt/mTOR) and co-stimulatory signals (e.g OX40/CD134). Glycolysis confirmed by intracellular lactate analy-

sis and Seahorse extracellular flux analysis (extracellular acidification rate, ECAR). HIV-Gag-specific T cell responses were determined by IFN ELISPOT assay.

We determined the clinical relevance and associations of selected metabolic (Glut1), exhaustion/senescence (PD-1, CD28, CD57) and inflammation (sCD163, IP-10, ADAM17) markers within

1) an HIV population enrolled in a study of frailty in ART-treated HIV+ subjects (n=80; median age 59),

2) in a population of ART-treated HIV-positive subjects with variable CD4 T cell recovery (n=163), and

3) HIV-negative controls (n=25). Clinically-approved metabolic-modifying drugs were screened in vitro for their anti-glycolytic and PI3Kinase-mTOR regulatory activity.

Results: Frailty assessed by the Frailty Index, was associated with increased monocyte Glut1 expression (OR, 2.6, p=0.04) and sCD163 (OR, 4.8, p=0.01), but not with mitochondrial dynamics. Immune non-responders exhibit a hyper-metabolic state associated with markers of T cell exhaustion and senescence. High basal Glut1 and OX40 on CD4+ T cells from ART-treated HIV+ patients represent a sufficiently metabolically-active state permissive for HIV infection in vitro precluding the need for external stimuli. Inhibition of mTOR and p110 PI3K isoform with clinically approved drugs abrogated mTOR signalling, inhibited ECAR, suppressed HIV infection in vitro, reduced CD4+ T cell death, and improved HIV-specific T-cell responses. PI3K inhibition suppressed CD16+ monocytes inflammatory response.

Conclusions: A glycolytic phenotype of immune cells may be a central underlying mechanism associated with HIV disease pathogenesis. Anti-glycolytic drugs may be explored to restore immune functions and to suppress residual HIV replication in ART-treated HIV-positive persons, as well as to limit chronic monocyte pro-inflammatory responses and delay the onset of age-associated co-morbidities.

Microbiomes and microbial translocation

WEPEA006

Neovaginal microbial and proteomic signatures in Brazilian transgender women following gender-related surgery

K. Kratzer[1,2], C. Farr Zuend[1,2], S. Mutch[1,2], K. Birse[1,2], L. Noël-Romas[1,2], M. Abou[1], E. Jalil[3], B. Grinsztejn[3], R. Khalili Friedman[3], F. Li[4], C. Yanavich[4], A. Burgener[1,2,5], G. Aldrovandi[4]

[1]National HIV and Retrovirology Labs, JC Wilt Infectious Disease Research Centre, Public Health Agency of Canada, Winnipeg, Canada, [2]University of Manitoba, Winnipeg, Canada, [3]Instituto Nacional de Infectologia Evandro Chagas - Fundação Oswaldo Cruz, Rio de Janeiro, Brazil, [4]University of California Los Angeles, Pediatrics, Los Angeles, United States, [5]Karolinska Institutet, Stockholm, Sweden

Background: Transgender women (TGW) have disproportionally high rates of HIV infection and evidence suggests they have the heaviest burden of HIV acquisition worldwide. Both inflammation and the microbiome are important determinants of HIV risk at mucosal surfaces, but little data is available on the neovagina of transgender individuals following gender-related surgery. The primary aim of this study was to identify and characterize neovaginal microbial and proteomic signatures in TGW from Rio de Janeiro, Brazil.

Methods: Mucosal swabs collected from the neovagina (n=9) and rectum (n=10) of transgender women were analyzed by 16S rRNA sequencing and label-free tandem mass spectrometry (MS) to characterize the microbiome and metaproteome (host and bacteria), respectively. Cervicovaginal mucosal samples from 25 natal women were included for comparison.

Results: MS identified 1122 human proteins and 42 bacterial proteins from neovaginal and rectal swabs. Neovaginas had a microbial proteome dominated by *Prevotella* (23.30%), *Escherichia* (17.56%), an uncultured bacterium (16.67%), and *Jonquetella* (10.71%), whereas natal women showed a less diverse microbiome with a predominance of *Lactobacillus* (60.20%) and *Gardnerella* (22.52%). Compositional analysis identified 37 significant differences in the host functional proteome between neovaginas and natal vaginas, including a reduced proportion of immune system proteins (p = 1.07E-04, LOG2FC = 1.196), and increases (p< 0.0001) in metabolic processes (carbohydrate, LOG2FC = -1.398; amino acid, LOG2FC = -1.932), and cell growth and death (LOG2FC = -1.261) pathways, respectively. Data from the 16S sequencing analysis indicated that 36.2 +/- 10.6% of the neovaginal microbiota are derived from the rectal microbiome. Overall composition of the neovaginas was varied; 6 participants self- reported the use of penile and scrotal tissue and 3 indicated inclusion of bowel mucosal tissue for at least one gender-related surgery. Neovaginas showed no significant differences to rectal mucosa in proportions of host functional pathways (p>0.05).

Conclusions: These data suggest that the microbiome and host proteome are distinct in the neovagina, showing altered immune pathways, lower amounts of commensal bacteria (*Lactobacillus*) commonly observed in natal vaginas. Improving our understanding of these differences may help to improve our strategies for the prevention of HIV acquisition in TGW.

Correlates of HIV susceptibility, disease progression, (biomarkers and genetics)

WEPEA007

Comparative transcriptome analysis in endocervix and ectocervix during proliferative and secretory phases of the menstrual cycle

S. Mukhopadhyay[1], Y. Liang[2], H. Hur[2], G. Villegas[1], G. Calenda[1], A. Reis[3], L. Millen[3], L. Mamkina[1], N. Kumar[1], T. Kalir[3], R. Sperling[3], N. Teleshova[1]

[1]Population Council, Center for Biomedical Research, New York, United States, [2]Center for Clinical and Translational Science, Rockefeller University, Bioinformatics Program, New York, United States, [3]Icahn School of Medicine, Mount Sinai, New York, United States

Background: It has been suggested that HIV transmission is more likely to occur during progesterone dominating secretory phase of the menstrual cycle. To gain a better understanding of gene expression changes during menstrual cycle, we analyzed ecto- and endocervical transcriptome from women in either proliferative or secretory phase.

Methods: Ecto- and/or endocervical tissues were obtained from 16 women undergoing hysterectomies for non-malignant conditions and not using hormonal contraception/hormonal treatment for gynecological conditions. 10 of these subjects had paired tissues collected. The cycle phase was determined by histopathological assessment of endometrial tissue. Serum estradiol and progesterone concentrations were measured by RIA. RNA was sequenced by using Illumina TruSeq technology (75bp, >30M coverage). An in-house RNA-seq workflow was used to estimate the differential gene expression. Differentially expressed genes (DEGs)(adjusted p< 0.05) were used for Ingenuity Pathway Analysis. Limma outputs were ran against ImmuneSigDB for Gene Set Analysis (GSEA). Confirmatory qRT-PCR for selective DEGs was performed.

Results: Transcriptome analysis revealed 203 DEGs (101 upregulated and 102 downregulated) in proliferative vs. secretory phases of the endocervix. No DEGs were identified in ectocervix. The top significantly affected pathways in proliferative vs. secretory endocervix were remodeling of epithelial adherens junctions, epithelial adherens junction signaling and protein ubiquitination.

The analysis revealed an association of proliferative phase with epithelial barrier function and cellular assembly/organization function. Secretory phase was associated with inflammatory response, immune cell chemotaxis and gene expression signatures of stimulated DCs and NK cells. Changes in expression of selected DEGs were confirmed by qRT-PCR.

Conclusions: The study highlights differences in regulation of gene expression during menstrual cycle in endocervix and ectocervix and demonstrates significant changes in endocervical transcriptome of women in proliferative vs. secretory phases of the cycle. The data suggest that (i) weakening of epithelial barrier function and:

(ii) enhanced inflammation, influx of susceptible to HIV target cells, DC-T cell HIV transmission may be associated with higher risk of HIV acquisition in secretory phase of the cycle. This study provides insights into how mucosal susceptibility to HIV may be impacted during the menstrual cycle.

WEPEA008

Genetic variation in the activated leukocyte cell adhesion molecule affects HIV-1 disease progression

Z. Kruize, B. Boeser-Nunnink, T. Booiman, N. Kootstra
AMC, Experimental Immunology, Amsterdam, Netherlands

Background: HIV-1 infection is efficiently spread by direct cell-cell contact. Recently, the activated leukocyte cell adhesion molecule (ALCAM), which mediates cell aggregation, has been demonstrated to be required for cell to cell spread of HIV-1 *in vitro*. To determine whether ALCAM plays a role in HIV-1 pathogenesis, we analyzed whether genetic variation in ALCAM was associated with the clinical course of HIV-1 infection.
Methods: Single nucleotide polymorphisms (SNPs; n=14) in ALCAM were genotyped in a cohort of 312 HIV-1-infected MSM. Kaplan-Meier and Cox regression survival analyses were used to analyze the effect of the SNPs on HIV-1 disease progression. *In vitro* HIV-1 infection assays were performed in peripheral blood mononuclear cells (PBMCs) obtained from donors (n=22) that were genotyped for the SNPs in ALCAM.
Results: The minor allele of SNP rs9613199 in ALCAM was associated with prolonged AIDS-free survival (RH 0.51; CI 0,36-0,72; p=0.0001). This association was independent of the CCR5-D32 genotype and human leukocyte antigen alleles (HLA-B57) that were previously associated with slow disease progression. No effect of the SNP on *in vitro* HIV-1 replication in IL-2 stimulated PBMC was observed.
Conclusions: In this study we identified a SNP in the ALCAM gene that affects HIV-1 pathogenesis. Homozygosity for the minor allele of rs9613199 was associated with a delayed disease progression. No effect of the SNP in in vitro HIV-1 replication in IL-2 activated PBMC was observed, which might suggest that IL-2 stimulation is sufficient to overcome restricted HIV-1 replication in PBMC from donors homozygous or heterozygous for the major allele. Our data suggests that ALCAM mediated cell-to-cell transmission of HIV-1 is an important mechanism for the virus to spread to new target cells and supports viral replication *in vivo*. ALCAM also plays an important role during the intrathymic T cells development, and it remains to be determined whether the SNP in ALCAM affects T cell development and the antiviral immune response during the course of HIV-1 infection.

WEPEA009

Potential link between Nef immune evasion capacity and clinical parameters, but not reservoir size, in early HIV-1 infection

F.H. Omondi[1,2], S. Chandrarathna[3], S. Mujib[4], H. Sudderuddin[1], A. Rahimi[5], G. Anmole[5], N. Kinloch[5], F.Y. Yue[4], E. Benko[4,6], C. Kovacs[4,6], M.A. Brockman[1], M. Ostrowski[4], Z.L. Brumme[1]
[1]*Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada,* [2]*Kenya Medical Research Institute, Centre for Global Health Research, HIV-Research Laboratory, Kisumu, Kenya,* [3]*University of British Columbia, Vancouver, Canada,* [4]*University of Toronto, Toronto, Canada,* [5]*Simon Fraser University, Burnaby, Canada,* [6]*Marple Leaf Medical Clinic, Toronto, Canada*

Background: Rapid within-host HIV-1 evolution and diversification, particularly among the gene encoding the viral accessory protein Nef that modulates key immune evasion functions, may influence viral pathogenesis and conceivably modulate reservoir size. However, the extent of within-host Nef genetic and functional diversity in early HIV infection, and the relationship of these activities to clinical parameters and reservoir size measurements remain incompletely understood.
Methods: We isolated and cloned three plasma HIV-1 RNA-derived Nef sequences each from 29 antiretroviral therapy naïve individuals with early (< 6-months) HIV-1 infection into a GFP-reporter expression plasmid. Two of Nef´s main immune evasion functions, CD4 and HLA-I downregulation, were functionally assessed by transfecting each Nef clone into a HLA-A*02:01+ CEM-derived CD4+ T-cell line and assessing Nef-mediated downregulation of these molecules by flow cytometry. Results were then normalized to the function of the HIV-1 subtype B SF2 Nef reference sequence. Reservoir size measurements included total proviral DNA (copies per million CD4+ T-cells) and infectious units per million CD4+ T-cells (IUPM) measured by quantitative viral outgrowth assay.
Results: 24 (83%) participants harbored HIV-1 subtype B infections. The grand median HLA-A*02 downregulation capacity of all Nef clones was 75.9% of that of Nef-SF2 (range: 0-106.2, IQR: 62.6-90.7), while grand median CD4 downregulation capacity was 96.8% (range: 5.5-104.5, IQR: 92.7-100.0) of that of Nef-SF2. Within-host Nef genetic and functional diversity was substantial: within-host Nef clones differed by a mean 3.5 (range: 3.0-20.0, SD: 3.0) non-synonymous substitutions and exhibited median standard deviations of 9.3% (range: 1.1-58.5, IQR: 3.1-21.6) for HLA-A*02 downregulation and 2.4% (range: 0.3-55.7, IQR: 1.3-7.7) for CD4 downregulation. Maximal within-host HLA-A*02 downregulation capacity correlated negatively with square-root-transformed CD4 counts (Pearson´s R=0.35; p=0.07, n=29) and positively with log pVL (Pearson´s R=0.33; p=0.08, n=29). No significant relationships were observed between Nef functions and reservoir size (n=24).
Conclusions: The identification of maximal within-host Nef function as a potential correlate of HIV clinical prognosis in early infection supports Nef´s immune evasion functions as playing a key role at this critical infection stage. The relationship between Nef immune evasion function and reservoir size merits further exploration.

WEPEA010

AP-2 recruitment, CD4 downregulation, and viral replication require HIV-1 Nef dimerization in vitro and in humanized mice

S. Shu, L. Chen, T. Smithgall
University of Pittsburgh, Pittsburgh, United States

Background: The HIV-1 Nef accessory factor is essential for efficient viral replication and immune evasion in vivo. Dimerization of Nef has been linked to its interaction with multiple host cell binding partners, including the endocytic trafficking adaptor protein, AP2. Internalization of both CD4 and the SERINC5 restriction factor by Nef requires AP2 and clathrin-mediated endocytosis in order to enhance infectivity and avoid immune surveillance. Here we explored the role of Nef dimerization and AP2 recruitment in HIV-1 infectivity in vitro as well as viral replication and $CD4^{+}$ T cell loss in humanized mice.
Methods: To test the importance of Nef dimerization and AP2 recruitment in HIV-1 pathogenesis, we generated mutants that are deficient for Nef dimerization (Ile 109/Leu 112/Tyr 115/Phe 121 to Asp; 4D mutant) and AP2 binding (Asp 174/175 to Ala; DDAA mutant) based on previous X-ray crystal structures. A virus defective for Nef expression was also included (ΔNef mutant). Viruses were produced in 293T cells, and infectivity compared using TZM-bl reporter cells. BLT (bone marrow-liver-thymus) and hPBMC-NSG humanized mice were infected with each virus (2000TCID), and replication measured by real-time quantitative RT-PCR or p24 alpha assays in plasma and tissues. Human $CD4^{+}$ T cell counts were followed in PBMCs and tissues by flow cytometry as a surrogate for HIV-1 pathogenesis.
Results: In vitro, HIV-1 infectivity was significantly reduced with the 4D, DDAA and ΔNef viruses, and the most profound effect was observed with the ΔNef mutant. Humanized BLT mice infected with ΔNef viruses in either an X4 (NL4-3) or R5 (p81a) background showed significantly lower viral loads and reduced CD4 depletion compared to wild-type. hPBMC-NSG mice infected with the 4D and DDAA mutant viruses showed decreased viral loads and displayed $CD4^{+}$ T cell counts comparable to uninfected mice. Viral loads and tissue CD4 counts reflected the levels found in plasma.
Conclusions: Our results demonstrate that Nef dimerization and interaction with AP2 are both important for HIV-1 pathogenesis in humanized mouse models of HIV/AIDS. These data support a strategy to disrupt Nef dimerization as a new path to antiretroviral drug discovery.

WEPEA011

Soluble plasma PD-1 and Tim-3 as biomarkers of T cell exhaustion in primary HIV infection

E. Zilber[1], G. Martin[1], C.B. Willberg[1,2], J. Fox[3], N. Nwokolo[4], S. Fidler[5], J. Frater[1,2,6], CHERUB Investigators
[1]University of Oxford, Nuffield Department of Medicine, Oxford, United Kingdom, [2]National Institute of Health Research Biomedical Research Centre, Oxford, United Kingdom, [3]Guys and St Thomas' NHS Trust, Department of Genitourinary Medicine and Infectious Disease, London, United Kingdom, [4]Chelsea and Westminster Hospital, London, United Kingdom, [5]Imperial College, Division of Medicine, Wright Fleming Institute, London, United Kingdom, [6]Oxford Martin School, Oxford, United Kingdom

Background: Cell surface markers of T lymphocyte exhaustion, including PD-1 and Tim-3, are elevated in primary HIV infection (PHI) and predict clinical progression. However, analysis of these markers requires access to viable cells and a flow cytometry facility. The same markers also exist in a soluble (s) form in plasma and can be measured using a simple ELISA. However, their importance in HIV infection is unknown. We investigated plasma sPD-1 and sTim-3 in PHI, before and after antiretroviral therapy (ART), and the relationships with baseline parameters (plasma viral load (pVL), CD4 count, CD4/CD8 ratio) and respective surface exhaustion markers.
Methods: We evaluated HEATHER trial participants (n=48) recruited in PHI and starting ART a median of 46 [IQR 28-70] days after seroconversion. Plasma sPD-1 and sTim-3 concentration was quantified by ELISA at the earliest pre-therapy timepoint after seroconversion (baseline) and 1 year after ART initiation. PD-1 and Tim-3 expression were measured concurrently on CD4 and CD8 T cells by flow cytometry. Age and sex matched healthy controls (HCs) (n=10) were studied for comparison. Linear mixed effects (LME) modelling and Spearman's correlation was used to investigate the relationship between soluble and cell surface PD-1 and Tim-3 expression, and associations with clinical parameters.
Results: Compared to controls, sPD-1 and sTim-3 were significantly elevated in PHI (median 4.0 and 1.6 fold respectively) and decreased on ART to levels found in HCs. sPD-1 was positively associated with CD4 PD-1% (p=0.042), and also pVL and CD4/CD8 ratio (p< 0.005 each). sTim-3 was positively associated with CD8+ T cell Tim-3% (p=0.0027). Interestingly, plasma sPD-1 showed stronger individual correlations with pVL (rho=0.42, p=0.003), CD4 count (rho=-0.41, p=0.005) and CD4/CD8 ratio (rho=-0.50, p=0.001) than PD-1 cell surface expression on either CD4 or CD8 T cells.
Conclusions: sPD-1 and sTim-3 are perturbed during HIV infection. sPD-1 concentration associates with cell surface PD-1 expression, correlates independently with pVL and CD4/CD8 ratio, and overall correlates more strongly with clinical markers than cell surface PD-1 expression. sTim-3 concentration appears to be a good surrogate for surface Tim-3 expression. sPD-1 and sTim-3 are cheap and easy to measure and could prove useful biomarkers for studying immune exhaustion.

HIV co-morbidities

WEPEA012

Impact of tenofovir alafenamide, tenofovir disoproxil fumarate and abacavir sulphate on platelet function in healthy human subjects

K. Taylor[1], A. Khawaja[1], E. Smyth[1], F. Rauzi[1], M. Cerrone[2], M. Nelson[2,3], B. Gazzard[2,3], M. Boffito[2,3], M. Emerson[1]
[1]Imperial College London, National Heart and Lung Institute, London, United Kingdom, [2]Chelsea and Westminster NHS Trust, London, United Kingdom, [3]Imperial College London, Department of Medicine, London, United Kingdom

Background: Some cohort studies associate increased incidence of cardiovascular events e.g. myocardial infarction (MI) with certain antiretrovirals (ARVs) such as the nucleoside reverse transcriptase inhibitor, abacavir sulphate (ABC). This remains controversial and the underlying mechanism is unclear. Increased MI risk is hypothesised to result from ARV-mediated platelet dysfunction. It is therefore important to determine the impact of ARVs including newly emerging therapeutics (e.g. tenofovir alafenamide [TAF]) upon platelet activation to evaluate their potential cardiovascular risk profile.
Methods: Platelets were isolated from two populations of HIV-negative volunteers:
1) Subjects that were not taking any medication whose platelets were pre-incubated with ARV drugs *in vitro* and
2) 20 subjects enrolled in a phase I clinical trial who received TAF or TDF (tenofovir disoproxil fumarate) for 28 days.
Platelets from the clinical trial were isolated pre-dose and after achieving plasma steady-state for TAF and TDF. Intra-subject analysis was performed to compare platelet function at each time point. Platelet activation was assessed by monitoring aggregation and granule release. *In vivo* aggregation was determined in anaesthetised mice following administration of ARVs.
Results: *In vitro* platelet aggregation responses were not affected by pre-incubation with C_{max} levels of ARVs. However, we observed enhanced collagen-evoked platelet granule release from ABC-treated samples. This was not seen in TDF- or TAF-treated samples. ABC, but not TAF or TDF, also increased collagen-induced platelet aggregation *in vivo*. Intra-subject analysis revealed that steady-state TAF or TDF did not affect platelet aggregation or granule release when compared with pre-dose measurements.
Conclusions: The increased MI risk reported in some studies involving patients on ARVs may be driven pharmacologically *via* differential impacts upon granule release and platelet activation, leading to changes in platelet aggregation *in vivo*. Our studies were performed using HIV-negative volunteers and observations may be directly linked with ARVs independently of confounding factors associated with HIV infection. Furthermore, analysis of platelet activation from subjects enrolled on a phase I trial, provided evidence of a lack of impact of TAF and TDF upon platelet function at clinically relevant dosing. Future studies should evaluate the impact of ARVs on platelet function in people living with HIV.

WEPEA013

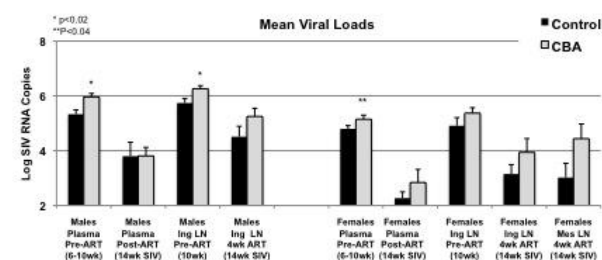
Chronic-binge alcohol increases viral expression in lymph node reservoirs of male and female macaques infected with SIV_{mac251}

A. Amedee[1], P. Mott[2], S. Robichaux[2], L. Simon[3], P. Molina[3]
[1]Louisiana State University Health Sciences Center, Microbiology, Immunology, & Parasitology, and Alcohol and Drug Abuse Center of Excellence, New Orleans, United States, [2]Louisiana State University Health Sciences Center, Microbiology, Immunology, & Parasitology, New Orleans, United States, [3]Louisiana State University Health Sciences Center, Physiology & Alcohol and Drug Abuse Center of Excellence, New Orleans, United States

Background: Chronic alcohol abuse negatively impacts HIV disease through multiple mechanisms. Using SIV-infected rhesus macaques exposed to chronic binge alcohol (CBA), we have shown that CBA increases plasma viral load and accelerates time to end-stage disease. In this study, we sought to explore the impact of CBA on the establishment of viral reservoirs in lymph nodes (LN) of the urogenital mucosa and determine their relationship with plasma viremia. Additionally, we sought to extend our studies to female animals to evaluate the influence of sex on CBA and SIV levels.
Methods: Alcohol was delivered daily to macaques via gastric catheter beginning 3 months prior to SIV_{mac251}-infection, achieving peak blood alcohol concentrations of 50-60mM. Saline or sucrose was administered to controls. Following mucosal infection (rectal for males, vaginal for females), longitudinal samples of plasma and inguinal LN were obtained for viral measures. After 10 weeks SIV, animals were administered daily ART consisting of PMPA and FTC. Samples were obtained from 16 females pre- and post-ART, 32 males pre-ART, and 16 males post-ART.
Results: Mean plasma viral loads 6-10 weeks post-SIV were significantly higher in CBA-exposed males and females, when compared to respective controls. In LN tissue reservoirs, proviral DNA levels were similar in CBA and control animals, but increased levels of viral RNA were observed in CBA LN. Following 4 weeks ART, plasma loads were signifi-

cantly reduced to similar levels in both groups. Likewise, SIV levels were reduced in LN, although higher levels of SIV-expression persisted in CBA animals compared to controls, indicating ongoing tissue expression. Comparison of male and female SIV loads demonstrated approximately 10-fold lower levels in females, reflecting sex differences in plasma and tissue loads among CBA and control groups.

Conclusions: Our results reveal that although similar numbers of LN cells harbor proviral DNA in CBA and control animals, CBA increases expression of SIV in tissues. The study highlights the negative impact that CBA has on viral expression in tissue reservoirs as well as viremia, despite the efficacy of ART. The differences in viral loads among male and female animals also emphasize the importance of sex as a variable in disease outcome.



[Viral Load]

WEPEA014

Differential effects of tenofovir alafenamide, tenofovir disoproxil fumarate and abacavir sulphate upon vascular endothelial cells

A. Khawaja[1], K. Taylor[1], M. Nelson[2,3], B. Gazzard[2,3], M. Boffito[2,3], M. Emerson[1]

[1]Imperial College London, National Heart and Lung Institute, London, United Kingdom, [2]Imperial College London, Department of Medicine, London, United Kingdom, [3]Chelsea and Westminster NHS Trust, London, United Kingdom

Background: Following the development of more effective antiretroviral therapies and decreasing numbers of AIDS-related deaths, associations with increased cardiovascular disease were reported in some studies among patients receiving the nucleoside reverse transcriptase inhibitor (NRTI) abacavir sulphate (ABC). Data from our group previously demonstrated differential effects between ABC and the nucleotide RTI (N(t)RTI) tenofovir disoproxil fumarate (TDF) and the newer N(t)RTI tenofovir alafenamide (TAF) on platelet aggregation *in vivo*, but not in isolated cells *in vitro*, implicating the vascular endothelium. We therefore examined the effects of ABC, TDF and TAF on endothelial cells to elucidate potential endothelium-dependent mechanisms of NRTI/N(t)RTI-associated cardiovascular risk.

Methods: Human umbilical cord endothelial cells (HUVEC) were pulsed for 90 minutes with plasma C_{max} NRTI/N(t)RTI concentrations over 2 days, and then stimulated with TNF-a or IFN-g for 24 hours. Endothelial viability was assessed by MTT assay. Ectonucleotidase (CD39 and CD73) expression, endothelial activation (E selectin, intercellular adhesion molecule [ICAM]-1/2 and vascular cell adhesion molecule [VCAM]-1 expression) and endothelial microparticle (EMP) production were evaluated by flow cytometry.

Results: ABC, TDF and TAF treatment did not affect endothelial viability compared to vehicle-treated cells. Whilst the mean expression of CD39 and CD73 was not affected by NRTI/N(t)RTI treatment, there was an increase in the number of HUVEC expressing both ectonucleotidases ($CD39^+CD73^+$) following treatment with TAF (p< 0.05). Interestingly, TAF, and TDF, also induced a modest reduction in baseline ICAM-1 expression. (p< 0.05). Furthermore, TAF significantly reduced TNF--induced EMP production compared to ABC-treated cells (p< 0.05). Adhesion molecule expression following TNF-a or IFN-g treatment were not affected by NRTI/N(t)RTI treatment.

Conclusions: These data elude to differential effects of NRTI/N(t)RTIs upon endothelial function. Reduced baseline adhesion molecule expression may suggest that patients receiving a TDF- or TAF-based regimen have fewer endothelial interactions with circulating platelets/leukocytes, potentially without compromising normal endothelial function during infection. Increased $CD39^+CD73^+$ endothelial populations following TAF treatment may indicate a greater propensity of endothelial cells to degrade ATP/ADP, thus curtailing ADP-stimulated platelet activation. Reduced EMP production following exposure to TAF may also suggest lower levels of microparticle-induced immune activation. Further work is required to fully elucidate the impacts of NRTI/N(t)RTIs upon endothelial function.

WEPEA015

Novel signature mutations in the Tat protein are associated with ischaemic stroke: A case-control study of HIV-infected individuals in Cape Town, South Africa

K. McMullen[1], K. Bateman[1], A. Stanley[1], A. Hardy[2], M. Combrinck[3], S. Engelbrecht[4], A. Bryer[1]

[1]University of Cape Town, Division of Neurology, Department of Medicine, Cape Town, South Africa, [2]University of Cape Town, Statistical Consulting Service, Department of Statistical Sciences, Cape Town, South Africa, [3]University of Cape Town, Division of Geriatric Medicine, Department of Medicine, Cape Town, South Africa, [4]University of Stellenbosch and National Health Laboratory Services, Division of Medical Virology, Cape Town, South Africa

Background: The pro-inflammatory and neurotoxic effects of Tat protein variants have been investigated in HIV-associated neurocognitive disorders, but not in ischaemic stroke. The pathogenesis of HIV-associated endothelial dysfunction and risk factors for its progression to stroke are unclear. This study primarily sought to determine whether Tat variants are associated with stroke. The secondary aim was to describe HIV-related and unrelated factors that may independently or cumulatively increase ischaemic stroke risk.

Methods: A case-control study of HIV-infected individuals, 18-45 years, recruited in Cape Town, South Africa between 1st August 2010 and 30th June 2013. Viral epidemiology signature pattern analysis investigated amino acid variants in Subtype-C Tat exon 1 sequenced from peripheral blood of 58 individuals with acute ischaemic stroke and 71 controls. Functional studies of signature mutations were explored with the HIV Mutation Browser. Signature pattern analysis, clinical and laboratory data were compared with Fisher's exact or Mann-Whitney tests.

Results: Stroke and control groups were mostly females (62.1%; 71.8%) of Black African ancestry; mean age 33 years. Replacement of alanine with proline at position 21, and lysine with histidine at position 29, were signature mutations associated with ischaemic stroke. These may impact on transactivation and chemoattraction of inflammatory cells. The most common causes of stroke were HIV-associated vasculopathy (43.1%) and opportunistic infections (22.4%). Individuals with stroke had a higher prevalence of treatment interruption (25.9% vs 0.0%, p= 0.003), lower CD4 nadir (median 112 cells/microlitre vs 177.5 cells/microlitre, p=0.008) and CD4 count (median 208.5 cells/microlitre vs 322.5 cells/microlitre, p=0.012) than controls. Median viral loads were elevated in both stroke and control groups (4.58; 4.13 log_{10} copies/ml, p=0.28). The stroke group had a higher prevalence of diabetes, increased fasting lipogram values, and greater pack-year smoking history than controls (all p< 0.05).

Conclusions: Novel signature Tat variants are associated with stroke. These could alter HIV-related inflammation and contribute to HIV-associated vasculopathy. Cell-culture studies are needed to explore this finding. The progression of HIV-associated endothelial dysfunction to vasculopathy and stroke may be a multiple-hit phenomenon. A comprehensive approach is needed to address possible Tat-mediated inflammation, HIV disease severity, treatment interruption and conventional cardiovascular risk factors to prevent ischaemic stroke.

WEPEA016

Increased KLRG1 and PD-1 expression on CD8 T lymphocytes in TB-IRIS

O. Goovaerts[1], M. Massinga-Loembé[2,3], P. Ondoa[4], A. Ceulemans[1], W. Worodria[5,6], R. Colebunders[7], L. Kestens[1], TB-IRIS Study Group
[1]Institute of Tropical Medicine, Biomedical Sciences, Antwerp, Belgium, [2]Albert Schweitzer Hospital, Centre de Recherches Médicales de Lambaréné (CERMEL), Lambarene, Gabon, [3]Institut für Tropenmedizin,Universität Tübingen, Tübingen, Germany, [4]Academic Medical Centre, Department of Global Health and Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, [5]Mulago Hospital, Department of Medicine, Kampala, Uganda, [6]Makerere University College of Health Sciences, Infectious Diseases Institute, Kampala, Uganda, [7]Institute of Tropical Medicine, Clinical Sciences, Antwerp, Belgium

Background: Tuberculosis-associated immune reconstitution inflammatory syndrome (TB-IRIS) is an inflammatory complication in HIV-TB co-infected patients receiving antiretroviral therapy (ART). In severely immunocompromised individuals, CD8+ T cells and NK cells are an important source of interferon-gamma for optimal antigen processing by innate cells. Nonetheless, the contribution of these cells to TB-IRIS development remains under-investigated. Here, we studied the expression of exhaustion markers on lymphocytes at different intervals during ART.
Methods: We compared 9 HIV-TB patients who developed TB-IRIS with 9 patients who did not (HIV+TB+), as well as 9 HIV-patients without TB (HIV+TB-) and 18 HIV-negative controls (9 HIV-TB+ and 9 HIV-TB-). Patients did not differ in age, gender, or CD4-count prior to ART. Frozen peripheral blood mononuclear cells, collected prior to ART and during 3 months and 9 months of ART, were thawed and analysed using flow cytometry. We examined expression of KLRG1 and PD-1 on CD4+ and CD8bright T-cells, as well as CD3-negative CD8dim lymphocytes as a proxy for natural killer cells.
Results: Prior to ART, TB-IRIS patients had higher percentages of CD8bright T cells that are KLRG1+ ($p=0.012$), PD-1+ ($p=0.047$), or both KLRG1+/PD-1+ ($p=0.012$) compared to HIV+TB+ controls. Though PD-1 expression declined during ART in all groups ($p\leq0.023$), the percentage of PD-1+, and KLRG1+/PD-1+ CD8bright T-cells remained higher in TB-IRIS patients at all time points ($p\leq0.037$). CD3-/CD8dim lymphocytes showed a similar pattern, most evident in KLRG1+/PD-1+ cells ($p\leq0.049$). In contrast, CD4+ T cells only showed a trend for higher percentages of PD1+ cells ($p=0.085$) prior to ART, which was reversed by month 3 ($p=0.070$) due to a decline over time in TB-IRIS patients only ($p=0.004$).
Conclusions: TB-IRIS is preceded by a high level of exhaustion in CD8 bright T cells, which persists during 9 months of ART. While potentially mirrored by NK cells, CD4+ T cells did not show these characteristic differences. Whereas previous findings highlight a role for innate cells during TB-IRIS' inflammation, our current results now suggest that an overstimulated/dysfunctional CD8+ lymphocyte compartment predisposes patients for this inflammation. The functional role of these cells prior to TB-IRIS development should be further explored.

WEPEA017

Enhancement of HIV-1 infection by buprenorphine

G.G. Gornalusse[1,2], L. Vojtech[1,2], C. Levy[1,2], R. Valdez[1], U. Pandey[1], J. McElrath[1,3], F. Hladik[1,2]
[1]Fred Hutchinson Cancer Research Center, VIDD, Seattle, United States, [2]University of Washington, Obstetrics and Gynecology, Seattle, United States, [3]University of Washington, Department of Pathobiology, Global Health and Laboratory Medicine, Seattle, United States

Background: Medication-assisted treatment (MAT) with buprenorphine is now widely prescribed to treat addiction to heroin and other illicit opioids. There is some evidence that illicit opioids enhance HIV-1 replication and accelerate AIDS pathogenesis, but the effect of buprenorphine is unknown.
Methods: We obtained peripheral blood mononuclear cells (PBMCs) from healthy volunteers and activated them with phytohemagglutinin and interleukin 2 for 72 hours in the presence of morphine or buprenorphine. We determined the level of expression of CCR5 both by qPCR and flow analysis. We infected the cells with a replication-competent CCR5-tropic HIV-1 reporter virus encoding a secreted nanoluciferase gene, and measured infection by luciferase activity in the supernatants over time. We also surveyed opioid receptor expression in PBMC and vaginal leukocytes, as well as Langerhans cells derived from CD34+ hematopoietic stem cells, by qPCR.
Results: Buprenorphine increased HIV-1 infectivity at the three MOIs tested (0.1, 0.2 and 0.5) and over all tested periods (24, 48 and 72 hours; n=5 experiments, n=4 donors). For example, at 72 hours, HIV infection was three to six times higher in the presence of 2 nM buprenorphine ($p< 0.0001$). Morphine also enhanced HIV-1 infection, but to a much lesser extent, and only at the higher dosage; this effect was variable across donors. At 100 µM, morphine caused a 1.4-fold increase of infection after 72 hours ($p< 0.0001$), whereas at 1 µM, HIV-1 infectivity remained unchanged. Neither CCR5 mRNA levels nor CCR5 protein expression was affected by buprenorphine treatment. In none of the leukocyte types tested, we found expression of the classical opioid receptors (mu, kappa or delta), but the nociception/orphanin FQ receptor (NOP also known as OPRL1) was present in blood and vaginal lymphocytes.
Conclusions: Our results suggest that buprenorphine, much more than morphine, increases the susceptibility of leukocytes to HIV-1 infection in vitro. Given that leukocytes do not express the classical opioid receptors, this increase in HIV susceptibility must occur through either OPRL1 or an unknown pathway. These findings are a first step toward understanding how opioids, including those used for MAT, affect HIV infection.

Systems biology approaches to HIV infection

WEPEA018

Signature of the storm: RNA-seq analysis of the extensive host transcriptome dysregulation caused by acute HIV-1 infection in a Mozambican cohort

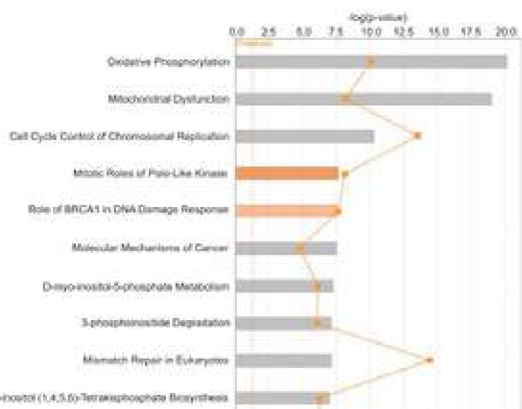
E. Parker[1], M. Judge[1], L. Pastor[2,3], L. Fuente-Soro[2], C. Jairoce[4], K. Carter[5], D. Anderson[5], D. Naniche[2,4], P. Le Souëf[1]
[1]University of Western Australia, School of Paediatrics and Child Health, Perth, Australia, [2]ISGlobal, Barcelona Centre for International Health Research (CRESIB), Barcelona, Spain, [3]AIDS Research Institute-IrsiCaixa, Barcelona, Spain, [4]Centro de Investigação em Saúde da Manhiça (CISM), Manhiça, Mozambique, [5]Telethon Kids Institute, Perth, Australia

Background: HIV causes vast and lasting immune damage during acute infection. A deeper understanding of the earliest responses to HIV is required to inhibit destructive inflammatory pathways, prevent reservoir seeding, and enable vaccine development. To our knowledge, this study is the first to employ RNA-seq transcriptomic analysis on patient samples to characterise the human host response and elucidate the pathogenic mechanisms of early HIV-induced immune damage.
Methods: Individuals with acute HIV, defined by positive viral load prior to seroconversion, contributed samples of peripheral blood mononuclear cells in the initial month of their infection. RNA was extracted using a modified protocol for the RNeasy MinElute Clean-up kit (Qiagen). Illumina 50bp, single-end RNA-seq was performed, with read quality assessed using FastQC. Reads were aligned to human reference genome hg19 using HISAT. Alignment quality was assessed using Samstat. Quantification and normalisation of read counts was performed using summarizeOverlaps (*GenomicAlignments* package) and voom (*limma* package), both from Bioconductor. Statistical analyses were performed using R version 3.2.0 and Ingenuity Pathway Analysis.
Results: Acute HIV samples (n=29) had a mean estimated time since infection of 7.5 weeks (range 4.3-11.1 weeks), with median viral load of Log_{10} 4.92 (IQR 4.48-5.49) copies/mL, and CD4 count of 595.2 (IQR 446.0-667.0) cells/mL. Gene expression profiles were compared with n=46 HIV-negative samples. RNA-seq resulted in an average of 23 million reads/sample, with 80% of reads mapped at high mapping accuracy. All samples passed pre- and post-alignment QC. Differential gene expression analysis identified 2150 significantly upregulated and 1723 significantly downregulated genes (adjusted P value < 0.05). The most significantly

differentially expressed genes (DEG), all upregulated, are presented in Table 1. The most upregulated pathways include oxidative phosphorylation, mitochondrial dysfunction, cell cycle control of chromosomal replication, and mitotic roles of polo-like kinase (Figure 1).

Gene name	HGNC gene name	Log fold change	Adjusted P value
Transmembrane protein 155	TMEM155	3.100194	3.78E-25
Cell division cycle associated 7	CDCA7	2.269544	5.61E-24
CD8b molecule	CD8B	1.461961	1.59E-18
CD8b molecule pseudogene	CD8BP	1.476977	2.57E-18
Nucleolar and spindle associated protein 1	NUSAP1	1.731505	4.19E-18
KIAA0101	KIAA0101	2.517015	8.8E-18
Thymidylate synthetase	TYMS	2.194494	2.31E-17
Non-SMC condensin I complex, subunit G	NCAPG	2.037193	6.01E-17
Chemokine (C-C motif) ligand 5	CCL5	1.277615	6.06E-17

[Table 1: The most significantly upregulated genes during acute HIV-1 infection, compared with HIV-negative controls.]



[Figure 1: Top 10 most significantly upregulated pathways during acute HIV-1 infection, compared with HIV-negative controls]

Conclusions: Our findings demonstrate an extensive, chaotic picture of gene upregulation during the early stages of HIV-1 infection, more profound than described for other acute viral infections. Changes reflect previously-described cytokine patterns, but also offer new insights into pro-inflammatory pathways and regulation of immune cell functions. Unlike previous transcriptomic studies in later stages of HIV infection, genetic downregulation was comparatively sparse.

WEPEA019

Targeting viral infection frequency but not burst size is effective at extinguishing initial infection in a model of PrEP

A. Moyano de las Muelas[1,2], H. Rodel[1,2], S. Cele[1], Y. Ganga[1], G. Lustig[1], A. Sigal[1,3]
[1]Africa Health Research Institute, Sigal Lab, Durban, South Africa, [2]University of Kwa Zulu-Natal, Nelson R Mandela Medical School, Durban, South Africa, [3]Max Planck Institute for Infection Biology, Berlin, Germany

Background: Inhibition of viral infection can be broadly categorized into two mechanisms: reduction of cellular infection frequency, and reduction in the burst size of virions produced from an infected cell. These mechanisms should in theory be equally efficient in blocking new cellular infections.
Using a combined computational and experimental approach, we set out to determine whether attenuating infection frequency or burst size as Pre-Exposure Prophylaxis (PrEP) would result in different probabilities to extinguish infection at drug concentrations where inhibition of HIV replication is incomplete.
Methods: We examined whether inhibition of burst size, by the protease inhibitor atazanavir, or infection frequency, by the reverse transcriptase inhibitor tenofovir, affected the outcome of PrEP in an *in vitro* cellular infection system. Both agents were used at concentrations not sufficient to completely block viral replication: infection in the presence of either drug resulted in a viral replication ratio of approximately 2. We used a branching process to model the probability of the infection becoming extinct.
Results: Tenofovir was effective in extinguishing infection in 67% of cases, significantly different from the no drug control (0%, p=0.0007 by ANOVA). In contrast, there was no significant difference in the frequency of terminated infections between atazanavir (4%) and the no drug control (p>0.99), as measured by detectable infection after the removal of drug. These results were consistent with our branching process model, and reproduced using *in vitro* infection of peripheral blood mononuclear cells from healthy donors.
Conclusions: Infection frequency but not burst size is effective at inhibiting initial infection in a cellular model of PrEP at suboptimal drug concentrations.

WEPEA020

Use of gene edition by CRISPR/Cas9 of tnpo3 gene in CD4+ t cells to generate a cellular model impervious to HIV-1 infection

S. Rodriguez-Mora[1], M.T. Rodríguez-Plata[2], E. Mateos[1], M.R. López-Huertas[3], J.J. Vilchez[4], G. Towers[2], M. Coiras[1], J. Alcamí[1]
[1]AIDS Immunopathogenesis Unit, National Center of Microbiology, Instituto de Salud Carlos III, Madrid, Spain, [2]Division of Infection and Immuity, University College London (UCL), London, United Kingdom, [3]Department of Infectious Diseases, Hospital Ramón y Cajal, Alcalá de Henares University, Instituto Ramón y Cajal de Investigación Sanitaria (IRYCIS), Madrid, Spain, [4]Department of Neurology, Hospital Universitari i Politècnic La Fe, Valencia, Spain

Background: Transportin-3 (TNPO3), a karyopherin that mediates the nuclear entry of proteins with rich serine and arginine domains, is essential in HIV-1 infection. In 2013 it was discovered that a heterozygous deletion of a single nucleotide at the termination codon of the tnpo3 gene encodes additional 15aa, causing a familial genetic disease called limb-girdle muscular dystrophies 1F (LGMD1F). The main objectives of this work were:
1) to determine if the lymphocytes of patients with LGMD1F are resistant to HIV-1 infection in vitro;
2) to generate a cellular model with heterozygous and homozygous selective knockout of tnpo3 gene by gene editing using CRISPR/Cas9.
Methods:
1) PBMCs from 23 LGMD1F patients and 44 healthy donors were activated with CD3/CD28/IL-2 for 48 hours and then infected with NL4-3_renilla clone. The production of Renilla, the integration of the provirus and the synthesis of episomal forms (2LTRs) were analyzed 5 days post-infection.
2) RNA templates designed for the first exon of tnpo3 gene and cloned in vector lentiCRISPRv2 were used to generate lentiviruses in triple-transfected 293-T cells with plasmids of VSV envelope (pMG), packaging (p8.91_ex) and lentiCRISv2. JLTRG_R5 cells were used to generate knock-out (ko) mutants for tnpo3.
Results:
1) PBMCs from patients with LGMD1F showed > 90% of resistance to HIV-1 infection ex vivo, compared to PBMCs from healthy donors used as control.
2) Proviral integration was 90% reduced and episomal forms were undetectable in the patients' cells.
3) JLTRG_R5 cells were infected with lentiCRISPRv2 to generate ko JLTRG_R5 for tnpo3, homozygous and heterozygous.
4) Stabilized ko JLTRG_R5_tnpo3$^{-/-}$ cells showed complete resistance to infection by HIV-1 in vitro.
Conclusions: PBMCs from patients with LGMD1F who carry a microdeletion in a tnpo3 allele show resistance to ex vivo HIV-1 infection. The low detection of episomal forms and proviral integration suggest that restriction by this variant of tnpo3 occurs in the nuclear transport of the pre-integration complex. The cellular model generated in JLTRG_R5 cells by CRIPR/Cas9 reproduces resistance to HIV-1 infection and provides an invaluable tool for the analysis of essential steps in the viral cell cycle.

Neurodegeneration

WEPEA021

Neuropathological mechanisms of alcohol, SIV, and antiretroviral therapy: Enhanced susceptibility of the frontal cortex in rhesus macaques

S. Edwards[1], J. Maxi[1], T. Wills[2], J. Middleton[2], K. Carzoli[2], L. Simon[1], P. Molina[1]
[1]LSU Health Sciences Center, Physiology, New Orleans, United States, [2]LSU Health Sciences Center, Cell Biology and Anatomy, New Orleans, United States

Background: Alcohol use represents a major exacerbating factor for HIV-related cognitive deficits, and persons living with HIV/AIDS (PLWHA) are more likely to be heavy alcohol drinkers. We hypothesize that pathological changes in the striatum and frontal cortex underlie alcohol- and HIV-associated cognitive deficits.

Methods: To investigate mechanisms whereby alcohol facilitates cognitive deficits in PLWHA, we developed and utilized a rhesus macaque model of chronic binge alcohol (CBA) exposure and simian immunodeficiency virus (SIV) infection (with and without anti-retroviral therapy, ART). We conducted gene expression analyses in the striatum and frontal cortex of male macaques as a neurobiological measure of potential neuropathology. As an extension of our work in males, we also measured alterations in cognitive behavior (via novel object recognition tests) and plan to measure gene expression in CBA/SIV/ART-administered female rhesus macaques, including an investigation of the contribution of ovarian hormones via inclusion of ovariectomized (OVX) animals.

Results: Our work in male rhesus macaques discovered that SIV infection is associated with greater inflammatory gene expression in the striatum and reduced growth factor signaling in the frontal cortex, while CBA administration is associated with reduced growth factor signaling in both the striatum and frontal cortex. Importantly, ART reduces inflammatory gene expression in both the frontal cortex and striatum, but does not ameliorate CBA-associated suppression of growth factor signaling. Our behavioral findings in female macaques indicate that CBA/SIV/ART/OVX animals demonstrate a reduced ability to discriminate a novel object compared to control (water-exposed and intact) animals, indicative of deficits in recognition memory. We also find that CBA/SIV/ART-administered animals spend significantly less time with the novel object relative to a familiar object, which may reflect either cognitive deficits or anhedonia-like behavior. Future gene expression analyses of female striatum and frontal cortex tissue will be directly compared with our findings in males.

Conclusions: Overall, our results are consistent with the increased prevalence of frontal cortex-associated cognitive deficits in PLWHA in the era of widespread ART and lead to the prediction that restoration of brain growth factor signaling may be beneficial for cognitive deficits in PLWHA who drink alcohol.

Biomarkers and imaging

WEPEA022

Investigating plasma neurofilament light chain protein (NFL), a biomarker of neuronal integrity, following treatment interruption after 48 weeks of ART in primary HIV - the SPARTAC trial

J. Alagaratnam[1], W. Stöhr[2], H. Zetterberg[3], M. Gisslen[3], G. Ramjee[4], M. Schechter[5], J.M. Miro[6], G. Tambussi[7], P. Kaleebu[8], S. Kinloch[9], D. Cooper[10], K. Porter[2], A. Babiker[2], R. Phillips[10], J. Weber[1], J. Frater[11], A. Winston[1], S. Fidler[1], SPARTAC Trial Investigators
[1]Imperial College London, London, United Kingdom, [2]Medical Research Council, London, United Kingdom, [3]University of Gothenburg, Gothenburg, Sweden, [4]Medical Research Council, Durban, South Africa, [5]Federal University of Rio de Janeiro, Rio de Janeiro, Brazil, [6]University of Barcelona, Barcelona, Spain, [7]San Raffaele Hospital, Milan, Italy, [8]Uganda Virus Research Institute, Entebbe, Uganda, [9]Royal Free Hospital, London, United Kingdom, [10]University of New South Wales, Sydney, Australia, [11]University of Oxford, Oxford, United Kingdom

Background: Although antiretroviral treatment interruption (TI) is not recommended, it is used to test efficacy in HIV cure trials. A major concern is the impact of TI on neuronal injury in the central nervous system (CNS). Plasma neurofilament light chain protein (NFL) strongly correlates with cerebrospinal fluid (CSF) NFL, a sensitive biomarker of CNS neuroaxonal injury reported to be raised in untreated HIV. We investigate plasma NFL changes over time in SPARTAC, a randomised controlled trial with protocol-driven TI in primary HIV infection (PHI).

Methods: Plasma NFL was measured using an ultra-sensitive single molecule array (Simoa) digital immunoassay in samples from participants randomised to immediate ART for 48 weeks, at the following 3 time points: week 0 (prior to commencing ART), week 48 (after 48 weeks of ART) and week 60 (12 weeks post-TI). Changes in plasma NFL over time and associations with clinical parameters were analysed using linear regression and mixed models.

Results: Of 83 individuals included, median age was 34 years (IQR 27 - 41), 33/83 (40%) participants were female, median duration from seroconversion was 88 days (IQR 64-103) and participants were recruited from Europe 42/83 (51%), Africa 30/83 (36%), Australia 9/83 (11%) and Brazil 2/83 (2%). Plasma NFL was significantly higher prior to starting ART (week 0) compared to week 48 and week 60 (p=0.036 and p=0.025 respectively). No significant change in plasma NFL was noted between week 48 and week 60 (p=0.98). In multivariable analyses, higher baseline plasma NFL was associated with female gender, older age and higher HIV RNA but not CD4 or CD4/CD8 ratio.

	Week 0	Week 48	Week 60	Association with plasma NFL at week 0, p value
Number of participants	82	71	83	
Plasma NFL, pg/mL	10.5 (8.8 - 12.6)	9.1 (7.4 - 11.2)	8.8 (7.5 - 10.5)	
HIV RNA, log10 cp/mL	4.6 (4.0 - 5.2)	1.7 (1.7 - 2.6)	3.7 (2.6 - 4.5)	0.047
CD4, cells/µL	612 (471 - 760)	794 (611 - 999)	714 (480 - 868)	0.45
CD4/CD8 ratio	0.55 (0.41 - 0.82)	0.98 (0.73 - 1.32)	0.70 (0.49 - 1.00)	0.89

[Baseline characteristics and associations with plasma NFL (Values are medians (IQR) except for plasma NFL, where values are geometric means (95%CI))]

Conclusions: Plasma NFL concentrations were raised in PHI, declined after ART was commenced and remained stable 12 weeks after TI. Based on plasma NFL as a surrogate marker, we have observed no evidence of increased neuroaxonal injury 12 weeks after the cessation of immediate ART for one year, initiated in PHI. Plasma NFL, along with other plasma biomarkers, may offer a non-invasive approach to monitor neuronal integrity in HIV cure studies.

Viral mechanisms of HIV/SIV persistence and latency

WEPEA023

Non-nucleoside reverse transcriptase inhibitor-based combination antiretroviral therapy is associated with lower cell-associated HIV RNA and DNA levels as compared with therapy based on protease inhibitors

A.O. Pasternak[1], N. Kootstra[2], J. Vroom[1], F.W.N.M. Wit[3,4,5], M. de Bruin[6,7], D. de Francesco[8], C. Sabin[8], A. Winston[9], J.M. Prins[7], P. Reiss[3,4,5], B. Berkhout[1], on behalf of The Co-morBidity in Relation to Aids (COBRA) Collaboration and the MEMS Cohort Study
[1]Academic Medical Center of the University of Amsterdam, Department of Medical Microbiology, Amsterdam, Netherlands, [2]Academic Medical Center of the University of Amsterdam, Department of Experimental Immunology, Amsterdam, Netherlands, [3]Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, [4]Academic Medical Center of the University of Amsterdam, Department of Global Health & Division of Infectious Diseases, Amsterdam Infection & Immunity Institute, Amsterdam, Netherlands, [5]HIV Monitoring Foundation, Amsterdam, Netherlands, [6]University of Aberdeen, Institute of Applied Health Sciences, Aberdeen, United Kingdom, [7]Academic Medical Center of the University of Amsterdam, Department of Internal Medicine, Amsterdam, Netherlands, [8]University College London, Institute for Global Health, London, United Kingdom, [9]Imperial College London, Department of Medicine, London, United Kingdom

Background: It is unclear whether combination antiretroviral therapy (cART) regimens differ in their ability to suppress HIV replication. Here, we report the results of two cross-sectional studies that compared levels of HIV virological markers between people living with HIV (PLWH) receiving suppressive cART containing either a non-nucleoside reverse transcriptase inhibitor (NNRTI) or a protease inhibitor (PI).

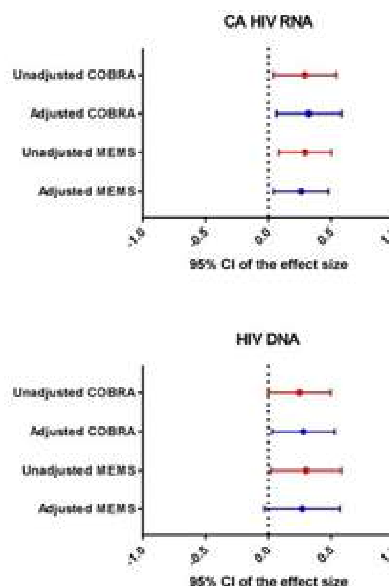
Methods: Cell-associated (CA) HIV unspliced RNA and total CA HIV DNA were quantified by seminested qPCR in two cohorts of PLWH (n=100, n=124; 11 PLWH participated in both cohorts 7 years apart) with suppressed HIV infection on a three-drug cART regimen consisting of two nucleoside reverse transcriptase inihibitors (NRTI) plus either one NNRTI or one (ritonavir-boosted) PI.

Variable	COBRA cohort (n=100)			MEMS cohort (n=124)		
	NNRTI (n=58)	PI (n=42)	P	NNRTI (n=88)	PI (n=36)	P
Age, years	55.0 (51.0-61.3)	55.5 (50.0-62.3)	0.97	46.6 (41.3-53.6)	43.6 (39.3-53.9)	0.17
Male gender, %	96.6	92.9	0.65	91.7	88.2	0.72
Current CD4+ count, cells/mm³	640 (511-796)	617 (408-782)	0.21	550 (368-798)	575 (470-745)	0.46
CD4+ count nadir, cells/mm³	180 (115-253)	200 (88-253)	0.92	150 (65-238)	155 (77.5-220)	0.78
Pre-therapy plasma viremia, log_{10} copies/ml	5.08 (4.71-5.52)	4.97 (4.44-5.52)	0.36	5.21 (4.68-5.62)	5.35 (4.96-5.97)	0.087
Duration of virological suppression, months	117.9 (68.1-151.0)	63.9 (32.8-120.0)	0.0043	45.4 (25.4-77.1)	23.2 (7.6-70.5)	0.039
Current plasma viremia <50 copies/ml, % (<400 copies/ml for all participants)	96.6	100.0	0.51	90.9	75.0	0.040

[Characteristics of PLWH treated with NNRTI- and PI-based cART regimens]

We compared CA HIV RNA and DNA between NNRTI- and PI-based cART using multivariate models adjusted for age, gender, current and nadir CD4+ count, pre-therapy plasma viremia, duration of virological suppression on cART before sampling, NRTI backbone composition, and low-level plasma viremia detectability. Generalized linear models on rank-transformed dependent variables were used.

Results: In the COBRA cohort, PLWH had a median of 99 months of continuous virological suppression prior to sampling. Median levels (Q1-Q3) of CA HIV RNA were 61 (39-194) and 225 (46-429) copies/μg total RNA in NNRTI- and PI-treated PLWH (n=58 and 42, respectively; P_{adj}=0.016), and the corresponding values of CA HIV DNA were 287 (64-428) and 395 (94-779) copies/10^6 PBMC (P_{adj}=0.028). These findings were validated in the MEMS cohort with a median of 41 months of continuous virological suppression. Levels of CA HIV RNA were 41 (15-97) and 76 (34-143) copies/μg total RNA in NNRTI- and PI-treated PLWH (n=88 and 36, respectively; P_{adj}=0.019), and those of CA HIV DNA were 228 (59-546) and 374 (177-866) copies/10^6 PBMC (P_{adj}=0.075).



[Unadjusted and adjusted associations of the cART regimen (PI vs. NNRTI) with CA HIV RNA and DNA levels in two cohorts. Effect sizes and 95% confidence intervals for HIV RNA are plotted as log_{10} copies per microgram of total cellular RNA and for HIV DNA as log_{10} copies per million cells. Effect sizes were obtained by fitting generalized linear models and adjusted for age, gender, current CD4+ count nadir, pre-therapy plasma viremia, duration of virological suppression on cART prior to the study, NRTI backbone composition, and low-level plasma viremia detectability.]

Conclusions: In both cohorts, levels of CA HIV RNA and DNA were lower in PLWH receiving NNRTI-based, compared to PI-based, cART regimens. As all current classes of antiretroviral drugs can only prevent infection of new cells but not inhibit HIV RNA transcription in infected cells, these results suggest that NNRTIs are more potent in suppressing HIV residual replication than PIs, resulting in a smaller viral reservoir size.

WEPEA024

HIV-1 Nef enhances the establishment and reactivation of inducible latent reservoirs

X.T. Kuang[1], S. Swann[1], S.W. Jin[1], T.M. Markle[1], M.A. Brockman[1,2]
[1]Simon Fraser University, Burnaby, Canada, [2]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada

Background: HIV-1 Nef modulates T cell signaling and may alter cellular activation status. To investigate Nef's role during establishment and maintenance of latency, we examined the proviral DNA integration site and reactivation efficiency of latent HIV+ T cell clones harboring functional or defective *nef* alleles.

Methods: Latent CEM-derived T cell clones (CLat) were generated using NL4.3ΔEnv viruses encoding Nef:GFP fusion ($WT_{SF2/M20A}$, G2A) or Nef-IRES-GFP ($WT_{NL4.3}$, ΔNef). The proviral integration sites were determined using nested-inverse PCR and sequencing, and characteristics of the genomic location were examined using BLAT (UCSC Genome Browser). Early (GFP+) and late (Gag-p24+) reactivation events were assessed by flow cytometry at 24h following treatment with LRA (TNF-, panobinostat, or prostratin). For selected CLat clones, the *nef* allele was disrupted using CRISPR/Cas9 strategies.

Results: We generated a panel of 95 inducible CLat clones with linked HIV integration site and viral reactivation data. The distribution and characteristics of proviral integration sites differed between clones encoding functional Nef (N=54) compared to defective Nef (N=42). The absolute number (and proportion) of unique integration sites was higher among clones encoding functional Nef (N=21, 39%) compared to defective

Nef (N=5, 12%) (P=0.005). Integration of inducible proviruses encoding functional Nef was modestly enriched in protein-coding genes that are expected to be less transcriptionally active. Clones with identical integration sites displayed similar viral reactivation phenotypes and were grouped for analysis. Following LRA treatment, early (GFP+) and late (Gag+) reactivation events were elevated in CLat clones encoding Nef_{SF2}:GFP compared to those encoding Nef_{G2A}:GFP. In addition, clones encoding ΔNef-IRES-GFP did not produce Gag efficiently after LRA treatment. We confirmed these observations by disrupting the *nef* gene in four CLat clones encoding Nef_{SF2}:GFP or Nef_{NL43}-IRES-GFP. The percent and intensity of Gag expression was reduced in all bulk Nef_{KO} cell lines. Variable reactivation phenotypes were observed in isolated Nef_{KO} clones, but the efficiency of reactivation remained notably lower in Nef_{KO} clones compared to their corresponding parental CLat clone.
Conclusions: Our results highlight Nef's ability to modulate HIV reactivation efficiency in response to LRAs. Data suggest that Nef broadens the repertoire of viable proviral integration sites to include less transcriptionally active genomic locations.

Host cellular factors and latency

WEPEA025

Therapeutic prediction of HIV-1 DNA decay: A multicenter longitudinal cohort studyofchronically HIV-1-infected patients in China

Y. Yue, N. Wang, T. Li, W. Lv, Y. Liu, T. Lv, L. Lin, Y. Han, J. Xie, Z. Qiu, W. Cao, T. Geng, X. Song, X. Li, Y. Li, L. Luo, T. Zhu, M. Zou, L. Shi, S. Kang, F. Jing
Peking Union Medical College Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing, China

Background: Factors predicting HIV-1 DNA reservoir size using total HIV-1 DNA in peripheral blood remain unclear in chronical infected patients under combination antiretroviral therapy (cART). Insufficient patient sample size and lack of accurate quantification methods are primary limitations for developing generalized diction models in the field.
Methods: Total HIV-1 DNA in blood at baseline, 12, 24, 48, and 96 weeks after cART initiation in 1,169 treatment-naïve patients with chronic HIV-1 infection were quantified. Generalized estimating equations and logistic regression methods were used to derive and validate predictive models with nine potential baseline predictors.
Results: With training data obtained from 307 patients who had continuously successful HIV-1 RNA suppression until 96 weeks after cART, we derived a logistic regression model with baseline total HIV-1 DNA and CD4+ T cell count. Such a model could predict patients who were with the low total HIV-1 DNA after 96 weeksof cART (< 100 copies/10^6 PBMCs) with a sensitivity of 80.0%, specificity of 69.7% and the area under the ROC curve of 0.795. With the Hosmer-Lemeshow test, the logistic model had acceptable goodness of fit (P = 0.225). The net reclassification improvement indies of using HIV-1 DNA or CD4+ T cell count alone were 0.08 and 0.31, respectively. We further used an independent and multicenter cohort of 300 patients to test the predictive capability of this model, and the sensitivity of 81.8% and specificity of 72.7% were achieved.
Conclusions: The derived model based on baseline total HIV-1 DNA and CD4+ T cell count provides a useful prognostic tool in predicting HIV-1 DNA reservoir control to a low level of< 100 copies/10^6 PBMCs during cART among chronically infected patients.

WEPEA026

The circadian transcription factors CLOCK and BMAL1 activate HIV transcription through binding to the HIV long terminal repeat

J. Stern[1], W.-J. Chen[2,3], C. Tumpach[1,2], L. Gray[2,3], M. Churchill[2,3,4], P.U. Cameron[1,5], S.R. Lewin[1,6], M. Roche[1,2]
[1]*The Peter Doherty Institute for Infection and Immunity, The University of Melbourne and Royal Melbourne Hospital, Melbourne, Melbourne, Australia,* [2]*School of Health and Biomedical Science, RMIT University, Melbourne, Australia,* [3]*Macfarlane Burnet Institute for Medical Research and Public Health, Melbourne, Australia,* [4]*Monash University, Department of Microbiology, Melbourne, Australia,* [5]*Alfred Hospital and Monash University, Department of Infectious Diseases, Melbourne, Australia,* [6]*Department of Infectious Diseases, Alfred Hospital and Monash University, Melbourne, Australia*

Background: During a recent clinical trial examining disulfiram as a latency reversing agent in HIV-positive individuals on antiretroviral therapy (ART), time-dependent variations were observed in the expression of cell associated unspliced HIV RNA (CA-US HIV RNA) in CD4+ T-cells isolated from blood. We hypothesised that circadian rhythms are exerting transcriptional control of latent HIV infection through direct interaction of the major circadian transcription factors CLOCK and BMAL1 with the HIV long terminal repeat (LTR).
Methods: The epithelial cell line, HEK 293T, were transfected with an HIV LTR-driven luciferase reporter construct in the presence and absence of CLOCK- and BMAL1-expression vectors. Activation of HIV-1 transcription was measured as an increase in luciferase expression. HIV LTR sequences containing mutations in each of the four E-boxes that could potentially bind CLOCK/BMAL1 complexes, were assessed individually or in combination. The latently infected reporter T-cell line, J-Lat Tat-IRES-green fluorescent protein (GFP) clone A2, were also transfected by nucleofection to deliver CLOCK- and BMAL1-expression vectors. Activation of HIV-1 transcription was measured as an increase in CA-US HIV RNA and GFP expression.
Results: Transfection of the HIV-LTR driven luciferase reporter construct into 293T resulted in high luciferase expression in the presence of Tat (17.13±2.03-fold induction). Transfection of CLOCK or BMAL1 alone failed to increase luciferase (1.26±0.06 and 1.22±0.09-fold induction, respectively), however, co-transfection of CLOCK and BMAL1 led to a significant increase in luciferase activity (3.56±0.25-fold induction). Mutation of E-boxes 1, 3, or 4 had no marked effect on luciferase expression following transfection of CLOCK/BMAL1, however, point mutations of E-box 2 led to a 68% reduction in luciferase expression. Similarly, the presence of CLOCK and BMAL1 together in J-Lat Tat-IRES-GFP cells led to a two-fold increase in both GFP expression and CA-US HIV RNA.
Conclusions: The major circadian transcription factors CLOCK/BMAL1 activate transcription from the HIV LTR, which specifically requires the presence of an intact E-box 2 motif. These data are consistent with direct binding of the protein complex to the LTR. CLOCK/BMAL1 could potentially be exploited to reverse HIV latency.

Cellular and tissue reservoirs of HIV/SIV

WEPEA027

HIV reservoir size during treated primary infection is determined prior to ART initiation, and linked to viral burden and CD8 T cell activation

G.E. Martin[1], J.P. Thornhill[1,2], M. Pace[1], N. Olejniczak[1], E. Hopkins[1], J. Meyerowitz[1], J. Lwanga[3], H. Lewis[2], T. Solano[3], R. Bull[4], J. Fox[3], N. Nwokolo[4], S. Fidler[2], C.B. Willberg[1,5], J. Frater[1,5,6], CHERUB Investigators
[1]University of Oxford, Peter Medawar Building for Pathogen Research, Nuffield Department of Medicine, Oxford, United Kingdom, [2]Imperial College, Division of Medicine, Wright Fleming Institute, London, United Kingdom, [3]Guys and St Thomas' NHS Trust, Department of Genitourinary Medicine and Infectious Disease, London, United Kingdom, [4]Chelsea and Westminster Hospital, London, United Kingdom, [5]National Institute of Health Research Biomedical Research Centre, Oxford, United Kingdom, [6]Oxford Martin School, Oxford, United Kingdom

Background: Initiation of antiretroviral therapy (ART) in early compared with chronic HIV infection is associated with a smaller HIV reservoir. Although both viral and immune factors may drive this effect, the role of T-cell immunity in primary HIV infection (PHI) is likely to be critical. In a large multi-parameter analysis, we investigated which pre- and post-therapy factors associate most closely with reservoir size following treatment initiation during PHI.
Methods: We studied 63 individuals (100% male; median age 34 [IQR 28-41] years) in the HEATHER cohort diagnosed with PHI and commencing ART a median of 49 [IQR 32-90] days from estimated seroconversion. Using flow cytometry, we measured the frequency of CD4 and CD8 memory subsets from PBMCs, expression of immune checkpoint receptors (PD-1, Tim-3, TIGIT), CD38 and transcription factors (T-bet and Eomes). Clinical parameters (CD4 count, CD8 count, plasma viral load [pVL]) were recorded. Total HIV DNA was quantified in CD4 T-cells by qPCR. Assays were performed on samples from the earliest available pre-therapy time-point (baseline) and one year following ART initiation. Multivariable linear regression (with variables selected by dimension reduction and machine learning techniques) was used to determine predictors of HIV DNA at one year.
Results: The best predictors of HIV DNA after one year on ART were found pre-therapy. These were pre-ART HIV DNA ($p< 0.0001$) and longer time from ART initiation to pVL suppression ($p=0.002$). Pre-therapy HIV DNA was significantly associated with the percentage of pre-ART effector memory (EM) CD8 T-cells ($p< 0.0001$) as well as pre-ART pVL ($p=0.02$). Higher expression of both CD38 and TIGIT on CD8 T-cells had significant positive independent associations with baseline HIV DNA. The percentage of EM CD8 T-cells was the only parameter that had a relationship with 1-year HIV DNA when measured contemporaneously, but not independently from baseline HIV DNA level.
Conclusions: Levels of HIV DNA after one year of ART are determined by virological and immunological factors prior to ART initiation. Reservoir size is specifically linked to pre-ART viral burden (baseline pVL and time to suppression) and CD8 T-cell activation, supporting the targeting of early stages of infection for interventions to reduce the HIV reservoir.

WEPEA028

More differentiated and senescent CD32+ cells are associated to hiv reservoir size

M. García[1,2], M.A. Navarrete-Muñoz[1,2], J. M Ligos[3], C. Restrepo[1,2], V. de Santisteban[1,2], A. Cabello[4], J.C. López-Bernaldo[5], F. de la Hera[4], C. Barros[6], M. Montoya[3], M. Fernández Guerrero[4], V. Estrada[7], M. Górgolas[4], J.M. Benito[1,2], N. Rallón[1,2]
[1]Instituto de Investigación Sanitaria Fundación Jiménez Díaz, Universidad Autónoma de Madrid (IIS-FJD, UAM), Madrid, Spain, [2]Hospital Universitario Rey Juan Carlos, Móstoles, Spain, [3]Centro Nacional de Investigaciones Cardiovasculares, Madrid, Spain, [4]Hospital Universitario Fundación Jiménez Díaz, Madrid, Spain, [5]Hospital General Universitario Gregorio Marañon, Madrid, Spain, [6]Hospital Universitario de Móstoles, Móstoles, Spain, [7]Hospital Universitario Clínico San Carlos, Madrid, Spain

Background: The majority of cells harboring persistent HIV are contained in CD4 T-cells with particular phenotypes such as resting memory (TRM) or peripheral follicular helper (pTFH). However, few CD4 cells with these phenotypes are infected with HIV and the identification of a cellular marker associated with persistent HIV infection has remained elusive. Recently, a study has pointed out to CD32 as a potential surrogate biomarker of HIV-persistent CD4 cells. Herein, we have characterized the levels and phenotype of CD32+ cells contained in different CD4 T-cells subsets and its correlation with HIV-reservoir levels in HIV-infected patients.
Methods: Thirty HIV-infected patients were included: 10 typical progressors without ART (TP), 10 TP on ART (TX) and 10 elite controllers (EC). HIV-DNA content was quantified in two CD4 T-cells subsets: TRM and pTFH. CD32 along with activation, maturation, senescence, apoptosis and exhaustion markers were measured in TRM and pTFH by flow-cytometry. Differences between groups were tested by non-parametric tests and associations by Spearman´s rho coefficient.
Results: HIV-DNA levels in both TRM and pTFH subsets were lowest in EC and highest in TP ($p< 0.0001$ and $p=0.003$ for TRM and pTFH, respectively). However, there were no differences between different groups of patients in the level of CD32 expression neither in TRM ($p=0.128$) nor in pTFH ($p=0.627$) cells. Moreover, in the whole population of HIV-infected patients there was no significant correlation between the level of HIV-DNA and the level of CD32 expression neither in TRM (rho=0.259, $p=0.176$) nor in pTFH (rho=0.386, $p=0.092$) cells. However, in TRM the HIV-DNA level was significantly correlated with the level of CD57 (rho=0.511, $p=0.005$), CD28 (rho=-0,380, p=0,042) and CD127 (rho=-0,545, p=0,002) markers on CD32+ cells.
Conclusions: Our data suggest that among CD32+ cells, those with a more differentiated and senescent phenotype could be enriched in cells harboring persistent HIV. However our results do not support measurement of CD32 as a surrogate marker of reservoir size in HIV patients. Further studies with larger cohorts of patients are needed to validate these and previous results, including an analysis of certain markers expressed by CD32+ cells that could improve the utility of this marker in the clinical setting.

WEPEA029

HIV infection of *Schistosoma mansoni*

M. Bukrinsky[1], L. Dubrovsky[1], G. Rinaldi[2], V.H. Mann[1], S. Iordanskiy[3], W. Ittiprasert[1], P. Brindley[1]
[1]GWU SMHS, Washington, United States, [2]Cambridge University, Cambridge, United Kingdom, [3]USUHS, Washington, United States

Background: Schistosomiasis is a major helminthic disease affecting over 200 million people, mostly in developing countries in Africa, East Asia and South America. The areas where schistosomiasis is prevalent overlap with those affected by HIV epidemic, particularly in sub-Saharan Africa, but the interactions between these two infectious agents have not been characterized. We previously reported that VSV-G-pseudotyped HIV-1 can infect, reverse transcribe and integrate into the genome of *Schistosoma mansoni* (Suttiprapa et al., PLoS Pathog. 2016 12: e1005931), but the physiological relevance of this finding remained uncertain. We now provide evidence that wild-type HIV-1 can enter cells of *S. mansoni*, and that the contents of exosomes shed by the infected worms include HIV-related factors.

Methods: *S. mansoni* was infected with HIV-1 NL4-3 by spinoculation, 24 h later unbound virions were removed by extensive washing, and cells were maintained in culture for 10 days during which time culture supernatant was collected and replaced with fresh medium. Cell-associated viral DNA and RNA in schistosomes were assayed by qPCR, and release from the worms of p24 was measured by ELISA. Exosomes were collected from culture supernatants using Nanotrap-based enrichment, eluted from Nanotrap beads and analyzed by mass-spectrometry.
Results: HIV-specific DNA and RNA were detected in HIV-infected schistosomes for up to 10 days following exposure to wild type HIV virions and extensive washing, indicating that the virus entered the cells of the blood fluke and initiated reverse transcription. Curiously, heat inactivation (65°C or 72°C, 15 to 120 min) did not substantially reduce virus entry, but inhibited reverse transcription, suggesting that the entry was mediated by a gp120-independent mechanism. The cells of HIV-infected schistosomes produced products recognized by p24 ELISA for an extended period, at least seven days, suggesting transcriptional/translational activity of reverse transcription products. Analysis of exosomes released by HIV-infected schistosomes revealed the presence of HIV-related peptides, including Gag, Pol, Env, Tat and Nef, and TAR RNA.
Conclusions: These findings suggest that *Schistosoma mansoni* may be a reservoir of HIV-related pathogenic factors. If so, this reservoir would be insensitive to anti-HIV drugs and may contribute to persistent pathological impact in people co-infected with schistosomes and HIV.

Quantifying HIV/SIV reservoirs and rebounding virus

WEPEA030

Remarkable stability in size and composition of the latent reservoir over two decades of ART

K. Bosman[1], K. Tesselaar[2], J. Arends[3], J. Borghans[2], D. de Jong[1], S. Otto[2], T. Huisman[4], A. Pandit[2,4], R. de Boer[4], A. Hoepelman[3], A. Wensing[1], M. Nijhuis[1]
[1]Department of Medical Microbiology, Virology, University Medical Center Utrecht, Utrecht, Netherlands, [2]Department of Immunology, Laboratory of Translational Immunology, University Medical Center Utrecht, Utrecht, Netherlands, [3]Department of Internal Medicine and Infectious Diseases, University Medical Center Utrecht, Utrecht, Netherlands, [4]Theoretical Biology, Utrecht University, Utrecht, Netherlands

Background: Despite suppression of replication by antiretroviral therapy (ART), HIV persists as a DNA reservoir which forms the major obstacle to HIV cure. The relative contribution of T-cell subsets to the viral reservoir over decades of ART is currently unknown. It has been postulated that over time the viral reservoir will shift towards the most differentiated T-cell subsets ("push and vanish").
Methods: Blood samples were obtained from 7 patients who are effectively suppressed with ART since 1996. Samples were taken at ART initiation and 1, 10 and 20 years post-initiation. PBMCs from large blood draws (500 mL) 10 and 20 years post-initiation were sorted into naive (Tn), central memory (Tcm), transitional memory (Ttm) and effector memory (Tem) CD4+T-cells. HIV DNA in PBMCs and T-cell subsets was quantified using a digital droplet PCR (ddPCR) assay targeting the HIV-LTR region.
Results: In the first year of ART, a significant reduction in the average HIV DNA load in PBMCs was observed (from 3260 to 794 LTR copies/10^6, p=0.018). After the first year of ART, HIV DNA remained stable for two decades (1039 LTR copies/10^6 after 10 years and 1027 LTR copies/10^6 after 20 years). Taking into account differences in T-cell subset abundance, contributions of Tcm and Ttm to the total reservoir were significantly higher than Tn and Tem ($p < 0.001$) and did not change over time. Tem infection frequency was higher (average 6633 LTR copies/10^6) than other T-cell subsets (952, 3424, and 4211 for Tn, Tcm and Ttm, respectively) and these differences remained unaltered over time. Tem infection frequency was negatively correlated with CD4-count at ART-initiation (p=0.048) whereas Tn, Tcm and Ttm infection frequencies negatively correlated with CD4-count at sampling (p = 0.023, 0.024, 0.031, respectively).
Conclusions: HIV DNA levels in PBMCs do not decline after the first year on ART. T-cell subset infection frequencies and contributions to the total reservoir were also stable over 20 years of ART. These observations indicate that treatment alone does not shift the viral reservoir towards the most differentiated T-cell subsets as was anticipated in the so-called "push and vanish" eradication strategy.

WEPEA031

Development of sensitive ddPCR assays to reliably quantify the proviral DNA reservoir in common circulating HIV clades

K. Bosman, D. de Jong, A. Wensing, M. Nijhuis
Department of Medical Microbiology, Virology, University Medical Center Utrecht, Utrecht, Netherlands

Background: The latent reservoir is the main barrier towards HIV cure and success of eradication strategies is often measured by quantification of proviral DNA. To ensure inclusiveness and representativeness in HIV cure studies, proviral DNA quantification assays that are able to detect all common circulating HIV clades, in addition to subtype B are needed. Here, three HIV DNA assays targeting three different genomic regions were evaluated for their sensitivity and subtype-tolerance using digital PCR.
Methods: A subtype-B-specific assay targeting Gag (GAG) and two assays targeting conserved sequences in LTR and Integrase (LTR and JO) were assessed for their sensitivity and subtype-tolerance in digital PCR (Bio-Rad QX200) using a panel of serially diluted subtype reference plasmids as well as a panel of clinical isolates. Both panels represent subtypes A, B, C, D, F, G and circulating recombinant forms (CRFs) AE and AG, which together are responsible for 94% of HIV-infections worldwide.
Results: HIV subtype was observed to greatly affect HIV DNA quantification results. Robust regression analysis of the serially diluted plasmid panel showed that the GAG assay was only able to linearly quantify subtype B, D and G isolates (4/13 reference plasmids, average R^2=0.99), whereas LTR and JO were able to quantify all tested isolates (13/13 reference plasmids, respective average R^2=0.99 and R^2=0.98). In the clinical isolates panel, isolates were considered detectable if at least 2 out of 3 replicates produced a positive result. The GAG assay could detect HIV DNA in 4 out of 5 subtype B, 1 out of 3 subtype C, both subtype D and 1 out of 2 subtype G isolates, whereas the LTR and JO assays detected HIV DNA in all 29 tested isolates. LTR and JO results were found to be equally precise but more precise than GAG (Welch t-tests on coefficient of variation).
Conclusions: The presented results demonstrate the need for careful validation of proviral reservoir quantification assays prior to investigations of non-B subtype reservoirs. The LTR and JO assay can sensitively and reliably quantify HIV DNA in a panel of the world-wide most prevalent subtypes, justifying their application in future HIV trials.

WEPEA032

Developing strategies to image HIV in vivo: Combining the sarcophagine chelator MeCOSar to 3BNC117 does not affect HIV binding or neutralisation

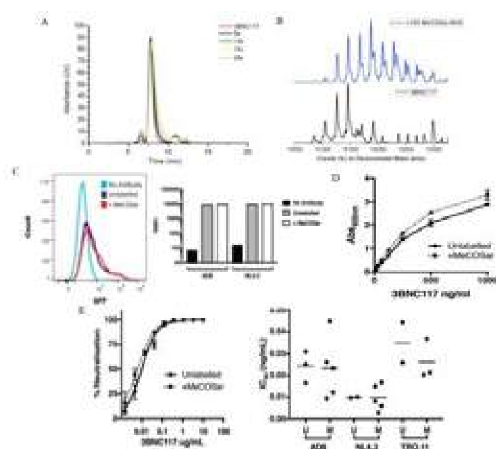
J.H. McMahon[1], C. Tumpach[2], J.L. Lange[3], M. Roche[2], K. Alt[3], J.M. Zerbato[2], J. Chang[2], N. Zia[4], M. Caskey[5], M. Nussenzweig[5,6], A. Scott[7], P.S. Donnelly[4], C.E. Hagemeyer[3], S.R. Lewin[1,2]

[1]Alfred Hospital and Monash University, Department of Infectious Diseases, Melbourne, Australia, [2]The Peter Doherty Institute for Infection and Immunity, University of Melbourne and Royal Melbourne Hospital, Melbourne, Australia, [3]Australian Centre for Blood Diseases, Monash University, Melbourne, Australia, [4]School of Chemistry, Bio21 Molecular Science and Biotechnology Institute, University of Melbourne, Melbourne, Australia, [5]Laboratory of Molecular Immunology, The Rockefeller University, New York, United States, [6]Howard Hughes Medical Institute, The Rockefeller Universit, New York, United States, [7]Olivia Newton John Cancer Research Institute, Austin Health and Latrobe University, Melbourne, Australia

Background: Non-invasive methods to detect and quantify HIV persistence in tissue and assess cure-focused interventions in HIV-infected individuals on antiretroviral therapy (ART) are needed. Infusing radiolabelled broadly neutralising antibodies (bNAbs) targeting HIV envelope (Env) then scanning with positron emission tomography (PET) identified affected tissues sites in a macaque model. Prior to a clinical trial bNAb binding to its Env target with the addition of a next generation bifunctional chelator needs to be confirmed *in vitro*.

Methods: The bNAb 3BNC117 was reacted with different molar ratios (5x, 10x, 15x, 20x) of the sarcophagine copper chelator MeCOSar-NHS and the resulting conjugates were assessed by size exclusion chromatography (SEC) and liquid chromatography-mass spectrometry (LC-MS) and the optimal molar ratio selected. Unlabelled and MeCOSar-modified 3BNC117 were then assessed for neutralisation capability of reporter viruses pseudotyped with 3 subtype B Env strains in JC53 cells, and assessed for binding using 2 assays: 1) ELISA to immobilised Env (gp140) and 2) to Env presented on the surface of human embryonic kidney cells transfected with an Env expression plasmid. The 50% inhibitory concentration, colorimetric absorbance and flow cytometry were used to compare unlabeled and MeCOSar-modified 3BNC117 to the 3 assays respectively.

Results: Different molar ratios of MeCOSar bound to 3BNC117 yielded SEC with similar elution profiles to IgG and unmodified 3BNC117. The predominant peak for unmodified 3BNC117 mass on LC-MS was 151467 Dalton (Da) and when combined with 10x molar ratio clearly demonstrated the addition of 1, 2 and 3 MeCOSar (410 Da each) per 3BNC117. 10x molar ratio was then selected to assess HIV binding and neutralization. Unlabeled and MeCOSar-modified 3BNC117 had comparable levels of binding to immobilized gp140; binding to Env expressed on the surface of 293T cells; and neutralisation of reporter viruses pseudotyped with 3 different Envs.



[Figure. Modification of 3BNC117 using a 10x molar ratio MeCOSar does not interfere with 3BNC117 neutralisation or binding in vitro. A) SEC of unlabeled and MeCOSar modified 3BNC117; B) LC-MS of unlabeled (bottom) and modified 3BNC117 bound with either one, two or three MeCOSar chelators attached (top); C) Flow cytometry of transfected cells expressing cell surface Env bound to unlabeled or Mecosar modified 3BNC117; D) Env ELISA assay; E) Neutralisation assay (U=unlabeled, M=MeCOSar)]

Conclusions: The copper chelator MeCOSar conjugates to 3BNC117 and does not interfere with binding to HIV Env or neutralisation *in vitro*. MeCOSar is appropriate to combine with 3BNC117 and is known to tightly bind the radioisotope copper-64. This construct is ideally suited to continue development for use in a clinical trial using PET to detect HIV persistence on ART.

Impact of co-factors (e.g. viral clade, tropism, genetic factors) on disease progression

WEPEB033

Cardiac vagal tone is low in HIV+ women and correlates with markers of immune activation/inflammation

K.M. Weber[1], L. McClellan[1], C. Bond[1], E. Daubert[1], A.L. French[2], M.H. Cohen[3]

[1]Hektoen Institute of Medicine, Chicago, United States, [2]Stroger Hospital of Cook County, Department of Infectious Diseases, Chicago, United States, [3]Cook County Health and Hospitals System and Rush University Medical Center, Department of Medicine, Chicago, United States

Background: Respiratory sinus arrhythmia (RSA), the high frequency component of heart rate variability, is widely used as a noninvasive measure of vagal tone representing parasympathetic influence on cardiac regulation. Lower RSA has been associated with female sex, older age, viral infection, and inflammation. We therefore sought to determine whether RSA differs by HIV and viral suppression status and its association with inflammatory/immune activation markers among midlife HIV-infected (HIV+) and demographically similar uninfected (HIV-) women.

Methods: Between October 2014 and February 2016, we collected 45 minutes of continuous ECG recordings using the Actiwave monitor across 5 consecutive rest and challenge conditions from 107 HIV+ and 47 HIV- Chicago Women's Interagency HIV Study (WIHS) participants. Cardiac data was edited and RSA calculated using proprietary software. RSA was quantified during sequential 30-second epochs within each 3-minute rest period, averaged, and then the mean of all resting RSA values was used in analyses. Descriptive variables and blood were collected during same day WIHS visits. Plasma ultra sensitive (us)CRP, usIL-6, TNFaRII, soluble (s)CD14 and sCD163 were measured using commercial ELISA. We evaluated correlations between RSA, HIV/viremia status, and plasma biomarkers.

Results: Women were predominantly black (85%), age 40-59 (69%), poor (76% ≤ $18k), unemployed (73%), obese (44%), current smokers (56%) with limited education (40% < high school) and unstably housed (28%) with no significant difference by HIV status. Among HIV+ women, 77% were on HAART/≥95% adherent; 24% were viremic. Resting mean (m)RSA was significantly lower in HIV+ compared to HIV- women (4.92 vs. 5.47; p=.03) but there was no statistically significant RSA difference by viremia status. Lower mRSA among HIV+ women significantly correlated with higher sCD14 and TNFaRII (r^2 .053, .057 respectively, both p=.01) and this correlation was strongest for viremic women (r^2 .227; p=.014 for sCD14; r^2 .309; p=.003 for TNFaRII).

Conclusions: In midlife women, cardiac vagal tone is lower in HIV+ women. Lower cardiac vagal tone appears to interact with HIV leading to higher levels of immune activation/inflammation. Assessing RSA and promoting interventions to strengthen cardiac vagal tone (ie. exercise, deep breathing, yoga) may benefit women aging with HIV.

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WEPEB034

Impact of antirretroviral treatment on low level viremia in HIV infected patients

E. Bernal[1], A. Cano[1], J.M. Gomez[1], A. Alcaraz[1], A. Muñoz[1], S. Moreno[2], M. Montero[3], J. Peraire[4], G. Sanperiz[5], F. Gutierrez[6], CoRIS
[1]Hospital Reina Sofia, Murcia, Spain, [2]Hospital Ramón y Cajal, Madrid, Spain, [3]Hospital La Fe, Valencia, Spain, [4]Hospital Joan XXIII, Tarragona, Spain, [5]Hospital Miguel Servet, Zaragoza, Spain, [6]Hospital General de Elche, Elche, Spain

Background: There are patients where complete control of viral load is not achieved. The causes of low-grade viremia (LLV) are still unknown. The objetive was to assess the impact of antiretroviral therapy (ART) on LLV in suppressed HIV infected patients.

Methods: We analyzed adults, naïve to ART from the cohort of the Spanish-AIDS Research-Network (CoRIS) who initiated ART from 2004 to 2015 and achieved viral load (VL) ≤50 copies/ml within 3-9 months after ART initiation. LLV50-199 was defined as two consecutive VL between 50 and 199 copies/ml, and LLV200-499 as two consecutive VL between 50-499 copies/ml with at least one between 200-499 copies/ml. To assess the effect of ART we used an intent-to-treat approach and, thus, ignored subsequent changes in treatment, including treatment interruptions and terminations.

ART were divided into 4 categories:

(1) 2Nucleoside-Reverse Transcriptase Inhibitor (NRTI) +1Non-Nucleoside-Reverse Transcriptase Inhibitor (NNRTI),

(2) 2NRTI+1Protease inhibitor boosted with ritonavir/cobicistat (PI),

(3) 2NRTI+1Integrase inhibitor (II), and

(4) other.

Cox-regression model was used to estimate the association of ART and LLV after adjusting.

Results: Of 5986 patients included, 237 (4.0%) experienced at least one episode of LLV50-199 and 168 (2.8%) experienced LLV200-499. Median follow-up time was 3.5 (IQR: 1.5 - 5.5) years in patients not experiencing LLV, 4.9 (IQR: 3.5 - 7.2) in patients experiencing LLV50-199 and 6.3 (IQR: 4.8 - 8.3) in those experiencing LLV200-499.

In multivariable analyses, HIV viral load at cohort entry higher than 100.000 copies/ml [Relative risk (RR): 2.15; 95% confidence interval (CI): 1.47 - 3.1], male gender (RR: 2.2; CI95% 1.2-3.9) and ART regimen with 2NRTI+1PI/p (RR: 1.61; 95% CI 1.1-2.34) were associated with LLV50-199 copies/ml. ART regimen with 2NRTI+1PI (RR: 2.15; 95% CI 1.37-3.37) was associated with LLV200-499 copies/ml. PI regimens based on darunavir boosted with ritonavir/cobicistat (DRV) were compared to those containing PI other than DRV. After adjusting, DRV based regimens were not associated with LLV (RR: 0.16; CI95% 0.03-0.75).

Conclusions: In this Spanish cohort, the specific ART regimen was an independent risk factor for the development of low-level viremia. High viral load at cohort entry, male gender and ART regimens based on protease inhibitors other than darunavir had the highest risk.

WEPEB035

Toll-like receptor 4 polymorphism influence the faster HIV progression

T. Koval[1], G. Dubynska[1], O. Danilenko[2], E. Sabinina[2], A. Koval[1]
[1]Ukrainian Medical Stomatological Academy, Infectious Diseases and Epidemiology, Poltava, Ukraine, [2]Poltava Regional HIV/AIDS Center, Poltava, Ukraine

Background: Toll-like receptors (TLRs) play an impotant role in the innate immune response. The TLR4 is an essential component of the innate immune response to various microorganisms. We investigated the impact of TLR4 polymorphism on rapid CD4 decline and development of AIDS defining illness.

Methods: The presence of TLR4 Asp299Gly single nucleotide polymorphisms was determined in a cohort of 194 antiretroviral treatment-naive HIV-1 infected patients TLR4 genotyping was performed by real-time PCR. We used survival analysis (Cox regression). Two outcome measures related to faster HIV progression were considered - decline CD4 cells to < 350/ml and occurrence of AIDS defining illness.

Results: One hundred seventy-six patients were homozygous for the wild-type genotype (AA); 18 patients (9,3%) were heterozygous for the Asp299Gly (AG).

Faster development of AIDS was associated with Asp299Gly TLR4 polymorphism (HR= 3.45; 95% CI [1.22-8.25]), nadir CD4 count< 350/ml (HR= 4.15; 95% CI [2.25-9.38]) and duration HIV-infection>3 years. Faster decline of CD4 count to < 350/ml was associated with age>35 years (HR=4.15; 95% CI [2.16-7.16]), intravenous drugs abuse (HR= 2.85; 95% CI [1.54-6.17]) and Asp299Gly TLR4 polymorphism (HR= 2.23; 95% CI [1.05-9.22]).AG polymorphism was associated with more frequent development of the opportunistic infections, such as active tuberculosis (OR= 5.71; 95% CI [3.92-12.44]), herpes zoster (OR= 2.83; 95% CI [1.11-5.19]) and toxoplasmosis (OR= 6.23; 95% CI [1.19-18.67]) compared with genotype AA.

Conclusions: This study suggests a greater risk of developing of faster HIV-progression in patients with the Asp299Gly TLR4 polymorphism.

WEPEB036

Interferon lambda polymorphisms associated with normalised CD4+:CD8+ in treated HIV

W. Tinago[1], I. Freitas[2], H. Sawa[3], W. Hall[2], M. Carr[3], P. Mallon[4]
[1]University College Dublin, School of Medicine, Dublin, Ireland, [2]University College Dublin, Centre for Research in Infectious Diseases, School of Medicine, University College Dublin, Dublin, Ireland, [3]Hokkaido University, Global Station for Zoonosis Control, Global Institution for Collaborative Research and Education (GI-CoRE), Hokkaido University, Sapporo, Japan, [4]University College Dublin, HIV Molecular Research Group, School of Medicine, University College Dublin, Dublin, Ireland

Background: Type III interferon lambda (IFNL) members play important roles in both innate and adaptive immunity against viral pathogens, promoting a shift from Th2 to Th1 responses. Single nucleotide polymorphisms (SNPs) at the IFNL locus have been associated with treatment-induced and spontaneous clearance of hepatitis C virus (HCV) infection; however, whether INFL polymorphisms impact on host immune responses to HIV-1 infection remains unclear.

Methods: In a prospective cohort of ambulatory, HIV-1 positive subjects on effective antiretroviral therapy (ART) with HIV RNA < 40 copies/ml, we examined expanded T-cell subsets by flow cytometry on fresh EDTA blood to determine CD4+ and CD8+ T-cell subsets; CD45RO+CD62L+ (central memory), CD45RO+CD62L- (effector memory) and CD45RO-CD62L+ (naïve) alongside absolute and percentage CD4+ and CD8+ counts. Genomic DNA was extracted from stored buffy coats and IFNL genotyping performed for the following IFNL SNPs by allelic discrimination real-time PCR: rs368234815[TT/ΔG], which introduces a frameshift permitting IFNL4 expression; rs117648444[G/A], which gives rise to a P70S substitution in IFNL4 and rs12979860[C/T], which lies in an IFNL4 intron and is in moderate to high linkage disequilibrium with rs368234815. We explored associations between specific SNPs and CD4+:CD8+ ratio normalisation (>1) and specific CD4+ and CD8+ T-cell subsets using linear regression analysis.

Results: Of 143 subjects, 63.6% were male, 65.7% Caucasian and 23% had a CD4+:CD8+ ratio ≥1. The majority of subjects were on ART (90.2%) and 79% of the cohort had undetectable HIV RNA. Subjects with rs368234815 ΔG/ΔG minor homozygosity were significantly more likely to attain a CD4+:CD8+ ratio ≥1 (OR [95% CI] 3.11 [1.01;9.56]). In a subset of 71 HCV antibody negative, virally suppressed PLWH, rs368234815 minor homozygosity (ΔG/ΔG) was significantly associated with a higher percentage of naïve CD8+ T-cells (regression coefficient: 7.17, $p < 0.05$) compared to the T/T genotype.

Conclusions: This, the first study to report associations between type III IFNs and immunological responses in chronic HIV, suggests an important role for host IFNL4 function in driving better immune responses to ART.

Morbidity, mortality and life expectancy in clinical research

WEPEB037

High inpatient mortality from tuberculosis persists despite increasing antiretroviral therapy coverage in Botswana

T. Barak[1,2,3], D. Neo[4], T. Neo[2,5], P. Mophuthegi[2], R. Zash[2,6], M.R. Hacker[4,7], K. Kalenga[1], J. Makhema[2], S. Lockman[2,8], R. Shapiro[2,6,8]
[1]Scottish Livingstone Hospital, Molepolole, Botswana, [2]Botswana-Harvard AIDS Institute Partnership, Gaborone, Botswana, [3]Beth Israel Deaconess Medical Center, Department of Medicine, Boston, United States, [4]Beth Israel Deaconess Medical Center, Department of Obstetrics and Gynecology, Boston, United States, [5]Brigham & Women's Hospital, Department of Medicine, Boston, United States, [6]Beth Israel Deaconess Medical Center, Infectious Disease, Boston, United States, [7]Harvard Medical School, Department of Obstetrics, Gynecology and Reproductive Biology, Boston, United States, [8]Harvard T.H. Chan School of Public Health, Immunology and Infectious Disease, Boston, United States

Background: In Botswana, where adult HIV prevalence is 22%, antiretroviral therapy (ART) coverage reaching 84% has reduced HIV/AIDS-related mortality. However, few ART-era studies describe mortality in the hospital setting, where most deaths occur. Our objective was to describe mortality by HIV status among medical inpatients at Scottish Livingstone Hospital (SLH), a district hospital in Botswana.

Methods: We prospectively reviewed admissions to the SLH medical wards and recorded outcomes from December 2015-July 2017. We compared data with chi-square or t-test and evaluated risk factors for mortality using modified Poisson regression to estimate risk ratios and 95% confidence intervals, adjusting for age and sex. Results were compared with similar 2011-2012 SLH surveillance data.

Results: 2,108 admissions occurred among 1,803 patients; 42% of patients were HIV+, 46% were HIV-, and 12% had unknown HIV status. Compared with HIV- patients, HIV+ patients had similar sex (47% male), younger age (mean 44 vs. 59 years, p< 0.0001), and fewer comorbidities (p< 0.001). In total, 424 (20%) admissions resulted in death, and death was more common among HIV+ patients (22% vs. 18%, p=0.03). Table 1 shows risk factors for death per admission among HIV+ patients. Clinical or laboratory diagnosis of tuberculosis was associated with the highest mortality in both groups, but accounted for a higher proportion of deaths among HIV+ patients (43%) compared with HIV- patients (21%; p< 0.001). Bacterial pneumonia and gastroenteritis were the next most common diagnoses associated with mortality among HIV+ patients, compared with heart failure and cerebrovascular events in HIV- patients. Compared with similar surveillance at SLH in 2011-2012, HIV prevalence was lower (43% vs. 48% of admissions, p=0.02), and amongst HIV+ admissions: ART coverage was higher (66% vs. 52%, p< 0.0001), mortality was similar (22 vs. 23%, p=0.9), tuberculosis diagnoses increased (27% vs. 20%, p< 0.01) and tuberculosis mortality was higher (36% vs. 25%, p=0.05).

	Alive n = 706	Dead n = 204	RR (95% CI)	Adj RR** (95% CI)
Age (years)	43 ± 15	45 ± 14	1.01 (1.00 - 1.02)	1.01 (1.00 - 1.01)
Sex				
Male	331 (75)	113 (25)	1.30 (1.02 - 1.67)	1.27 (0.99 - 1.62)
Female	375 (80)	91 (20)		
Most recent CD4 count (cells/mm³)*				
< 200	272 (73)	101 (27)	1.59 (1.23 - 2.07)	1.57 (1.19 - 2.05)
≥ 200	376 (83)	77 (17)		
HIV viral load RNA (copies/ml)				
≥ 400	96 (74)	34 (26)	1.51 (1.08 - 2.12)	1.57 (1.12 - 2.19)
< 400	402 (83)	84 (17)		
ART status at admission				
On ART	479 (80)	117 (20)	0.71 (0.56 - 0.90)	0.71 (0.56 - 0.91)
Not on ART	227 (72)	87 (28)		
HIV status at Admission				
Unknown HIV status	51 (78)	14 (22)	0.96 (0.56 - 1.55)	0.95 (0.59 - 1.55)
Known HIV+ status	655 (78)	190 (22)		
Tuberculosis diagnosis				
Yes	160 (64)	89 (36)	2.05 (1.63 - 2.59)	2.07 (1.64 - 2.61)
No	546 (83)	115 (17)		

Data presented as n (%) or mean ± standard deviation
*Among patients who had a known CD4 count
**Adjusted for age and sex, except for age model (adjusted only for sex) and sex model (adjusted only for age).

[Table 1. Risk factors for death per admission among HIV+ patients at Scottish Livingstone Hospital, Botswana, 2015-2017]

Conclusions: Despite high ART coverage in Botswana, HIV+ patients continue to be disproportionately represented among hospital admissions and deaths. Deaths from tuberculosis appear to contribute to lack of reduction in inpatient mortality. Our findings suggest that control of HIV and tuberculosis remain top priorities for reducing inpatient mortality in Botswana.

WEPEB038

Drug overdose is the most common cause of death among HIV infected people in Estonia

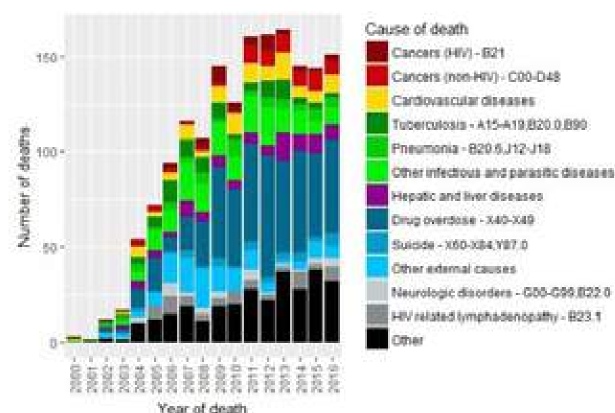
L. Lemsalu[1,2], A. Uusküla[2], B. Rice[3], M. Raag[2], K. Rüütel[1]
[1]National Institute for Health Development, Tallinn, Estonia, [2]University of Tartu, Institute of Family Medicine and Public Health, Tartu, Estonia, [3]London School of Hygiene and Tropical Medicine, Department of Social and Environmental Health Research, London, United Kingdom

Background: In Estonia, the HIV epidemic started with an outbreak among people who inject drugs in the early 2000s. Few people were diagnosed with HIV before year 2000 (n=96). According to national statistics, 606 people with HIV have died since 1994. Through linking data across healthcare registries, we aim to attain a more comprehensive understanding of mortality among persons diagnosed with HIV.

Methods: All healthcare records including an HIV diagnosis and a national identification-code were extracted from the following databases and periods: Estonian Health Insurance Fund (EHIF) (covers >94% of the population), 2000-2016; Health Board (passive HIV surveillance), 2010-2016; Prisons healthcare, 2008-2016. Data on deaths were obtained from the national Death Registry (main cause of death was analysed). Survival is calculated from the person's first HIV related healthcare record (date of the new HIV case report or the first HIV related healthcare visit).

	ICD-10	Deaths		Age at death		Survival since HIV presentation (in years)	
		N	*%*	*Median*	*IQR*	*Median*	*IQR*
Cancers	B21,C00-D48	118	7.1	41.0	31.9 - 52.1	2.4	0.5 - 5.5
Cardiovascular diseases	I00-I99	97	5.8	45.6	34.2 - 68.8	3.2	1.5 - 6.2
Infectious and parasitic diseases	A00-B99 (excl. B15-B19, B21-24,B94.2), J09-J18	322	19.2	34.4	28.5 - 41.7	1.5	0.2 - 4.1
Hepatic and liver diseases	B15-B19, B94.2, K70-K76	91	5.4	33.3	30.0 - 41.1	2.9	1.0 - 6.2
External	V01-Y98	649	38.8	30.9	27.5 - 35.3	3.5	1.5 - 6.2
Other	All other codes	396	23.7	34.2	29.1 - 42.6	3.0	0.6 - 6.3
ALL	A00-Y98	1673	100	33.1	28.5 - 40.2	2.9	0.8 - 5.9

[Table. Causes of death among HIV diagnosed people in Estonia in 2000 - 2016]



[Figure. Annual cause specific number of deaths among HIV diagnosed people in Estonia in 2000-2016]

Results: Between 2000 and 2016, we identified 7518 people with an HIV diagnosis. Among these, 47% (n=4733) were men, median age at HIV presentation was 28.1 years (IQR 23.4 - 35.2), 72% (n=5380) presented with HIV at the clinical latency stage (ICD-10 B23.1, Z21), and 19% (n=1418) with

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AIDS (ICD-10 F02.4, B20-B24, excl. B23.0, B23.1). Median follow-up time from the first HIV related healthcare record until death or 31/12/2016 was 6.9 years (IQR 3.2 - 10.0). Almost one quarter (22%; n=1673) of those diagnosed with HIV died during the study period (men: 26%, n=1252; women: 15%, n=421). Shortest survival from HIV presentation was associated with death due to infectious and parasitic diseases. Over one third of deaths were attributable to external causes claiming the youngest people (Table). The most prevalent external cause of death was drug overdose (Figure).
Conclusions: For the first time, we present a comprehensive overview of mortality among HIV diagnosed people in Estonia. Our results show that the national statistics has captured only one third of the deaths. Drug overdose was the most common cause of death, especially affecting people aged under 35. Effective drug treatment services, which are integrated with HIV care, are of outmost importance to curb mortality among people living with HIV in Estonia.

Opportunistic infections (excluding TB)

WEPEB039

Incidence, timing and outcome of IRIS in relation to specific opportunistic infections - the ATHENA cohort study

I.E.A. Wijting[1], F.W.N.M. Wit[2], C. Rokx[1], M.E. van der Ende[1], P. Reiss[2], B.J.A. Rijnders[1], on behalf of the ATHENA national observational HIV cohort
[1]Erasmus MC, Rotterdam, Infectious Diseases, Rotterdam, Netherlands, [2]AMC, Stichting HIV Monitoring and Department of Global Health and Division of Infectious Diseases, Amsterdam, Netherlands

Background: Immune Reconstitution Inflammatory Syndrome (IRIS) is a pathological immune response against antigens of opportunistic infections (OI). However, comparative data on incidence, timing, and outcome of IRIS in relation to the specific OI present are lacking.
Methods: Observational study in the ATHENA-cohort. IRIS case-finding by chart review was done for all cART-naïve patients starting cART between 03-2009 and 03-2017 if they were considered at risk for IRIS according to the following criteria: (1) pre-cART CD4 < 200 cells/mm³ and (2) either an OI diagnosis before or shortly after cART initiation, or died, or received systemic corticosteroids < 12months after cART initiation. IRIS was defined according to predefined criteria as described by French et al. We evaluated the risk for developing IRIS for the following OIs: PCP, TB, MAC, CMV, Kaposi's sarcoma (KS), cerebral toxoplasmosis (Toxo), and cryptococcal meningitis (CM). We also evaluated the risk of receiving corticosteroids, (re)hospitalization, and mortality after cART-initiation in patients diagnosed with and without IRIS.
Results: We identified 672 patients at risk for IRIS with a median CD4 count of 34 cells/mm³ and 1.5 OI per patient at HIV-diagnosis; 75 (11.2%) developed IRIS. Compared with the overall study population, those diagnosed with MAC (OR 5.59 (95%CI 2.43-12.82), p< 0.001), TB (OR 2.53 (1.23-5.19), p=0.01), and CM (OR 3.21 (1.11-9.27), p=0.03) were at increased risk of IRIS while those diagnosed with PCP, KS, Toxo, or CMV were not. Patients with IRIS were (re)hospitalized more often (OR 2.78 (1.66-4.65), p< 0.001) and longer (+6 days) and tended to receive corticosteroids more often (OR 1.67 (0.95-2.94), p=0.08). The overall 1-year mortality in patients with or without a IRIS was comparable (9.3% versus 9.5%). The median time after cART initiation at which IRIS was diagnosed was 58, 51, 47, 33, 31, 29, and 11 days for IRIS related to KS, MAC, TB, CM, Toxo, CMV, and PCP (p=0.02).
Conclusions: Compared with other OIs, MAC, TB, and CM were associated with an increased risk of IRIS. Furthermore, IRIS was associated with an increased risk for (re)hospitalization but not associated with mortality. IRIS in patients with PCP was diagnosed earlier than IRIS observed with other OIs.

WEPEB040

Successful discontinuation of itraconazole for secondary prophylaxis of talaromycosis in patients with HIV in Myanmar

N.N. Tun[1,2], A. McLean[3], X. Carr-Deed[4], Z.M. Tun[4], M.M.M. Hlaing[4], Y.Y. Aung[4], E. Wilkins[4], E. Ashley[5], F. Smithuis[4,5]
[1]Medical Action Myanmar, Medical Coordination Department, Yangon, Myanmar, [2]Myanmar Oxford Clinical Research Unit, HIV/TB Research Unit, Yangon, Myanmar, [3]Myanmar Oxfor Clinical Research Unit, Yangon, Myanmar, [4]Medical Action Myanmar, Yangon, Myanmar, [5]Myanmar Oxford Clinical Research Unit, Yangon, Myanmar

Background: Talaromycosis (formerly Penicilliosis) is an important AIDS defining opportunistic infection and cause of death in HIV patients in Southeast Asia. Typical manifestations include fever, weight loss, umbilicated skin lesions and lymphadenopathy. Medical Action Myanmar is a medical organization which operates four HIV clinics in Yangon suburbs under the National AIDS Program. This analysis aimed to describe the characteristics and treatment outcomes of patients clinically identified with Talaromycosis.
Methods: We conducted a retrospective cohort analysis of patients identified with Talaromycosis among HIV patients between June 2009 and June 2017. The diagnosis was made clinically, where possible it was confirmed by Giemsa stained skin-slit smear. Most patients were treated with amphotericin for 2 weeks, followed by itraconazole (400 mg od) for 8-10 weeks, and itraconazole (200mg od) for secondary prophylaxis until the patient is stable on HAART for more than 1 year with a CD4 count greater than 100 cells/ul.
Results: Among 5,466 HIV patients, 46 patients were diagnosed with Talaromycosis. The skin smear was positive in 39 (85%) patients. Median CD4 was 24 (IQR: 14-40), 34 (74%) of patients were male (53% of all HIV patients were male) and 29 (63%) were diagnosed with Talaromycosis before starting HAART. The most common clinical findings at presentation were anaemia (92%), umbilicated skin papules (85%), and hepatomegaly (65%). Median temperature at presentation was 38 (IQR: 37.3-39.0). 31 (67%) patients were receiving TB treatment at Talaromycososis presentation. Median amphotericin treatment length was 14 days (IQR: 13-14 days) and median itraconazole treatment length was 329 days (IQR: 195-455 days).
9 (20%) patients died, with a median time to death of 106 days (IQR: 94-168 days). 33 (72%) patients recovered from illness. Median follow up of all patients was 2.9 years (IQR: 0.8-5.5 years). 25 patients discontinued secondary prophylaxis and none of these patients experienced a relapse (total person years after discontinuation of secondary prophylaxis = 75.2; median 2.2 (IQR=1.6-5.6).
Conclusions: Secondary prophylaxis was stopped in 25 patients without negative consequences. This finding contributes to the mounting evidence that secondary prophylaxis can be discontinued safely after patients are immunologically reconstituted.

Tuberculosis

WEPEB041

Utility of gene Xpert MTB/RIF as a screening assay for tuberculosis in HIV-infected patients from a rural setting of Rakai district, Uganda

R. Muwanika
Rakai Health Sciences Program, Laboratory, Kalisizo, Uganda

Background: The current practice in Uganda is that all HIV-infected patients are screened for tuberculosis. The use of gene Xpert MTB/RIF in Uganda has been extended to a hub Laboratory system at the district level as the point of care testing. We sought to evaluate the utility of gene Xpert MTB/RIF as screening assay for HIV infected patients.
Description: We reviewed gene Xpert MTB/RIF Laboratory test records for Rakai district from April 2014 to May 2017 for 36 health facilities. All facilities collected sputum samples from HIV infected patients and

referred them through a trained sample transporter to the district hub Laboratory for testing.

Lessons learned: Among the 1221 sputum samples collected, 1163 (95.3%) were smear microscopy negative while 58 (4.7%) were smear microscopy positive. All the samples were forwarded for gene X-pert testing. Among the 1163 smear negative presumptive TB patients, 61 (5.25%) had MTB on gene X-pert. Among the 58 smear positive patients, MTB was detected in 55 (94.83%) patients. The sensitivity and specificity of gene Xpert was 47.4% (55/116) and 99.7 % (1102/1105) respectively. The positive and negative predictive values were 94.8% (55/58) and 94.8% (1102/1163) respectively.

Conclusions/Next steps: The gene Xpert MTB/RIF assay improved the detection of 61 (52.59%) MTB cases. These would have missed treatment if smear microscopy alone was used. More MTB/RIF machines are needed at lower health facilities with high patient volumes to increase the case detection rate of MTB.

WEPEB042

Performance of a simple flow cytometric assay in the diagnosis of active TB

S. Ubolyam[1], T. Iampornsin[1], J. Sophonphan[1], A. Avihingsanon[1], G. Suwanpimolkul[2], K. Kawkitinarong[2], J. Ananworanich[3], K. Ruxrungtham[1], A. Kelleher[4], D. Cooper[4]

[1]HIV-NAT, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [2]Faculty of Medicine, Chulalongkorn University Hospital, TB Center, Bangkok, Thailand, [3]Henry M. Jackson Foundation for the Advancement of Military Medicine, MD, United States, [4]The Kirby Institute for Infection and Immunity in Society, University of New South Wales, Sydney, Australia

Background: The performance of a flow cytometric assay that measures Mycobacterium tuberculosis (MTB) specific memory CD4 T cell responses using CD25/CD134 surface coexpression (OX40 assay) was explored as a potential diagnostic for patients being investigated for active tuberculosis (TB) in a Thai population with and without HIV.

Methods: Cryopreserved peripheral blood mononuclear cells (PBMC) from 133 participants collected at their first clinic visit were selected from 2 populations: 76 participants with definitive final diagnosis of TB defined as a confirmatory of TB culture and clinical diagnosis judgment by physician and 57 participants without TB. Memory CD4 T cell responses were evaluated by measuring co-expression of CD25 and CD134 on CD4 T cells after stimulation with several MTB antigens (CFP-10 and ESAT-6 peptides, PPD and combination peptides of CFP-10 + ESAT-6 (combined RD-1); OX40 assay). These were compared to the results of the sputum based Xpert MTB/RIF assay. The OX40 assay and Xpert MTB/RIF assays' sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) with 95% confidence intervals (CI) were calculated.

Results: The median age was 42 years (IQR 31.7-57.7). 87 (65.9%) were males. The majority were new TB cases; with 36 cases (27%) were retreatment cases. 45 of 133 participants (33.8%) had HIV.

The overall sensitivity of the OX40 assay was 94.7 (CI 87.1-98.5)%. In HIV seropositive cases, the sensitivity was 100 (CI, 88.8-100)%, whereas in HIV-negative cases was 91 (CI, 78.8-97.5)%. By comparison, the overall sensitivity of Xpert MTB/RIF was 90.8 (CI, 81.9-96.2)%. The specificity of the OX40 assay was 71.9 (CI, 58.5-83)% wheras the Xpert MTB/RIF was 94.7 (CI, 85.4-98.9)%. The positive predictive value (PPV) of the the OX40 assay was 81.8 (CI, 72.2-89.2)% and the PPV of Xpert MTB/RIF was 95.8 (CI, 83-99.1)% . The negative predictive value (NPV) was 91.1 (CI, 78.8-97.5)% and the NPV of Xpert MTB/RIF was 88.5 (CI, 77.8-95.3)%.

Conclusions: Using OX40 assay for the diagnosis of active TB in Southeast Asia with high TB and HIV burdens could be highly beneficial for immediate diagnosis and treatment of TB, especially for those who have difficulty providing sputum or have extrapulmonary TB.

WEPEB043

Incidence of tuberculosis among household contacts of pulmonary TB patients in northern Nigeria: A prospective study

J.P. Edor[1], D. Magaji[2], B. Dantala[3], A. Adediran[4], A. Ekpenyong[5], H. Dikko[6], O. Onifade[6], J. Mullis[7]

[1]Save the Children International, STEER Project, Bauchi, Nigeria, [2]United States Agency for International Development, Office of HIV/AIDS & TB, Abuja, Nigeria, [3]Save the Children International, STEER Project, Kano, Nigeria, [4]Save the Children International, STEER Project, Lagos, Nigeria, [5]Save the Children International, STEER Project, Calabar, Nigeria, [6]Save the Children International, STEER Project, Abuja, Nigeria, [7]SCUS, OVC STEER, Washington, United States

Background: Tuberculosis (TB) has remained a public health problem globally and in Nigeria despite the availability of treatment. Contacts of smear positive TB patients are at higher risk of acquiring either active TB or TB infection. This study seeks to determine the incidence of Tuberculosis among Household contact of pulmonary TB patients in two states in Northern-Nigeria.

Methods: This prospective study was carried out from January to September, 2017 in 64 Local Government Areas of Kano and Bauchi states where community Childhood TB care (CTBC) was integrated into an existing USAID funded project; the Systems Transformed for Empowered Actions and Enabling Responses (STEER) for Orphans and Vulnerable Children. Household contacts of smear positive Tuberculosis patient were screened using the standard National contact tracing tool and all presumptive TB cases were referred to DOTS centers for testing using the combined method of gene Xpert, Microscopy and Chest X-ray. The study covered 3796 index cases including 3457 adults and 339 Children. The age bracket for children in this study was between 11-18 years old as applicable for Orphan and Vulnerable Children (OVC) programming although the National TB classifies all children above 15 years old as adult. The 3796 index cases included in this study were in contact with 183752 persons (in approximately 36750 Households) comprising 96015 adults and 87737 children.

Results: Of the 183752 contacts of the index cases screened, 12396 presumptive TB cases were identified with 707 confirmed as TB cases. This represent an incidence of 385 per 100,000 populations which is higher than the estimated National incidence of 219 per 100,000 in 2017. Adult household contacts were more commonly infected (554 per 100,000 adults) than children who were contacts (199 per 100,000 children) with a relative risk of 2.8 (95%CI: 2.4 - 3.3). Furthermore, of the 707 contact diagnosed with TB, 23 (3.3%) tested positive to HIV.

Conclusions: The incidence of TB among household contacts of TB patients is high in Northern-Nigeria with adult contacts at greater risk than children. Active screening of household contact of TB patient should be prioritized to reduce the burden of TB in this region.

WEPEB044

One year follow up of HIV+ patients in Mozambique with and without tuberculosis at baseline

F. Ciccacci[1], M. Floridia[2], M. Andreotti[2], A. Ruiz de Andrés[3], J. Cebola[4], H. Sotomane[5], E. Mutemba[5], M. Xavernice[5], S. Orlando[1], S. Mancinelli[1], M. Giuliano[2], L. Palombi[1], M.C. Marazzi[6]

[1]University of Rome Tor Vergata, Department of Biomedicine and Prevention, Rome, Italy, [2]National Center for Global Health, Istituto Superiore di Sanità, Rome, Italy, [3]IrsiCaixa - Institute for AIDS Research, Hospital Germans Trial I Pujol, Badalona, Spain, [4]Community of S. Egidio, DREAM Program, Beira, Mozambique, [5]Community of S. Egidio, DREAM Program, Maputo, Mozambique, [6]LUMSA University, Rome, Italy

Background: Tuberculosis (TB) is a major cause of morbidity and mortality in many African countries, especially in HIV+ patients, with important economic and public health consequences. Integrated strategies for HIV and TB diagnosis and care are being implemented, but information on their impact in terms of mortality is still limited.

Methods: This study was conducted in the NGO DREAM health centres of Maputo, Machava and Beira (Mozambique). A cohort of HIV+ patients >15 years eligible for antiretroviral therapy (ART) and screened for TB

with Xpert MTB/RIF on sputum and with a LAM test on urine was analysed after one year of follow up. Patients positive to either Xpert or LAM were considered TB-infected and referred for TB treatment. All patients were prescribed ART. Survival was analysed using Kaplan-Meyer method and Cox regression analysis.

Results: As of October 2017, among the 1004 patients enrolled, 972 had a complete diagnostic algorithm (58.5% women, median CD4 cell count: 278 cells/mm³, WHO-HIV stage I: 66.8%, median haemoglobin 11.8 g/dL). Ninety-eight of them (10.1%) were diagnosed with TB. This diagnosis was associated with significantly lower CD4 and haemoglobin levels, more advanced WHO stage, and higher HIV-RNA levels.

One-year follow-up information was available for 926 patients, for a cumulative follow up of 812.2 person-years. Follow up status at 12 months was as follows: 33/926 deceased (3.6%), 765/926 in follow up (82.6%), 87/926 lost to follow up (9.4%), 29/926 transferred (3.1%), 12/926 study dropout (1.3%). Among patients surviving in follow up and with laboratory information, median haemoglobin and CD4 at 1 year were respectively: 12.3 g/dL (interquartile range: 11.3-13.6, n: 384) and 460 cells/mm³ (299-646, n: 406). In a Cox regression model only CD4 count< 200 cells/mm³ (HR 3.7, 1.56-9.07) and TB infection (HR 5.6, 2.63-12.21) appeared to be independently associated with death.

Conclusions: One-year mortality involved almost 4% of patients eligible for ART, and TB represented the main cause of death. The association of TB and low CD4 counts with mortality suggests the need to implement through an integrated approach an earlier diagnosis of both diseases.

WEPEB045

Mining areas, one of the hotbeds of tuberculosis and HIV AIDS. Case of mining areas in eastern Democratic Republic of Congo

O. Rusumba[1], N. Nyakabwa[2], V. Bola[3], F. Birembano[4], I. Alain[1]
[1]Ambassadeurs de Lutte contre la Tuberculose et le VIH, HIV/ Tuberculosis, Bukavu, Congo, Democratic Republic of the, [2]Catholic University of Bukavu, Bukavu, Congo, Democratic Republic of the, [3]Challenge TB Project/The Union, Communities, Kinshasa, Congo, Democratic Republic of the, [4]National TB Program, TB, Bukavu, Congo, Democratic Republic of the

Background: According to the 2017 global tuberculosis report, DRC has a population of 79 million inhabitants and an annual incidence of 323 (209-461) cases of active tuberculosis per 100,000 inhabitants and per year and 1.4% HIV prevalence rate in the province of South Kivu. Our hypothesis is that this incidence is significantly elevated in high-risk communities, especially in the important artisanal mining sector of South-Kivu province.

Methods: We involved volunteers former TB patients and people living with HIV AIDS to actively screen people for TB or HIV symptoms in the mining communities.

The intervention was implemented in 10 mining health districts. These districts provide care for an estimated population of 1.2 million. Since January to December 2016, 360 volunteers were involved to perform verbal screening for TB and HIV symptoms in the mining communities and referral TB suspects for smear microscopy, sensitized all new TB patients to HIV test. Volunteers received financial support for the logistical costs of their activities. The data are validated regularly by the National HIV and TB Programs in the provinces.

Results: Throughout 2016, 31, 961 verbal screening events were conducted, resulting in the detection of 8,690 (27%) TB suspects. All TB suspects were referred for smear microscopy testing, resulting in 1,458 new TB cases (17%) detected. Of the 1,458 TB patients, 682 (47%) were tested for HIV, of whom 117 were positive (17%); 98 or 83% were put on cotrimoxazole and only 76 patients received ARV treatment

Conclusions: This study shows,

- that minerals from DR Congo, in addition to being an opportunity for the country are also an active outbreak of tuberculosis and HIV AIDS,
- that the active and systematic search for tuberculosis in people living with HIV / AIDS and HIV / AIDS in TB patients is a solution to the problem of under-detection,
- that More than 30% of people affected by HIV / AIDS are not treated.

WEPEB046

"*Life continues*": Patient, health-care worker and community care worker perspectives on self-administered treatment for rifampicin-resistant tuberculosis in Khayelitsha, South Africa

E. Mohr[1], L. Snyman[1], Z. Mbakaz[1], V. De Azevedo[2], Y. Kock[3], L. Trivino Duran[1], T. Cassidy[4], E. Venables[5,6]
[1]Medecins Sans Frontieres, Cape Town, South Africa, [2]City of Cape Town Health Department, Cape Town, South Africa, [3]Provincal Government of the Western Cape, Cape Town, South Africa, [4]Medecins Sans Frontieres, Khayelitsha, South Africa, [5]Medecins Sans Frontieres South African Medical Unit, Cape Town, South Africa, [6]University of Cape Town, Cape Town, South Africa

Background: Self-administered treatment (SAT) for rifampicin-resistant tuberculosis (RR-TB) might address adherence challenges faced by patients and health care systems. This study explored patient, health-care worker (HCW) and community care worker (CCW) perspectives on a SAT intervention in South Africa, in which patients were given a medication supply to take at home with a CCW's support.

Methods: We conducted a mixed-methods study from July 2016-June 2017 in Khayelitsha, South Africa, a setting with a high burden of HIV. The quantitative component included standardized questionnaires with patients, HCWs and CCWs; and the qualitative component involved in-depth interviews with patients enrolled in the intervention for varying lengths of time. Interviews were conducted in IsiXosa, translated, transcribed and manually coded. Thematic analyses were conducted.

Results: Overall, 27 patients, 12 HCWs and 44 CCWs were enrolled in the quantitative component: 9 patients were also interviewed. Of note, 82% and 63% of the patients who completed the standardized questionnaires were HIV-infected and received a monthly supply of RR-TB treatment, respectively. Most HCWs and CCWs (83% and 73%, respectively) understood the intervention; approximately half (52%) of the patients could not correctly describe the intervention. Overall, 92% and 93% of HCWs and CCWs reported that the SAT intervention promoted treatment adherence. Additionally, 92% of HCWs reported that the intervention relieved pressure on the clinic. Interestingly, 70% of patients believed that not all RR-TB patients should be enrolled in SAT; listing adherence as a main concern. Key qualitative themes from patients highlighted the importance of a support person and how the flexibility of SAT enabled integration of treatment into their daily routines and reduced time spent in clinics.

Conclusions: The SAT intervention was acceptable from the perspective of patients, HCWs and CCWs and should be considered as a differentiated model of care for RR-TB, particularly in settings with high burdens of HIV in order to ease management of treatment for patients and health care providers.

WEPEB047

Tuberculosis incidence, risk factors and associated mortality in adults living with HIV, on antiretroviral therapy, in Thailand: A 12-year cohort study

A. Duclau[1,2,3], N. Salvadori[1,2], A. Nechba[1,2], S. Kawilapat[1,4], E. Cercier[3], P. Traisathit[4,5], S. Khusuwan[6], P. Kanjanavikai[7], M. Techapornroong[8], S. Thongpaen[9], Y. Buranawanitchakorn[10], R. Lertkoonalak[11], P. Sang-a-gad[12], S. Le Coeur[2,13,14], M. Lallemant[1,2,14], N. Ngo-Giang-Huong[1,2,14], G. Jourdain[1,2,14]

[1]Institut de Recherche pour le Développement (IRD) UMI 174-PHPT, Marseille, France, [2]Faculty of Associated Medical Sciences, Chiang Mai University, Chiang Mai, Thailand, [3]Institut de Santé Publique d'Epidémiologie et de Développement (ISPED), Bordeaux, France, [4]Chiang Mai University, Department of Statistics, Faculty of Science, Chiang Mai, Thailand, [5]Center of Excellence in Bioresources for Agriculture, Industry and Medicine, Faculty of Science, Chiang Mai University, Chiang Mai, Thailand, [6]Chiangrai Prachanukroh Hospital, Chiang Rai, Thailand, [7]Banglamung Hospital, Pattaya, Thailand, [8]Prapokklao Hospital, Chanthaburi, Thailand, [9]Mahasarakam Hospital, Sarakham, Thailand, [10]Chiang Kham Hospital, Phayao, Thailand, [11]Maharat Nakhon Ratchasima Hospital, Nakhon Ratchasima, Thailand, [12]Ratchaburi Hospital, Ratchaburi, Thailand, [13]Institut National d'études démographiques (Ined), Paris, France, [14]Harvard T.H. Chan School of Public Health, Boston, United States

Background: Tuberculosis remains a major cause of mortality in HIV-infected individuals worldwide and in Thailand, one of the 22 countries with high tuberculosis burden listed by the World Health Organization. Data on tuberculosis in HIV-infected adults on antiretroviral treatment (ART) are limited in Thailand. We estimated tuberculosis incidence, its risk factors and the contribution of tuberculosis on the risk of death using prospectively collected data from a large multicenter cohort of HIV-infected adults, on ART, in Thailand (ClinicalTrials.gov: NCT00433030).

Methods: This is an analysis of all tuberculosis cases occurring among HIV-infected adults who initiated first-line antiretroviral therapy in the cohort between 1999 and 2012. The incidence of tuberculosis was defined as the number of patients with a tuberculosis diagnosis >90 days after ART initiation divided by the total person-years of follow-up (PYFU). Risk factors for incident tuberculosis were assessed using cause-specific competing risks models treating death from other causes as a competing event, and risk factors for death using Cox models.

Results: At ART initiation, 1932 adults (79% female) had a median age of 32 years (IQR, 27-37). Median duration of follow-up was 7 years (2.5-8.3). During follow-up, median body mass index (BMI) was 21.3 (19.4-23.4) and CD4 387 cells/mL (265-504). Sixty-two patients were diagnosed with incident tuberculosis, leading to an overall incidence of 5.4 per 1,000 PYFU (95% CI, 4.2-6.9). Incidence rates sharply decreased with ART duration, from 20.3 per 1,000 PYFU (95% CI, 11.9-37.7) from 3 to 6 months after ART initiation to 2.2 per 1,000 PYFU (95% CI, 1.1-4.2) after 5 years. Higher neutrophil count and lower BMI, hemoglobin level and CD4 count, during follow-up, were associated with a higher risk of incident tuberculosis. Diagnosis of incident tuberculosis was associated with mortality (adjusted hazard ratio 3.0, 95% CI 1.3-6.8, p< 0.001).

Conclusions: Tuberculosis incidence decreased with ART duration, but remained higher after 5 years of ART compared to an estimate in the general population in Thailand (1.2 per 1,000 PYFU). Incident tuberculosis was associated with the risk of death. Our analysis suggests that lower BMI, CD4 counts, hemoglobin levels or higher neutrophil counts, may prompt clinicians to investigate possible tuberculosis infection.

WEPEB048

Pulmonary function and quality of life in HIV positive and negative patients with treated smear positive pulmonary tuberculosis at three tuberculosis clinics in Nairobi, Kenya

P. Mugo[1], J. Omonge[2], C. Muhwa[3]

[1]Nyahururu County Referral Hospital, Laikipia County, Nyahururu, Kenya, [2]University of Nairobi, Clinical Medicine and Therapeutics, Nairobi, Kenya, [3]Kenya Association for the Prevention of TB and Lung Diseases (KAPTLD), Nairobi, Kenya

Background: The effects of tuberculosis on pulmonary function and quality of life among HIV positive and negative patients has been described in selected populations. The purpose of the study was to evaluate the type of pulmonary impairment, the factors associated with such impairment and the effect of tuberculosis on quality of life of patients.

Methods: This was a cross sectional study conducted at *Riruta, Kangemi and Kibera* Health Centres, Nairobi, between May and June 2012. Patients above the age of 15 years with cured smear positive TB two years prior to the study were assessed for their health status using the St Georges Respiratory questionnaire (SGRQ) and pulmonary function using spiro lab III spirometer. The primary outcomes were abnormal lung function and SGRQ score. Data was entered using Microsoft office excel 2010 and analysis carried out using *stata statistical software version 11.*

Results: A total of 183 patients were enrolled. 58% were males and 42% were females. Out of these,33% were HIV positive. 85% of the HIV positive patients were on HAART. The median age of the study population was 29.5years (IQR 25-38 years) and the median duration after starting TB treatment was 11.4 months. 78% of the patients were nonsmokers while 22% were current or former cigarette smokers. The median BMI was 21.1kg/m^2 (Range 12.5 - 37). 53 patients (29%) had pulmonary impairment, the commonest being restrictive defects in 42 patients (23%, 95% CI, 16.8-29.1%). Patients with abnormal lung function were younger [median age, 29 years (IQR, 22-36) vs 34 years (IQR, 27-39), p= 0.036], more likely to be underweight (38% vs 9%, P= < 0.005) and had a lower prevalence of HIV (20.8% vs 37.7%, p=0.027). Low BMI was the only independent predictor of pulmonary function abnormality (p=0.001). The median QOL total score from the SGRQ was 3.16 (IQR, 0 - 8.9) signifying good QOL. There was no correlation between QOL and pulmonary function.

Conclusions: The commonest lung function abnormality post TB treatment was restrictive defect. Body mass index was the only independent predictor of abnormal pulmonary function. HIV infection was not an independent predictor of abnormal pulmonary function post TB treatment.

WEPEB049

Health-related quality of life in the A5274 trial (REMEMBER) of empirical tuberculosis (TB) therapy versus isoniazid preventive therapy (IPT) in adult outpatients with advanced HIV

R. Lando[1], X. Sun[2], S. Miyahara[2], M. Hosseinpour[3,4], G. Bisson[5], J. Kumwenda[6], A. Gupta[7], M. Nyirenda[6], K. Katendey[8], T. Torres[9], N. Suryavanshi[10], F. Beulah[11], N.S. Shah[12], A5274 Study Group

[1]Kenya Medical Research Institute, Kisumu, Kenya, [2]Harvard T.H. Chan School of Public Health, Boston, United States, [3]University of North Carolina School of Medicine, Chapel Hill, United States, [4]UNC Project, Lilongwe, Malawi, [5]Perlman School of Medicine at the University of Pennsylvania, Philadelphia, United States, [6]Malawi College of Medicine-Johns Hopkins University Research Project, Blantyre, Malawi, [7]Johns Hopkins University School of Medicine, Baltimore, United States, [8]Joint Clinical Research Centre Clinical Research Site, Kampala, Uganda, [9]Instituto Nacional de Infectologia Evandro Chagas (INI-FIOCRUZ), Rio de Janeiro, Brazil, [10]Byramjee Jeejeebhoy Government Medical College Clinical Trials Unit, Pune, India, [11]YRGCARE Medical Centre, Chennai Antiviral Research and Treatment Clinical Research Site, Chennai, India, [12]Centers for Disease Control and Prevention, Atlanta, United States

Background: TB is the leading cause of morbidity and mortality in people living with HIV (PLHIV). A5274 randomized PLHIV with CD4 < 50 cells/uL to empirical TB therapy versus IPT, in addition to antiretroviral therapy (ART). At 24 weeks, mortality did not differ (n=22 [5%] per arm). To evaluate

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impact on morbidity, we compared health-related quality of life (HRQoL) between arms, assessed changes over time, and examined associations with sociodemographic and clinical factors.

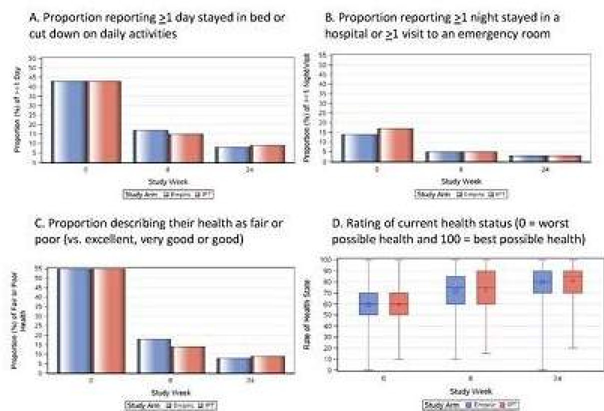
Methods: Participants ≥13 years old were enrolled from outpatient clinics in 10 countries. We assessed seven HRQoL outcomes at weeks 0, 8 and 24: number of:
1) days stayed in bed,
2) days cut down on daily activities,
3) nights spent in a hospital,
4) visits to an emergency room (ER),
5) ability to work or look for work,
6) general health status using 5-point scale, and
7) general health rating (range: 0-100).

Two composite HRQoL outcomes were created by combining (1) items 1 and 2, and (2) items 3 and 4. We used logistic regression to examine HRQoL ('none' vs '≥1 day') by arm, and association with sociodemographic and clinical factors. Changes in HRQoL over time were examined using GEE models .

Results: Among 850 participants (424 in empiric arm, 426 in IPT arm), there was no difference in HRQoL between arms at each time point, but with significant improvement in all domains by 24 weeks (Figure). At 24 weeks, participants with WHO stage 3 or 4 events and grade 3 or 4 signs/symptoms had a higher chance of ≥1 day in bed or decrease in activities [OR (95% CI): 6.5 (3.8, 11.0), p< 0.01 and 4.5 (2.4, 8.1), p< 0.01], and describing one's health as fair or poor [OR (95% CI): 4.7 (2.7, 8.1), p< 0.01 and 3.8 (2.0, 7.1), p< 0.01].

Conclusions: There were no differences in HRQoL between PLHIV receiving empiric TB treatment versus IPT. Although baseline HRQoL was poor in both arms, it improved significantly during the study. Together with the primary trial results, these findings show reduced morbidity with ART, TB screening, and IPT in persons with advanced HIV.

Figure: Health-related quality of life outcomes at baseline, week 8 and week 24 by study arm for: A) combined metric of days in bed or days cut down on daily activities, B) nights stayed in a hospital or visits made to an emergency room, C) general health status, and D) general health status on visual analog scale. Participants reported their health in the last 30 days at week 0; for post-entry visits, the health since the last visit or phone contact was reported.



[Figure. Health-related quality of life outcomes at baseline, week 8 and week 24 by study arm]

WEPEB050

Pharmacokinetics of rifabutin at different doses during atazanavir/ritonavir co-administration in HIV-infected tuberculosis patients in India

A.K. Hemanth Kumar[1], T. Kannan[2], R. Sridhar[3], S.K. Guha[4], D. Khadam[5], N.K. Poorana Gangadevi[6], G. Ramachandran[1]
[1]National Institute for Research in Tuberculosis, Biochemistry & Clinical Pharmacology, Chennai, India, [2]National Institute for Research in Tuberculosis, Statistics, Chennai, India, [3]Government Hospital for Thoracic Medicine, Tambaram, Chennai, Clinic, Chennai, India, [4]School of Tropical Medicine, Clinic, Kolkata, India, [5]B.J. Medical College, Clinic, Pune, India, [6]National Institute for Research in Tuberculosis, Clinic, Madurai, India

Background: The previously recommended rifabutin (RBT) 150mg thrice weekly dose combined with protease inhibitors (PI) in the Revised National TB Control Programme in India was associated with low RBT plasma concentrations. Subsequently, the dose of RBT was increased to 300mg thrice weekly during PI co-administration. We studied the pharmacokinetics of RBT at doses of 300mg thrice weekly and 150mg daily during concomitant atazanavir/ritonavir (ATZ/RTV) administration in adult HIV-infected TB patients treated in the Government programme in India.

Methods: : This was a multi-centric pharmacokinetic study conducted at four sites from April 2016 to July 2017. We recruited 45 adult HIV-infected TB patients, who were being treated for TB with RBT-containing regimen and an antiretroviral treatment regimen with ATZ/RTV, at RBT doses of 300 mg thrice-weekly (n = 36) or 150 mg daily (n = 9). Serial blood draws at 0,1, 2, 4, 6, 8, 12 and 24 hours after drug administration were done at steady state. Plasma RBT was estimated by Chromatographic method.

Results: The median peak concentration (C_{max}) of both doses were within the therapeutic range (0.45 - 0.90 µg/ml). No significant differences between the doses of RBT were observed with respect to median C_{max}, exposure (AUC_{0-24}), proportion of patients having C_{max} above or below the therapeutic range. A higher proportion of patients (16/36; 44%) receiving 300mg thrice weekly dose had C_{min} below the MIC (0.06 µg/ml) compared to those who received 150mg daily dose (2/9; 22%); this difference was not statistically significant. TB treatment outcomes were also similar at both doses. 81% and 71% of patients respectively treated with 300 mg thrice weekly and 150 mg daily doses of RBT had favourable outcome; difference was not statistically significant.

Conclusions: This is the first study from India reported on the pharmacokinetics of RBT at 300mg thrice weekly and 150mg daily during RTV co-administration in HIV-TB patients. From the pharmacokinetic standpoint, both doses were well tolerated, yielded similar plasma RBT concentrations and treatment outcomes. No adverse events that required stopping RBT was observed at both doses. RBT can be administered at either doses during ritonavir co-administration in HIV-TB patients.

WEPEB051

The effect of HIV status on the identification of differentially culturable tubercle bacilli (DCTB) during treatment of drug susceptible tuberculosis

J.S. Peters[1], A. Mc Ivor[1], A. Papadopoulos[1], T. Masangana[1], B.G. Gordhan[1], K. Otwombe[2], Z. Waja[2], N. Martinson[2], F. Shahim[3], B.D. Kana[1]
[1]Centre for Excellence for Biomedical TB Research National Health Laboratory Service Witwatersrand University, Chemical Pathology, Johannesburg, South Africa, [2]Perinatal HIV Research Unit, Faculty of Health Sciences, Witwatersrand University, Chemical Pathology, Johannesburg, South Africa, [3]Clinical Laboratory Services, National Health Laboratory Services, Johannesburg, South Africa

Background: Co -infection with HIV and TB, is a common occurrence in South Africa with about 60% of the TB infected population being HIV+ leading to high mortality rates. Tuberculosis is known to adapt to host stresses by adopting differentially culturable states that require the addition of growth factors to stimulate their growth *in vitro*. Previous studies have reported significant differences in the quanta of differentially culturable tubercle bacilli (DCTB) in HIV- and HIV+ patients in treatment naïve tuberculosis patients. We hypothesized that the quanta of DCTB would fluctuate differently between HIV- and HIV+ individuals during treatment. In this study we assessed the DCTB population in HIV- and HIV+ individuals during 6 months of standard tuberculosis treatment.

Methods: Eighty participants (33.7% HIV- and 66.3% HIV+) from 2 major hospitals in South Africa were enrolled into the study. Participants were TB treatment naïve, drug sensitive, consenting individuals above the age of 18. DCTB in sputum was resuscitated by supplementation of standard growth media with culture filtrate (CF) from axenic cultures of *M. tuberculosis* H37Rv. Most probable number assays (MPN) were used to assess the growth of the DCTB and comparisons with colony forming units (CFU) allowed enumeration of the quanta of DCTB in sputum. Sputum sampling was done at several points during the 6-month treatment period.

Results: Significant differences (p-value < 0.05) in the quanta of DCTB between HIV- and HIV+ were observed during the first month of TB treatment with HIV- consistently having more DCTB than HIV+. The DCTB populations followed one of four trends in response to treatment; 22.7% of patients accumulate DCTB within the first week, 26.7% decline,

22.7% resist treatment for up to 7 days and 28% were unresponsive. These trends were strongly associated with HIV status and the DCTB quanta at enrolment. HIV+ individuals tended to have a lower starting quanta of DCTB compared to the HIV- sub-group (p=0.01) however, their rates of decline over the treatment period were slower than in HIV- sub-groups (p=0.04).
Conclusions: In conclusion, HIV coinfection significantly reduces the DCTB quanta in sputum and affects the manner in which it is cleared by standard chemotherapy.

WEPEB052

Clinical predictors of *Mycobacterium tuberculosis* bacteremia in a contemporary cohort of HIV-infected patients in Rio de Janeiro, Brazil

J. Moreira, R. Castro, C. Lamas, M.C. Lourenco, S. Ribeiro, B. Grinsztejn, V.G. Veloso
Fundacao Oswado Cruz, Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro, Brazil

Background: *Mycobacterium tuberculosis* bacteremia (MTB) is a common cause of bloodstream infection among HIV-infected adults patients living in Brazil. We aimed to estimate the frequency, predictors, and survival of HIV- tuberculosis (TB) co-infected patients who had MTB in a cohort of HIV-infected patients in Rio de Janeiro, Brazil.
Methods: We conducted a retrospective cohort analysis of HIV-TB co-infected adults individuals who initiated TB treatment at INI/FIOCRUZ, between 2010-1015. Patients whose results of blood culture for TB were available were further selected. Results of blood culture and drug susceptibility test for first-line anti-TB treatment were collected from the laboratory records. Multivariable logistic regression was used to determine predictors of MTB bacteremia and Kaplan-Meier estimate to compared the mortality between those with and without MTB using the log-rank test.
Results: During the study period, 473 HIV individuals started TB treatment, of which 362 (76.5%) had blood culture available for TB. Fifty-six (11.8%) had MTB, including 10 (2.1%) with resistance to at least one TB drug. Three fulfilled the criteria for MDR-TB. There was a predominance of males (67.4%), with a mean age 37 ± 10.7 years. The median CD4+ was 101 cells/ul, and half of the patients were under HAART at the time of TB treatment initiation. In a multivariate analysis (Table), the presence of a miliary pattern on chest radiograph [aOR 4.07, 95% CI (1.64-10.09)], a positive acid-fast bacillus smear positivity at diagnosis [aOR 8.66, 95% CI (2.89-25.94)], CD4 < 100 cells/µL [aOR 3.78, 95% CI (1.37-10.45)], and low serum albumin [aOR 0.26, 95% CI (0.09-0.71)] were significantly associated with mycobacteremia. MTB patients had a higher 90-day mortality rate compared to patients without MTB [21.4% *vs.* 6.2%, log-rank test, *p*< 0.0001]. The median turnaround time for positive blood mycobacterial culture was 62 [IQR: 59-66] days.
Conclusions: Mycobacteremia due to *M tuberculosis* occurred in 15% of the HIV-infected patients and was associated with higher mortality compared with those without mycobacteremia.

Characteristics	Univariate analysis unadjusted OR (95% CI)	p-value	Multivariate analysis adjusted OR (95% CI)	p-value
Age (years)	0.9 (0.96-1.02)	0.65	NS	
Miliary pattern on chest image	6.9 (3.7-13)	< 0.0001	4.07 (1.64-10.09)	**0.005**
Acid Fast Bacilli smear positive	8.7 (3.9-19.2)	< 0.0001	8.66 (2.89-25.94)	**< 0.0001**
Fever	4.4 (1.05-19)	0.02	NS	
Recent HIV diagnosis	1.7 (0.9-3.2)	0.05	NS	
HAART experienced	0.6 (0.3-1.2)	0.24	NS	
Current CD4 < 100 cells/mu>l	2.95 (1.67-5.19)	< 0.0001	3.78 (1.37 - 10.45)	**0.01**
C reactive protein (mg/dl)	1.11 (1.06 - 1.17)	< 0.0001	NS	
Albumin (mg/dl)	0.12 (0.06 - 0.23)	< 0.0001	0.26 (0.09 - 0.71)	**0.009**

[Univariate and multivariate analysis of clinical predictors for Mycobacterium tuberculosis bacteremia in a cohort of HIV/TB patients]

WEPEB053

The importance and clinical relevance of baseline LTBI screening in HIV patients

N.S. Wong[1], C.C. Leung[2], K. Chan[3], W.K. Chan[3], A. Lin[3], S.S. Lee[1]
[1]Chinese University of Hong Kong, Stanley Ho Centre for Emerging Infectious Diseases, Hong Kong, China, [2]Tuberculosis and Chest Service, Department of Health, Hong Kong, China, [3]Special Preventive Programme, Department of Health, Hong Kong, China

Background: HIV patients with latent TB infection (LTBI) could be identified by screening followed by treatment, a strategy recommended to reduce TB reactivation. We hypothesize that baseline screening for HIV patients is an important measure which would predict subsequent TB disease development.
Methods: Clinical data and LTBI screening (mainly tuberculin sensitivity testing with small proportion of IGRA) results of HIV patients diagnosed between 2002 and mid-2017 in a major HIV clinic in Hong Kong were accessed retrospectively. Patients aged below 18 at HIV diagnosis or diagnosed with TB within 3 months of HIV diagnosis were excluded. In this cohort, we compared the risk of TB disease development between unscreened patients, those tested with positive and negative results. With TB disease development as an outcome, cox proportional hazard models were performed in SPSS.
Results: Among 3130 eligible patients, 2740 (88%) were male, 2796 (90%) being local residents, and 2450 (78%) were Chinese. A majority (2800, 90%) were aged between 18 and 49 at HIV diagnosis, with 99 (3%) concurrently diagnosed with diabetes mellitus. A total of 723 (23%) patients had not been tested for LTBI, 284 (9%) were positive at the first test, and 2123 (68%) were negative. With 16621 person-years' (PY) follow-up, 94 had developed TB disease. The overall TB incidence was 0.57/100PY (95%C.I.=0.45-0.68): 3.04/100PY (95%C.I.=2.21-4.08) for patients never tested for LTBI, 1.43/100PY (95%C.I.=0.94-2.08) for those tested positive, and 0.21/100PY (95%C.I.=0.14-0.30) who tested negative at the first test. Compared to patients never tested for LTBI, those tested (HR=0.09, 95%C.I.=0.06-0.13) were at significantly lower risk of TB disease development. More unscreened patients were non-Chinese (32% vs 18%), non-local residents (23% vs 7%) and younger at HIV diagnosis (median 32 year-old vs 35 year-old), compared to screened patients. Among LTBI tester, patients positive at the first test (HR=12.14, 95%C.I.=6.98-21.13) had a significantly higher risk for TB disease development, despite the implementation of LTBI treatment.
Conclusions: Baseline LTBI screening for all HIV patients is important for overall reduction of TB incidence. With screening, higher risk individuals who tested positive could be further identified for treatment intervention and subsequent monitoring.

WEPEB054

^{18}F-FDG PET/CT scan in the evaluation of adjunctive host-directed TB therapies

R.S. Wallis[1,2], T. Beattie[1,2], M. Likoti[1,2], B. Ahidjo[1,2], M. Rassool[3], K. Ahmed[2,4], S. Ginindza[1,2], K. Fielding[5], G. Churchyard[1,2], M.D.T. Vangu[2,6]
[1]Aurum Institute, Johannesburg, South Africa, [2]ACT for TB/HIV, Johannesburg, South Africa, [3]Clinical HIV Research Unit, Johannesburg, South Africa, [4]Setshaba Research Centre, Soshanguve, South Africa, [5]London School of Hygiene and Tropical Medicine, London, United Kingdom, [6]University of the Witwatersrand, Nuclear Medicine, Johannesburg, South Africa

Background: Inflammation in the lung in tuberculosis often results in permanent damage despite TB cure. Adjunctive host-directed therapies (HDT) may help reduce inflammation and prevent injury. We used ^{18}F-fluorodeoxyglucose (^{18}F-FDG) positron emission tomography (PET) with computed tomography (CT) to precisely locate and measure metabolic activity of inflammatory cells in the lung in TB in a phase 2 randomized controlled trial of 4 candidate HDT agents in adult TB patients.
Methods: Patients were Xpert Mtb/RIF positive, Ct< 20, rifampin susceptible, HIV-1-negative, with moderately or far advanced disease by chest radiography, and acceptable hematology and chemistry studies. Patients were randomly assigned to receive CC-11050 (a type 4 phosphodiesterase inhibitor), everolimus (an mTOR inhibitor), auranofin (an

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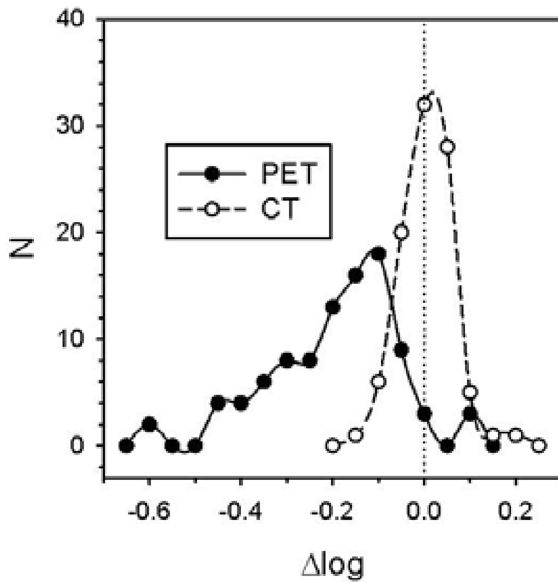
oral gold salt), or vitamin D, with rifabutin-substituted 6-month anti-TB therapy, or that therapy alone. HDT treatment started on day 1 and continued for 4 months. PET/CT scans were performed at baseline and after 8 weeks of treatment. Total body weight-adjusted lung and thoracic lymph node glycolytic activity (SUVbw*ml) and radiographic density (HU*ml) were measured by a single treatment-blinded reader using MIM software. Sputum cultures and lung spirometry were performed at designated intervals during treatment.
Results: Paired baseline and 8wk scans are presently available from 94 subjects for analysis. Total glycolytic activity was 5178±2709 SUVbw*ml at baseline and 3183±1819 at week 8 (P< .001 by paired analysis). The change from baseline was non-normally distributed. It remained so after log transformation, potentially indicating a minority sub-population showing greater treatment effect. In contrast, radiographic density showed no treatment effect (P=.5) and was normally distributed (see figure).
Conclusions: Resolution of lung inflammation during 8 weeks of TB treatment can be detected by ^{18}F-FDG PET but not by CT. Change in PET may be a useful endpoint in phase 2 studies of TB HDT candidates.



[PET/CT histogram]

WEPEB055

Antiretroviral therapy (ART) contribution in reduction of tuberculosis (TB) presumptive and TB cases in people living with HIV (PLHIV) in Swaziland

N. Kisyeri[1], M. Pasipamire[2], N. Lukhele[2], P. Mndzebele[2], S. Chambers[2]
[1]Swaziland National AIDS Program, TB/HIV, Mbabane, Swaziland, [2]Swaziland National AIDS Program, Mbabane, Swaziland

Background: Despite being preventable and curable, TB remains the leading cause of HIV-related morbidity and mortality in Swaziland. In 2016 approximately 70% of TB cases were co-infected with HIV and TB/HIV mortality rate was 14%. Eligibility criteria to start ART changed over the years from CD4 count based (< 350 in 2010 and < 500 in 2015) to treating all in 2016. IPT coverage has remained low in PLHIV (< 10%). In this assessment, we reviewed the occurrence of TB symptoms and TB disease using data from Swaziland National HIV Semi-Annual Reviews (NaHSARs).
Description: Data for NaHSARs were retrospectively collected from client registers and also extracted from electronic medical records for the period October 2014 to June 2017. Pooled data analysis was conducted to describe the TB screening to diagnosis cascade. Results from each NaHSAR were used to describe the trend shown in the occurrence of TB symptoms and TB disease among HIV infected individuals.
Lessons learned: From 2014 to 2017, ART initiation for eligible clients increased from 71% to 89%. There was a progressive increase in the number of clients screened for TB in PreART (4,748 (98%) to 8,946 (96%)) and ART clients (58,320 (96%) to 179,830 (99%)). While the number of patients screened increases, there is a decrease in the proportion of presumptive TB cases from PreART clients (from 17% to 7%). The proportion of TB presumptive among ART clients remained stable at 1%. The TB diagnostic yield among TB presumptive ART patients fell from 473 (70%) to 73 (6%). However, the number of TB diagnosed patients slightly decreased despite increased proportional yield in Pre ART patients from 192(29%) to 162(43%).
Conclusions/Next steps: Occurrence of TB symptoms among PLHIV decreased indicating the possible role of ART in reducing the burden of TB. A possible background risk for developing TB symptoms still exist in HIV infected clients regardless of ART status as shown by the constant proportion of TB symptoms among those on ART. TB disease risk is more pronounced in the Pre-ART population. We urgently have to scale up provision of ART to PLHIV for TB and HIV dual epidemic control.

WEPEB056

Unfavorable TB treatment outcomes among TB/HIV co-infected people: What are we missing?

S. Mutembo[1,2], J. Mutanga[3], B. Mwangelwa[1], C. Kanene[1], J. Mvula[1], J. Chinyonga[1], N. Monze[1], C. Whalen[2]
[1]Ministry of Health, Zambia, Provincial Health Office, Southern, Choma, Zambia, [2]University of Georgia, Epidemiology and Biostatistics, Athens, United States, [3]Livingstone Central Hospital, Paediatrics and Child Health, Livingstone, Zambia

Background: Tuberculosis (TB) coinfection is one of the leading causes of morbidity and mortality among people living with HIV in Zambia. The purpose of this study was to describe TB treatment outcomes among TB/HIV coinfected people and evaluate determinants of unfavorable TB treatment outcomes among TB/HIV coinfected people in southern province of Zambia.
Methods: We used a retrospective cohort design to review medical records of children and adults treated for TB and HIV between 2006 and 2013 at 30 TB diagnostic and treatment centers in Southern province, Zambia. The primary outcome was unfavorable TB treatment outcome as defined by the WHO (treatment failure, died and lost to follow-up) at the end of TB treatment. Crude and adjusted relative risks and their 95% confidence intervals (CIs) were determined through logistic regression and compared differences in unfavorable TB treatment outcomes by age group and evaluated predictors of these outcomes.
Results: Of 13,193 patients, 1,254 (9.5%) were children (< 10 years), 325 (2.4%) were adolescents (11-18 years), 10,914 (72.6%) were adults (19 -55 years) and 700 (5%) were defined as elderly (above 55 years). 3,506 patients were sputum smear positive (26%). After 2010, 65% of TB patients were initiated on combined antiretroviral therapy (cART) either before or during TB treatment (IQR: 54-76%). Overall 11,758 (89.12%) achieved successful TB treatment outcomes (Cure: 8.2%; Completed: 80.9%). Of the patients with unfavorable TB treatment outcomes 399(3.0%) were treatment failure, 708 (5.3%) died while on treatment and 328(2.4%) were lost to follow up. The 19-55 years age group was associated with the highest risk of unfavorable TB treatment outcomes (RR=8.4, referent 0-9 years; 95%CI 5.2-12.7). Starting cART 56 days after TB treatment initiation was associated with a high risk of unfavorable TB treatment outcomes (RR=1.3; 95%CI 1.2- 1.5).
Conclusions: Death was the highest cause of unfavorable outcomes. Age 19-55 years and delay in initiating cART was associated with unfavorable outcomes. There is need to strengthen TB-HIV collaboration by enhancing early initiation of cART. People between 19 and 45 years of age account for a large proportion of TB/HIV coinfections and need special attention to avert the disproportionately higher unfavorable treatment outcomes.

WEPEB057

Data driven insight on TB and HIV co-infections amongst high risk groups in Zimbabwe: TaS4TB 2017 operational year

T. Sengai[1,2,3], F. Kavhenga[4], G. Shumba[4,5]
[1]Family AIDS Caring Trsut, Research and Knowledge Management, Mutare, Zimbabwe, [2]The Union, Harare, Zimbabwe, [3]Ministry of Health and Child Care Zimbabwe, Harare, Zimbabwe, [4]Family AIDS Caring Trust, Mutare, Zimbabwe, [5]USAID Challenge TB, Harare, Zimbabwe

Background: TB epidemic in Zimbabwe is being fueled by the parallel HIV epidemic, as in other countries in the SADC region. Collaborative TB/HIV management is essential to ensure that HIV positive TB patients are identified and treated appropriately, and to prevent TB in HIV positive patients. Another pillar, a response to ending TB deaths as noted in World Health Organization's End TB Strategy document, emphasizes on reliable measurement of progress in reducing TB incidence, TB deaths and catastrophic costs are essential and a cross sectional review with the use of program data has been used to measure TB and HIV co-infections to inform programming for an in-depth planning on further TB response initiatives after Targeted Screening Program.
Methods: A medical team carried out outreach services to communities in the prioritized districts and provided access to free TB Screening to high risk groups. Two screening tools were used to increase sensitivity and these are the symptom screening and digital chest radiography. Presumptive TB patients had a supervised spot sputum specimen collected and examined at the laboratory by XPERT/RIF machine or DSM method depending with availability. All patients due for HIV test were offered a test according to the World Health Organization and national HIV testing guidelines. In the process, a real time electronic data management system was used as an innovative data management tool introduced after tedious use of paper.
Results: 36 811 people were screened for TB and 720 were started on TB treatment. 33.5% (241) came with a known HIV positive result and 84.2% (203) were already on ART, 26.4% (190) presented with a known negative result and 40.1% (289) were tested for HIV. From those tested for HIV on site, 13.8% (40) tested HIV positive and where linked to care. From all the TB diagnosed patients 39.4% (281), either presented HIV positive or tested HIV positive.
Conclusions: HIV positivity rate is low as compared to the Zimbabwe TB prevalence survey done in 2014, which showed that 70% of TB diagnosed patients were HIV positive as compared to 39.4%. However 39.4% is significantly high and TB and HIV co-infection should be reduced significantly.

WEPEB058

Tuberculosis-associated hemophagocytic syndrome in patients living with HIV

N. Lerolle[1], M. Laanani[2], L. Galicier[3], S. Riviere[4], L. Fardet[5], J.-L. Meynard[6], A. Jebaloui[7], V. Lalande[8], F. Mougari[9], P. Coppo[10], J.-M. Molina[11], O. Lambotte[1]
[1]Service de Médecine Interne, Hôpital Bicêtre, APHP, Le Kremlin-Bicêtre, France, [2]Unité de Biostatistiques et Epidémiologie, Hôtel Dieu, Groupe Hospitalier Universitaire Paris Centre, APHP, Université Paris Descartes, Paris, France, [3]Service d'Immunopathologie Clinique, Hôpital St Louis, APHP, Paris, France, [4]Service de Médecine Interne, Hôpital St Antoine, APHP, Paris, France, [5]Service de Dermatologie, Hôpital Mondor, APHP, Créteil, France, [6]Service de Maladies Infectieuses et Tropicales, Hôpital St Antoine, APHP, Paris, France, [7]Service de Microbiologie, Hôpital Bicêtre, APHP, Le Kremlin-Bicêtre, France, [8]Service de Microbiologie, Hôpital Saint Antoine, APHP, Paris, France, [9]Service de Microbiologie, Hôpital Saint Louis, APHP, Paris, France, [10]Service d'Hématologie, Hôpital Saint Antoine, APHP, Paris, France, [11]Service de Maladies Infectieuses, Hôpital Saint Louis, APHP, Paris, France

Background: Reactive hemophagocytic syndrome (HS) is an acquired, potentially life-threatening disorder than can occur in patients with infections. Although tuberculosis is known to trigger HS in few patients, especially in patients living with HIV (PLWH), current knowledge in tuberculosis-associated HS (TB-HS) mainly relies on single-center case series.
Methods: We conducted a retrospective study in which we reviewed the medical records of adult patients diagnosed with microbiologically proved TB-HS between January 2006 and December 2015 in three French tertiary university hospitals, compared to a control group of patients with TB.
Results: Twenty-four patients with suspected TB-HS were selected, and 21 patients with confirmed TB-HS were included. The median age was 37 years (IQR: 30-48), 5 patients (23.8%) were women. Eleven patients (52.4%) were infected with HIV and 7 patients (33.3%) were immunocompromised for other reasons. HIV infection and TB-HS were diagnosed concomitantly in 5 out of 11 cases (45.5%). At HS onset, the median CD4+ cell count was 18/mm³ (IQR 15-190) and the median HIV viral load was 5 log copies/mL (IQR 3.2-5.9).
From 1849 TB cases, 63 patients were randomly selected and 50 were included as control cases. Nine out of these 50 patients were immunocompromised, 6 were infected with HIV. Compared to control cases, patients with TB-HS were younger ($p < 0.05$) and were more likely to be immunocompromised (85.7% vs. 18.0%, $p < 0.0001$). TB was disseminated in 17 TB-HS patients (80%) compared to 6 (12%) control cases ($p < 0.0001$). Median CD4 count was lower in PLWH with TB-HS compared to PLWH with TB (18 vs 252/mm³, p=0.046).
Outcome was poorer in patients with TB-HS, as death occurred in 8 TB-HS patients (38.1%) vs. 3 deaths in control cases (7.3%), p=0.005. Death rate amongst PLWH was 45.4% (5/11) in TB-HS patients vs. 0 (0/6) in control cases. Two out of 5 deaths occurred in the first month and were related to TB-HS.
Conclusions: Features of TB-HS seemed to be particular, with a higher frequency of immunocompromised patients and of disseminated TB and a poorer outcome. Amongst TB/HIV coinfected patients, low CD4 count was associated with a higher risk of HS.

WEPEB059

Two diseases, same person: Moving towards a combined HIV and TB continuum of care

R. Granich[1], S. Gupta[2]
[1]Independent Public Health Consultant, San Francisco, United States, [2]Independent Public Health Consultant, Delhi, United States

Background: The *Human Immunodeficiency Virus* (HIV) and *Mycobacterium tuberculosis* syndemic remains a global public health threat. Separate HIV and TB global targets have been set, however, success will depend on achieving combined disease control objectives along the care continua. We review available policy, budgets and data to reconceptualize TB and HIV disease control objectives by combining HIV and TB care continua.
Methods: For 22 WHO TB and TB/HIV priority countries, we used 2015 data from the published national HIV care continua, UNAIDS AIDSinfo, and WHO 2016 and 2017 Global TB Reports. Global resources available in TB and HIV/TB activities for 2003-2017 were collected from publicly available sources and policy data were collected from published guidelines.
Results: Of the 22 high burden countries, 16 are recommending 'test and treat' for HIV and all are recommending isoniazid preventive therapy (IPT). People living with HIV (PLHIV) on ART ranged from 9-70%; viral suppression of PLHIV was 38-63%. TB case detection and treatment among TB patients ranged from 15-87% and TB treatment success between 71-94%. For HIV/TB patients, ART coverage and TB treatment success were comparatively lower at 1-71% and 20-87%, respectively. Only 3% of PLHIV in the 22 countries reported course of IPT.
Viral suppression data were not available for 13 countries and none of the countries included information regarding the following combined indicators:
(a) TB treatment success and viral suppression among HIV/TB patients,
(b) TB prevention and ART for PLHIV and
(c) HIV prevention interventions for TB patients.
From 2003-2017, global international and domestic resources for HIV-associated TB and TB averaged $2.85 billion per year; the total for 2003-2017 was 43 billion dollars.
Conclusions: Reviewing combined HIV and TB targets demonstrate disease control progress and challenges. Using an integrated HIV and TB continuum supports HIV and TB disease control efforts focused on improving both individual and public health.

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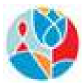
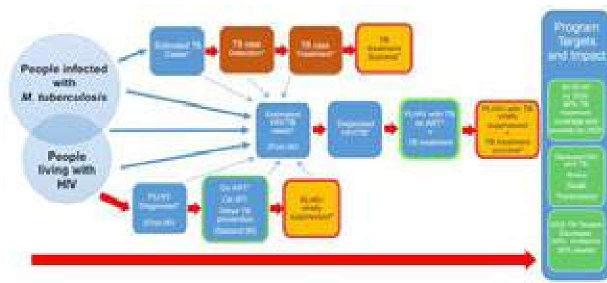




[Combined HIV and TB cascade for High HIV and TB Burden Settings]

WEPEB060

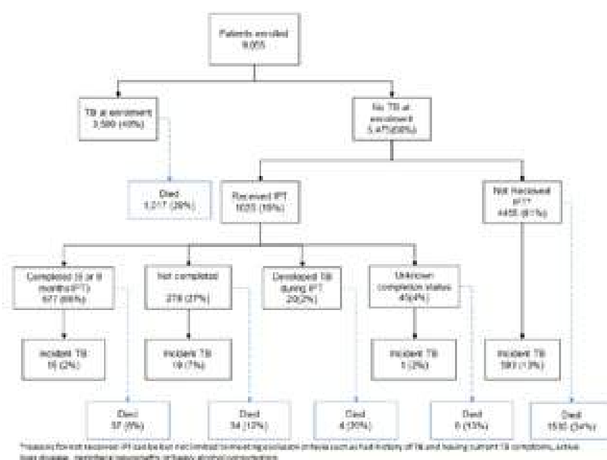
The relationship between Isoniazid preventive therapy and incident TB and all-cause mortality among HIV patients in Myanmar

N.T.T. Kyaw[1,2], K.W.Y. Kyaw[1], A.M. Kumar[3,4], M. Magee[2], M.M. Oo[1], T.K. Aung[5], J. Moe[5], S.S. Thura[5], P. Sone[6], H.N. Oo[6]

[1]International Union Against Tuberculosis and Lung Disease, Operational Research, Mandalay, Myanmar, [2]Georgia State University School of Public Health, Epidemiology and Biostatistics, Atlanta, United States, [3]International Union Against Tuberculosis and Lung Disease, South-East Asia Regional Office, New Delhi, India, [4]International Union Against Tuberculosis and Lung Disease, Center for Operational Research, Paris, France, [5]International Union Against Tuberculosis and Lung Disease, HIV Program, Mandalay, Myanmar, [6]National AIDS Program, Department of Public Health, Nay Pyi Taw, Myanmar

Background: Myanmar has a high HIV and TB burden with the HIV prevalence of 0.8% and TB incidence of 361 per 100,000 population in 2016. The Integrated HIV Care (IHC) program in Myanmar provides HIV clinical care and isoniazid preventive therapy (IPT) to people living with HIV (PLHIV) under care. We aimed to determine the association between completed IPT, and 1) incidence of active TB, and 2) all-cause mortality among PLHIV.

Methods: We conducted a retrospective cohort study among PLHIV registered into IHC program between 2009 and 2014. Patients aged ≥15 years were eligible. We defined IPT use as completed IPT, incomplete IPT, and never received IPT. Patients who took isoniazid 300 mg per day as prophylaxis for 6-9 months were defined as completed IPT. The outcome measures were 1) incident active TB and 2) all-cause mortality. Among those who received IPT, patients diagnosed with active TB >1 month after IPT completion date were defined as incident TB; in those who did not receive IPT, patients diagnosed with active TB >1 month after IHC program registration were defined as incident TB. All-cause mortality was defined as death from any cause between registration date and end of the follow-up(30 June 2017). We used log binomial regression to estimate the association between IPT use and cumulative risk of incident TB and all-cause mortality, adjusting age, sex, baseline CD4, hepatitis co-infection, anemia, and ART status.



[Fig 1: Flow diagram of patients in the program 2009 and 2014, their IPT status, TB incidence and all-cause mortality]

	total	Incident tuberculosis			Mortality		
	n	n(%)	crude RR (95% CI)	adjusted* RR (95% CI)	n(%)	crude RR (95% CI)	adjusted** RR (95%CI)
Isoniazid Preventive Therapy status							
Never received	8035	593 (7.4)	3.3 (2.0-5.5)	3.1 (1.8-5.1)	2547 (31.7)	5.8 (4.2-7.9)	3.7 (2.6-5.1)
Completed	677	15 (2.2)	1.0	1.0	37 (5.5)	1.0	1.0
Not completed	343	25 (7.3)	3.3 (1.8-6.1)	3.2 (1.7-6.0)	44 (12.8)	2.3 (1.5-3.6)	2.1 (1.4-3.3)
*adjusted for age, sex, baseline CD4 cell counts, and ART status							
**adjusted for age, sex, baseline CD4 cell counts, hepatitis B and C co-infection, anemia status and ART status							

[Table 1: Adjusted measure of association between IPT status and incident TB and all-cause mortality among people living with HIV in Myanmar]

Results: Among 9,055 PLHIV registered, 1,020 received IPT and 677 (66%) completed IPT. Overall, 633 (7%) patients developed incident TB and 2628 (29%) patients died during the follow-up (Fig 1). Patients who never received IPT had a higher risk of incident TB [adjusted risk ratio (aRR) 3.1, 95% confidence interval (CI) 1.8-5.2] and risk of mortality [aRR 3.7, 95%CI 2.6-5.1] compared to patients who completed IPT. Patients who received IPT but did not completed IPT also had a higher risk of incident TB [aRR 3.2 95%CI 1.7-6.0] and risk of mortality [aRR 2.1, 95%CI 1.4-3.3] (Table-1).

Conclusions: IPT completion significantly reduced risk of active TB and death among people living with HIV in this setting.

WEPEB061

A retrospective study to evaluate correlates of treatment outcome among HIV-TB co-infected patients from an ART centre in Mumbai, India

Y. Kabra[1], S. Acharya[2], P. Keskar[2]

[1]Seth GS Medical College and KEM Hospital, Community Medicine, Mumbai, India, [2]Mumbai Districts AIDS Control Society, NACO, Mumbai, India

Background: HIV/AIDS pandemic has caused a resurgence of TB, resulting in increased morbidity and mortality worldwide. HIV-infected persons are at markedly increased risk for progressive disease following primary TB infection, as well as reactivation of latent tuberculosis infection (LTBI). Clinical presentation of TB in HIV-infected individuals depends on the level of immune suppression resulting from HIV infection. Variables of outcome after treatment of tuberculosis among People Living with HIV/AIDS (PLHA) are not well elucidated in developing countries with limited resources. Hence this study was undertaken to assess socio-demographic correlates, clinical profile & treatment outcome of tuberculosis disease among people living with HIV/AIDS, registered at an ART centre in Mumbai.

Methods: The retrospective study was based on secondary data of TB-HIV co-infected patients, registered for treatment & care at Govandi ART centre, situated in dense overcrowded and majority migrant slum province in Mumbai city. All the patients (377) diagnosed as co-infected during period 2016-2017 were included in the study. The socio-demographic details of the patients, clinical presentation of TB disease, and progress with Anti-retroviral & anti-TB treatment were assessed from patient´s treatment cards, TB HIV line list and HIV-TB register. Tests viz Chi square test, Fishers exact test & multivariate analysis were used for significance.

Results: Among 377 patients, 226(59.9%) were Males and 151(40.1%) were females.198 (52.5%) PLHAs had Pulmonary TB, 165 (43.8%) had Extra-pulmonary TB and 14(3.7%) were diagnosed with Multi-drug resistant TB. Median CD4 count at TB diagnosis was 207/mm3. 260(68.9%) patients successfully completed Anti- TB treatment, 31(8.4%) expired, 86(22.7%) defaulted. Of the co-infected patients, 354 patients underwent CD4 testing of which 83.04% patients had cd4 count less than 350/mm3. Mean CD4 count of patients who completed treatment was 265.67/mm3(Median 228,SD 212.13/mm3 95% CI) while that of expired patients was 160.38/mm3(Median 120, SD 127.19/mm3 95% CI). The association between CD4 count & treatment outcome was statistically significant

(p< 0.0001). Similarly patients who successfully completed ant-TB treatment showed significant improvement in their CD4 count (p< 0.0001).
Conclusions: Early diagnosis of TB disease among PLHAs improved the chances of successful Anti-TB treatment which helped in immunological improvement in HIV disease.

WEPEB062

Universal anti retroviral therapy eligibility and tuberculosis case finding among HIV infected clients in Malawi - lessons learnt

P. Nyasulu[1], B. Chiwandira[2], M. Odo[2], B. Girma[3], T. Kalua[2], J. Mpunga[3], A. Jahn[2], R. Nyirenda[1]
[1]Ministry of Health, Government of Malawi, Department of HIV & AIDS, Lilongwe, Malawi, [2]Ministry of Health, Department of HIV & AIDS, Lilongwe, Malawi, [3]Ministry of Health, National TB Control Programme, Lilongwe, Malawi

Background: Malawi is a high burden TB and HIV sub-Saharan African country with co-infection rate of about 50%. Undiagnosed TB among PLHIV remains a critical challenge and contributes about 40% of facility-based HIV/AIDS-related adult deaths. In July 2016, Malawi adopted and implemented the World Health Organization (WHO) universal eligibility policy for HIV treatment initiation to improve treatment outcome among patients on ART and minimize the risk of developing HIV-related opportunistic infections such as TB. We evaluate the impact of this policy change on presumptive TB cases and notified TB cases among PLHIV attending ART clinics in Malawi.
Description: This was a retrospective evaluation of routine program data for Malawi before the policy change, between July 2015 to June, 2016, and afterwards, between July, 2016 and June 2017. The evaluation extracted data from the intensified TB case finding section of the national quarterly HIV program reports. Total presumptive TB cases and notified TB cases were compared between July 2015 to June 2016 and July 2016 to June 2017. Annual performance proportions were compared to WHO targets of 5% presumptive cases and 70% case detection rate for the reviewed period. Statistical significance measured at p< 0.05.
Lessons learned: By the end of September 2016, 732 health facilities offering integrated HIV services implemented the policy change. The number of HIV infected clients alive on treatment increased by 12% between the different periods reviewed. The number of presumptive TB cases among PLHIV in care doubled and there was statistical significant relationship with the different reporting periods before and after policy change (X^2 = 1270.96; p < 0.0001). The number of notified TB cases from HIV care increased from 3887 to 7725 after policy change. There was statistically significant relationship in the number of TB cases and the different periods reviewed (X^2 = 183.59; p < 0.0001).The estimated TB case detection rate increased from 46.3% to 58.1% leaving a gap of 11.9% to reach WHO target.
Conclusions/Next steps: Implementation of universal eligibility to ART facilitated improved performance of TB case finding indicators among PLHIV. Strengthening TB/HIV collaborative activities is needed to minimize gap with global targets.

Characteristics	July 2015 - June 2016	July 2016 - June 2017	X2	p-value^
# HIV infected Clients alive on ART	627395	709706		
Total # HIV clients ICF done	613714	693825		
% Screened	97.8%	97.8%		
# of Presumptive TB cases	14231	29926	1270.96	0.0001
Total # TB cases from HIV Care	3887	7725	183.59	<0.0001
Total Notified TB cases (HIV Infected)*	8337	8711		
% contribution by for Patient in HIV care	46.6%	88.7%		
Estimated TB/HIV co-infected patients	18000	15000		
Case detection rate (PLHIV)	46.3%	58.1%		

[Performance of TB case finding among PLHIV in Malawi.]

WEPEB063

Genetic diversity of *Mycobacterium tuberculosis* clinical isolates in Botswana

T. Mogashoa[1], P. Melamu[1], T. Iketleng[1], L. Mupfumi[1], K. Seatla[1], N. Zetola[2], L. Letsibogo[3], M. Mokomane[3], B. Mbeha[3], S. Ley[4], E. Streicher[4], S. Moyo[5], I. Kasvosve[6], R. Warren[4], S. Gaseitiswe[5]
[1]Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana, [2]Botswana-University of Pennsylvannia Partnership, Department of Radiation and Oncology, University of Pennsylvania, Gaborone, Botswana, [3]National Tuberculosis Reference Laboratory, Gaborone, Botswana, [4]DST/NRF Centre of Excellence in Biomedical Tuberculosis Research/SA MRC Centre for Tuberculosis Research, Division of Molecular Biology and Human Genetics, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa, [5]Botswana Harvard AIDS Institute Partnership/Department of Immunology and Infectious Diseases, Harvard T.H. Chan School of Public Health, Boston, Massachusetts, USA, Gaborone, Botswana, [6]School of Allied Health Professionals, Faculty of Health Sciences, University of Botswana, Medical Laboratory Sciences, Gaborone, Botswana

Background: Molecular typing of *Mycobacterium tuberculosis* (*M.tb)* isolates informs Tuberculosis (TB) control program on the relative proportion of transmission driving the TB epidemic. We utilized spoligotyping to describe the genetic diversity of *M.tb* strains and their respective contribution to transmission in Botswana.
Methods: A total of 502 culture-confirmed *M.tb* isolates received at the Botswana National Tuberculosis Reference Laboratory between 2012 and 2013 were analyzed. Drug susceptibility testing was done using the MTBDR*plus* line probe assay. DNA was extracted from BD Mycobacterial Growth Indicator Tubes (MGIT) using Hain GenoLyse DNA isolation kit®. Spoligotyping was done using a commercially available kit. The spoligotype patterns were compared with existing spoligotype patterns in the SITVIT Web database. Fisher's Exact test was used to determine the relationship between HIV status, geographical location, and genotype.
Results: 112 distinct spoligotype patterns were detected amongst 502 isolates. Seventy-six (68%) had been reported in SITVIT and thirty-six (32%) had not been previously described. The most predominant spoligotype patterns were: LAM (33%), S (12%), T (15%), X (16%) and Beijing (10%). Four hundred and thirty-five (87%) isolates could be grouped into 43 clusters (2-48 isolates per cluster) implying ongoing transmission; 69 isolates had unique spoligotype patterns. There was an association between genotype and geographical location (p< 0.0001), no association was found between HIV status and genotype (p=0.248). Drug susceptibility data showed that 202 (40%) isolates were resistant to at least one TB drug. Sixty-eight isolates (13%) were multidrug resistant. Among drug-resistant isolates, 140 (69.3%) were clustered.
Conclusions: This study highlights the complexity of the TB epidemic in Botswana with different strains contributing to disease. The high proportion of clustering is worrying suggesting that new interventions are required to halt transmission. The ongoing transmission of drug-resistance highlights the need for routine drug susceptibility testing for all to prevent the amplification of resistance.

WEPEB064

An innovative approach to improving TB and HIV case identification in the community using trained volunteers-a programme evaluation in Benue State, Nigeria

J. Okpala, F. Ogirima, D. Barnabas, P. Christopher Izere, J. Sagay, C. Imarhiagbe, O. Busari, B. Oyeledun, A. Ajibola
Center for Integrated Health Programs, Abuja, Nigeria

Background: Nigeria has the fourth largest TBHIV burden in the world. Benue state, in North Central, Nigeria has a high TB burden attributable to its high HIV prevalence of 5.6%. Benue state is one of the selected states by CDC due to its high HIV prevalence with some local government areas (LGAs) identified for scaling up HIV services. This is to prioritize reaching the UNAIDS HIV 90-90-90 targets.
A door to door strategy was adopted by centre for integrated health programs to reach people in the communities with HIV counselling, testing

and treatment of diagnosed HIV clients. Trained volunteers (TVs) were engaged to carry out these activities as well as TB case detection in the community.
We reviewed the impact of the TVs in improving TB case detection in some communities.
Methods: The intervention was carried out across 3 scale up LGAs -Tarka, Gwer West and Logo in Benue State, North Central zone of Nigeria from Feb to May 2017. Orientation meeting was carried out for the trained volunteers on TB case detection in the community and commodities for sputum collection for Genexpert such as sputum cups, tissue rolls and cold chain boxes were distributed. TVs carried out HIV counselling, testing and TB screening for all clients and Sputum collected for Genexpert test from identified presumptives and sent to the lab using the cold chain box for evaluation.
Pre and post intervention data were analysed after four months implementation.
Results: The number of clients identified as presumptive TB cases increased by 291% from 53 to 207 in the period under review. The number of presumptive with cough sent for Genexpert significantly increased from 4 to 58(14-fold increase, P value =0.047). 2 TB cases were diagnosed at the end of the review as against nil diagnosis pre intervention period.
Conclusions: The use of trained volunteers in the community improved TB and HIV screening, identification of presumptive TB cases and also TB diagnosis using Genexpert.
However, additional measures will be needed to improve diagnosis of Tuberculosis.

WEPEB065

Evaluating care for PLHIV co-infected with TB in the Municipal STD/Aids Services in São Paulo City

C. Basso[1], J. Caraciolo[2], R. Camargo[2], R. Del Bianco[2], Z. Khoury[2]
[1]Secretaria Municipal de Saude - São Paulo, Programa Municipal de DST/Aids, São Paulo, Brazil, [2]Municipal Health Secretariat - Sao Paulo, STD/AIDS Program, Sao Paulo, Brazil

Background: AIDS mortality in the Municipality of São Paulo, reached 6.1/100,000 inhabitants in 2016. The Aids investigation deaths between September/2015 and March/2016 revealed that 35% were associated with Tuberculosis. Improving the quality of care for co-infected patients may contribute to reducing Tuberculosis mortality and consequently AIDS. The study objective was to describe the care of HIV-infected PLHIV and to propose measures that contribute to the improvement of quality of care and reduction of Tuberculosis and AIDS mortality.
Description: Outcomes were analyzed - high for cure, dropouts and deaths - of the cases diagnosed in the first half of 2015 from the routine information of the TB-Web Information System. Data were disaggregated by health regions, by the 16 care services from 26 The Municipal STD/Aids Services of São Paulo City that accompany PLHIV. The outcomes of PLHIV co-infected with Tuberculosis are unfavorable in relation to HIV negative people with Tuberculosis, with important differences in cure rates, dropouts and deaths between services and the type of treatment (directly observed versus self-administered). The cure rates of PLHIV and HIV-negative were 55% and 84%, respectively. The percentage of dropouts was twice as high among PLHIV (20% versus 10%) and that of deaths 4.6 times more frequent among PLHIV (21.5 versus 4.6). Cure rates ranged from 55% to 100% among services and were higher among patients undergoing directly-versus-self-administered treatment (71% versus 49%). Only 60% of the new HIV cases were Tuberculin Proof (PT). Among the 14.6% with PT> 5mm, only 47% performed the treatment of Latent TB Infection (ILTB).
Lessons learned: The analysis revealed a role of opportunity to improve care for PLHIV co-infected with Tuberculosis. Also, the feasibility of the actions to be developed, once there are services with favorable outcomes and comparable to those of HIV negative people. The TB-Web Information System provides useful information for decision-making and for monitoring the performance of the Municipal STD/Aids Services.
Conclusions/Next steps: There are high chances for interventions to improve care for HIV-infected PLHIV, such as expanding directly-supervised treatment and, above all, increasing the diagnosis and treatment of Latent Tuberculosis in order to reduce the Tuberculosis incidence and mortality rate among PLHIV.

WEPEB066

Treatment outcomes of a short standardized regimen for multidrug-resistant tuberculosis patients co-infected with HIV in Mozambique

M. Bastard[1], E. Poulet[1], L. Cossa[2], E. Graglia[2], I. Manhiça[3], B. Rusch[4], L. Molfino[2], A. Telnov[4]
[1]Epicentre, Paris, France, [2]Médecins Sans Frontières, Maputo, Mozambique, [3]National TB Program, Ministry of Health, Maputo, Mozambique, [4]Médecins Sans Frontières, Geneva, Switzerland

Background: Standardized regimen of 9-11 months duration has shown high rates of success and has been recommended by WHO as an alternative for 24 months regimen for multidrug-resistant Tuberculosis (MDR-TB) patients with no additional resistance to second line drugs and pyrazinamide. However, few data on the effectiveness of this regimen in patients co-infected with HIV are available.
Methods: A prospective cohort study was conducted in Maputo, Mozambique, among MDR-TB HIV-positive patients. The study included patients with active pulmonary tuberculosis diagnosed as rifampicin resistant or children suspected of MDR-TB without bacteriological confirmation but documented as a close contact of confirmed MDR-TB patient, without previous treatment with second-line drugs and tested positive for HIV.
Results: A total of 48 HIV-positive MDR-TB patients started on short course regimen between November 2015 and March 2017: 52.1% females, a median age of 34 years [IQR 29-42], a median BMI of 18.1 kg/m2 [IQR 16.2-20.8] and 43.7% were previously treated for TB. They were 75.0% in clinical stage 4 and 44 (91.7%) received ART at MDR-TB treatment start. Baseline resistance was: 42.4% resistant to pyrazinamide, 44.1% to ethionamide, 2.8% to both injectable drugs and 12.5% to fluoroquinoles. MDR-TB treatment outcomes were: 19 (39.6%) cured, 14 (29.2%) treatment completed, 6 (12.5%) deaths, 5 (10.4%) treatment failure and 4 (8.3%) lost to follow-up. Among those who failed treatment, 2 (40.0%) were resistant to fluoroquinolones and 3 (60.0%) were resistant to pyrazinamide.
Conclusions: This study on the first MDR-TB patients co-infected with HIV receiving short course regimen in Mozambique shows a good success rate compared to the conventional MDR-TB regimen despite a high early death rate and the advanced HIV stage of the patients. Resistance to fluoroquinolones seems also to be associated with a lower success rate. This confirms the WHO recommendation to exclude them from the short course regimen and stresses the need to use rapid molecular testing for fluoroquinolones resistance.

WEPEB067

Benefit of isoniazide preventive therapy to reduce incident TB, mortality and loss to follow-up in Indonesian five-years cohort

R. Wisaksana[1], Y. Hartantri[1], M. Lestari[2], D. Azzahra[2], T. Karjadi[3], E. Yunihastuti[3], A. Ujainah[3], H. Agustin[4], E. Eppy[4], E. Burhan[4], M.R.T. Komaryani[5], E. Hastuti[6], N. Sulaiman[7], S. Wiyana[6], T. Nisa[8]
[1]Hasan Sadikin Hospital, Internal Medicine Department, Bandung, Indonesia, [2]Padjadjaran University, HIV Wiorking Group, Bandung, Indonesia, [3]Cipto Mangunkusmo Hospital, Internal Medicine Department, Jakarta, Indonesia, [4]Persahabatan Hospital, Jakarta, Indonesia, [5]Marzoeki Mahdi Hopsital, Bogor, Indonesia, [6]Ministry of Health Indonesia, National AIDS Program, Jakarta, Indonesia, [7]Ministry of Health Indonesia, National TB Program, Jakarta, Indonesia, [8]World Health Organization, Jakarta, Indonesia

Background: Isoniazide Preventive Therapy (IPT) have been recommended by WHO since 23 years ago. Despite the recognized benefit from previous studies globally, clinicians in Indonesia considered that implementation study on IPT needs to be performed. National AIDS Program and National TB Program of Indonesia initiated IPT study in 4 top-referral hospital in Indonesia in 2012, to show benefit of IPT in preventing active Tuberculosis (TB) among PLHIV in endemic countries such as Indonesia.
Methods: Group of HIV-infected subjects which receive IPT during 2012-2014 were compared with other group of HIV-infected subjects which not receive IPT matched on age, gender, CD4 cell count and ART status.

Both groups followed until 5 years. Outcome of active TB disease was the study primary end point; with all-cause mortality and loss follow-up as secondary end points.
Results: This study found IPT reduce TB incident from IR: 4.4 / 100 person-years (95% CI: 3.2 - 6.1) in non-IPT HIV-patients into IR: 1.2 / 100 person-years (95% CI: 0.5 - 2.6) in the first 3 years. In 5 years TB incident still lower in IPT group with IR: 1.7 / 100 person-years (95% CI: 0.9 - 3.0) compared to non-IPT group, IR: 3.6 / 100 person-years (95% CI: 2.7 - 4.9). For secondary outcome, this study showed risk of mortality and loss to follow-up lower in IPT group compare to non-IPT group but not significant. History of TB have higher risk of mortality and low adherence have higher risk of loss to follow-up.
Conclusions: This first study from Indonesia has confirmed other previous studies globally on IPT. As a part of TB-HIV collaborations, IPT program must be expanded and promoted to all PLHIV in Indonesia.

WEPEB068

Yield and efficiency of novel intensified tuberculosis case-finding algorithms for people living with HIV

C. Yoon[1], F. Semitala[2], L. Asege[3], J. Katende[4], S. Mwebe[3], A. Andama[2], E. Atuhumuza[3], M. Nakaye[3], D. Armstrong[5], D. Dowdy[6], C. McCulloch[7], M. Kamya[2], A. Cattamanchi[1]
[1]University of California, Zuckerberg San Francisco General Hospital, Medicine, San Francisco, United States, [2]Makerere University College of Health Sciences, Medicine, Kampala, Uganda, [3]Makerere University-University of California, San Francisco Research Collaboration, Kampala, Uganda, [4]Makerere University Joint AIDS Program, Kampala, Uganda, [5]Johns Hopkins University, Medicine, Baltimore, United States, [6]Johns Hopkins University, Epidemiology, Baltimore, United States, [7]University of California, Epidemiology and Biostatistics, San Francisco, United States

Background: The recommended tuberculosis (TB) intensified case finding (ICF) algorithm for people living with HIV (PLHIV) - symptom-based screening followed by Xpert MTB/RIF (Xpert) testing - is inefficient and insufficiently sensitive. We investigated whether novel algorithms using C-reactive protein (CRP)-based TB screening followed by confirmatory testing with urine Determine TB-LAM (TB-LAM), sputum Xpert and/or a single sputum culture could improve ICF efficiency and yield.
Methods: Consecutive PLHIV with CD4 count ≤350 cells/μL initiating antiretroviral therapy in Uganda were prospectively screened for TB by symptom-based screening and CRP (cut-point 8 mg/L) measured using a rapid and inexpensive point-of-care (POC) assay. Participants submitted sputum for Xpert testing and culture and urine (if CD4 count ≤100 cells/μL) for TB-LAM testing. We compared the yield and efficiency of the current ICF algorithm to novel ICF algorithms beginning with POC CRP-based TB screening followed by confirmatory testing with TB-LAM, Xpert, and/or a single culture.

ICF strategy	Diagnostic yield #, (%, 95% CI) all TB cases detected (N=203)	Incremental yield: # additional TB cases detected	Incremental yield: % additional TB cases detected (95% CI)	Incremental yield: p-value for the difference	Total # false-positives
Current ICF algorithm*	119 (59%, 52-65)	REF	REF	--	7
Novel ICF algorithms:					
WHO symptom screen +...					
TB-LAM + Xpert	126 (62%, 55-69)	+7	+4% (0 to +7)	0.008	13
TB-LAM + Xpert + culture	172 (85%, 79-89)	+53	+27% (+20 to +34)	<0.0001	13
POC CRP ≥8 mg/L + ...					
Xpert†	114 (56%, 49-63)	-5	-2% (-5 to +1)	0.06	4
TB-LAM + Xpert†	121, (60%, 53-66)	+2	+1% (-3 to +5)	0.59	10
TB-LAM + Xpert + culture‡	158, (78%, 71-83)	+39	+19% (+12 to +26)	<0.0001	10

Abbreviations: TB (tuberculosis); ICF (intensified case finding); WHO (World Health Organization); POC CRP (point-of-care C-reactive protein).
Legend:
*Current ICF strategy (symptom-based TB screening, followed by Xpert confirmatory testing of all those who screen-positive). Incremental yield (#, %) of all evaluated ICF strategies are shown above relative to the current ICF strategy.
†Diagnostic yield of POC CRP-based ICF algorithm similar to corresponding symptom-based ICF algorithm (p≥0.06).
‡Diagnostic yield of POC CRP-based ICF algorithm less than corresponding symptom-based ICF algorithm (p=0.0003).

[Table 1. Incremental yield, diagnostic yield, and # of false-positive TB cases of novel ICF algorithms relative to the current ICF algorithm.]*

Results: Of 1245 HIV-infected adults enrolled, 203 (16%) had culture-confirmed TB nearly half (49%, n=101) of whom had CD4 counts ≤100 cells/μL. Compared to the current ICF algorithm, POC CRP-based TB screening followed by Xpert testing had similar yield (56% [95% CI: 49-63] vs. 59% [95% CI: 51-65]) but consumed less than half as many Xpert assays per TB case detected (9 vs. 4). Addition of TB-LAM did not significantly increase diagnostic yield (+1% [95% CI: -3 to +5]) relative to the current ICF algorithm but provided same-day diagnosis for 26% of TB patients with advanced HIV. Addition of a single culture to TB-LAM and Xpert substantially improved ICF yield, identifying 78% of all TB cases.
Conclusions: POC CRP-based screening can improve the efficiency of ICF for PLHIV. Addition of TB-LAM and a single culture to Xpert confirmatory testing could enable HIV programs to increase the speed of TB diagnosis and ICF yield.

WEPEB069

Enhancement of the INSHI case definition for paradoxical tuberculosis-associated immune reconstitution inflammatory syndrome using latent class analysis

C. Stek[1,2], J. Buyze[1], J. Menten[1], C. Schutz[2], F. Thienemann[2], L. Blumenthal[2], G. Maartens[2], T. Boyles[2], R.J. Wilkinson[2], G. Meintjes[2], L. Lynen[1]
[1]Institute of Tropical Medicine, Antwerp, Belgium, [2]University of Cape Town, Cape Town, South Africa

Background: The diagnosis of paradoxical TB-IRIS relies on characteristic clinical features synthesized as the International Network for the Study of HIV-associated IRIS (INSHI) case definition. There is no confirmatory laboratory test. We assessed whether a data-driven approach that used latent class analysis (LCA) could enhance the performance of the case definition. LCA combines multiple variables to obtain estimates of disease prevalence and diagnostic accuracy in situations where there is no gold standard.
Methods: The PredART trial evaluated prednisone for TB-IRIS prevention in high-risk patients starting ART in South Africa (n=240). TB-IRIS events were adjudicated by consensus of 3 independent experts using the INSHI case definition. All clinical and laboratory variables recorded during the first 4 weeks of ART and all individual components of the INSHI criteria were assessed for their association with TB-IRIS. Those with a strong association (OR > 3.0) were selected for LCA. We combined the selected parameters in a latent class model using LEM software. We used the LCA-predicted probability of TB-IRIS for each participant to assess the performance of the INSHI case definition and compare its diagnostic accuracy with several adapted case definitions.
Results: Data were complete for 217 participants; 41% developed TB-IRIS. Our latent class model included the following parameters: respiratory symptoms, night sweats, INSHI major criteria 1, 2, and 4 (new or enlarging lymph nodes, radiological abnormalities, and serositis respectively), maximum CRP > 90, maximum heart rate > 120, maximum temperature > 37.7, and pre-ART CD4 count < 50. None of the participants fulfilled INSHI major criterion 3 (neurologic features). The model estimated a TB-IRIS prevalence of 43% and had optimal goodness of fit (^{2} = 336.7, p = 1.0). Performance of adapted case definitions are summarized in the table.

TB-IRIS definition	Sensitivity	Specificity
INSHI case definition: [1 INSHI major] or [2 INSHI minors]	0.77	0.86
CRP > 90	0.73	0.88
1 INSHI major criterion only	0.60	0.92
[1 INSHI major], [2 INSHI minors], or [1 INSHI minor and CRP > 90]	0.85	0.78
[1 INSHI major] or [1 INSHI minor and CRP > 90]	0.86	0.83
[1 INSHI major] or [1 INSHI minor and CRP > 90 / heart rate > 120 / temperature > 37.7]	0.93	0.82
[1 INSHI major] or [any 2 of CRP > 90, heart rate > 120, or temperature > 37.7]	0.89	0.88

[Diagnostic performance of adapted TB-IRIS case definitions]

Conclusions: The INSHI case definition predicts TB-IRIS with reasonable accuracy. Amending the case definition by replacing the INSHI minor criteria with the objective variables heart rate, temperature, and/or CRP improved sensitivity without loss in specificity. A definition including only INSHI major criteria had the highest specificity.

WEPEB070

A household cluster randomised trial of active case finding for HIV/TB, preventive treatment against TB, and ART initiation to prevent TB disease and transmission in South Africa: Baseline data

P. MacPherson[1,2], E. Webb[3], E. Variava[4], S. Lala[5,6], M. Milovanovic[5], Z. Bosch[5], P. Motsomi[5], L. Lebina[5], A. Kinghorn[5], A. Ratsela[7], N. Martinson[4,5]
[1]*Malawi-Liverpool-Wellcome Trust Clinical Research Programme, HIV/TB Group, Blantyre, Malawi,* [2]*Liverpool School of Tropical Medicine, Department of Clinical Sciences, Liverpool, United Kingdom,* [3]*London School of Hygiene and Tropical Medicine, Department of Infectious Disease Epidemiology, London, United Kingdom,* [4]*Klerksdorp Tshepong Hospital Complex and University of the Witwatersrand, Department of Internal Medicine, Klerksdorp, South Africa,* [5]*Perinatal HIV Research Unit (PHRU), Soweto, South Africa,* [6]*Chris Hani Baragwanath Academic Hospital, Department of Paediatrics, Soweto, South Africa,* [7]*Polokwane and Mankweng Hospitals, University of Limpopo, Department of Medicine, Polokwane, South Africa*

Background: Household contact tracing of index TB cases has been advocated as a key part of TB control for many years, but has not been widely implemented in many high HIV prevalence settings.
Methods: A household cluster randomised (ISRCTN16006202) trial of interventions aimed at improving TB-free survival and reducing childhood prevalence of *Mycobacterium tuberculosis* infection among household contacts of index TB cases is being conducted in two districts of South Africa (Botshabelo, Free State; and Capricorn, Limpopo). Households of index cases with microbiologically-confirmed TB (>7 years of age) or children (< 7 years) with microbiologically or clinically diagnosed TB were randomly allocated to receive either the intensified home screening and linkage for TB and HIV intervention (home strategy) or a referral letter strategy. We report prevalence of TB disease, TB infection and HIV in household contacts randomised to receive the home strategy.
Results: Between December 2016 and January 2018, a total of 954 index TB cases were recruited: 913 adults and 41 children. 55% of index TB cases were HIV-positive. We recruited a total of 3940 household contacts (mean of 4.1 per household). Compared to household contacts from Capricorn, contacts from Botshabelo were younger (median: 17 vs. 19 years), and more likely to have symptoms of TB (297/1783 [16.7%] vs. 195/2117 [9.2%]). In the home group, 84.6% (1014/1119) of household contacts who did not know their HIV status were tested for HIV, of whom 4.1% were HIV-infected. 417/909 (68.6%) of all household contacts not on TB therapy were sputum tested, with overall 24/909 (2.6%) having microbiologically-confirmed TB. Of household contacts with microbiologically-confirmed TB, only 41% (10/24) reported symptoms suggestive of TB; 42% of all newly diagnosed TB household contacts were HIV-coinfected. Overall, 45.6% (113/248 >10mm) of adult contacts and 55.0% (99/180 >5mm) of child contacts were TST positive.
Conclusions: We were able to promptly identify and screen household contacts of index TB cases in diverse settings in South Africa. A substantial proportion of household contacts with TB did not have TB symptoms. This trial will provide evidence of resource needs and cost-effectiveness of two approaches for contact screening in low-resource settings.

WEPEB071

Incidence of adverse events associated with isoniazid preventive therapy in adults on stable antiretroviral therapy in Blantyre, Malawi

L. Tsilizani[1], W. Nyangulu[2], O. Nyirenda[1], N. Nampota[1], F. Mkandawire[1], E. Singogo[2], J. Mallewa[3], T.E. Taylor[1], M.B. Laurens[4], M.K. Laufer[4], J.J. van Oosterhout[2,3]
[1]*Blantyre Malaria Project, University of Malawi, College of Medicine, Blantyre, Malawi,* [2]*Dignitas International, Zomba, Malawi,* [3]*University of Malawi, College of Medicine, Department of Medicine, Blantyre, Malawi,* [4]*Division of Malaria Research, Institute for Global Health, University of Maryland School of Medicine, Baltimore, United States*

Background: Isoniazid preventive therapy (IPT) reduces tuberculosis incidence in people living with HIV. After Malawi's Ministry of Health introduced IPT in patients on antiretroviral therapy (ART) in 2017, numerous adverse events (AEs) suspected to be related to IPT were reported. High-quality data on IPT toxicity in sub-Saharan African settings are sparse because side effect monitoring is often unreliable.
We observed AEs among Malawian adults on ART who started IPT and had stringent clinical follow-up as participants in a randomized, open-label controlled trial of daily trimethoprim-sulfamethoxazole or weekly chloroquine.
Methods: The trial enrolled adults on ART (≥6 months) with CD4 count ≥250 cells/µL and HIV-1 RNA ≤400 copies/ml, followed them every 4-12 weeks and encouraged additional clinic visits in case of any illness. Six-monthly viral load, CD4 count, liver enzymes, renal function and complete blood counts were collected. Using the WHO standardized case-causality assessment tool, we categorized AEs into "certainly", "probably" and "possibly" related to IPT. We calculated incidence rates of related AEs after initiation of IPT.
Results: 853 participants initiated IPT (651 females, 76%) and accrued 310.8 person years of observation (PYO) on IPT, with a mean observation time of 3 months per individual. Mean age was 41.9 years, mean CD4 569 cells/µL, 98.1% had HIV-1 RNA < 400 copies/ml. 35.1% of participants on IPT experienced at least one IPT related AE. Of 425 IPT related AEs, 26.1% were certainly related to IPT (96.4% mild/moderate, 3.0% severe), 52.9% were probably related (98.7% mild/moderate, 1.3% severe), and 20.9% possibly related (all mild/moderate).
The most common events involved gastrointestinal (30.6%), dermatological (12.9%), hepatic (10.8%), peripheral nervous (6.4%), central nervous (5.5%) and reproductive (1.1%) systems. Events that led to IPT discontinuation (51 participants) included pellagra, peripheral neuropathy, hepatotoxicity, gynecomastia, impotence, vomiting, dizziness and confusion. The overall crude incidence of IPT-related AEs was 1.37/PYO (95% CI: 1.24-1.50), with details of incidence by severity in Table 1.

Category	Overall incidence of AEs	Incidence of mild and moderate AEs	Incidence of severe AEs
Certainly related	0.36 /PYO (95% CI: 0.29-0.43)	0.34 /PYO (95% CI: 0.28-0.42)	0.01 /PYO (95% CI: 0.00-0.33)
Probably related	0.72 /PYO (95% CI: 0.63-0.82)	0.71 /PYO (95% CI: 0.62-0.81)	0.01 /PYO (95% CI: 0.00-0.28)
Possibly related	0.29 /PYO (95% CI: 0.23-0.35)	0.29 /PYO (95% CI: 0.23-0.35)	0.00 /PYO (95% CI: 0.00-0.02)
Any relatedness	1.37 /PYO (95% CI: 1.24-1.50	1.35 /PYO (95% CI: 1.22-1.48)	0.02 /PYO (95% CI: 0.01-0.46)

[Table 1. Incidence of IPT related Adverse Events by severity]

Conclusions: We observed high incidence of IPT related AEs within a 3 month period. Although few AEs were severe, 6% of individuals discontinued IPT. We recommend careful monitoring and reporting of IPT toxicity to ensure maximal benefit of IPT.

WEPEB072

Focused assessment with sonography (FASH) in microbiologically diagnosed HIV/TB patients and controls admitted to a Malawian hospital

M. Alufandika-Moyo[1], A. Gupta-Wright[2,3], T. Mtenga[1], A. Tebulo[1], E. Mangani[1], K. Fielding[2], E.L. Corbett[2,3], T. Heller[4], S. Lawn[2], J. van Oosterhout[1,5]
[1]*Dignitas International, Zomba, Malawi,* [2]*London School of Hygiene and Tropical Medicine, London, United Kingdom,* [3]*Malawi-Liverpool-Wellcome Trust Clinical Research Programme, College of Medicine, University of Malawi, Blantyre, Malawi,* [4]*Lighthouse Trust Clinic, Lilongwe, Malawi,* [5]*University of Malawi, College of Medicine, Medicine Department, Blantyre, Malawi*

Background: Evidence suggests that HIV-associated tuberculosis (HIV/TB) diagnosed by urine-tests (Xpert MTB/RIF and TB-LAM) is indicative of disseminated, renal TB. A validated protocol for Focused Assessment with Sonography for HIV/TB (FASH) detects characteristic extra-pulmonary (EP) features such as pleural, pericardial and abdominal effusions, abdominal lymphadenopathy, and splenic micro-abscesses, and is suited for clinicians with limited ultrasound training in low-resource settings. We sought to determine the prevalence of ultrasonographic EPTB features and compare urine-test positive and negative HIV/TB patients.

Methods: The FASH protocol was used on HIV/TB patients and selected HIV-positive controls in Zomba Central Hospital, Malawi to determine the proportion of microbiologically confirmed HIV/TB patients with FASH features by trained clinicians (nested within the STAMP TB urine-diagnostic trial). Controls were HIV positive patients without evidence of TB on microbiological testing and clinical features by 2 months post enrolment. Clinicians using FASH were blinded to urine-test status (but not TB status).
Results: 93 HIV-positive adults were enrolled on admission to hospital and underwent FASH; 42 were microbiologically confirmed TB patients and 51 controls without TB; 31.2% male; mean age 39.5 years (SD 8.8); mean hemoglobin concentration 9.1g/dL (SD 3.1); median CD4 179 cells/µL (IQR 67-380). Median CD4 count (77 vs. 312 cells/µL; p<0.001) and mean Hb (7.8 vs. 10.5 g/dL; p<0.001) were lower in TB cases than controls. 38/42 (90.5%) HIV/TB patients were urine-test positive. 23/42 (54.8%) HIV/TB patients had at least one feature of EPTB on FASH compared to none of the control patients. Prevalence of pericardial effusion was (33.3%), abdominal lymphadenopathy (31.7%), splenic micro-abscesses (30.9%), pleural effusion (11.9%), ascites (2.4%). Due to the high prevalence of urine-test positive disseminated TB in this cohort, we were unable to compare FASH features with urine-test negative HIV/TB patients (n=4).
Conclusions: FASH features of EPTB are common in hospitalised HIV/TB patients, and appear specific in this cohort as patients without microbiological and clinical evidence of TB were unlikely to have FASH features. In the absence of urine-based TB tests, the FASH protocol may be useful for TB diagnosis in HIV-positive patients admitted to hospital in low-resource settings.

WEPEB073

Poor treatment outcome and higher mortality rate among TB/HIV co-infected patients compared to TB without HIV infected patients

S. Gatechompol[1], J. Sophonphan[1], K. Kawkitinarong[2], G. Suwanpimolkul[2], P. Kateruttanakul[3], W. Manosuthi[4], S. Ubolyam[1], S. Kerr[1,5], A. Avihingsanon[1], K. Ruxrungtham[2]
[1]HIV-NAT Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [2]Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thai Red Cross Society, Department of Medicine, Faculty of Medicine, Bangkok, Thailand, [3]Rajavithi Hospital, Department of Medicine, Bangkok, Thailand, [4]Bamrasnaradura Infectious Diseases Institute, Ministry of Public Health, Nonthaburi, Thailand, [5]Kirby Institute, University of New South Wales, Sydney, Australia

Background: Thailand is one of fourteen countries that has a high burden of TB, MDR-TB and coprevalent TB/HIV. Over the past decade, the Thai heath system has sought to improve HIV/TB treatment and care. Understanding treatment outcomes and factors associated with mortality in these TB/HIV co-infected patients is essential for further improvement of TB/HIV care management.
Methods: Participants diagnosed with active tuberculosis from 2008-2016 at 3 hospitals were included in this analysis. These hospitals which form the clinical cohort network called the "Thailand Big City TB research network".The primary outcome of current study was treatment outcomes among TB/HIV co-infected patients compared with TB non HIV-infected patients. Successful treatment was defined as cure (i.e smear- or culture-negative in the last month of treatment) and treatment completed (i.e. completed treatment without bacteriologically confirmed).The secondary objective was to determine factors associated with mortality using logistic regression.
Results: A total of 998 participants were included in the study. Of these, 228 (22.8%) were HIV infected participants.The majority of participants were male (59.5%) with median age 41 (IQR 30-55) years. Among HIV infected participants, baseline median (IQR) CD4 cell count was 74 (27 - 199) cells/mm³.
Overall successful treatment outcomes occurred in 74.3% of patients. The treatment success rate was 77.3 % among non-HIV infected TB patients in contrast to 64.5% among HIV/TB patients (P <0.001).
One hundred forty- five (64%) HIV infected participants received antiretroviral treatment(ART) during course of TB treatment. Age > 50 years (adjusted odds ratio [aOR] 4.11, 95% CI 1.95 - 8.66; p < 0.001), body weight ≤45 kg (aOR 2.19, 95% CI 1.14 - 4.23; p=0.02) and HIV positive status (aOR 3.74, 95% CI 1.74 - 8.05; p < 0.001) were independently associated with the death after TB treatment.
Conclusions: Treatment success rate in HIV co-infected TB patients were lower than that observed in non-HIV infected patients. Patients with advanced age, and those with low body weight have an increased risk of mortality. Strategies to increase ART uptake and prevent active TB infection should be implemented among HIV infected patients.

	Univariate			Multivariate		
	Odds ratio	95%CI	P-value	Adjusted odds ratio	95%CI	P-value
Age >50	3.19	2.04 - 4.99	<0.001	4.11	1.95 - 8.66	<0.001
Male	1.47	0.92 - 2.35	0.11			
Weight ≤ 45 kg	2.60	1.43 - 4.95	0.002	2.19	1.14 - 4.23	0.02
Type of TB : pulmonary	0.74	0.43 - 1.27	0.28			
Prior TB diagnosis	1.38	0.82 - 2.31	0.22			
HIV-positive	1.75	1.09 - 2.81	0.02	3.74	1.74 - 8.05	0.001
Diabetes	2.14	1.13 - 4.06	0.02	1.87	0.70 - 5.03	0.21
Chronic kidney disease	2.84	0.92 - 8.75	0.10			

[Risk factors for death after TB treatment]

Bacterial, non TB mycobacterial, viral and parasitic infections

WEPEB074

Burden of invasive pneumococcal disease among patients attending an HIV referral center in Rio de Janeiro, Brazil

W. Jalo, M.C. Lourenco, É. Silva, V.G. Veloso, B. Grinsztejn, J. Moreira, C.C. Lamas
Fundacao Oswado Cruz, Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro, Brazil

Background: Invasive pneumococcal disease (IPD) is a major cause of morbidity and mortality among HIV patients. Surveillance data of IPD in the HIV-infected patients for Latin America are lacking. We aimed to estimate the burden of IPD and to explore the impact of HIV infection on the clinical presentation, antimicrobial susceptibility, and survival.
Methods: *Streptococcus pneumoniae* isolates in sterile sites were identified in the INI/FIOCRUZ´s microbiology laboratory from 2005-2017 . Patients' charts were reviewed retrospectively for clinical, epidemiological and laboratory data. *S. pneumoniae* was identified using standard microbiological procedures, and antimicrobial susceptibility done by broth microdilution. The incidence of IPD in the HIV population was calculated based on the number of HIV-infected patients registered per year in our HIV cohort. Fisher´s exact test was used to compare categorical and Student´s *t* test for continuous variables.
Results: During the study period, 63 episodes of IPD were identified in 54 adults. Forty-eight (76%) were diagnosed in 40 HIV-infected patients. The incidence of IPD was 240 episodes per 100,000 person-years in HIV-infected patients. HIV patients were younger (41±9 *vs.* 61±18, years), median CD4⁺ was 239 (157-448) mm³ and 63.5% were on ART. Predisposing factors for IPD were smoking (52% *vs.* 28.6%, *p*=0.12), inhaled cocaine (45.8% *vs.* 0%, *p*=0.001), cannabis (29.2% *vs.* 0%, *p*=0.01), COPD (8.3% *vs.* 40%, *p*=0.003), alcohol intake (48% *vs.* 13%, *p*=0.01) in HIV positive and negative groups, respectively. Clinical syndromes were pneumonia (89.6% vs. 73%), meningitis (4.2% vs. 13%), and primary bacteremia (6.3% vs. 13%). There were no differences according to HIV status regarding the proportion of TMP-SMZ (19% vs. 13%,p=0.60), penicillin (10.6% vs. 6.7%, p=0.65), and macrolide resistance (6.4% vs. 6.7%, p=0.96) . Pneumococcal vaccination was reported more frequently in the HIV positives (29% vs. 6.7%, *p* =0.07). Hospital admissions (100% *vs.* 82%, *p*=0.07) and tuberculosis co-infections (29.4% vs. 6.9%, *p*= 0.04) were higher in those with CD4⁺

< 200. The rate of hospital (87.5% vs. 80%, *p*=0.43) and ICU admission (27% *vs.* 26.7%, *p*=0.97) did not differ according to HIV status.
Conclusions: We identified a high rate of IPD in HIV-infected patients and those with CD4+ < 200 were more often hospitalized.

Variable	Total (n=63)	HIV positive (n=48)	HIV negative (n=15)	p-value
Male - n (%)	38 (60)	30 (62.5)	8 (53.3)	0.52
Age, mean (SD) years	45.6 (14.6)	41 (9)	61 (18)	0.001
Bacteremic pneumonia, n - (%)	54 (85.7)	43 (89.6)	11 (73)	0.27
Other pathogen isolated in blood cultures n - (%)	5 (7.9)	2 (4.2)	3 (20)	0.04
History of 23-valent pneumococcal vaccination n - (%)	15 (23.8)	14 (29)	1 (6.7)	0.07
ICU admission - n (%)	17 (27)	13 (27)	4 (26.7)	0.97
In-hospital mortality n - (%)	13 (20)	8 (16.7)	5 (33.3)	0.16
Baseline neutrophils, median (IQR)	10.485 (6252-15721)	9101 (6115-12903)	16816 (13860-23400)	0.006
Hospital admission n - (%)	54 (85.7)	42 (87.5)	12 (80)	0.46

[Invasive pneumococcal infection among adult patients according to HIV status, Rio de Janeiro (2005-2017).]

WEPEB075

Lower prevalence of Entamoeba species in children with vertically transmitted HIV infection in Western Kenya

E. Matey
Kenya Medical Research Institute, Nairobi, Kenya

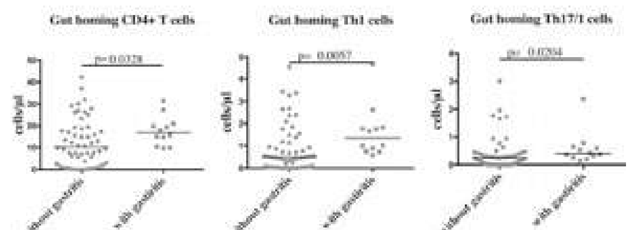
Background: *Entamoeba histolytica* infections are highly prevalent among HIV-infected men who have sex with men (MSM). However, it remains unclear whether HIV-infection is a risk factor for *E. histolytica* infection. Also, little attention has been paid to other Entamoeba sp. (*E. dispar, E. moshkovskii, E. coli, E. hartmanni, and E. polecki*) even in HIV-infected population. In the present study we minimized the MSM-confounding effects by determining the prevalence Entamoeba sp. in children. Reliability of Entamoeba sp. infection as an indicator of HIV-infection was then evaluated.
Methods: Stool samples from 234 asymptomatic children [median age, 10 years [interquartile range (IQR), 7.0-12.0]] in Kisumu, comprising sex-age matched 123 HIV vertically-infected and 111 HIV-uninfected children not on anti-intestinal parasite 3 months prior were screened for Entamoeba sp. using molecular methods.
Results: The overall prevalence of Entamoeba spp. was significantly lower in the HIV-infected than in the HIV-uninfected (29.3 vs. 55.0%, P< 0.001). In HIV-infected and HIV-uninfected, the following Entamoeba species were detected: *E. histolytica*, in 0 and 0.9%; *E. dispar*, 3.3 and 5.4%; *E. coli*, 26.8 and 51.4% (P< 0.001); *E. hartmanni*, 14.6 and 27.9% (P=0.016); and *E. moshkovskii*, in 0 and 0%, respectively. Multiple logistic regression analysis showed that HIV-infected were nearly three times less likely to be infected with any Entamoeba species than HIV-uninfected (adjusted odds ratio=0.33, 95%; CI=0.19-0.60, P< 0.001). Multiple Entamoeba spp. infection was found more in HIV-uninfected than in HIV-infected children (27.9 vs. 13.0%, P ¼ 0.005). Among the HIV-infected children, CD4 T-cell counts were significantly higher in those with multiple Entamoeba spp. infection (median, 1261 cells/ml) than in those without the infection (918 cells/ml, P= 0.03) or those with the single Entamoeba spp. infection (787 cells/ml, P=0.03).
Conclusions: These findings indicate that the HIV infection is not a risk-factor for Entamoeba spp. infections, and suggest that better immunological status may play a role in the establishment of multiple-Entamoeba spp. infections. However, in this study, the prevalence of *E. histolytica* was too low (0.4%, 1/234) to conclude the relationship between *E. histolytica* infection and HIV infection. Also, social-behavioral and immunological analysis would also be needed for better understanding of these findings.

WEPEB076

Gut homing CD4+ T cell count is associated with chronic gastritis activity

H. Sato[1], Y. Ota[1], Y. Matsubara[1], T. Kikuchi[1], M. Koga[1], T. Koibuchi[1], T. Tsutsumi[1], T. Matano[2], A. Kawana-Tachikawa[2], H. Yotsuyanagi[1], E. Adachi[1]
[1]Institute of Medical Science, University of Tokyo, Tokyo, Japan, [2]National Institute of Infectious Diseases, Tokyo, Japan

Background: Previous studies have shown people living with HIV (PLWH) with lower CD4+ T cells counts are less susceptible to chronic gastritis and *Helicobacter pylori (H.pylori)* infection. Animal model shows that host adaptive immunity is essential for the development of gastritis caused by *H.pylori* infection, which suggests that peripheral blood gut-homing CD4+ T cells have some roles in the development of chronic gastritis in PLWH.
Methods: We conducted a prospective cross-sectional study of PLWH who underwent upper gastrointestinal endoscopy from April 2014 to March 2016 in our institute. Biopsy specimens were obtained at the time of gastroendoscopy, which were used for classification of histologic gastritis by updated-Sydney system. Peripheral blood mononuclear cells were collected at the same point to determine the frequency of peripheral blood gut homing CD4+ T cells (CCR9+integrin 7+) and CD4+ memory T cells subsets (Th1; CCR6-CXCR3+CCR4-, Th2; CCR6-CXCR3-CCR4+, Th17; CCR6+CXCR3-CCR4+, Th17/1; CCR6+CXCR3+CCR4-) by flow cytometry.
Results: Sixty-six patients (median CD4 count 403 [range 2-1189] cells/µl) were enrolled in the study. Chronic active gastritis defined by histologic neutrophil infiltration using updated-Sydney system was observed in 15 (22.2%) patients. *H.pylori* was detected in 14 of the 15 (91.7%) patients. The flow cytometry data showed that the count of peripheral blood gut homing CD4+ T cells was higher in PLWH with chronic gastritis compared with those without (16.8 cells/µl vs 10.2 cells/µl; p=0.033). Additionally, those with gastritis had significantly higher gut homing Th1 cell counts (1.33 cells/µl vs 0.494 cells/µl; p=0.0057) and gut homing Th17/1 cell counts (0.404 cells/µl vs 0.245 cells/µl; p=0.020) (Fig.). No significant difference was found between the two groups on the count of peripheral blood total Th1 cells (89.8 cells/µl vs 71.4 cells/µl; p=0.24) and gut homing Th17 cells (3.40 cells/µl vs 2.49 cells/µl; p=0.37).
Conclusions: This is the first report showing the association of gut homing CD4+ T cells with chronic active gastritis in PLWH. PLWH with chronic active gastritis caused by *H.pylori* have higher count of peripheral blood gut homing CD4+ T cells, in particular Th1 cells. Our data suggest that Th1 play a key role in the development of chronic gastritis in PLWH.



[Peripheral blood gut homing CD4+ T cell count]

WEPEB077

The comparison of pyrimethamine-sulfadiazine and pyrimethamine-clindamycin for toxoplasmic encephalitis therapy in HIV/AIDS patients: An evidence-based case report

Y.D. Oktavianda[1], F. Prasetyawaty[2,3]
[1]Universitas Indonesia, Jakarta, Indonesia, [2]Universitas Indonesia, Internal Medicine, Jakarta, Indonesia, [3]RSUPN Dr. Cipto Mangunkusumo, Internal Medicine, Jakarta, Indonesia

Background: *Toxoplasma gondii* is one of the opportunistic pathogens in AIDS patients, known as toxoplasmic encephalitis (TE). In Indonesia, 32.8% of HIV patients who have neurologic symptoms showed a posi-

tive *T. gondii* in PCR result, with mortality reaching 81%, 2.16 times more than HIV patients with negative PCR outcomes. Some studies suggest that administration of pyrimethamine-sulfadiazine (P-S) is better than other regimens, but the regiment listed in the management guidelines in Indonesia is pyrimethamine-clindamycin (P-C) regiment. Therefore, this study was conducted to compare the efficacy of pyrimethamine-sulfadiazine (P-S) with pyrimethamine-clindamycin (P-C) as a treatment for toxoplasmic encephalitis in HIV/AIDS patients.
Methods: We searched four online scientific databases, including PubMed, Scopus, Cochrane Library, and EBSCO. The critical appraisal was conducted using an assessment from the British Medical Journal (BMJ), while the level of evidence assessment was based on the criteria of the Central of Evidence-based Medicine (CEBM), Oxford University.
Results: We found 41 articles from the databases. After screening, two meta-analysis obtained met the inclusion and exclusion criteria, to be appraised critically. Both studies are stated to meet validity, importance, and availability to answer clinical questions. The study of Yan et al (2013) states that the administration of P-S had been shown better than P-C (OR 1.63; 95% CI: 1.05-2.51) in improving clinical response. Meanwhile, the results of the Hernandez et.al (2016) showed that the administration of P-S and P-C did not differ significantly in improving clinical response (RR 0.87; 95% CI 0.70-1.08). Based on these two studies, giving P-S has more side effects than P-C. In addition, the availability of clindamycin in Indonesia is easier to find than sulfadiazine.
Conclusions: The administration of P-S and P-C have the same efficacy in improving the clinical response of toxoplasmic encephalitis in HIV/AIDS patients. However, the regiment of P-C is more available than P-S in Indonesia.

Viral hepatitis B and D

WEPEB078

Prevalence of hepatitis B virus among HIV and non-HIV infected pregnant women in Jos, Nigeria

F.A. Magaji[1], M.O. Okolo[2], Z. Hassan[3], V.C. Pam[1], A.N. Ocheke[1], J. Musa[1], W. Golit[4], S.A. Anzaku[5], M. Doaleck[6], J. Ogwuche[6], M. Elechenu[7], C. Isiche[8], S.A. Sagay[1], A.I. Zoakah[3], S.E. Cohn[9]
[1]University of Jos, Obstetrics and Gynaecology, Jos, Nigeria, [2]University of Jos, Medical Microbiology, Jos, Nigeria, [3]University of Jos, Community Medicine, Jos, Nigeria, [4]Plateau State Specialist Hospital, Obstetrics and Gynaecology, Jos, Nigeria, [5]Bingham University Teaching Hospital, Obstetrics and Gynaecology, Jos, Nigeria, [6]Our Lady of Apostles Hospital, Obstetrics and Gynaecology, Jos, Nigeria, [7]Faith Alive Foundation Hospital, Obstetrics and Gynaecology, Jos, Nigeria, [8]Faith Alive Foundation Hospital, Chemical Pathology, Jos, Nigeria, [9]Northwestern University Feinberg School of Medicine, Division of Infectious Diseases, Chicago, United States

Background: Nigeria is among the countries with the highest burden of HBV in sub-Saharan Africa. Understanding the prevalence of HBV among pregnant women may be critical in reversing the trend of HBV infection in our population. The aim of the study was to determine the prevalence of HBV infection among HIV and non-HIV Infected pregnant women in Jos, Nigeria.
Methods: This was a facility-based cross-sectional study among antenatal care attendees in seven health facilities in Jos. Data was obtained on socio-demographics, risk factors for HBV infection, and outcome of screening for HBV using in-vitro diagnostic rapid kit (Acon Laboratories, USA) between the first of November 2017 and twelfth of January 2018. Analysis was done using STATA version 15 software.
Results: The study population was 1,358 Antenatal Attendees. The mean age ± standard deviation was 28.6 ± 5.9 years. Most (98.9%) of the women were below 40 years of age, literate (97.5%) and married (98.9%). One third (33.9%) were primids, while 56.6% and 9.5% were multiparous and grand multiparous respectively. Less than 20% were less than 16 weeks of gestation, while 76.2% were between 17-32 weeks. Most (97.7%) of the women had one sexual partner. The prevalence of HBV infection among all pregnant women was 7.3%. The prevalence among HIV infected and non-HIV infected was 20.8% and 6.7% respectively. The prevalence was significantly associated with age (p = 0.001), parity (p = 0.011) and HIV status (p = 0.001). The risk for HBV infection was twice higher among those aged 15 - 30 years, compared with those of 31 - 45 years (OR = 1.9, 95% CI = 1.3 - 3.1). The primi-gravidas were twice likely to be positive for HBV infection, than multi/grand multiparous (OR= 1.7, 95% CI=1.1 - 2.6), while the HIV positives were three times more likely to be positive for HBV infection, compared with HIV negatives.
(OR = 2.9, 95% CI = 1.3 - 5.8).
Conclusions: The prevalence of HBV among HIV infected and non-infected pregnant women in Jos was high. The prevalence rate was significantly associated with 15 - 30 years of age, primi-gravida and HIV positive pregnant women.

Variables	HBV+ (%)	HBV - (%)	Total	OR	95% CI	P -Value
Age Group (yrs): 15 - 30 31 - 45	64 (7.3) 35 (3.8)	804 (92.7) 865 (96.2)	868 900	1.9	1.3 - 3.1	0.001*
Literacy: Illiterate Literate	3 (8.8) 96 (7.3)	31 (91.2) 1,228 (92.7)	34 1,324	1.2	0.2 - 4.1	0.72
Marital Status: Single Married	0 (0.0) 99 (7.4)	15 (100.0) 1,244 (92.6)	15 1,343	0	0.0 - 3.2	0.27
Parity: Primid Multi/Grand Multiparous	45 (9.7) 54 (6.0)	415 (90.3) 844 (94.0)	460 898	1.7	1.1 - 2.6	0.011*
Gestational Age: 16 weeks or Less Greater than16 weeks	19 (7.1) 80 (7.3)	246 (92.9)	265 1,093	1.1	0.6 - 1.8	0.83
Sexual Partners: 1 2 or more	98 (7.4) 1 (3.2)	229 (92.6) 30 (96.8)	1,327 31	2.3	0.4 - 94.2	0.40
HIV Status: Positive Negative	11 (20.8) 88 (6.7)	42 (79.2) 217 (93.3)	53 1,305	2.9	1.3 - 5.8	0.001*

[Table: Prevalence of Hepatitis B Virus among HIV and Non-HIV Infected Pregnant Women in Jos (n = 1,358)]

WEPEB079

Screening HIV infected women on ART for hepatitis B co-infection in Malawi: Sub-optimal sensitivity of dried blood samples

M. Landes[1,2], J. van Oosterhout[2], M. van Lettow[2], E. Nkhoma[3], T. Kalua[4], E. Teshale[5], S. O'Connor[5], E. Schouten[3], A. Jahn[4,6], R. Nyirenda[4], B. Tippett Barr[7], for the NEMAPP Consortium
[1]University of Toronto, Department of Family and Community Medicine, Toronto, Canada, [2]Dignitas International, Malawi, Malawi, [3]Management Sciences for Health, Lilongwe, Malawi, [4]Malawi Ministry of Health, Department for HIV/AIDS, Lilongwe, Malawi, [5]Center for Diseases Control, Atlanta, United States, [6]ITECH, University of Washington, Seattle, United States, [7]Center for Diseases Control, Zimbabwe, Zimbabwe

Background: Option B+ in Malawi, a test and treat strategy for HIV-infected pregnant and breastfeeding women, can provide concurrent treatment for hepatitis B virus infection (HBV). No data exist on HBV/HIV co-infection outcomes in regional Option B+ programs, partly due to logistics and costs of HBV screening in low-resource settings. Studies suggest using dried blood spot (DBS) specimens for screening. We report validation of testing DBS for hepatitis B surface antigen (HBsAg) in the National Evaluation of the Malawi PMTCT Program.
Methods: A nested cohort of 1,300 HIV-infected women (4-26 weeks postpartum) recruited from May 2015 to July 2016; 91.5% were on antiretroviral therapy (ART; tenofovir/lamivudine/efavirenz). At enrolment, DBS and venous samples were collected in field circumstances. DBS were shipped to an international reference laboratory and stored at -20°C; serum samples were stored in a laboratory in Malawi at -80°C. 500 matched DBS/serum specimens were randomly selected; all testing was conducted in the Malawi laboratory. Eluted dried blood and serum were tested with Bio-Rad Genetic Systems HBsAg EIA 3.0. Receiver operating curve analysis determined ideal cut-off for DBS. Serum was analyzed for HBV-DNA (Abbott m2000) and HBeAg (Diasorin ETI-EBK Plus). To validate DBS vs. serum as gold standard, we calculated sensitivity, specificity, positive and negative predictive values (with confidence intervals (CI;Wilson method)) and a kappa coefficient.
Results: Serum HBsAg testing yielded 27/500 (5.4%) positives. DBS HBsAg testing yielded 22/500 positives (4.4%); none were false positives. All five false negative DBS were HBeAg negative and had undetectable HBV DNA (serum). Sensitivity of DBS HBsAg testing was 81.5% (95%CI

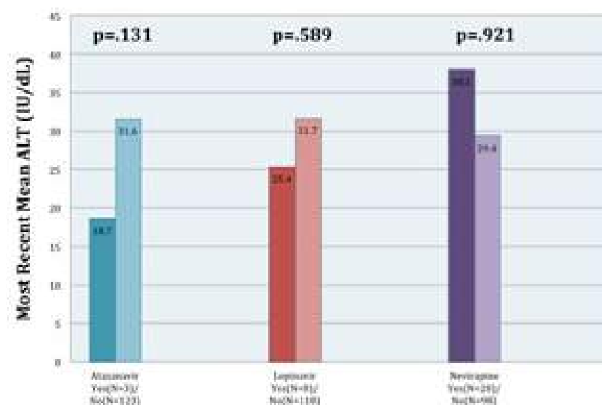
63.3-91.8) and specificity was 100% (95% CI 99.2-100.0). Positive predictive value was 100% (95% CI 85.1-100) and negative predictive value was 99.0% (95% CI 97.6-99.6). Kappa coefficient was 0.89 (95%CI 0.80-0.99).
Conclusions: Sensitivity of HBsAg testing from DBS samples collected in routine clinical circumstances in postpartum Malawian women on ART was lower than the few regional laboratory or field based studies (>98%). Investigating the role of environmental conditions on specimen management, the study population and tenofovir/lamivudine use in detecting HBsAg from DBS are recommended. We caution interpretation of DBS HBsAg screening, unless testing has been contextually validated.

WEPEB080

Antiretroviral effects on liver function in a HIV/HBV co-infected African cohort

J. Hutter[1,2], A. Esber[1,3], E. Bahemana[4], Y. Adamu[5], F. Kiweewa[6], J. Maswai[1,7,8], J. Owuoth[1,8,9], J. Ake[1], C. Polyak[1,3]
[1]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [2]Walter Reed National Military Medical Center, Infectious Diseases, Bethesda, United States, [3]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [4]Mbeya Medical Research Centre, Mbeya, Tanzania, United Republic of, [5]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Abuja, Nigeria, [6]Makerere University-Walter Reed Project, Kampala, Uganda, [7]Henry M. Jackson Foundation Medical Research International, Kericho, Kenya, [8]Kenya Medical Research Institute, Nairobi, Kenya, [9]Henry M. Jackson Foundation Medical Research International, Kisumu, Kenya

Background: Many drugs categorized as antiretroviral therapy (ART) carry some risk of liver injury. This risk may be amplified with hepatitis B virus (HBV) co-infection, which is common in sub-Saharan Africa. HBV testing is recommended in all HIV patients, and co-infection warrants specific combination therapy targeting both viruses. In sub-Saharan Africa, resource limitations may preclude hepatitis testing and vaccination. We examined ART regimens of study participants with HIV/HBV co-infection in four African countries and assessed markers of liver injury.
Methods: AFRICOS is an ongoing cohort that enrolls participants at 11 PEPFAR-supported clinics in Uganda, Kenya, Tanzania, and Nigeria. Clinical and laboratory assessments are performed every six months. The most recent alanine aminotransferase(ALT), total bilirubin(TBILI), platelet count, CD4 count, and HIV viral load(VL) were used for these analyses. Groups of HIV/HBV co-infected participants were compared based on current use of individual, potentially hepatotoxic drugs (nevirapine, atazanavir, lopinavir). We also compared each regimen for the number of participants with most recent ALT over 100 IU/dL. Associations between the drugs and hepatic outcomes were assessed using Chi-squared testing.



[Most Recent Mean ALT Compared by High Risk Antiretroviral]

Results: We enrolled 2635 HIV infected participants through June 1st 2017, of which 140 were HIV/HBV co-infected, including 106 prescribed recommended co-infection regimens. 24% were not on recommended regimens: 12 were ART-naïve and 22 were taking ART that included lamivudine or emtricitabine without tenofovir, conferring risk of development of resistant HBV. At their most recent visit, 28 of the 126 co-infected participants with ALT value assessments were on nevirapine, 8 were on lopinavir, and 3 on atazanavir. None of these groups had a significant change in mean ALT, TBILI, or platelets other than atazanavir which had an expected rise in TBILI(1.774 vs 0.397, p-value 0.031). There was a significant increase in the number of most recent ALT measurements over 100 in the nevirapine group vs. the non-nevirapine group (7%vs 0%, p=0.008).
Conclusions: While some HIV/HBV co-infected participants were not on recommended regimens, most regimens were not associated with significant increases in liver enzymes. This may have been due to small sample size of the potentially hepatoxic regimens. These results reveal gaps in the appropriate management of HIV/HBV co-infection.

WEPEB081

Vaccination with Fendrix in previously non-responding HIV-infected patients has a high success rate

E. Braam[1], J. Machiels[2], P. van Bentum[2], M. van Vugt[3], I. Schouten[4], T. de Vries-Sluijs[5], W. Bierman[6], J. Gisolf[2]
[1]University of Groningen, University Medical Center Groningen, Groningen, Netherlands, [2]Rijnstate Hospital, Arnhem, Netherlands, [3]AMC, Amsterdam, Netherlands, [4]OLVG, Amsterdam, Netherlands, [5]Erasmus MC, Rotterdam, Netherlands, [6]University of Utrecht, Utrecht, Netherlands

Background: HIV-infected patients are at increased risk of severe complications after infection with hepatitis B-virus (HBV). Because only 50% of HIV-infected patients show serological conversion with the standard vaccination strategy, the current vaccination strategy consists of three doses of double dose hepatitis B vaccine. A previous small study in non-responding HIV-infected patients has shown that revaccination with Fendrix, a vaccine containing recombinant HBsAg and a novel adjuvant, confers much better results in HIV-infected patients. In this study we tested the effect of revaccination with Fendrix in prior non-responding HIV-infected patients and aimed to determine which factors are associated with seroconversion.
Methods: Eight Dutch HIV treatment centers participated in this study. Patients infected with HIV-1 and non-responding to prior course of vaccination against HBV (defined as anti-HBs < 10 IU/mL) and who had Fendrix as a 2nd, 3rd or 4th effort to achieve seroconversion were eligible for inclusion. Primary outcome was the proportion of patients with seroconversion after revaccination with Fendrix. Univariate binary logistic regression analyses were used to determine which factors could be used as predictors for seroconversions after vaccination with Fendrix.
Results: We included 100 HIV-infected patients, all of whom were revaccinated with Fendrix. The mean age was 47.3 (± 11.0) years. Revaccination with Fendrix showed a high seroconversion rate of 81.0%. Of the 100 patients, 86.0% were male and showed a seroconversion rate of 81.4%. Median nadir CD4+ cell count was 300 (20 - 1040) cells/mm3 and median CD4+ cell count at the time of the first vaccination with Fendrix was 605 (210 - 1190) cells/mm3. Univariate binary logistic regression analyses showed no significant factor associated with a better outcome.
Conclusions: This multicenter study that included 100 HIV-infected patients showed that revaccination with Fendrix of patients prior nonresponding to other HBV vaccination strategies has a high success rate. In total, 81.0% responded with a seroconversion, irrespective of CD4+ cell count. These findings suggest that Fendrix is an effective revaccination strategy in prior nonresponding HIV-infected patients.

Viral hepatitis C

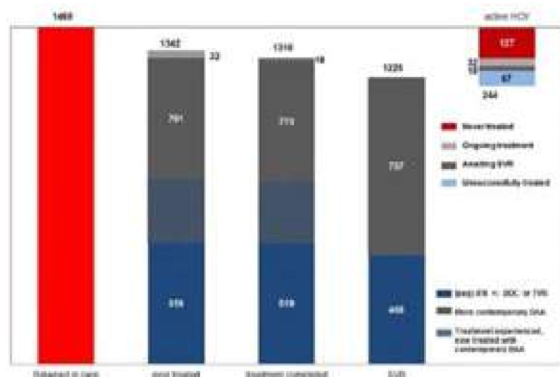
WEPEB082

HCV treatment cascade in the Netherlands: DAA uptake varies by key population, effectiveness of HIV treatment and co-medication use

C. Smit[1], A. Boerekamps[2], A.M. Newsum[3,4], J.E. Arends[5], C. Richter[6], T.S. Boender[1], P. Reiss[1,4,7], B.J.A. Rijnders[2], K. Brinkman[8], M. van der Valk[4], on behalf of the ATHENA National Observational HIV Cohort
[1]Stichting HIV Monitoring, Amsterdam, Netherlands, [2]Erasmus Medical Center, Department of Internal Medicine and Infectious Diseases, Rotterdam, Netherlands, [3]Public Health Service of Amsterdam, Department of Infectious Diseases Reasearch and Prevention, Amsterdam, Netherlands, [4]Academic Medical Center, and Amsterdam Center for Infection and Immunity, Department of Internal Medicine, Division of Infectious Diseases, Amsterdam, Netherlands, [5]UMCU Universitair Medisch Centrum, Department of Internal Medicine, Division of Infectious Diseases, Utrecht, Netherlands, [6]Rijnstate Hospital, Department of Internal Medicine, Division of Infectious Diseases, Arnhem, Netherlands, [7]Academic Medical Center, and Amsterdam Institute for Global Health and Development, Department of Global Health, Amsterdam, Netherlands, [8]Onze Lieve Vrouwe Gasthuis, Department of Internal Medicine and Infectious Diseases, Amsterdam, Netherlands

Background: HIV/HCV co-infected patients in the Netherlands have unrestricted and fully reimbursed access to direct-acting antivirals (DAAs) since November 2015. We assessed both the uptake of DAA treatment and determinants of remaining in need of treatment for HCV, updating a published earlier analysis.

Methods: An HCV treatment cascade was constructed using data from the national ATHENA cohort up to 1 January 2018, including HIV-positive individuals in care, with a documented chronic, or acute HCV infection. Indicators were:
1) retained in care;
2) ever treated for HCV;
3) completed HCV-treatment;
4) achieved SVR;
5) evidence of active HCV infection.
Determinants of individuals remaining in need of HCV-treatment, including either never having been treated or having failed prior HCV-treatment, were identified using logistic regression, adjusted for socio-demographic and clinical characteristics. Severe liver fibrosis was defined as fibrosis stage Metavir F3 or higher.



[HCV Treatment Cascade for HIV/HCV coinfected patients eligible for HCV treatment, registered by SHM and retained in care as of 1 January 2018. *Chronic or acute HCV infection without spontaneous clearance of HCV]*

Results: In total, 1,469 people were in care and had ever been registered with HCV co-infection (figure). As of January 1, 2018, 83% (1,225/1,469) of these HIV-HCV co-infected individuals had their HCV infection cured, with the number of individuals in care with active HCV having declined to 244.
Of these 244 patients, 127 had never been treated, 67 had failed prior treatment, in 32 DAA treatment was ongoing, and 18 were awaiting SVR12 results. After excluding these 32 and 18 patients, the following factors were independently associated with remaining in need of HCV-treatment:
HIV transmission through heterosexual contact (aOR 3.55; 95% CI: 1.97-6.40) or by injection drug use (5.02; 3.09-8.28) compared to men who have sex to men; no documented current cART-use (3.05; 1.34-6.91); CD4 cell count < 200 cells/mm³ (3.02; 1.51-6.05) at time of HCV treatment initiation for previously (unsuccessfully) treated, and most recent CD4 for untreated individuals; no documented genotype (3.17; 1.79-5.60); increasing number of comedication prescriptions (1.12 (1.03-1.20 per prescription); shorter duration of HCV infection (0.95; 0.92-0.99 per year increase).

Conclusions: DAA treatment scale-up for HIV/HCV co-infected people in care in the Netherlands continues to progress, but appears to be lagging behind in more challenging subgroups of patients, including those with insufficiently treated HIV infection.

WEPEB083

High hepatitis C treatment uptake and cure rate in pilot treatment programs for HCV/HIV coinfected patients in Phnom Penh, Cambodia

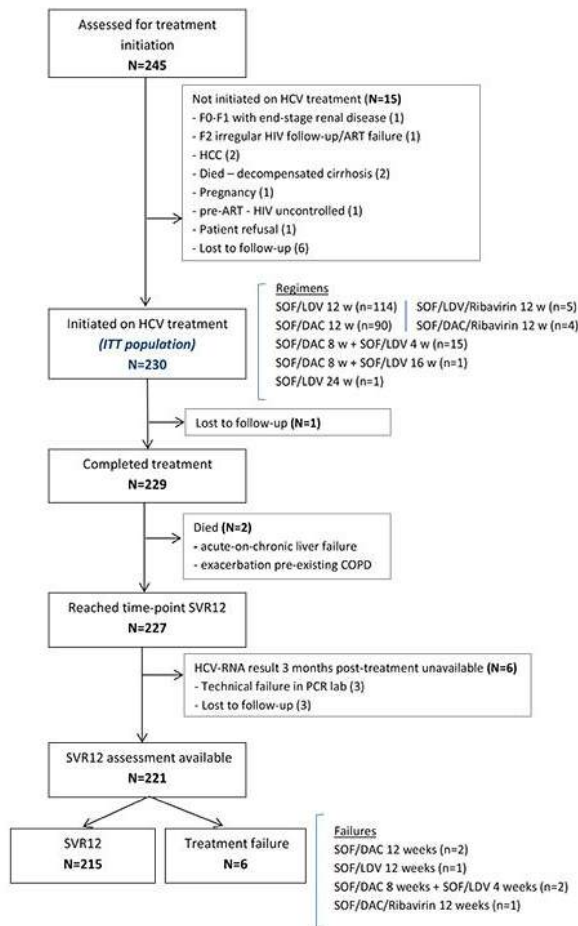
A. De Weggheleire[1], M. Iwamoto[2,3], S. An[4], S.K. Chamroeun[3], S. Declercq[1], J.-P. Dousset[3], M. Sos[5], M. Sounsopheak[6], C. Dimanche[7], S. Thai[4], T. Vanwolleghem[8,9], L. Lynen[1], A. Loarec[2], S. Francque[8,9]
[1]Institute of Tropical Medicine, Antwerp, Belgium, [2]Epicentre-Médecins Sans Frontières, Paris, France, [3]Médecins Sans Frontières-Operational Centre Paris, Phnom Penh, Cambodia, [4]Sihanouk Hospital Center of Hope, Phnom Penh, Cambodia, [5]Chhouk Sar Clinic, Phnom Penh, Cambodia, [6]AIDS Healthcare Foundation, Phnom Penh, Cambodia, [7]Preah Kossamak Hospital, Phnom Penh, Cambodia, [8]Gastroenterology Hepatology, University Hospital of Antwerp, Antwerp, Belgium, [9]Laboratory of Experimental Medicine and Paediatrics, University of Antwerp, Antwerp, Belgium

Background: As Direct Acting Antivirals (DAA) for treatment of hepatitis C (HCV) are becoming increasingly affordable, there are unprecedented opportunities for scale-up of treatment worldwide. However, experiences with these new treatments from resource-constrained settings remain limited. We evaluated the safety and effectiveness of two pilot HCV treatment programs among HIV patients in Phnom Penh, Cambodia.

Methods: Data from HIV patients from Sihanouk Hospital Center of Hope (n=98) and Médecins Sans Frontières' HCV clinic in Preah Kossamak Hospital (n=147), diagnosed with chronic HCV infection, were prospectively collected and pooled. Treatment regimens were determined following international guidelines and drug availability. We assessed treatment uptake, ITT-SVR12 (intention-to-treat, sustained virologic response 12 weeks post-treatment), serious adverse events (SAEs), and ART adaptations because of co-administered DAAs.

Results: Among 245 HCV/HIV-coinfected consenting adult patients assessed for treatment between 09/2016 and 11/2017, 15 were excluded from treatment, and 230 (93.9%) initiated DAAs - 52% (n=120) were treated with sofosbuvir/ledipasvir ± ribavirin and 41% (n=94) with sofosbuvir/daclatasvir ± ribavirin *(Figure 1)*. Among the 230 initiated on DAAs, median age was 50 years (range 28-72), 94 (41%) were men, 61 (27%) had cirrhosis (two with decompensation), and seven (3%) were treatment-experienced *(Table 1)*. Most were genotype 1b (38.3%) or 6 (43.0%).
Treatment completion was 99.6% (229/230), and ITT-SVR12 was 93.5% (95% CI: 89.5-96.3), with one lost during treatment, two deaths after treatment and before the three-month follow-up, and six patients with treatment failure, of which three were cirrhotic and one treatment-experienced. ITT-SVR12 was 95.5% for GT1b and 91.9% for GT6. SVR12 when excluding those lost to SVR12 testing was 96.4% (95% CI: 93.1-98.4). SAE occurred in 0.4% (1/230) of the patients - one death potentially caused by acute-on-chronic liver failure after SOF/LDV. No other SAEs were reported.
ART regimens of three patients were adapted at DAA start (dose reduction lamivudine with low eGFR, and one switch from atazanavir/ritonavir to lopinavir/ritonavir as 30 mg daclatasvir not available).

Conclusions: Our findings demonstrate the effectiveness, safety and feasibility of DAA treatment for HCV/HIV coinfected patients in Cambodia, and provide a solid base to encourage the national HIV program to launch an integrated HCV treatment program.



[Figure 1. Study flowchart]

	HCV/HIV coinfected started on HCV treatment N=230		HCV/HIV coinfected started on HCV treatment N=230
Male, n (%)	94 (40.9)	**HCV treatment experienced (n, %)**	Ribavirin (1, 0.4); Pegylated inferferon (1, 0.4); Pegylated interferon + Ribavirin (5, 2.2)
Median age, years (IQR)	50 (44-56)	**On ART, n (%)**	229 (99.6)
Median BMI, kg/m2 (IQR)	21.5 (19.6-24.3)	**ART regimens, (n,%) - 2 missing**	EFV-based (145, 63.9); NVP-based (56, 24.7); Boosted-PI-based (25, 11.0)
HCV genotypes, (n, %)	1a (10, 4.3); 1b (88, 38.3); 1-no specified subtype (1, 0.4); 2 (17, 7.4); 3 (1.0.4); 6 (99, 43.0); unknown (14, 6.1)	**HIV-RNA <40 copies/mL, n (%) - 110 missing**	110 (91.7)
Cirrhosis (>=14.5 kPa), n (%) - 2 missing	61 (26.8)	**Median CD4, cells/µL (IQR) - 99 missing**	450 (361-570)
Advanced fibrosis (>=9.5 kPa), n (%) - 2 missing	107 (46.9)	**CD4 below 200 cells/µL (n, %) - 99 missing**	8 (6.1)
Median liver stiffness, kpa (IQR) - 2 missing	8.6 (6.1-15.5)	**eGFR 30-60 ml/min (n, %)**	52 (23.2)
Median HCV-RNA x 1.000 IU/ml (IQR)	1.990 (442-4.850)	**eGFR below 30 ml/min (n, %)**	4 (1.8)
Key populations, (n, %)	PWUD (4, 1.7); MSM (2, 0.9); sex workers (5, 2.2)	**Main comorbidities, (n, %)**	Hepatitis B - HbsAg (7, 3.0); Diabetes Mellitus (24, 10.4); Arterial hypertension (55, 23.9)

[Table 1. Baseline characteristics of HCV/HIV coinfected patients initiated on DAA treatment (n=230)]

WEPEB084

Acute HCV: An emerging issue in HIV subjects in the DAAS era

A. Moreno[1], M.J. Vivancos[1], M.J. Pérez-Elías[1], J.L. Casado[1], M. Sánchez-Conde[1], C. Quereda[1], S. del Campo[1], M. Rodriguez[2], B. Romero[2], S. Moreno[1]
[1]Hospital Ramón y Cajal, Infectious Diseases, Madrid, Spain, [2]Hospital Ramón y Cajal, Microbiology (Viral Hepatitis Section), Madrid, Spain

Background: Acute HCV has increased as the indication for DAAS in HIV subjects, specially among MSM patients with maintained risk practices, including chemsex. There are few data on the incidence, features and outcomes of acute HCV in large cohorts of HIV/HCV patients treated with DAAs in real life.

Methods: Retrospective-prospective assessment of the incidence, features and outomes of acute HCV as the indication for DAAs in all HIV/HCV patients attended at the HIV Clinic in a teaching hospital in Madrid, Spain, between January 2015 (first availability of DAAs) and January 2018 (N=487).

Results: Overall, 24 patients (5%) received DAAs due to acute HCV, with a significant increase over the study period: 0,3% (1/331) in 2015, 9% (8/88) in 2016, 20% (13/64) in 2017, and 50% (2/4) in January 2018 (p=0.0001). When comparing patients with acute vs chronic HCV, there were no significant differences in baseline HCV load over 6M IU/ml (25% vs 23%, p=0.87), HCV G1 (70% vs 72%, p=0.44) or SOF/LDV use (67% vs 66%, p=0.92), but patients with acute HCV were significantly younger (mean age 39±8 vs 50±6, p=0.0001), male (100% vs 77%, p=0.009), and received more frequently DAA courses of 8w or less (67% vs 11%, p=0.0001). SVR rates were also similar (88% vs 91%, p=0.4). Acute HCV was a reinfection in 5/24 (21%) vs 3/463 (0,6%), p=0.0001, 75% within the first year after SVR (mean 34w). All 8 subjects with reinfection received a second course of DAAS (SOF/LDV in three, SOF/VPV in two, GPV/PBV in two, GZV/EBV in one), for at least 12w in 5.

Conclusions: In clinical practice, the population of young MSM with persistent risk practices explain the observed significant increase in acute HCV as the indication for DAAs, and reinfection after prior successful DAA represents 21% of the cases. It is mandatory an educational effort in this high-risk population.

WEPEB085

Characterization of the hepatitis C no show phenomena in patients living with HIV

E. Cachay[1], L. Hill[2], F. Torriani[1], C. Ballard[2], W.C. Mathews[3]
[1]University of California, San Diego, Medicine-Division of Infectious Diseases, San Diego, United States, [2]University of California, San Diego, School of Pharmacy, San Diego, United States, [3]University of California, San Diego, Medicine, San Diego, United States

Background: We aimed to calculate the trends in No Show hepatitis C (HCV) intake appointments among patients living with HIV (PLWH) and ascertain the predictors of HCV No Show appointments.

Methods: Retrospective cohort study among PLWH referred for HCV treatment from January 2014 to December 2017. We estimated by the proportion of new patients who failed to attend their HCV intake appointment (No Show), and, among them, the proportion who did not return for an HCV intake appointment within 180-days of first missed appointment (lack of HCV engagement in care). Logistic regression analysis was used to identify factors associated with HCV No Show. Potential predictors included demographics; CD4, and HIV viral load; type of insurance; HIV engagement in care; cirrhosis, and prior liver decompensation; Charlson comorbidity index; active alcohol, any illicit drug use, unstable housing and history of psychiatry illness.

Results: During the study period, 2,479 Owen HCV Clinic appointments were scheduled. Of those, 349 (201 patients) were HCV intake appointments. The 201 newly referred HCV patients had a median(IQR) age of 51 years (43-57), 47.8% of them were non-white, 18.4% female and 53.2% had Medicaid insurance and, most patients had undetectable HIV viral load (79.6%). Ongoing drug (31.7%), alcohol use (32.8%), psychiatry illness (37.8%) were prevalent among them. The overall No Show was 21.89% and increased by calendar year from 17.75%, 19.08%, 25.38% and 25.36%

in 2014, 2015, 2016 and 2017, respectively (p=0.021). Sixty-six of the 201 new patients (32.84%) did not attend their HCV intake appointment, and 32 of them (48.48%) did not subsequently engage in HCV care. Patients who failed to attend their intake HCV appointments were more often non-white, Hispanic, have detectable HIV viral load, and prevalent ongoing drug and psychiatric illness (Table 1). In logistic regression analysis, independent predictors of failing to establish HCV care were being non-white (OR: 2.4, 95% CI: 1.17-5.02) and having psychiatry illness [OR: 2.82, CI; 1.44-5.54, P=0.003].

Conclusions: Despite improved access to DAA, the proportion PLWH who failed to establish HCV care has increased. HCV elimination efforts require addressing disparities in HCV care and providing supportive services for PLWH in need.

Covariates	Attended n= 135	No show n = 66	P-value
Sex, n (%)			
Female,	23 (17)	14 (21.2)	0.47
Male,	110 (81.5)	51 (77.3)	
Transgender	2 (1.5)	1 (1.5)	
Age in years (IQR)	52 (45-57)	48 (40-57)	0.39
Race, n (%)			
Non-white,	57 (42.2)	39 (59.1)	0.025
White,	78 (57.8)	27 (40.9)	
Ethnicity, n (%)			
Non-Hispanic	106 (78.5)	44 (66.7)	0.070
Hispanic	29 (21.5)	22 (33.3)	
CD4+ count/mm² (IQR)	477 (337-721)	390 (260-706)	0.12
HIV viral load in copies/mL, n (%)			
< 40	22 (16.3)	18 (27.3)	0.071
= 40	112 (83.0)	48 (72.7)	
Missing	1 (0.7)	0 (0)	
Engage in HIV care			
No	29 (21.5)	15 (22.7)	0.84
Yes	106 (78.5)	51 (77.3)	
Known cirrhosis			
No	115 (85.2)	61 (92.4)	0.14
Yes	20 (14.8)	5 (7.6)	
Prior liver decompensation			
No	127 (94.1)	65 (98.5)	0.16
Yes	8 (5.9)	1 (1.5)	
Type of insurance			
Medicare	14 (10.4)	2 (3.0)	0.28
Medicaid	70 (51.9)	37 (56.1)	
Private	19 (14.1)	7 (10.6)	
Ryan White	6 (4.4)	2 (3.0)	
Medi/Medi	26 (19.3)	18 (27.3)	
Ongoing alcohol use, n (%)			
No	89 (65.9)	45 (68.2)	0.80
Yes	45 (33.3)	21 (31.8)	
Missing	1 (0.7)	0 (0)	
Ongoing drug use, n (%)			
No	99 (73.3)	39 (59.1)	0.041
Yes	36 (26.7)	27 (40.1)	
Unstable housing, n (%)			
No	122 (90.4)	55 (83.3)	0.15
Yes	13 (9.6)	11 (16.7)	
Active psychiatric illness n (%)			
No	91 (67.4)	34 (51.5)	0.029
Yes	44 (32.6)	32 (48.5)	
N° of psych visits before intake (IQR)	0 (0-0)	0 (0-1)	0.13
Charlson Comorbidity Score, mean (95% CI)	2 (1-4)	2 (1-4)	0.57

IQR = Inerquartile range

[Table 1. Bivariate comparisons of predictors of No Show intake hepatitis C appointment in patients living with HIV]

WEPEB086

Clinical and health resource utilization comparisons of HCV treatments for HIV/HCV

J. Ernst[1], M. Brennan-Ing[2], N. Olivo[1], L. Seidel[3], T. Leach[1], Y. Vazquez[1], Y. Akulov[1]
[1]*Amida Care, New York, United States,* [2]*Hunter College, City University of New York, Brookdale Center for Healthy Aging, New York, United States,* [3]*ACRIA, New York, United States*

Background: Direct acting antivirals have improved treatment outcomes among HIV-positive patients with hepatitis C (HCV). Data were obtained from Amida Care, a Medicaid Special Needs Plan providing managed care to over 6,000 HIV-positive people with multiple comorbidities and complex psychosocial needs in New York City.

Methods: This study was an observational retrospective medical record and claims review of the plan's first 100 HIV/HCV patients treated with sofosbuvir-containing regimens since 2013 (Cohort 1). In addition, a parallel review was conducted for 53 HIV-positive members who received HCV treatment that included either telaprevir or boceprevir from 2010-2013 (Cohort 2). The two cohorts were compared to examine differences in clinical outcomes and health care utilization using Chi-square tests for categorical data and repeated-measures MANOVA to examine change in continuous data over time, from 12 months before treatment was initiated to 12 months after its completion. This research protocol was IRB approved for informed consent waiver.

Results: There were no significant differences between the two cohorts with regard to age, gender, race/ethnicity and years since HIV diagnosis. CD4 counts and HIV viral load changes were not significant for either group. While both cohorts demonstrated a significantly greater proportion of being HCV undetectable 6-months after treatment ($p < .001$), Cohort 1 had a significantly greater proportion who were undetectable compared to Cohort 2 (93% and 67%, respectively, $p < .005$). Repeated-measures MANOVA found significant change over time in AST and ALT liver function tests for both cohorts. However, there was a significant Cohort X Time interaction, with Cohort 1 demonstrating greater improvement in liver function over time compared with Cohort 2. There were no significant resource utilization differences by cohort in emergency room, inpatient, or outpatient visits. A significant Cohort X Time interaction was observed for primary care visits which significantly increased over time, but to a greater degree in Cohort 1, which may represent better engagement in care, an outcome of the health plan's model of care.

Conclusions: These findings support the improved efficacy of the newer HCV agents but do not support changes in health resource consumption, at least for the first year after treatment.

Cohort	Cohort I Before Treatment		Cohort I After Treatment		Cohort II Before Treatment		Cohort II After Treatment	
HCV VL Detectable - Total Tested/ No. (%)	76/77 (99%)		5/69 (7%)		17/18 (94%)		5/15 (33%)	
CD4 Counts - Mean, St. Dev.	574	280	511	304	576	214	450	215
AST - Mean, Std. Dev	62	40	36	22	83	84	108	152
ALT - Mean, Std. Dev	65	52	30	28	43	32	38	27
ER Visits - Mean, St. Dev.	1	2	1	2	5	34	5	31
Inpatient Visits - Mean, St. Dev.	1	2	3	12	1	3	1	3
Outpatient Visits - Mean, St. Dev.	21	24	27	34	29	38	30	49
PCP Visits - Mean, St. Dev.	1	3	5	7	2	5	2	6

[Cohort 1 and Cohort 2 Before and After Treatment]

WEPEB087

Does baseline liver stiffness value influence fibrosis outcome after direct-acting antiviral treatment in HIV-HCV coinfected patients?

G. Fornaro[1], V. Guardigni[1], F. Ravaioli[2], L. Badia[1], P.L. Viale[1], D. Festi[2], G. Verucchi[1]
[1]*University of Bologna, S. Orsola - Malpighi Hospital, Department of Medical and Surgical Sciences, Infectious Diseases Unit, Bologna, Italy,* [2]*University of Bologna, S. Orsola - Malpighi Hospital, Department of Medical and Surgical Sciences, Gastroenterology Unit, Bologna, Italy*

Background: Data on whether direct-acting antiviral (DAAs) therapy can modify liver stiffness (LS) in patient with HIV-HCV coinfection are lacking. The aim of our study was to evaluate changes in liver stiffness after successful DAAs treatment in HIV-HCV coinfected patients and to determine factors associated with improvement of fibrosis.

Methods: We retrospectively studied all patients with HCV-HIV coinfection treated for HCV with DAAs-based IFN-free regimens who achieved sustained virological response 12 weeks after end of treatment (EOT) from October 2014 to May 2017 in the University Hospital of Bologna, Italy. LS was evaluated at baseline (BL) and within 24 weeks after EOT by elastography (Fibroscan). Linear Regression was used to analyze factors associated with LS improvement. Wilcoxon Matched-Pair Signed Rank Test was used to compare LS measurement before and after DAAs.

Results: A total of 53 patients (aged 52,7 ± 5,4, 22,6% male) were enrolled. 64.2% (34) of them had liver cirrhosis, and 18,9% (10) had Child-Pugh score ≥ 7. Genotypes 1a and 3 were the most frequent (45,3% and 26,4% respectively). The two most common DAAs regimens were Sofosbuvir/Ledipasvir 41,5% (22) and Sofosbuvir + Daclatasvir 37,7% (20). Median LS

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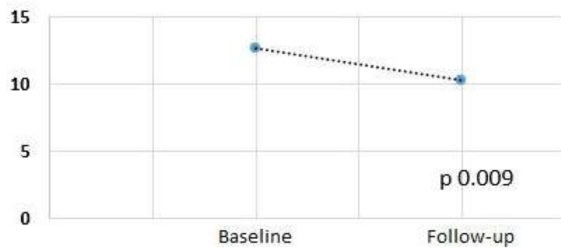
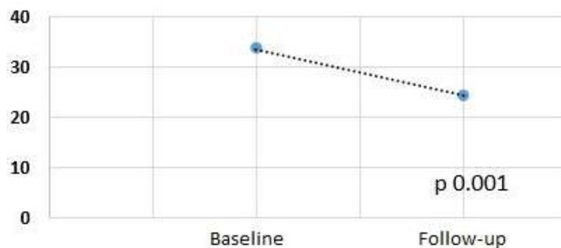
was 14,3 kPa (IQR 10,8-22,1) at BL and 10.4 kPa (IQR 11,1-17,7) at the second evaluation during the follow up; a significant improvement in LS was observed in our population (p< 0,0001), especially in those with BL LS ≥21 (Figure 1). Overall 75.5% of subjects achieved a reduction of fibrosis, after DAAs. Factors independently associated with a greater improvement in LS were diabetes (p 0,007, B = +10) and a LS value at BL ≥21 kPa (p 0.001, B = +6,7). No association with antiretroviral therapy nor with DAAs was observed.

Conclusions: In HIV-HCV coinfected patients successfully treated with DAAs, worse liver fibrosis at BL is associated with a greater LS improvement, suggesting a major benefit from DAAs treatment in those with more advanced liver disease. Main limitations of our study are its retrospective nature and the small sample size.





[Fibrosis improvement after DAAs in our HIV/HCV population sorted by baseline liver stiffness]

WEPEB088

Interleukine-6 decline after HCV cure is associated with VACS INDEX improvement in HIV-HCV patients

L. Badia[1,2], V. Guardigni[1,2], G. Fornaro[1], E. Francalanci[1], M. Rinaldi[1], F. Volpato[1], P. Viale[1], G. Verucchi[1,2]
[1]Policlinico S. Orsola-Malpighi - Bologna, Infectious Diseases, Bologna, Italy, [2]University of Bologna, Research Centre for the Study of Hepatitis, Department of Medical and Surgical Sciences DIMEC, Bologna, Italy

Background: HCV eradication with direct antivirals agents (DAAs) can lead to a decrease in serum Interleukine-6 (IL6) and other immune activation markers, in HCV and HCV/HIV patients.

The Veteran Aging Cohort Study (VACS) index is a score estimating the risk for all-cause mortality in HIV-infected and uninfected individuals.

Aim of our study was to evaluate whether decrease in IL6 levels after DAAs treatment was correlated with improvement of VACS index, among HCV and HIV/HCV patients.

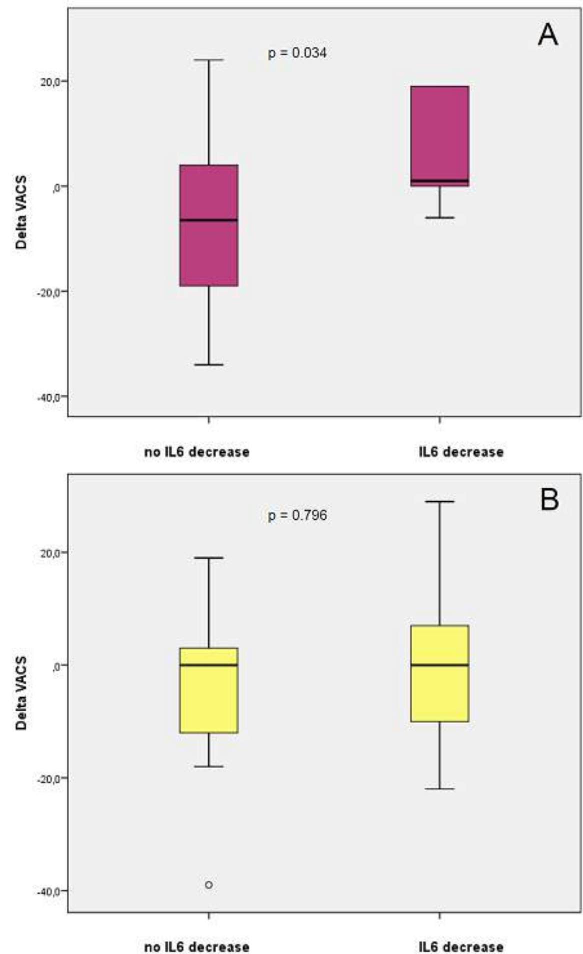
Methods: We retrospectively studied all patients cured with DAAs-based regimens from August 2015 to July 2017 in a tertiary University Hospital in Italy. IL6 levels in peripheral blood and VACS score were determined at baseline (BL), end of treatment (EOT) and 12 weeks of follow-up (FU12). Spearman´s correlation, Wilcoxon signed rank test and T-test (or Mann U-Whitney test for nonparametric variables) were used to perform all the analysis.

Results: We enrolled 110 subjects, aged 57±11 years, 61% (n=67) males. 54% (n=59) was HIV-positive. 74.5% (n=82) had cirrhosis. At BL, mean VACS index was 40±20 and median IL6 was 4.15 pg/ml (IQR 2-8), with no difference according to HIV status; a positive correlation between VACS index and IL6 was found only in HIV+ (p< 0.001, R +0.47).

In subjects (n=55) with BL IL6 above median value (≥4.15 pg/ml), greater decrease in IL6 levels (i.e. larger Δ-IL6) was positively associated with a greater improvement in VACS index (i.e. larger Δ-VACS), p 0.016, R +0.4, only among HIV+ subjects.

Consistently with these findings, Δ-VACS (from BL to FU12) was significantly different between patients who experienced a reduction in IL6 levels and those who did not only in HIV+ subset (p 0.034), with a larger improvement of VACS index among those with a decline in IL6 (Figure 1).

Conclusions: In HIV/HCV patients cured with DAAs, an improvement in immune activation status, as measured by decrease in serum IL6 level, is associated with a reduction of VACS Index, suggesting a benefit on global health and overall survival. The lack of this finding in HCV monoinfected population might be explained by a weaker association between IL6 and VACS Index in absence of HIV infection.



[Figure 1. Comparison between median Delta VACS in HIV-positive (A) and HIV negative (B) patients with or without IL-6 decrease]

WEPEB089

Molecular epidemiology of acute HCV infection in HIV-positive patients from Hong Kong, Taipei and Tokyo

H.-Y. Sun[1], N.-S. Wong[2], H. Uemura[3], D.P.-C. Chan[2], S.-Y. Chang[4], C.-C. Hung[1], S.S. Lee[2], S. Oka[3]
[1]National Taiwan University Hospital, Department of Internal Medicine, Taipei, Taiwan, Province of China, [2]Stanley Ho Centre for Emerging Infectious Diseases, Chinese University of Hong Kong, Hong Kong, Hong Kong, [3]AIDS Clinical Center, National Center for Global Health and Medicine, Tokyo, Japan, [4]National Taiwan University College of Medicine, Department of Clinical Laboratory Sciences and Medical Biotechnology, Taipei, Taiwan, Province of China

Background: A large international network of hepatitis C virus (HCV) transmission among HIV-positive men who have sex with men (MSM) with recent HCV infections has been reported in several European coun-

tries. Whether this international network of HCV transmission also occurs in Asia-Pacific region, where increasing incidences of recent HCV infections have been reported, remains unknown.
Methods: HIV-positive patients with acute HCV infection in Hong Kong, Taipei, and Tokyo between 2010 and 2016 were included in this virologic and phylogenetic study. The NS5B region of the HCV genome (365 bp) was amplified by nested polymerase chain reaction (PCR) and sequenced. Acute HCV infection was defined as the seroconversion of HCV antibody in a year or documented acute hepatitis with the seroconversion. Concurrent sexual transmitted diseases (STDs) were defined as the episodes of STD occurring within 1 year of the diagnosis of acute HCV infection.
Results: Three large major institutions with HIV services participated in this collaboration and a total of 232 HIV-positive patients with acute HCV infection were included from Hong Kong (n=58), Taipei (n=140), and Tokyo (n=34). Their mean age was 29.9 (standard deviation, 14.3) years, 100% of them were men, and 94.0% were MSM. At the diagnosis of HCV infection, 73.7% had concurrent STDs and 88.4% were receiving combination antiretroviral therapy. The derived HCV sequences included 43 (74.1%) from Hong Kong, 132 (94.3%) from Taipei, and 30 (88.2%) from Tokyo, all of which were subjected to the phylogenetic tree analysis. The most prevalent HCV genotype in Hong Kong was genotype 3a (81.4%, n=35), followed by 1a (7.0%, n=3) and 3 (7.0%, n=3), in Taipei 2a (55.3%, n=73), followed by 1b (25.8%, n=34), and in Tokyo 1b (63.3%, n=19), followed by 2a (26.7%, n=8). Multiple clusters were identified, including 5 independent clusters within genotype 2a (4 in Taiwan and 1 in Japan), 1 within genotype 2c from Japan, 1 within genotype 6a from Taiwan, and 1 within genotype 1b from Japan.
Conclusions: No international network of HCV transmission was identified among HIV-positive patients in this study, while independent clusters of HCV infections occurred in each city.

WEPEB090

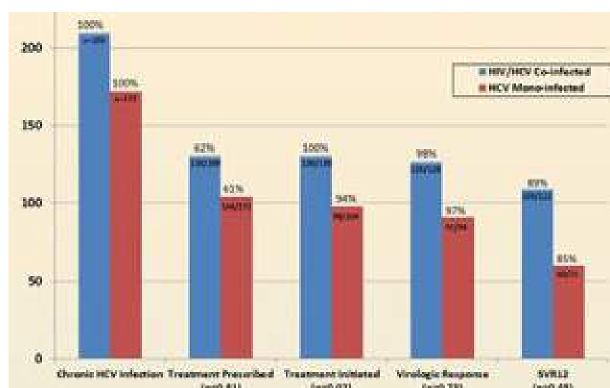
Real world data of a novel multidisciplinary hepatitis C program in an established HIV program

D. Kahal[1,2], C. James[1], N. Goldstein[3,4], K. Cantwell[1], L. Preininger[1], W. Mazur[1], S. Szabo[1]
[1]Christiana Care Health System, Wilmington, United States, [2]Sidney Kimmel Medical College of Thomas Jefferson University, Philadelphia, United States, [3]Christiana Care Health System, Newark, United States, [4]Dana and David Dornsife School of Public Health at Drexel University, Philadelphia, United States

Background: Delaware has among the highest chronic hepatitis C virus infection (HCV) prevalence rates nationwide although there is limited access to HCV specialist care. In response, the Christiana Care HIV Community Program, the only Ryan White-funded HIV treatment program statewide, expanded to provide comprehensive HCV mono-infection care through a dedicated HCV Program in 2014. We hypothesize that extension of the HIV care model from HIV/HCV co- to HCV mono-infection results in comparable and highly effective real-world treatment outcomes.
Methods: We performed a retrospective chart review of all co- and mono-infected patients from May 2014 through August 2017 with extraction of demographic, HCV disease and treatment status data. HCV treatment points were independently compared using an equality test for proportions between groups with an alpha of 5% (R version 3.2.1).
Results: 209 co- and 177 mono-infected patients underwent HCV evaluation with 130 and 98 patients respectively initiating HCV DAA treatment (table 1). The HCV treatment cascade follows patients through eligible HCV treatment points (figure 1). There were no statistical differences between groups throughout the cascade except for HCV treatment initiations (100% of co- versus 94% of mono-infected patients). 9 co- and 8 mono-infected patients were overdue for SVR12. 2 mono- and 4 co-infected patients experienced treatment failure; one co-infected patient was re-infected with HCV and 1 mono-infected patient died prior to SVR12.
Conclusions: The groups were prescribed treatment and achieved virologic response and cure at high, comparable rates. The difference in group's treatment initiation reflects an extended time interval between treatment approval and start in mono-infected patients due to scheduling capacity within the HCV Program. The most common reasons for lack of treatment prescription amongst both groups includes insurance-mandated fibrosis staging restrictions and drug screening requirements as well as lack of requisite lab data. The refinement of an HCV cascade may further reveal gaps in the HCV care continuum amongst co- and mono-infected patients.
The treatment of mono-infected patients within an established, urban HIV program is a novel care model. This real-world data emphasizes that implementation of a multi-disciplinary model of care results in effective HCV care delivery data for co- and mono-infected patients.

Characteristic		HIV/HCV (n=209)	HCV (n=172)
Sex	*Male*	141 (67%)	116 (67%)
Race	*African American*	170 (81%)	86 (50%)
	Caucasian	27 (13%)	75 (44%)
Age (years)	*26-50*	25 (12%)	42 (25%)
	≥ 51	184 (88%)	130 (75%)
HCV genotype 1		191 (91%)	140 (81.5%)
Cirrhosis		57 (27%)	49 (29%)
HCV treatment-experienced		13 (6%)	18 (11%)

[Table 1: Demographics and Baseline Characteristics]



[Figure 1: HCV Treatment Cascade - HIV/HCV co-infected versus HCV mono-infected patients]

WEPEB091

Decreased hepatitis C virus (HCV) treatment uptake among HIV-HCV co-infected patients in Canada with a history of incarceration

N. Kronfli[1], R. Nitulescu[1], J. Cox[1,2], E. Moodie[2], C. Cooper[3], A. Wong[4], S. Walmsley[5], M.B. Klein[1], on behalf of the Canadian Co-Infection Cohort Investigators
[1]McGill University Health Centre, Montreal, Canada, [2]McGill University, Department of Epidemiology, Biostatistics, & Occupational Health, Montreal, Canada, [3]Ottawa Hospital Research Institute, Ottawa, Canada, [4]University of Saskatchewan, Regina, Canada, [5]Toronto General Hospital Research Institute, Toronto, Canada

Background: Rates of HIV and HCV are 10- and 50-fold higher, respectively in Canadian correctional facilities than in the general population; thus, treatment strategies must target this vulnerable group in order to eliminate HCV in Canada. We aimed to determine whether incarceration impacts HCV treatment uptake in the direct-acting antiviral (DAA) era.
Methods: We analysed data from the Canadian Co-infection Cohort, a prospective multicentre cohort of 1795 co-infected participants from 18 sites in Canada. HCV RNA+ participants who completed baseline information on incarceration were included and followed from November 21, 2013 (when second-generation DAAs were approved by Health Canada) until September 30, 2017. A Cox proportional hazards model was used to assess the effect of time-updated incarceration on time to treatment uptake, and was adjusted for patient-level characteristics known to be associated with treatment uptake in the DAA era.
Results: 965 HCV RNA+ participants were included; 72% had a history of incarceration. There were 280 second-generation DAA treatment initiations (96% with interferon-free regimens) during follow-up (14/100

person-years). Overall, 40% (105/264) of participants never incarcerated were treated (22/100 person-years) compared to 25% (175/701) of previously incarcerated participants (12/100 person-years). Cure rates (sustained virologic response (SVR) at 12 weeks) were 94% and 91%, respectively. Independent of other factors, participants with a history of incarceration (adjusted hazard ratio (aHR): 0.71, 95% CI: 0.53-0.95) were less likely to initiate treatment (Table), as were those with a monthly income < $1500 (aHR: 0.62, 95% CI: 0.46-0.84) or those who reported active injection drug use (aHR: 0.65, 95% CI: 0.43-0.99). Participants with undetectable HIV viral loads (aHR: 2.32, 95% CI: 1.63-3.32) or significant fibrosis (aHR: 1.61, 95% CI: 1.24-2.1) were more likely to initiate treatment.
Conclusions: People with a history of incarceration were significantly less likely to access treatment in the DAA era even after accounting for several patient-level characteristics such as ethnicity, income, and injection drug use. Given SVR rates above 90%, increased efforts are needed to improve access to HCV treatment for previously incarcerated persons in Canada if HCV elimination is to occur by 2030.

Variable	Adjusted HR (95% CI)
Time-updated incarceration status	0.71 (0.53 ; 0.95)
Age	1.01 (0.99 ; 1.02)
Female sex	0.89 (0.65 ; 1.2)
Indigenous ethnicity	0.76 (0.5 ; 1.17)
Monthly income ≤ 1500 CAD	0.62 (0.46 ; 0.84)
Active injection drug use	0.65 (0.43 ; 0.99)
Undetectable HIV RNA (≤ 50 copies)	2.32 (1.63 ; 3.32)
APRI > 1.5	1.61 (1.24 ; 2.1)
HCV genotype 3	0.76 (0.53 ; 1.1)

[Cox proportional hazards model - HCV treatment uptake during the DAA era]

WEPEB092

Wild genotype Gln11Gln TLR7 gene contributes the accelerated fibrosis progression in HIV/HCV coinfected patients in Ukraine

T. Kyrychenko[1,2], T. Koval[2], G. Dubynska[2], O. Danilenko[1], O. Sabinina[1], K. Mykhailova[1], I. Kaidashev[2]
[1]*Poltava Regional HIV/AIDS Prevention and Control Center, Poltava, Ukraine,* [2]*Higher State Educational Establishment of Ukraine 'Ukrainian Medical Stomatological Academy', Poltava, Ukraine*

Background: Approximately 40- 75% of people living with HIV (PLHIV) in Ukraine are coinfected with HCV that impairs the course and treatment of HIV infection. Access to the antiviral therapy of HCV is limited in Ukraine. Despite the free access of ART, the numbers of reported deaths due to advanced liver diseases continue to rise in PLHIV.
Methods: The study has analyzed the clinical data of 104 HIV/HCV coinfected patients aged 25-47 y.o. admitted to Poltava (central region of Ukraine) HIV/AIDS clinic in 2013-2016. We included patients with known genotype HCV and stages of fibrosis in retrospective cohort study. The stage of fibrosis has been determined with transient elastography. We analyzed the contributing factors of accelerated fibrosis progression including socio-demographic and clinical data, as well as polymorphism of Gln11Leu TLR7 gene. We used Cox proportional hazards regression model to outcome measure included time from the first positive HCV test to diagnosis advanced liver fibrosis (F_3-F_4).
Results: Accelerated fibrosis progression was associated with age over 40 years (HR= 1.9; 95% CI [1.1-2.1]), male sex (HR= 2.4; 95% CI [1.2-4.5]), lower level of CD4 (HR= 1.5; 95% CI [1.2-1.9]), presence of TB (HR= 1.9; 95% CI [1.4-5.3]) and genotype Gln11Gln TLR7 gene (HR= 1.6; 95% CI [1.1-3.7]) was associated with accelerated fibrosis progression.
Conclusions: This study suggests a greater risk of accelerated fibrosis progression in HIV/HCV coinfected patients with older age, male sex, lower level of CD4, presence of TB and genotype Gln11Gln TLR7 gene. Presence of11Leu allele of TLR7 gene is a protective factor of fibrosis progression in HIV/HCV coinfected patients.

WEPEB093

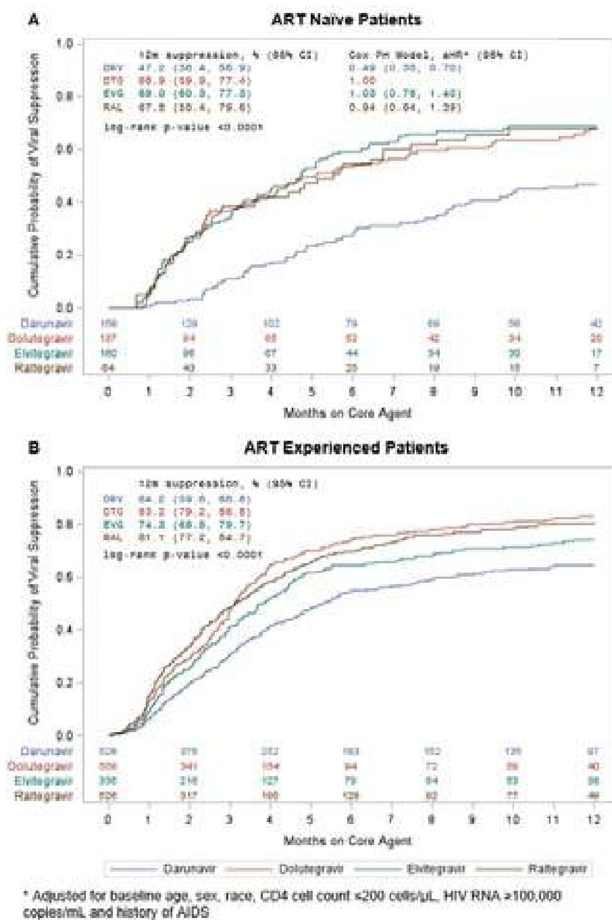
Clinical effectiveness of guideline-recommended antiretroviral therapy core agents in HIV/HCV co-infected patients in the OPERA Observational Database

D. Dieterich[1], L. Brunet[2], J. Fusco[2], R. Hsu[3,4], V. Vannappagari[5], L. Curtis[5], M.C. Nascimento[5], G. Fusco[2]
[1]*Mt. Sinai Healthcare System, New York, United States,* [2]*Epividian, Durham, United States,* [3]*AIDS Healthcare Foundation, New York, United States,* [4]*NYU Langone Medical Center, New York, United States,* [5]*ViiV Healthcare, Inc., Research Triangle Park, United States*

Background: HCV progression in HIV/HCV co-infected patients can become comparable to HCV mono-infection progression with effective HIV treatment. Clinical guidelines recommend the use of dolutegravir (DTG), elvitegravir (EVG), raltegravir (RAL), or darunavir (DRV) as antiretroviral therapy (ART) core agents. However, most trials included very few co-infected patients. We compared the effectiveness of recommended core agents in HIV/HCV co-infected patients in the U.S.
Methods: HIV/HCV co-infected patients in the OPERA® Observational Database initiating a recommended core agent between 08/12/2013 and 06/30/2016 were included and stratified by ART experience. Probability and time to viral suppression by core agent were assessed with Kaplan-Meier methods and a multivariate Cox proportional hazards model. Grade 3-4 liver enzyme elevation (LEE) incidence was estimated for each core agent among HCV treatment naïve patients with normal baseline liver enzyme levels.
Results: Most patients were male and received care in the South of the U.S.; over a third were African American (Table 1). Of the 527 **ART-naïve** patients initiating DTG (27%), EVG (31%), RAL (12%) or DRV (30%), >98% were HCV treatment-naïve. The 12-month viral suppression probability was lower for DRV (47%) than DTG (69%), EVG (69%) and RAL (68%) use. Compared to DTG, viral suppression was achieved slower with DRV (HR: 0.49, 95% CI: 0.35, 0.70), but was not statistically different with EVG (HR: 1.03, 95% CI: 0.76, 1.40) or RAL (HR: 0.94, 95% CI: 0.64, 1.39, Figure 1A). Of the 1,966 *ART-experienced* patients initiating DTG (29%), EVG (17%), RAL (27%) or DRV (27%), >85% were HCV treatment-naïve. The 12-month viral suppression probability was lower with DRV (64%) than with DTG (83%), EVG (74%) and RAL (81%, Figure 1B). Among HCV treatment-naïve patients, there were no statistically significant differences in grade 3-4 LEE incidence in ART-naïve (DTG: 2/43, 5%; EVG: 2/66, 3%; RAL: 0/21, 0%; DRV: 4/65, 6%) or ART-experienced patients (DTG: 3/130, 2%; EVG: 3/103, 3%; RAL: 4/124, 3%; DRV: 3/417, 2%).
Conclusions: Regimens containing DTG, EVG, or RAL may be better choices for treating HIV/HCV co-infected patients. Compared to DTG, suppression was less likely and slower with DRV use only. LEE incidence was comparable across core agents.

	ART-naïve				ART-experienced			
	Dolutegravir, N=140 (26.6%)	Elvitegravir, N=164 (31.1%)	Raltegravir, N=65 (12.3%)	Darunavir, N=158 (30.0%)	Dolutegravir, N=567 (28.8%)	Elvitegravir, N=340 (17.3%)	Raltegravir, N=530 (27.0%)	Darunavir, N=529 (26.9%)
Age, median years (IQR)	44.3 (34.0, 52.3)	45.0 (33.8, 52.0)	49.0 (40.1, 53.8)	46.5 (36.8, 52.6)	50.9 (44.2, 57.0)	50.1 (42.6, 55.8)	50.1 (44.0, 55.2)	48.2 (42.8, 53.7)
Male, n (%)	107 (76.4%)	122 (74.4%)	49 (75.4%)	126 (79.7%)	463 (81.7%)	275 (80.9%)	405 (76.4%)	410 (77.5%)
African American, n (%)	43 (30.7%)	61 (37.2%)	27 (41.5%)	67 (42.4%)	219 (38.6%)	121 (35.6%)	176 (33.2%)	189 (35.7%)
Hispanic, n (%)	22 (15.7%)	32 (19.5%)	12 (18.5%)	34 (21.5%)	126 (22.2%)	75 (22.1%)	92 (17.4%)	109 (20.6%)
U.S. Region: Northeast, n (%)	21 (15.0%)	36 (22.0%)	11 (16.9%)	14 (8.9%)	109 (19.2%)	67 (19.7%)	58 (10.9%)	43 (8.1%)
U.S. Region: South, n (%)	68 (48.6%)	92 (56.1%)	31 (47.7%)	87 (55.1%)	209 (36.9%)	154 (45.3%)	246 (46.4%)	282 (53.3%)
U.S. Region: Midwest, n (%)	4 (2.9%)	2 (1.2%)	1 (1.5%)	0 (0.0%)	4 (0.7%)	8 (2.4%)	4 (0.8%)	4 (0.8%)
U.S. Region: West, n (%)	47 (33.6%)	34 (20.7%)	22 (33.8%)	57 (36.1%)	245 (43.2%)	111 (32.6%)	222 (41.9%)	200 (37.8%)

[Table 1: Baseline Demographic Characteristics]



[Figure 1: Kaplan-Meier estimations of time to viral suppression among (A) ART naïve and (B) ART experienced patients, by core agent of interest]

WEPEB094

Heavy drinking and treatment among HIV/HCV co-infected patients

J. Elliott[1], N. Shalev[2], D. Hasin[1]
[1]Columbia University Medical Center / New York State Psychiatric Institute, Psychiatry, New York, United States, [2]Columbia University Medical Center, Division of Infectious Diseases, New York, United States

Background: Individuals co-infected with HIV and Hepatitis C virus (HCV) face increased health risks when compared with those with HIV or HCV alone. Heavy drinking can contribute to health problems and interfere with engagement in care in this population. In the era of direct-acting antiviral medication for HCV infection, it is important to know how problem drinking relates to engagement in HCV treatment. The current study aims to assess how problem drinking relates to HCV medication access among individuals with HIV/HCV coinfection.

Methods: We sampled 210 patients in a New York City sexual health clinic waiting room in 2017; of these, 39 reported HIV/HCV coinfection. These 39 patients were in middle adulthood (mean age = 53.08 [SD = 11.31]). Most were male (79.49%), racial/ethnic minority (56.41% Black; 25.64% Hispanic), and most had a high school education (84.62%). Patients reported on binge drinking, drinking despite health problems, and HIV and HCV treatment history in a brief tablet-based survey. We assessed associations between drinking and HIV and HCV treatment using Chi-Squared and Fisher's Exact Tests.

Results: Regarding HCV treatment, drinking despite health problems was associated with lower likelihood of ever taking HCV treatment (Fisher's Test, p=0.035; Figure 1).

Of those who drank despite health problems, only one in seven (14.3%) had ever had treatment. Of those who did not, almost two thirds (20 of 32; 62.5%) had received treatment. Drinking despite health problems did not relate to whether HCV treatment had been recommended, and binge drinking did not relate to either HCV outcome (ps>0.10). Neither drinking variable was associated with current or lifetime HIV treatment (ps>0.10).

Conclusions: Among HIV/HCV co-infected individuals, those who drank despite health problems were less likely to have had HCV treatment. This did not appear to be due to provider unwillingness to recommend such medication. Although our sample is small and relied on self-report, these findings suggest that risk behaviors such as drinking despite known risk and not engaging in HCV treatment may cluster together, with potential damaging effects. Interventions to address drinking and HCV health among HIV/HCV co-infected drinkers is needed.

WEPEB095

8 weeks of grazoprevir/elbasvir for acute HCV: A multicenter clinical trial (DAHHS2)

A. Boerekamps[1], A. De Weggheleire[2], G. van den Berk[3], F. Lauw[4], M. Claassen[5], D. Posthouwer[6], W. Bierman[7], T. Dofferhoff[8], S. Hullegie[1], E. Florence[2], J. Arends[9], B. Rijnders[1]
[1]Erasmus MC, Internal Medicine and Infectious Diseases, Rotterdam, Netherlands, [2]Institute of Tropical Medicine, Clinical Sciences, Antwerp, Belgium, [3]OLVG Oost, Internal Medicine and Infectious Diseases, Amsterdam, Netherlands, [4]Slotervaart MC, Internal Medicine and Infectious Diseases, Amsterdam, Netherlands, [5]Rijnstate, Internal Medicine and Infectious Diseases, Arnhem, Netherlands, [6]MUMC+, Internal Medicine and Infectious Diseases, Maastricht, Netherlands, [7]UMCG, Internal Medicine and Infectious Diseases, Groningen, Netherlands, [8]Radboudumc, Internal Medicine and Infectious Diseases, Nijmegen, Netherlands, [9]UMCU, Internal Medicine and Infectious Diseases, Utrecht, Netherlands

Background: Direct-acting antiviral (DAA) therapy for *chronic* hepatitis C infection (HCV) led to speculations about HCV elimination. However, high reinfection rates might become an obstacle, as well as the lack of approval of DAA for the treatment of *acute* HCV.

Few studies evaluated DAA therapy for *acute* HCV and included only a small number of patients. Sustained virological response (SVR) varied between 77-100%. The Dutch Acute HCV in HIV Study2 (NCT02600325) was designed to prove that 1. grazoprevir/elbasvir is effective when given during the *acute* phase of HCV and 2. treatment can be shortened during *acute* HCV without loss of effectiveness.

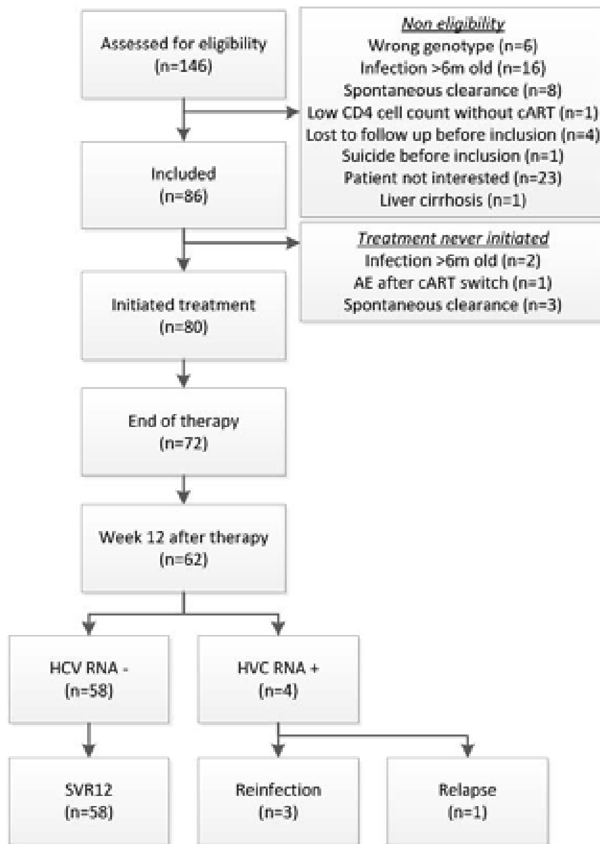
Methods: Single-arm open-label trial in patients with *acute* HCV. Patients were recruited in fifteen Dutch and Belgian hospitals. Patients received 8 weeks of grazoprevir/elbasvir QD and treatment was initiated ≤26 weeks after the estimated date of infection (=midpoint between last negative and first positive HCV test).

The primary endpoint was the SVR 12 weeks post-treatment in the intention to treat population. By protocol, absence of the HCV virus that had been present at baseline at the SVR12 evaluation was considered an SVR. Therefore, a documented reinfection defined as a new HCV genotype or a phylogenetically proven new HCV infection was not considered as treatment failure.

Results: From 02/2016, 144 patients were evaluated for eligibility and 86 were enrolled of which 6 never initiated therapy (figure). Of the 80 patients that started therapy, 62 reached the primary endpoint at the time of abstract submission. All 80 were MSM and all but 7 were HIV+. CD4 at baseline in HIV+ patients was 600/μl (IQR 484-762) and HIV RNA was < 50 c/ml in 97%.

The genotype 1a/1b/4 distribution was 65/0/35%. Median HCV viral load at study entry was 3.14E5 IU/ml (IQR 3.39E4-1.28E6) and 23% of the patients had a HCV *re*infection. At SVR12, 1 patient was diagnosed with a relapse and 3/62 patients had a phylogenetically proven new infection. Therefore therapy was successful in 61/62 (98%; exact 95%CI 91-100%). Final results of the entire study population will be presented.

Conclusions: The shortened 8-week course of grazoprevir/elbasvir was highly effective for the treatment of *acute* HCV.



[Figure 1 Flow diagram]

WEPEB096

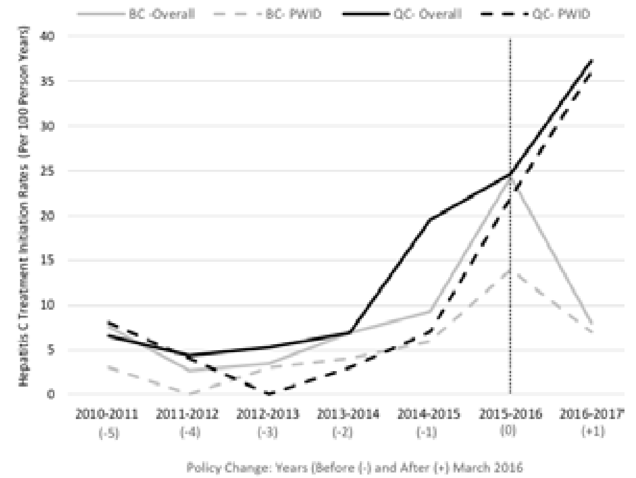
Impact of fibrosis stage restrictions on hepatitis C (HCV) treatment initiation rates: Overall and among PWID in HIV-HCV co-infected populations in Canada

S. Saeed[1], E. Strumpf[1], E. Moodie[1], J. Cox[1], M. Tyndall[2], C. Cooper[3], M. Hull[4], L. Barrett[5], V. Martel-Laferriere[6], M. Klein[7], Canadian HIV/HCV Co-Infection Cohort Study
[1]McGill University, Epidemiology, Montreal, Canada, [2]UBC Centre for Disease Control, Vancouver, Canada, [3]University of Ottawa, Ottawa, Canada, [4]BC Centre of Excellence in HIV/AIDS, Vancouver, Canada, [5]Dalhousie University, Halifax, Canada, [6]L'Université de Montréal, Montreal, Canada, [7]McGill University Health Center, Montreal, Canada

Background: Direct acting antivirals (DAAs) have revolutionized Hepatitis C (HCV) treatment with cure rates of >90%. However, despite clinical guidelines that recommend everyone to be treated regardless of fibrosis stage, healthcare insurers worldwide have imposed restrictions due to high costs. As a result, those that maybe at the greatest risk of transmitting HCV, people who inject drugs (PWID), may face barriers to access treatment. Using a natural experiment occurring in Canada, we evaluated the impact fibrosis stage restrictions on HCV treatment initiation rates overall and specifically among PWID.

Methods: We used data from the Canadian HIV-HCV Co-Infection Cohort Study which prospectively follows 1800 participants from 18 centers. In 2016, one province in Canada, Quebec (QC) removed fibrosis stage requirements, as a restriction for people co-infected with HIV, while other provinces maintained their policies. Using a difference-in-difference framework, among HCV RNA+ participants, we determined the change in HCV treatment initiation rates before and after the fibrosis stage restrictions were removed in QC using British Columbia (BC) as the control group. Anderson-Gill generalized Cox models were used to account for recurrent outcomes and estimate adjusted hazard ratios (aHR) of initiating treatment 1-year post policy change.

Results: Between 2010-2017, there were 158 treatment initiations from 442 participants in BC and 220 initiations from 523 participants in QC. Figure 1 illustrates the overall temporal trends of HCV treatment initiations in QC and BC before and after the policy change, overall and among PWID. One-year post-policy change, QC's initiation rate (per 100-person years) continued to increase from 24 (95% CI, 18-33) to 37 (95% CI, 28-50) while in BC initiation rates declined from 24 (95% CI, 18-33) to 8 (95% CI, 4-16). Same trends applied to PWID. The difference-in-difference aHR which accounts for both temporal trends and time-invariant differences between the provinces overall was 3.3 (95% CI, 1.4-7.4) and was 2.9 (95% CI, 0.7-12.1) among PWID.



[HCV Treatment Initiation Rates Comparing British Columbia (BC) and Quebec (QC) Before and After Fibrosis Stage Restrictions Removed]

Conclusions: Relative to BC, removing fibrosis restrictions in QC resulted in a three-fold increase in DAA treatment initiation. To meet the WHO targets of eliminating HCV by 2030, it will be essential for countries to minimize restrictions allowing for maximum treatment uptake.

WEPEB097

High rates of HCV/HIV co-infection and important correlates among people who inject drugs in Hanoi, Vietnam

G. Le[1,2], T. Vu[1], D. Doan[3], A. Nguyen[1], A. Nguyen H.[1], H. Van[1,4]
[1]Hanoi Medical University, Center for Training and Research on Substance Abuse-HIV, Hanoi, Vietnam, [2]Hanoi Medical University, Department of Global Health, Hanoi, Vietnam, [3]Vietnam Network of People Who Use Drugs (VNPUD), Hanoi, Vietnam, [4]Hanoi Medical University, Department of Epidemiology, Hanoi, Vietnam

Background: HCV/HIV co-infection in people who inject drugs (PWIDs) has increasingly become a major challenge for both the health care system and for the PWIDs themselves even though an increasing number of them are entering HIV care. Vietnam is one of the countries where PWIDs have driven the HIV epidemic, and yet information on the rates of HCV/HIV co-infection and associated are limited.

Methods: From October 2015 to April 2017, peer outreach workers in Hanoi, the capital of Vietnam, recruited PWIDs who reportedly injecting or ever injected. At the research clinic of Hanoi Medical University, HCV and HIV status were ascertained by a combination of rapid Anti-HCV, HCV RNA tests, HIV confirmatory test and by certificate of enrollment in HIV care. A short questionnaire on socio-demographic and risk characteristics were conducted. All participants were assessed with FibroScan. Multinomial logistic regression analyses identified differences among groups (uninfected, HCV mono-infected and HIV/HCV co-infected) according to socio-demographic, drug use and sexual risk characteristics.

Results: Of the study sample (N=509) 78.4% were men and the average age was 39 years. Infection rates were 61.7% and 51.1% for HCV and HIV, respectively, and 26.3% of the sample were not infected with either. Among those infected with HCV, 22.6% were HCV mono-infected and 39.1% were HCV/HIV co-infected. Among those with co-infection, 19.6% were at F4 or F3 stages in FibroScan. HCV mono-infection was positively associated with being male, prior incarceration, drug injection history of more than 10 years, and previous experience with HCV testing. HCV/

HIV co-infection was positively associated with age, male gender, currently living with family, having injected for 6 to 10 years and more than 10 years, no condom use in the last 6 months, and previous experience with HCV testing.
Conclusions: Convenience sampling yielded a study sample with high prevalence of HCV and HIV and HCV/HIV co-infection. FibroScan results show high demand for HCV treatment. Those having co-infection tend to live with their families and have better understanding of HCV from previous experiences with testing, which could potentially be important resources of PWIDs during their courses of treatment.

WEPEB098

Is hepatits-virus C therapy in HCV/HIV-Co-infected patients CNS effective?

G. Arendt, A. Müntefering, E. Orhan
Heinrich-Heine University, Dep. of Neurology, Dusseldorf, Germany

Background: Since modern hepatitis virus C (HCV) eradication treatment has been established, prognosis for HCV/HIV co-infected individuals has improved considerably. However, both viruses are neurotropic; thus, the question is A): whether neuro-cognitive deficits are worse in co-infected patients in comparison to HIV-mono-infected persons and B) whether cognition improves in co-infected individuals after HCV eradication. The to date existing studies come to different results.
Methods: We prospectively examined 44 HCV/HIV co-infected patients with neuro-cognitive deficits and eradication therapy (group A) and 43 co-infected persons with neuro-cognitive decline, but without anti-HCV-treatment (group B) neuropsychologically (NP testing) and compared the results with those of age- and sex-matched HIV-mono-infected patients with neuro-cognitive deficits when starting antiretroviral combination therapy (cART) (group C). All patients were caucasian MSM of comparable age, education and immune status before starting HCV eradication treatment or cART, respectively. Motor and neuropsychological tests were routine tests according to Antinori et al., Neurology, 2007.
Results: Motor tests revelaed more pathological results in the co-infected groups, whereas neuropsychological test performance was comparable in all three groups before therapy. There were also no differences in NP testing in co-infected patients over time (76.5% in eradicated and 75.6% in the non-eradicated individuals); thus, eradication did not provoke neuro-cognitive improvement within one year after eradication, whereas HIV-mono-infected individuals showed better test results 6 months after being started on cART. However, while the percentage of patients with pathological NP test perfomance in HCV patients with eradication therapy was 2.2% higher after one year, it was 9.4% higher in not-eradicated individuals.
Conclusions: Our data suggest that HCV/HIV co-infected patients perform neuropsychologically worse than HIV-mono-infected patients. Eradication treatment does not improve NP deficits, but seems to prevent deterioration. These results must be confirmed in larger studies over longer periods of time.

WEPEB099

HCV reinfection following effective all-oral DAA therapy in HIV/HCV-coinfected individuals in Madrid-CoRe

J. Berenguer[1], Á. Gil-Martín[2], I. Jarrín[3], M. Montes[4], L. Domínguez[5], T. Aldamiz-Echevarria[1], M.J. Téllez[6], I. Santos[7], J. Troya[8], J.E. Losa[9], R. Serrano[10], M.T. De Guzmán[11], M.J. Calvo[2], J. González[4], and Madrid-CoRe Study Group
[1]Hospital General Universitario Gregorio Marañón/IiSGM, Madrid, Spain, [2]Subdirección General de Farmacia y Productos Sanitarios/SERMAS, Madrid, Spain, [3]Instituto de Salud Carlos III, Madrid, Spain, [4]Hospital La Paz/IdiPaz, Madrid, Spain, [5]Hospital Universitario 12 de Octubre/i+12, Madrid, Spain, [6]Hospital Clínico Universitario San Carlos, Madrid, Spain, [7]Hospital Universitario de La Princesa, Madrid, Spain, [8]Hospital Universitario Infanta Leonor, Madrid, Spain, [9]Fundación Hospital de Alcorcón, Alcorcón, Spain, [10]Hospital del Henares, Coslada, Spain, [11]Hospital Infanta Cristina, Parla, Spain

Background: High rates of HCV reinfection following sustained viral response (SVR) have been observed among injection drug users (IDU) and men who have sex with men (MSM) who engage in high-risk sexual practices with concomitant drug use. We analyzed HCV reinfection among participants in a large real-world registry of HIV/HCV-coinfected patients treated with all-oral DAA therapy.
Methods: Madrid-CoRe is a prospective registry of HIV/HCV-coinfected patients treated with all-oral DAA-based therapy in the region of Madrid. We analyzed HCV reinfection in patients who achieved SVR in 21 out of 25 hospitals contributing to Madrid-CoRe. SVR was defined as negative HCV-RNA 12 weeks after completion of treatment. The study period started on the date SVR was confirmed. The censoring date was December 31, 2017.
Results: A total of 3,139 patients started all-oral DAA therapy at the participating centers from November 2014 to December 2017. We analyzed reinfections in 2,359 HIV/HCV-coinfected individuals with SVR. We excluded 780 patients with ongoing therapy, pending SVR results, or treatment failure. Reinfections were detected in 17 patients (0.72%) overall, in 12 of 177 MSM (6.78%) who acquired HIV through sexual relations, in 5 of 1,459 patients (0.34%) who acquired HIV by IDU, and 0 of 723 patients with other or unknown mechanisms of HIV transmission. The incidence of reinfection (95% CI) per 100 person-years was 0.48 (0.30-0.77) overall, 5.93 (3.37-10.44) for MSM, and 0.21 (0.09-0.52) for IDU (*Table*). Reinfections were detected a median of 14.86 weeks (IQR 13.43-25.71) after SVR. In 10 (58.82%) patients, the reinfection was caused by a different HCV genotype. All 12 MSM with reinfection acknowledged unprotected anal intercourse with several partners, 7 used chemsex, 6 reported fisting, and 4 practiced slamming. A concomitant STI was detected in 5 patients. Four IDU with reinfection reported injecting drugs following SVR.
Conclusions: HCV reinfection is a matter of concern in HIV-positive MSM treated with all-oral DAA therapy in the region of Madrid. Our data suggest that prevention strategies and frequent testing with HCV-RNA should be applied following SVR in MSM who engage in high-risk practices.

HIV transmission category	N	Reinfections	Years of follow-up	Rate	95% CI
All categories	2,359	17	3,546	0.48	0.30-0.77
MSM	177	12	202	5.93	3.37-10.44
IDU	1,459	5	2,329	0.21	0.09-0.52
Other/unknown	723	0	1,015	_	_

[Reinfection rates after SVR per 100 person-years]

Other viral hepatitis (e.g. A and E)

WEPEB100

Current hepatitis A outbreaks in men who have sex with men - epidemiological situation in HIV patients in Chile

C.P. Cortes[1,2], M. Wolff[1,2], L.M. Noriega[3,4], A. Marcotti[3,4], C. Palavecino[1], P. Mateluna[3,4], L. Porte[3,4], T. Weitzel[3,4]
[1]*University of Chile School of Medicine, Medicine, Santiago, Chile,* [2]*Fundacion Arriaran, Santiago, Chile,* [3]*Clinica Alemana, Santiago, Chile,* [4]*Universidad del Desarrollo, Facultad de Medicina, Santiago, Chile*

Background: In 2017, various countries in Europe and the Americas (including Chile) experienced outbreaks of hepatitis A virus (HAV) infections in men who have sex with men (MSM). In Chile, the rate of hepatitis A susceptibility in this population is unknown. Hepatitis A vaccines are available, but not widely used. Our study aimed to analyze the epidemiology of feco-orally transmitted viral hepatitis (A and E) in HIV patients in Santiago, Chile.
Methods: The study used preserved samples from a previous cross-sectional multicenter hepatitis B study in adult HIV patients attending public (Fundación Arriarán, FA) and private health centers (Clinica Alemana, CA) in Santiago. Specimens were tested for antibodies against hepatitis A (Elecsys® anti-HAV total, Roche) and hepatitis E (recomWell HEV IgG, Mikrogen). Demographic, clinical and laboratory data were obtained from medical records.
Results: A total of 394 patients (FA, 348; CA, 46) were included (93% male). Median age was 38 years and 99% acquired HIV sexually (83% MSM, 17% heterosexual). 15% had AIDS and 96% were on ART. In 79%, HIV viral load was undetectable and median CD4 cell count was 499 cells/µL. Of all patients, 77% (CI95%, 72-81%) were HAV seropositive (FA, 79% [74-82%]; CA, 65% [51-77%]). Patients born before 1960, in the 1960s, and the 1970s had high HAV seroprevalences of 97%, 92%, and 87%, respectively. Those born in the 1980s had intermediate (64%) and those born in the 1990s very low rates (18%). Overall seroprevalence of hepatitis E was 10.4% (7.7-13.8%), age-dependently ranging from 18% (born before 1960) to 0% (born in 1990s).
Conclusions: Our study highlights that a large proportion of HIV-patients of younger generations are susceptible to HAV. For risk groups such as MSM, vaccination should therefore be provided to control the current outbreak and prevent further spread. More patients of the private health sector in Chile are HAV susceptible, reflecting the more hygienic living conditions, but also the underuse of vaccination. Surprisingly, we detected hepatitis E antibodies in more than 10% of the study population. The epidemiology and clinical relevance of HEV, which has not been described HIV-patients in Chile, requires further studies.

STI's including HPV

WEPEB101

High prevalence of sexually transmitted infections among HIV-positive women on ART: The WETIV-R cohort study in Abidjan, Ivory Coast

C. Chedid[1,2], S. Arikawa[1], E. Messou[3], T. Tiendrebeogo[1], A. Horo[4], A. Zahui[5,6], X. Anglaret[1], A. Minga[5,6], R. Becquet[1]
[1]*Université de Bordeaux, INSERM, Bordeaux Population Health Research Center, Team IDLIC, UMR 1219, Bordeaux, France,* [2]*Ecole Normale Supérieure de Lyon, Département de Biologie, Lyon, France,* [3]*Centre de Prise en Charge de Recherche et de Formation, CePReF-Aconda-VS, Abidjan, Cote D'Ivoire,* [4]*CHU de Yopougon, Service de Gynécologie Obstétrique, Abidjan, Cote D'Ivoire,* [5]*Programme PACCI, site ANRS, Abidjan, Cote D'Ivoire,* [6]*Centre Médical de Suivi de Donneurs de Sang (CNTS), Abidjan, Cote D'Ivoire*

Background: The management of sexually transmitted infections (STI) is insufficiently addressed among African HIV-infected populations. We assessed STI prevalence and associated factors in HIV-positive women of reproductive age on antiretroviral therapy (ART) enrolled in a cohort study integrating reproductive health (RH) services into HIV care at two clinics in Abidjan.
Methods: We selected cohort participants aged 18-49 years, not pregnant, and on ART since less than 24 months. In 2017, socio-demographic and RH characteristics were collected using questionnaires. Collected blood samples and endocervical swabs were tested for *Chlamydia trachomatis* (CT), *Mycoplasma genitalium* (MG), *Trichomonas vaginalis* (TV), *Neisseria gonorrhoeae* (NG), *Candida albicans* (CA), syphilis, herpes (HSV), and bacterial vaginosis (BV). Risk factors were identified with adjusted logistic regression.
Results: Overall, 431 women were included. Median age was 36 (interquartile range 31-40), median CD4 count was 371 cells/mm³ (IQR 227-508), and 23.6% received no formal education. Condom use was infrequent globally (26.9%, 116/431). Among women in a stable partnership (75.8%, 326/431), 22.5% (73/324) had an HIV-positive partner and 64.3% disclosed their HIV status to their partner. Women whose stable partner was HIV-negative were more likely to report using condoms regularly (42.2%, 46/109) than those whose partner was HIV-positive (20.5%, 15/73, p=0.005) or of unknown HIV status (26.4%, 38/144, p=0.009). Overall STI prevalence excluding BV was 36.9% (95% confidence interval: 32.3-41.4). Prevalences of CA, CT, and syphilis were 25.0% (95% CI: 20.9-29.2), 7.2% (95% CI: 4.2-9.6), and 2.3% (95% CI: 0.9-3.7). Prevalence of HSV and TV was below 1.0%. No cases of NG or MG were detected. BV prevalence was 50.8% (95% CI: 46.0-55.6). After adjusting for age, education, study site, and condom use, women with an HIV-positive partner were at a higher risk of STIs than single women or those whose partner's HIV status was negative or unknown (adjusted odds ratio 2.1, 95% CI: 1.2-3.8).
Conclusions: There is an urgent need to integrate STI management into HIV care. Further investigation is needed to address the vulnerability of women in seroconcordant couples. Strategies for better male involvement in STI testing and management are necessary to ensure treatment efficacy.

WEPEB102

Collating molecular assays Abbott RealTime™ highrisk HPV and Roche Linear Array® HPV genotyping test for detection of high-risk human papillomavirus: A means for facilitating HPV screening in HIV-1 positive women

P. Khopkar[1,2], A. Mane[3], M. Ratnaparkhi[3], J. Andil[1], A. Nirmalkar[4], U. Katti[5], S. Godbole[4], S. Kulkarni[1,2]
[1]*National AIDS Research Institute, Virology, Pune, India,* [2]*Symbiosis International University, Health and Biomedical Sciences, Pune, India,* [3]*National AIDS Research Institute, Microbiology, Pune, India,* [4]*National AIDS Research Institute, Epidemiology & Biostatistics, Pune, India,* [5]*National AIDS Research Institute, Clinical Sciences, Pune, India*

Background: HIV-positive women are at higher risk of cervical cancer. Testing HIV-positive women for HR-HPV using molecular assays could improve cervical cancer screening. Abbott Real Time™ High-Risk HPV (AB) is a recent assay that detects 14 high-risk HPV genotypes, whereas Roche Linear Array® HPV Genotyping (RLA) is an established assay detectsing 37 HPV genotypes. The present study evaluates the clinical performance of AB with RLA using identical cervical cytobrush specimens.
Methods: Cervical cytobrush specimens from 129 HIV-1 positive women from Pune, India with known cervical cytology were analyzed using two molecular assays: AB and RLA. As the response variables were categorical, Kappa () statistics was used to evaluate the agreement between the two assays with 95% Confidence Interval. Chi-square test (trend test) was used for estimating positive rates of cervical HPV testing by the two assays according to genotypes and cervical status. Concordance among the results obtained for two assays were determined for any detectable HPV genotype. Additionally, percent positivity for HR HPV detection for two molecular assays was calculated.
Results: The median age and CD4 counts of 129 HIV-1 positive women were 33 years (IQR: 30, 37) and 386 cells/mm³ (IQR: 234, 552) respectively. Overall, 93/129 (72.09%) specimens showed concordant results for molecular High-Risk HPV detection [= 0.46, p< 0.001], and high concordance rate for HPV 18 detection [= 0.89, p< 0.001]. The positive rates of cervical HPV tested by molecular assays according to genotypes and

previously known cervical status portrayed a statistical significance for 'all detectable HPV' 'HPV 16' and 'HPV 18'. The molecular HPV detection based on stratified genotypes suggests overall good concordance between the two assays, being maximum for HR HPV 18 detection (Table 1).
Conclusions: No significant difference between both the tests for detection of HR-HPV was noted and the molecular assays compared well. Considering the turn-around time for both the assays, AB (8 hours) in comparison with RLA (48 hours); AB offers a rapid, robust molecular HPV screening option for HIV-positive women in resource limited Indian settings.

HPV genotype	RLA	AB			Concordance rate (%)	Kappa (κ)	95% CI
		Positive	Negative	Total			
All	Positive; Negative; Total	31; 1; 32	9; 88; 97	40; 89; 129	92	0.81 (P <0.001)*	(0.69 - 0.92)
16	Positive; Negative; Total	7; 0; 7	4; 118; 122	11; 118; 129	96.8	0.76 (P <0.001)*	(0.53 - 0.98)
18	Positive; Negative; Total	4; 0; 4	1; 124; 125	5; 124; 129	99.2	0.89 (P <0.001)*	(0.66 - 1.11)
16 and/or 18	Positive; Negative; Total	11; 0; 11	05; 113; 118	16; 113; 129	96.1	0.79 (P <0.001)*	(0.62 - 0.96)
Other	Positive; Negative; Total	18; 14; 32	6; 91; 97	24; 105; 129	84	0.55 (P <0.001)*	(0.37 - 0.72)

[Concordance between the two molecular assays according to HPV genotypes]

WEPEB103

Integrating cervical cancer screening into HIV clinical care for women: A mixed methods study on adherence to screening guidelines, opportunities and challenges in an urban HIV center in Uganda

M.S. Nabaggala[1], E. Phelps[2], S. Nakalema[1], H. Tibakabikoba[1], B. Zanika[3], I. Kalule[1], M. Lamorde[3], B. Castelnuovo[1], A. Kiragga[1]
[1]Infectious Diseases Institute, Research, Kampala, Uganda, [2]Yale University, New Haven, United States, [3]Infectious Diseases Institute, Prevention Care and Treatment, Kampala, Uganda

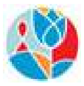
Background: HIV-infected women remain at higher risk of cervical cancer compared to their negative peers (incidence rates of 7.3 vs 2.5 per 1,000 person years). Annual cervical cancer is recommended for HIV positive women however; little data exists on adherence to the recommendation and factors influencing integration of screening into HIV care. We assessed the rates of cervical cancer screening and identified opportunities and challenges of integrating screening at the Infectious Diseases Institute (IDI), a non-profit organization that provides HIV care in Uganda.
Methods: The IDI started routine screening for cervical cancer in 2014 for women < 50 years using Visual Inspection with Acetic Acid (VIA). Patients with a positive VIA result are referred to Uganda Cancer Institute (UCI) while those with a negative result are rescreened yearly. We conducted a retrospective study among 4,618 eligible out of 5,604 women who registered at IDI between 2014 and mid-2017 to assess proportion of patients who received cervical cancer screening using patient records. In addition, we conducted in-depth interviews in July 2016 among seven randomly selected reproductive health staff to understand opportunities and barriers to program.
Results: Of 4,618 women 1,408(30.5%) had ever screened; with median time to screening of 18(IQR:7-29) months. Of the screened, 133/1,408(9.5%) had a positive result and were all referred to UCI. Of 1,275/1,408(90.5%) with a negative result, 764/1,275(60%) were eligible for annual repeat screening-procedure and 192/764(25.1%) were rescreened in the study period.
Among the opportunities identified by healthcare providers: cervical cancer screening can be tied to the patients' routine clinic visit, tailored messages can be used to emphasize the importance of screening and patients who miss scheduled screening could be tracked alongside those who miss general clinic visit. Challenges identified include limited human resources, inadequate space and long waiting times.
Conclusions: The rate of cervical cancer screening in this urban clinic was comparable to the estimated national baseline-screening rate of 30% in urban areas but lower than the national guidelines target of 80% screening coverage. The findings emphasize need for additional measures geared towards increasing the number of HIV positive females screening for cervical cancer.

WEPEB104

High prevalence of HIV infection, cervicovaginal oncogenic HPV harboring unusual genotypes and HPV-related cervical lesions in immigrate women originating from sub-Saharan Africa and living in France

R.-S. Mboumba Bouassa[1], C. Gubavu[2], T. Prazuck[2], L. Robin[1], D. Veyer[1], H. Péré[1], L. Bélec[1]
[1]Laboratoire de Virologie, Hôpital Européen Georges Pompidou, Paris, France, [2]Service des Maladies Infectieuses et Tropicales, Centre Hospitalier Régional d'Orléans, La Source, Orléans, France

Background: More Than 300,000 immigrate women originating from sub-Saharan Africa were living in France. The yet unknown HPV epidemiology in this population could reflect the high HPV endemicity in Africa that is frequently associated with HIV. We herein focused on HPV molecular detection in immigrate African women living in France.
Methods: In 2017, first-generation immigrate African women attending for sexual health the Centre Hospitalier Régional d´Orléans were prospectively included. A total of 28 women (mean age, 43; range, 25-66) living in France for an average of 10 years (range, 1-27) were subjected to anal and endocervical swabs, HIV and HSV-1 and 2 serology and Pap smear. HPV DNA was detected by multiplex real-time PCR (Anyplex™ II HPV28, Seegene, Seoul, South Korea).
Results: Women were mainly from Central Africa (60.7%), while a minority (39.3%) was from other divers African countries. The prevalence of HIV infection was high (85.7%) and most of these women were also seropositive for HSV (82.1%) infection. Two-third (64.3%) of women showed cervical HPV DNA including 72.3% of high-risk (HR)-HPV and 25.0% of multiple genotypes (mean, 1.4 genotypes; range, 1-3 HR-HPV). HPV-58 (33.3%) was predominant, followed by HPV-42 (16.7%), HPV-18 (11.1%), HPV-40 (11.1%) and HPV-68 (11.1%) (Figure). Most of the HPV-positive cervical samples (55.5%) contained Gardasil-9® vaccine (Merck & Co. Inc., New Jersey, USA) genotypes. One-third (28.6%) of anal swabs were positive for HPV, with 66.6% of low-risk HPV-42, 50% of HR-HPV, including HPV-16 (n=1), and 50% of multiple genotypes (Figure). Two (7.1%) HIV-infected women (38 and 66 years positive for HPV-58 and HPV-42/HPV-68, respectively) showed low- and high- grade cervical squamous intraepithelial lesions, respectively, whereas cytology of remaining women was normal.
Conclusions: We report unexpected high prevalences of cervical and anal HR-HPV frequently harboring unusual genotypes that may be associated with cervical precancerous lesions and high HIV prevalence in a series of immigrant women originating from sub-Saharan Africa. These observations point that immigrant women from sub-Saharan Africa constitute *per se* high-risk population for cervical and anal HPV infection, HPV-related cervical lesions, and HIV infection.



WEPEB105

Increasing trends of HIV-syphilis coinfection among pregnant women in Cameroon highlights a population-based re-emergence of syphilis infection

C. Kengne Nde[1], J.D.D. Anoubissi[1], J. Fokam[2,3,4], A. Zeh Meka[1], D.G. Toghoua Tseuko[5], A. Messeh[1], R. Toukam Fodjo[1], Y. Moussa[1], M. Ngo Nemb[1], D. Same Kob[6], E. Kembou[7], S.-M. Sosso[4], G. Loni-Ekali[1], C. Nguefeu Nkenfou[4,8], M.-C. Okomo[5], A. Ndjolo[2,4], S.-C. Billong[1,2,3], J.-B. Elat Nfetam[1,3]

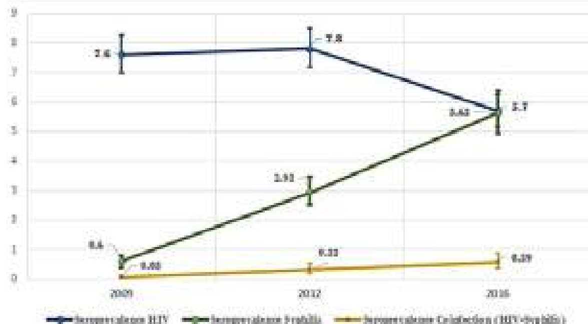
[1]Central Technical Group, National AIDS Control Committee, Yaounde, Cameroon, [2]Faculty of Medicine and Biomedical Sciences (FMBS), University of Yaounde 1, Yaounde, Cameroon, [3]National HIV Drug Resistance Surveillance and Prevention Working Group, National AIDS Control Committee, Yaounde, Cameroon, [4]Chantal BIYA International Reference Centre (CBIRC) for Research on HIV/AIDS Prevention and Management, Yaounde, Cameroon, [5]National Laboratory of Public Health, Yaounde, Cameroon, [6]USAID, Yaounde, Cameroon, [7]WHO, National Office, Yaounde, Cameroon, [8]Higher Teachers' Training College, University of Yaounde I, Yaounde, Cameroon

Background: Syphilis and HIV can be transmitted by pregnant women to their children and it remain a public health problem in Africa. Unlike HIV, there are limited efforts in monitoring the trends of co-infection with syphilis, which thereby suggest risks of re-emergence and spreading overtime. Our study aims were to determine the trends of HIV/syphilis coinfection and syphilis infection overtime through the national surveillance system in Cameroon.

Methods: Based on a prospectively designed analysis, we conducted a study of HIV and syphilis, targeting 7000 first antenatal care (ANC-1) attendees (4000 from urban and 3000 rural sites) in the 10 regions of Cameroon during the 2009, 2012 and 2016 sentinel surveillance surveys. HIV serological testing was performed by serial algorithm as per the national guidelines. Syphilis testing was performed using the Treponema Palladium Hemagglutination assay (TPHA) / Veneral Diseases Research Laboratory (VDRL) as per the manufacturer's instructions. Trends were assessed for HIV, syphilis and HIV/syphilis by estimating prevalences from one study to another.

Results: As of the 2016 survey, a total of 6859 women coming at their first ANC-1 were enrolled. The median age was 26 years [IQR: 21-30] and 46.47% of them were housewife. Acceptability of HIV test was 99.19% (6513/6566). We found a significant increasing trend of the coinfection HIV/Syphilis ranging from 0.05% (95% CI:0.01-0.13) in 2009 to 0.59% (95% CI:0.37-0.88) in 2016. Moreover, while HIV epidemic was on a decline from 2009, prevalence of 7.6% (95% CI: 6.99 - 8.28) to 5.7% (95% CI: 4.93 - 6.4) in 2016, a huge significant increase of syphilis prevalence was observed, going from 0.6% (95% CI:0.40 - 0.80) in 2009 to 5.63% (95% CI:4.93 - 6.40) in 2016 (Figure 1).

Conclusions: HIV/syphilis co-infection is on an increasing trend, due to the re-emergence of HIV syphilis among ANC-1 attendees in Cameroon. This epidemiological dynamics of syphilis confirms a growing burden of syphilis in the general population of Cameroon, and the need to reinforce surveillance and prevention strategies to fight STIs, alongside current efforts on HIV prevention in resource-limited settings similar to Cameroon.



[Figure 1: Evolution of seroprevalence of coinfection HIV-Syphilis, HIV and Syphilis from 2009 to 2016 in Cameroon.]

WEPEB106

Seroprevalence of syphilis, hepatitis C and hepatitis B markers and associated risk factors in a Brazilian cohort of individuals with a newly diagnosis of HIV infection

A. Furtado Costa[1], L.F. Jamal[1], R.S. Nogueira[1], A.C.Q. Leão[1], G. Mizuno[1], P. Menezes[1], M.S. Biagioni Santos[1], M.V. Tancredi[1], J.V.R. Madruga[1], L.P.O. Coelho[2], L.F.M. Brigido[2],
CRT -DST/AIDS Recent Infection Study Group

[1]Centro de Referencia e Treinamento DST/AIDS, São Paulo, Brazil, [2]Instituto Adolfo Lutz, São Paulo, Brazil

Background: Rates of sexual transmission of Hepatitis C virus (HCV), Syphilis and Hepatitis B (HBV) are rising in most countries with great impact in public health. Sexually Transmitted Infections (STI) can increase the susceptibility and infectiousness of HIV and can have severe clinical repercussion in co-infected patients.

The objective of this study is to describe the prevalence of serological markers for syphilis, hepatitis C, hepatitis B and verify associations with epidemiological data in a cohort of HIV newly diagnosed individuals.

Methods: Epidemiological, demographic and laboratorial data from participants of prospective cohort of newly diagnosed individuals with HIV infection were collected at the enrollment. The study was conducted at the STD/AIDS Reference and Training Center (CRT-DST/AIDS) in São Paulo, Brazil, from September/2013 to September/2017.

Data analysis showed that 490 (89.3%) patients are MSM (men who have sex with men). Laboratorial markers of Syphilis, HBV and HCV serologies were analyzed.

Results: Prevalence of hepatitis C was 2.1% (11/531); 72.7% (8/11) MSM, age ranging 22-34 years old; 81,8% (9/11) reported casual partners; 80%(8/10) more than 2 occasional partners (p=0,046).

Susceptible individuals to hepatitis B (anti-Hbc, anti-HBS, HBsAg negative) represented 38.1%(180/472); vaccine immunization (anti-HBs ≥10m UI/ml) 46.0%(217/472).

Having occasional partners was associated with either natural or vaccine immunity (p=0.003); occasional sexual partners was reported by 72%(112/156)of HBV susceptible patients. Available data showed 51.2% (193/377) with positive treponemal test (TPHA); 87% (146/168) TPHA an non-treponemic test (VDRL) with titre ≥1/4.

Conclusions: Data of this cohort, predominantly composed of MSM patients, showed that sexual transmission can play a major role in HCV widespread. The use of condoms is important to prevent HCV infections in HIV infected individuals.

Further, less than 50% of patients had immunity to HBV, showing the importance to improve vaccine coverage for this population.

Better understanding of sexual behavior, vaccine coverage and other factors associated with transmission can be crucial to improve STI prevention strategies.

WEPEB107

Sexually transmitted infection prevalence among high-risk adolescents in Los Angeles and New Orleans: A comparison by HIV status

C.L. Shannon[1], M. Koussa[2], S.J. Lee[2], M.J. Rotheram-Borus[2], J.D. Klausner[1]

[1]University of California Los Angeles, David Geffen School of Medicine, Division of Infectious Diseases, Los Angeles, United States, [2]University of California Los Angeles, Department of Psychiatry and Biobehavioral Sciences, Los Angeles, United States

Background: Sexually transmitted infection (STI) rates are on the rise in the United States, particularly among adolescents. STIs increase the transmissibility of HIV. Gay, bisexual, and transgender youth (GBTY) and homeless youth are at uniquely high risk for both HIV and STIs. However, there is limited data on the prevalence of STIs in that population, as they often have limited access to healthcare services. In this study, we compared the prevalence of *Chlamydia trachomatis* (CT) infection, *Neisseria gonorrhoeae* (NG) infection, and syphilis antibodies among HIV infected and HIV uninfected high-risk adolescents.

Methods: Adolescents 12-24 years of age were recruited from homeless shelters, LGBTQ organizations, and community health centers in Los Angeles, California and New Orleans, Louisiana beginning in May

2018. Eligibility was determined through a risk assessment and a rapid, 4th generation HIV test. Enrolled participants were predominantly homeless youth, GBTY, and racial minorities. We recruited 494 HIV-uninfected adolescents and 49 HIV-infected adolescents. Upon enrollment, participants received point-of-care pharyngeal, rectal, and urethral / vaginal CT and NG testing using the GeneXpert, a 90-minute nucleic acid amplification test (Cepheid, Sunnyvale, CA). Participants also received a syphilis antibody test using the Syphilis Health Check, a 10-minute assay detecting *treponema pallidum* antibodies (Diagnostics Direct, Stone Harbor, NJ). STI testing was conducted by trained paraprofessionals. Prevalence was calculated for each STI and compared between HIV-infected and HIV-uninfected youth. 95% confidence intervals (CIs) were calculated using the exact binomial method.

Results: Prevalence values are shown in Table 1.

Conclusions: Both HIV-infected and HIV-uninfected adolescents had a high prevalence of STIs. However, HIV-infected youth had a much greater prevalence of all three STIs, with particularly high rates of rectal CT, rectal NG, and syphilis antibodies. These data highlight the importance of extragenital CT and NG screening in this population, and underscore the need for community-based STI testing programs targeting both HIV-infected and HIV-uninfected high-risk adolescents.

	HIV-uninfected	HIV-infected
CT infection- pharyngeal (%)	1.1 (CI: 0.4, 2.5)	2.0 (CI: 0.1,10.9)
CT infection - rectal (%)	6.3 (CI: 4.2, 9.0)	12.5 (CI: 4.7, 25.2)
CT infection - vaginal/urethral (%)	6.0 (CI: 4.0, 8.5)	6.1 (CI:1.3, 16.9)
NG infection - pharyngeal (%)	3.7 (CI: 2.2, 5.9)	8.3 (CI: 2.3, 20.0)
NG infection - rectal (%)	3.7 (CI: 2.2, 6.0)	16.7 (CI: 7.5, 30.2)
NG infection - vaginal/urethral (%)	1.3 (CI: 0.5, 2.8)	8.3 (CI: 2.3, 20.0)
Syphilis Antibody (%)	4.9 (CI: 3.2, 7.3)	27.3 (CI: 15.0, 42.8)

[Prevalence of Chlamydia trachomatis (CT) infection, Neisseria gonorrhea (NG) infection, and Syphilis antibody among high-risk, HIV-infected and HIV-un]

WEPEB108

Syphilis among HIV positive patients in Gaborone, Botswana: A cross-sectional study utilising a dual antibody point of care test

D. Lawrence[1,2], I. Maan[1], N. Tlhako[2], K. Tsholo[2], K. Ramontshonyana[3], C. Morroni[2,3,4]

[1]London School of Hygiene and Tropical Medicine, Faculty of Infectious and Tropical Diseases, London, United Kingdom, [2]Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana, [3]Botswana UPenn Partnership, Gaborone, Botswana, [4]Liverpool School of Tropical Medicine, Liverpool, United Kingdom

Background: Syphilis remains a major global health issue with over 18 million cases of syphilis worldwide, the majority of which occur in Africa. There is a lack of prevalence data in low and middle income countries, partly due to the complexity and cost of syphilis diagnostics and the widespread use of syndromic STI management, reducing the imperative to secure diagnosis. Point of care tests have been promoted by the WHO to expand the availability of testing but traditionally have only included treponemal tests which cannot distinguish between active and previous infection. Using a point of care test for both treponemal and non-treponemal antibodies, we aimed to estimate the prevalence of active and previous syphilis among patients attending an HIV clinic in Botswana.

Methods: All patients attending the HIV clinic at Princess Marina Hospital, Gaborone over a four-week period in 2017 were invited to participate. Participants completed a questionnaire to ascertain any active or historical symptoms and diagnoses of syphilis. Participants were tested with a point of care test utilising a simultaneous treponemal and non-treponemal antibody test.

Results: 390(49%) of clinic attendees agreed to participate. 118(30%) male, median age 45 years(IQR 40-51), median CD4 565 cells/mm³(392-729) and 344(91%) viral load < 40 copies/mL. 99(25.5%) reported previous genital ulcers and 72(19%) had previously tested for syphilis, of which 11(15%) had tested positive. 5 tested positive for active syphilis infection(1.3% 95%CI 0.5-3.0%). 64 had positive treponemal antibody(16.4% 95%CI 13.0-20.4%). Increased age, low levels of education and a history of painless genital ulcers were associated with positive treponemal serology.

Conclusions: Syphilis prevalence among these self-selected patients attending a HIV clinic in Botswana is comparable with local ante-natal data. It is acceptable and feasible to use a syphilis point of care test in an HIV clinic which allows patients to be tested and treated the same day. These tests could facilitate a paradigm shift away from syndromic management of genital ulcer disease.

Antibody Test Result (n=390)	Number (Prevalence)	95% CI
Treponemal and Non-Treponemal	5 (1.3%)	0.5 - 3.0%
Treponemal Only	64 (16.4%)	13.0 - 20.4%
Non-Treponemal Only	10 (2.6%)	1.4 - 4.7%
Non-Reactive	311 (79.7%)	75.4 - 83.5%

[Results of dual antibody point of care test]

WEPEB109

CMV Replication and HIV Persistence in Pre- and Post-menopausal HIV-Infected Women on Suppressive ART

S. Gianella[1], S. McDonald Tran[1], M.F. Oliveira[1], S. Lada[1], M. Zhao[1], M. Vargas[1], J.S. Mathad[2], T. Wilkin[2]

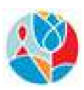
[1]University of California San Diego, La Jolla, United States, [2]Weill Cornell Medicine, New York, United States

Background: Asymptomatic CMV replication is common in HIV infected men, and is associated with increased immune activation, T cell proliferation and larger HIV reservoirs (Gianella et al.). The prevalence of CMV shedding and its relationship to HIV persistence have not been systematically investigated in HIV-infected women.

Methods: Fifty virologically suppressed HIV-infected women with an intact uterus were prospectively enrolled in New York City between July 2014 and September 2016. Participants provided genital samples (self-collected vaginal swabs N=50, provider collected cervical swabs N=15 and cervicovaginal lavage (CVL) N=15), oral samples (rinses N=50, swabs N=40), peripheral blood mononuclear cells (PBMCs, N=50) and urine (N=50) at one cross-sectional time-point. CMV DNA was quantified in each specimen by real-time PCR. Cellular HIV DNA (pol and 2-LTR) and HIV RNA (encoding gag, tat-rev and PolyA) were quantified by droplet digital (dd)PCR. Clinical data collected included menopausal status, current and nadir CD4+, and time on suppressive ART. One woman was CMV seronegative and excluded from the analysis.

Results: Median age was 53 years; 28 women (56%) were post-menopausal; 43 women (86%) acquired HIV through heterosexual contact. Median time on suppressive ART was 7.8 years (IQR:4.2-13.1). Median current CD4+ was 721 cells/ml (490-930) and Nadir CD4+ was 172 cells/ml (56-265). Of the 49 CMV-seropositive women, 15/49 (29%) had detectable CMV DNA in at least one specimen type, most frequently self-collected vaginal swabs (16%) and PBMCs (15%), followed by oral swabs (3%) and rinse (6%), CVL and urine (both 0%). Presence of detectable CMV was not associated with any clinical variable. Higher levels of HIV DNA were associated with a lower Nadir CD4+ and post-menopausal status (both $p < 0.01$ in adjusted analysis) but not with presence of detectable CMV DNA as hypothesized. There was no difference in cellular HIV transcription between pre- and post-menopausal women.

Conclusions: Unlike HIV-infected men, CMV is less frequently detected in women and was not associated with increased HIV reservoir in this study. Interestingly, post-menopausal status was independently associated with increased HIV reservoir, even after adjusting for age and duration of HIV infection. The exact mechanism is under investigation as it was unrelated to increased cellular HIV replication.

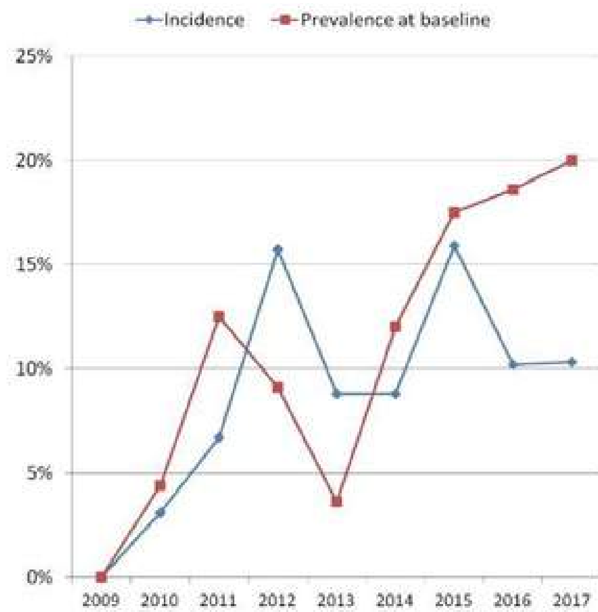


WEPEB110

Syphilis prevalence and incidence are high among HIV-infected MSM in Thailand

D. Colby[1], S. Pinyakorn[2,3], P. Chan[1], E. Kroon[1], P. Prueksakaew[1], C. Sacdalan[1], M. Robb[2,3], P. Phanuphak[4], J. Ananworanich[2,3], N. Phanuphak[1], SEARCH010/RV254 Study team
[1]Thai Red Cross AIDS Research Centre, SEARCH, Bangkok, Thailand, [2]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [3]U.S. Military HIV Research Program, Silver Spring, United States, [4]Thai Red Cross AIDS Research Centre, HIVNAT, Bangkok, Thailand

Background: Syphilis infection among men who have sex with men (MSM) has been increasing worldwide. We report here on syphilis prevalence and incidence in a cohort of HIV-infected individuals in Thailand.
Methods: Syphilis diagnosis was analyzed during 2009-2017 in the SEARCH 010/RV254 cohort of acute HIV infection (AHI) in Bangkok and Pattaya, Thailand. VDRL was performed routinely at baseline and every 24-48 weeks on all participants and in addition when clinically indicated. Positive results are confirmed with titer and TPHA. All participants were offered antiretroviral therapy (ART) at AHI diagnosis with clinical and virological monitoring performed every 12 weeks.
Results: Among 523 participants with AHI median age was 26 (IQR 22-31) years, 97% were male and 93.5% were MSM. Syphilis prevalence at enrollment was 14.1% (n=74), rising from 4.4% in 2010 to 20% in 2017 (Figure 1)(chi-square test for trend p=0.001). Incident syphilis occurred in 21.8% (n=98), annually increasing from 3.1% in 2010 to 15.7% in 2012 and remaining in the range 8-16% through 2017 (chi-square for trend p=0.42). Cumulatively, 32.9% of the cohort had at least one episode of syphilis. Participants with syphilis were more likely to be MSM (OR 3.93, 95% CI 1.36-11.3), have multiple sex partners (OR 2.28, 1.55-3.36) and use recreational drugs during sex (OR 2.00, 1.30-3.07). Syphilis was not associated with age, education, alcohol use, or Fiebig stage at HIV diagnosis. Among 30 participants with incident syphilis who were on ART for at least 24 weeks and for whom data were available, all had undetectable viral loads at syphilis diagnosis and both 12 weeks before and 12 weeks after treatment.
Conclusions: Syphilis infection is very common among HIV-infected MSM in Bangkok and Pattaya, Thailand. Syphilis appears to have no effect on viral load among patients on ART for more than 6 months. Routine syphilis screening should be performed at diagnosis and routinely every 6-12 months while on ART for MSM with HIV in Thailand.



[Syphilis baseline prevalence and incidence among HIV-infected MSM in Bangkok and Pattaya, Thailand]

Sex-specific issues of ART efficacy, adverse reactions and complications

WEPEB111

Patterns of antiretroviral drugs use and co-morbid conditions in a cohort of older women living with HIV in Argentina

R. Mauas, M. Laurido, L.M. Cabral, M.C. Niccodemi, I. Cassetti
Helios Salud, Buenos Aires, Argentina

Background: although women represent one third of the HIV infected population in Latin America, studies addressing HIV infection, antiretroviral (ARV) therapy and age-related events in older women living with HIV (WLHIV) within the region are limited. Hence, we describe the patterns of ARV drugs use and co-morbid conditions in a cohort of older WLHIV receiving care at our institution.
Methods: retrospective, observational study including WLHIV over 50 years old assisted at Helios Salud, Buenos Aires, Argentina from 1997 to 2017. Clinical, laboratory and demographic data from electronic medical charts were reviewed. History of ARV use and prevalence of common co-morbidities were assessed. The information was collected in an Ad Hoc database and T-test, Chi², Fisher exact or Mid P tests, maximum likelihood odds ratio, and multiple regression were used as appropriate.
Results: 250 patients were included. Age, mean (±SD): 58.1 (6.1) years. Time since HIV diagnosis, mean (±SD): 13.8 (6.9) years. AIDS at HIV diagnosis: 46.4%. On ARV therapy: 98.4%. Time on ARV, mean (±SD): 11.7 (5.9) years. Viral suppression: 88,2%. Latest CD4 count, mean (±SD): 673 (312) cells./µl. Only 48 women (19.5%) remain on their first ARV regimen. Currently, 134, 73, and 28 subjects are on NNRTI, PI and INI-based regimens, respectively. No preferred backbone between ABC/3TC or TDF/3TC was noted (119 vs. 107); 12 patients are still receiving AZT/3TC. In average, 2.7 co-morbidities per subject were observed. Prevalent chronic conditions were: dyslipidaemia (63,6%), low bone mineral density (66,7%) and psyquiatric disorders (61,2%). Table 1 summarizes the associations among variables.
Conclusions: chronic conditions related to metabolic syndrome were strongly associated. CVE also correlate with advanced HIV disease. Aging process negatively impacts on women's BMD and fracture risk, as well as TDF and PI exposure. INI-based regimens demonstrate the better metabolic profile of the class, however they are almost not included as first-line therapies in our setting yet. Health care providers should be aware of this multi-morbidity when selecting treatment options for older women.

Variable	LDL >130 mg/dl	Type II Diabetes or IGT/ IFG	Hepatic steatosis	Hyper-tension	Cardio-vascular events (CVE)	Low Bone mineral density (BMD)	Psychiatric disorders
Age	NS	NS	0,0048	0,0101	NS	0,0067	NS
BMI	NS	NS	0,0003	0,0326	NS	0,0214	NS
AIDS at presentation	NS	NS	NS	NS	0,0237	NS	NS
Thymidine analogs or 1rst. generation-PI past exposure	0,0194	NS	0,0343	NS	NS	NS	NS
Boosted ATV or DRV current exposure	NS	NS	NS	NS	NS	0,0315	0,0125
INI current exposure	NS	NS	NS	NS	NS	NS	NS
Tenofovir past exposure	NS	NS	0,0350	NS	NS	0,0027	NS
Hypertension	NS	0,062	NS	--	0,0011	NS	NS
Fragility Fractures	NS	NS	NS	NS	NS	0,0074	NS

[Associations among variables according to multiple-regression analysis]

WEPEB112

Gender differences in antiretroviral treatment outcomes in patients accessing care at a tertiary HIV care center in Southern India - need for dolutegravir based ART

P. Selvamuthu, E. Chandrasekaran, A. Pradeep, C. Devaraj, R. Balakrishnan, N. Kumarasamy
YRGCARE Medical Centre, VHS, Chennai, India

Background: Women and men differ in terms of susceptibility to HIV infection, disease progression and treatment outcomes .WHO guidelines recommend treatment for all. We undertook this analysis in our patient population to examine gender based differences in antiretroviral treatment outcomes after initiation of ART in a resource-limited setting.
Methods: Patients who were >18 years of age, attending YRGCARE Medical Centre, a tertiary HIV care centre between Jan 1996 and Dec 2017 were included.
Data analyses was carried out using YRGCARE HIV observational database.Descriptive statistics were calculated with mean and standard deviation (SD) for variables that were normally distributed, and the median and Interquartile ranges (IQR) were calculated for variables influenced by extreme values. To compare proportions, chi-square statistics were used, and the Mann-Whitney U test was used to compare median durations.
Statistical analyses were performed with IBM SPSS software 24.0. A p-value <0.05 was considered statistically significant.
Results: 5291 patients who initiated ART were studied. Women were younger (41yrs vs 45yrs p=<0.001), had higher CD4 at enrollment (318cells/uL vs 200cells/uL p=<0.001) and at ART initiation (246cells/uL vs 194cells/uL p=<0.001) and were less viremic (7733copies/ml vs 37915copies/ml p=< 0.001).
Women initiated treatment later than men (3 months vs at enrollment p=<0.001). TDF/XTC/EFV was the ART most commonly prescribed (47.4% vs 41.8%). 1.1%women and 1.5%men were on TDF/XTC/DTG.

	Women	Men	p- value
Median CD4 in cells/uL at one year after ART initiation	450	386	<0.001
Median Viral load (in copies /ml)at one year after ART initiation	<150	<150	NS
Median Years of follow up	5.4	6.7	<0.001
First line failure	28.1%	39.4%	<0.001
Median Time to first line failure in years	5.8	6.9	<0.001
Second line failure	6.3%	8.7%	<0.001
Median time to second line failure in years	4.0	4.2	NS

[Gender differences in treatment outcomes]

More women experienced giddiness (p=0.00380), headache (p=0.04), sleep disturbances (4.3 vs 3.2 %) and other CNS adverse events than men (56% vs 39% p=<0.001). NCDs/clinical failure events were similar in both groups.
Women who initiated ART with CD4 cell counts >500cells/uL experienced treatment failure less often than women who initiated ART at <500cells/uL (17.2% vs 25.2% p=<0.001) and had fewer adverse events (37.7% vs 90.1% p=<0.001).
Conclusions: Gender differences affect treatment outcomes in our cohort. Women experienced more CNS related toxicities to EFV and hence Dolutegravir based ART should be a preferred option for ART initiation in women. Initiating ART at higher CD4s is associated with better treatment outcomes.

WEPEB113

Advanced HIV disease among males and females initiating HIV care in rural Ethiopia

A. Lifson[1], S. Workneh[2], A. Hailemichael[2], R. Maclehose[1], K. Horvath[1], R. Hilk[1], A. Sites[3], T. Shenie[2]
[1]University of Minnesota, Division of Epidemiology and Community Health, Minneapolis, United States, [2]National Alliance of State and Territorial AIDS Directors, Ethiopian Office, Addis Ababa, Ethiopia, [3]National Alliance of State and Territorial AIDS Directors, Global Program, Washington, United States

Background: Despite recommendations for early initiation of HIV treatment, many persons living with HIV in sub-Saharan Africa enter care with advanced HIV disease. Studies from some countries report than men initiate HIV care with more advanced HIV disease than women. As part of a community trial assessing impact of peer support workers for HIV patients newly entering care, baseline survey and clinical data were collected on 1,799 adults sequentially recruited from 32 district hospitals or local health clinics in rural southern Ethiopia.
Methods: Baseline surveys included questions on presence of each of six clinical symptoms that lasted >1 month (defined as chronic) and the 10-item Center for Epidemiologic Studies Depression Scale, with a score ≥10 indicating significant depressive symptoms. CD4+ count, body mass index (BMI) and WHO clinical stage were abstracted from participants' HIV clinic records. Advanced HIV disease was defined based on UNAIDS criteria as either a CD4+ count < 200 cells/mm³ or WHO stage III or IV disease.
Results: 733 (41%) males and 1066 (59%) females were enrolled. Advanced HIV disease was present in 66% of males and 56% of females (p<0.001). Males (compared to females) had a lower CD4+ count at enrollment (287 vs. 345 cells/mm³) and were more likely to be WHO Stage III or IV (46% vs. 37%) (p< 0.001). Men were also more likely to have chronic diarrhea (23% vs 17%), fevers (47% vs 40%), cough (43% vs. 32%), pain (41% vs. 36%), fatigue (70% vs. 64%), and weight loss (70% vs. 65%). Men also had a lower BMI (19.3 vs. 20.2 kg/m²). Fifty-two percent of males and 57% of females had significant depressive symptoms.
Conclusions: The majority of those initiating care in this resource-limited setting already had advanced HIV disease, stressing importance of earlier diagnosis and linkage to care. Men compared to women had more advanced HIV disease and poorer physical health status when initiating treatment. The majority of men and women had significant depressive symptoms, stressing the need to assess and address mental as well as physical health needs.

WEPEB114

Trends in antiretroviral switching and discontinuation among Canadian women living with HIV

N. Kronfli[1], N. O'Brien[2], K. Proulx-Boucher[1], D. Rouleau[3], M. Loutfy[4,5], A. Kaida[6], M. Ndung'u[5,7], B. Gagnier[5], H. Dubinsky[1], M. Lee[6], A. de Pokomandy[1,2], on behalf of the CHIWOS Research Team
[1]McGill University Health Centre, Chronic Viral Illness Services, Montreal, Canada, [2]McGill University, Department of Family Medicine, Montreal, Canada, [3]Université de Montreal, Montreal, Canada, [4]University of Toronto, Toronto, Canada, [5]Women's College Research Institute, Women's College Hospital, Toronto, Canada, [6]Simon Fraser University, Vancouver, Canada, [7]Africans in Partnership Against AIDS, Toronto, Canada

Background: Studies on antiretroviral therapy (ART) switching and discontinuation are lacking among women living with HIV (WLWH). We aimed to describe trends in ART use, and to identify characteristics associated with switches or discontinuation of ART among WLWH in Canada.
Methods: We analysed baseline (2013-2015, n=1422) and 18-month follow-up questionnaires (2015-2017, n=1252) from the Canadian HIV Women's Sexual and Reproductive Cohort Study (CHIWOS). The outcome of interest was self-reported use of ART at 18-months compared to baseline. Multivariable logistic regression was used to identify correlates of ART regimen switching and discontinuation.
Results: A higher proportion of women reported taking ART at 18 months compared to baseline (85.5% vs. 82.6%). Of the 1232 women retained for current analyses, 49.5% continued the same ART, 9.0% started ART, 28.1%

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switched their ART regimen, 4.4% discontinued therapy and 9.0% remained off ART between baseline and 18-month visits. The most commonly switched agent was lopinavir/norvir (46.0%); most commonly discontinued were efavirenz (8.0%) and darunavir (7.9%). At 18 months, more women were prescribed integrase inhibitors (30.6% from 12.4%) and the proportion of women on single tablet regimens increased (21.7% from 17.6%).
In multivariable analysis, the odds of an ART switch were significantly lower among women of Indigenous ethnicity (aOR 0.55; 95% CI:0.34-0.86) vs. Caucasian, women living in Quebec (aOR 0.66; 95% CI:0.48-0.93) vs. Ontario, and were higher among women with a baseline CD4 count < 200 cells/ml (aOR 1.91; 95% CI:1.02-3.51) vs. >500 cells/ml. The odds of ART discontinuation were significantly lower among women born outside Canada (aOR 0.19; 95% CI:0.08-0.49) vs. Canadian-born and higher among women aged 16-30 years (aOR 11.2; 95% CI:3.25-38.65) vs. ≥50 years, women living in Ontario (aOR 8.9; 95% CI:2.38-33.34) or in British Columbia (aOR 6.6; 95% CI:1.62-26.42) vs. Quebec, or those who perceived that taking ART would somewhat reduce the risk of transmission (aOR 2.66; 95% CI:1.23-5.76).
Conclusions: Changes in ART are relatively common (28.1% over 18-months) among Canadian WLWH, likely reflecting rapid changes in available ART options and guidelines. While a smaller proportion (4.4%) have discontinued therapy, women 16-30 and those who may have a misunderstanding of HIV transmission should receive particular attention.

Pregnancy (clinical management issues and pharmacokinetics)

WEPEB115

Timing of initiation of ART before or after conception is not associated with adverse pregnancy outcomes: Findings from the ANRS 12136 TEMPRANO trial in Côte d'Ivoire

T. Tiendrebeogo[1], A. Badje[2], S. Arikawa[1], M.-L. Newell[3], C. Danel[2], D. Gabillard[1], S. Eholié[2], X. Anglaret[1,2], R. Becquet[1], ANRS 12136 TEMPRANO Study Group
[1]*University of Bordeaux, Inserm, Bordeaux Population Health Research Center, Bordeaux, France,* [2]*Programme PAC-CI, French National Agency for Research on AIDS and Viral Hepatitis (ANRS) Research Center, Abidjan, Cote D'Ivoire,* [3]*University of Southampton, Global Health Research Institute, Southampton, United Kingdom*

Background: ART-initiation before or early pregnancy has been associated with adverse pregnancy outcomes; however such findings could be confounded by ART eligibility, ART regimen and methodological issues. We assessed the risk of adverse pregnancy outcomes by ART initiation pre- or post- conception using data from a randomized trial in Abidjan to provide evidence on pre-conception ART safety.
Methods: We investigated adverse pregnancy outcomes (stillbirth, small for gestational age [SGA], preterm delivery [PTD] and low birthweight [LBW]) in first pregnancies; a composite outcome was calculated as any adverse pregnancy outcome. In the TEMPRANO trial women were assigned to either early (irrespective of CD4 count) or deferred (WHO standard) TDF-based ART. Risks of adverse outcomes were analyzed by trial randomisation strategy (intent-to-treat) to account for timing of ART initiation in relation to conception; further, in a per-protocol analysis, women in the deferred ART strategy who became ART eligible and initiated ART before conception (e.g. before the end of the first pregnancy trimester) were excluded. Pregnancy was determined at each follow-up visit and confirmed by urine test. Gestational age was based on ultrasound. Adjusted Odds Ratios (aOR) were estimated in logistic regression allowing for women's age, parity, and the nearest CD4 cell count before conception.
Results: In total, 119 and 122 pregnancies were reported, with 83 and 86 deliveries leading to 80 and 83 live births, in the early and deferred ART strategy respectively; 17 women in the deferred ART strategy started ART before conception, their exclusion resulted in 66 live births in this group. Overall, about 3.5% of pregnancies resulted in stillbirths; among livebirths 21% were LBW, 19% PTD and 23% SGA. Risk of adverse pregnancy outcomes did not differ significantly by randomisation strategy in either intent-to-treat or per-protocol analysis (Table 1). Risk of any of adverse pregnancy outcome (composite variable) was not associated with trial arm (intent-to-treat) or timing of ART initiation (before or after conception).
Conclusions: Using data from women randomly allocated to initiate ART immediately or deferred, our results provide reassuring evidence on the lack of association with timing of ART pre- or post-conception. Adverse pregnancy outcomes were common in this population however.

	Intent to treat (ITT)				Per Treatment (PT)			
	n/N	%	aOR [95% CI]*	P-value	n/N	%	aOR [95% CI]*	P-value
DELIVERIES	N=169				N=149			
Stillbirth				0.52				0.17
Deferred ART Arm(ITT), ART post-conception (PT)	1/86	1.5	1.0		0/66	0.0	-	
Early ART Arm(ITT), ART pre-conception (PT)	3/83	3.6	1.9 [0.3-14.1]		3/83	3.6	-	
LIVE BIRTHS	N=163				N=146			
Low birthweight				0.63				0.68
Deferred ART Arm(ITT), ART post-conception (PT)	18/83	21.7	1.0		14/66	21.2	1.0	
Early ART Arm(ITT), ART pre-conception (PT)	16/80	20.0	0.8 [0.3-1.9]		16/80	20.0	0.8 [0.3-2.0]	
Preterm delivery				0.68				0.79
Deferred ART Arm(ITT), ART post-conception (PT)	15/83	18.1	1.0		13/66	19.7	1.0	
Early ART Arm(ITT), ART pre-conception (PT)	17/80	21.3	1.2 [0.5-2.8]		17/80	21.3	1.1 [0.5-2.7]	
Small for gestational age				0.75				0.75
Deferred ART Arm(ITT), ART post-conception (PT)	20/83	24.1	1.0		16/66	24.2	1.0	
Early ART Arm(ITT), ART pre-conception (PT)	19/80	23.8	0.9 [0.4-2.0]		19/80	23.8	0.9 [0.4-2.0]	
COMPOSITE VARIABLE	N=169				N=149			
Any of the above adverse outcomes				0.71				0.74
Deferred ART Arm(ITT), ART post-conception (PT)	38/86	44.2	1.0		30/66	45.4	1.0	
Early ART Arm(ITT), ART pre-conception (PT)	38/83	45.8	0.9 [0.4-1.7]		38/83	45.8	0.9 [0.4-1.8]	

* Adjusted for women's age, parity, and the most recent CD4 cell count before conception.

[Risk of adverse pregnancy outcomes by study randomization strategy or by timing of ART initiation before or after conception. ANRS 2136 TEMPRANO trial, Abidjan Côte d'Ivoire, 2008-2015]

WEPEB116

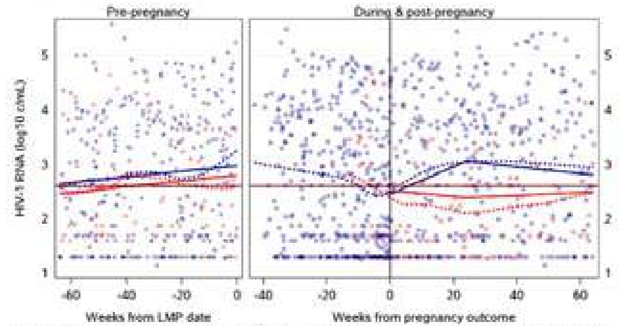
Pregnancy rates and postpartum virologic control among perinatally HIV-infected young women in the US

K. Patel[1], B. Karalius[1], K. Powis[2], C. Berman[1], D. Kacanek[3], A.-B. Moscicki[4], M. Paul[5], K. Tassiopoulos[1], Pediatric HIV/AIDS Cohort Study (PHACS)
[1]*Harvard T.H. Chan School of Public Health, Epidemiology, Boston, United States,* [2]*Massachusetts General Hospital, Internal Medicine and Pediatrics, Boston, United States,* [3]*Harvard T.H. Chan School of Public Health, Center for Biostatistics in AIDS Research, Boston, United States,* [4]*David Geffen School of Medicine, UCLA, Pediatrics, Los Angeles, United States,* [5]*Baylor College of Medicine, Pediatrics, Houston, United States*

Background: There is limited data describing pregnancy and postpartum health among perinatally HIV-infected (PHIV) young women. We compare pregnancy rates among PHIV and perinatally HIV-exposed, uninfected (PHEU) women, and describe pre-conception and postpartum HIV-1 RNA trajectories among PHIV women.
Methods: Pregnancy rates were calculated among PHIV and PHEU women in the PHACS AMP Up protocol. LOESS plots and linear mixed-effects models described trends in HIV-1 RNA starting one year prior to conception, during pregnancy, and through one-year postpartum for all pregnancies among PHIV women by pregnancy outcome (live-birth or spontaneous/elective abortion).
Results: Of 323 young women enrolled in AMP Up, 273 (234 PHIV, 39 PHEU) who reported age at sexual debut and history of heterosexual vaginal intercourse were included in analyses. Pregnancy rates were higher among PHEU compared to PHIV women (IR per 100 person-years [95% CI]: 16.5 [11.4, 23.8] vs. 10.2 [8.4, 12.3]). Of the 99 PHIV women with at least one pregnancy, 60% had 1 pregnancy, 20% had 2, 12% had 3, 4% had 4, 3% had 5, and 1% had 6, with a total of 172 reported pregnancies. 72% of the pregnancies resulted in a live-birth, 9% were spontaneous abortions, and 19% were elective abortions. At one year prior to conception the average HIV-1 RNA was 475 copies/mL in all women and slowly increased over time up through conception (Figure). During pregnancy, HIV-1 RNA levels decreased with average HIV-1 RNA < 400 copies/mL at delivery. In the first 24 weeks postpartum, HIV-1 RNA levels increased by 1.3 (0.4, 2.2) $\log_{10}$ copies/mL per year after a live birth and subsequently stabi-

lized with a small decreasing slope from 24 weeks to one-year post-partum (slope: -0.3 [-0.8, 0.1] $\log_{10}$ copies/mL per year). In comparison, the average postpartum trajectory of HIV-1 RNA after a spontaneous/elective abortion remained at levels < 400 copies/mL.

Conclusions: Compared to PHEU women, PHIV women had lower pregnancy rates. Among PHIV women however, HIV-1 RNA levels increased after a live birth in the first 6 months post-partum, potentially indicating a vulnerable time period for HIV progression among new mothers and the importance of continued engagement in HIV care.



[Figure. LOESS and modelled trajectories of HIV-1 RNA during the pre-conception, pregnancy and post-partum periods by pregnancy outcome (live-birth or spontaneous/elective abortion)]

WEPEB117

Tuberculosis diagnosis and treatment outcomes among HIV+ pregnant women in Haiti

M.M. Deschamps[1], M. McNairy[2], J. Bonhomme[1], V. Rouzier[1], J. Pierrot[1], J. Mathad[3], L. Byers[1], M. Driver[1], P. Cremieux[1], J. Pape[1]
[1]GHESKIO, Port au Prince, Haiti, [2]Weill Cornell Medicine, Center for Global Health, New York, United States, [3]Weill Cornell Medicine, New York, United States

Background: Tuberculosis is a leading cause of maternal mortality in TB-endemic countries. We evaluated TB prevalence, incidence, and maternal/ infant outcomes among a cohort of HIV+ pregnant women in Haiti.

Methods: All HIV+ pregnancies among women ≥15 years who enrolled in the Prevention of Mother-to-Child Transmission program at the GHESKIO clinic from January 2011 through July 2015 were included. TB diagnosis was defined as positive AFB smear, culture, gene Xpert or clinical diagnosis based on a positive symptom screen and abnormal chest radiograph per national guidelines. Prevalence was defined as a TB diagnosis at enrollment. Incident TB was any new TB diagnosis during pregnancy through 24 months postpartum. Factors associated with TB diagnosis were identified using logistic regression.

Results: Among 2,091 unique pregnancies, median age was 29 years (IQR 10-38). Of the 45 TB diagnoses, 8 (18%) were diagnosed during pregnancy and 37 (82%) in the postpartum period. Median CD4 count of women TB+ women was 346 cells/uL at baseline compared to 464 cells/uL among TB- women (p=0.05). TB prevalence was 0.14% (3 cases). There were 42 incident cases (1.15 cases/100 Person Years [PY]). The incident rate was 0.82 cases/100 PY during pregnancy versus 1.35 cases/100PY postpartum. The most common symptoms among TB+ women were cough (89%), fever (47%), weight loss (16%), and diarrhea/vomiting (4%). Among the 45 TB+ women, 12 (27%) were cured, 11 (24%) completed treatment, 17 (38%) abandoned treatment, and 5 (11%) died. Five infants were HIV+ among 45 TB+ mothers (11%) as compared to 49 HIV+ infants among 2,078 TB- mothers (2%) (p=0.007). Three infants of TB+ mothers had active TB (7%) as compared to 22 (1%) among TB- mothers (p< 0.001). Factors associated with TB diagnosis in women were age 19-24 and symptoms listed above (p< 0.05).

Conclusions: TB incidence of HIV+ women was ~1.5 fold higher during the postpartum period as compared to pregnancy and infants born to TB+ women had increased HIV and TB transmission. Increased screening for TB during pregnancy and the postpaturm period is urgently needed.

		TB+ Mothers N=45		TB- Mothers N=2,078		p-value
Pregnancy Outcome	Still/Birth or Abortion	4	9%	163	8%	0.0454
	Born alive	39	87%	1519	73%	
	Missing	2	4%	396	19%	
Infant HIV status	Infant HIV+	5	11%	49	2%	0.0007
	Infant HIV negative	27	60%	1217	59%	
	Infant HIV status unknown	13	29%	812	39%	
Infant TB status among infants tested	Infant TB+	3	7%	22	1%	<0.0001
	Infant TB negative	7	19%	33	2%	
	Infant TB status unknown	35	77%	2023	97%	

[Pregnancy and Infant Outcomes among HIV+ mothers with and without TB]

WEPEB118

Pharmacokinetics of darunavir boosted with cobicistat during pregnancy and postpartum

J.D. Momper[1], B. Best[1], J. Wang[2], A. Stek[3], D.E. Shapiro[2], K. George[4], E. Barr[5], K. Rungruengthanakit[6], E. Smith[7], N. Chakhtoura[8], E.V. Capparelli[1], M. Mirochnick[9]
[1]University of California, San Diego, La Jolla, United States, [2]Harvard University, Boston, United States, [3]University of Southern California, Los Angeles, United States, [4]FHI 360, Durham, United States, [5]Children's Hospital Colorado, Aurora, United States, [6]Chiang Mai University, Chiang Mai, Thailand, [7]National Institute of Allergy and Infectious Diseases, Bethesda, United States, [8]National Institute of Child Health and Human Development, Bethesda, United States, [9]Boston University, Boston, United States

Background: Darunavir (DRV), an HIV-1 protease inhibitor, is primarily metabolized by CYP3A and must be administered with a pharmacokinetic (PK) booster. The PK of DRV co-administered with ritonavir have been described in pregnancy; however, DRV co-formulated with cobicistat (COBI) has not been studied in pregnant women. This study described DRV exposure when administered in fixed-dose-combination with COBI during pregnancy and postpartum.

Methods: IMPAACT P1026s is an ongoing, nonrandomized, open-label, multi-center study of antiretroviral PK in HIV-infected pregnant women. Steady-state 24-hour PK profiles of DRV following once-daily dosing of 800/150 mg DRV/COBI were performed during the 2nd and 3rd trimesters (2T/3T) and 6-12 weeks postpartum (PP). DRV plasma concentrations were measured by a validated HPLC method. A two-tailed Wilcoxon signed rank test (= 0.10) was employed for paired within-subject comparison of PK parameters.

[Maternal Darunavir Pharmacokinetic Parameters, Median (IQR)]

Results: Nine subjects from the US were enrolled with a median age of 24 years at delivery (range 17-43). DRV PK data were available for 5, 7, and 6 women in 2T, 3T and PP, respectively. DRV exposure was lower and clearance higher in 3T compared to PP (Table 1). Compared to previously reported values in non-pregnant adults receiving DRV/COBI 800/150 mg once-daily, 24-hour trough DRV concentrations were 78%, 85%, and 61% lower in 2T, 3T, and PP, respectively. Overall, 2/5, 1/7, and 5/6 mothers had AUC_{0-24} values above the 10th percentile in non-pregnant adult patients at 2T, 3T, and PP, respectively. All subjects had 24-hour trough concentrations above 0.055 ug/mL, the threshold for the average protein binding-adjusted EC50 for wild-type virus. Viral load at delivery was < 50 copies/mL for all women. Median infant gestational age at birth was 37.86 weeks. A patent foramen ovale and ventricular septal defect were reported in one infant and determined possibly treatment related. 7/9 infants were HIV-negative based on best available data, and 2 are indeterminate or pending evaluations.

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Conclusions: In women taking DRV in fixed-dose-combination with COBI, the exposure to DRV appeared to be lower in pregnancy compared to postpartum. Additional PK, safety, and outcome data in pregnant women are needed before DRV/COBI can be recommended for use during pregnancy.

WEPEB119

HIV testing, retesting, and seroconversion among pregnant women attending antenatal and maternity services in Manzini Swaziland

A. Kidane[1,2], A. Mutiti[1], H. Kamiru[1], R. Mudekereza[1], F. Tsiouris[1], R. William[1], S. Mthethwa[3], B. Nhlabat[3]
[1]*ICAP, TB/HIV Care and Treatment, Mbabane, Swaziland,* [2]*University of Swaziland, Mbabane, Swaziland,* [3]*ICAP, TB/HIV, Mbabane, Swaziland*

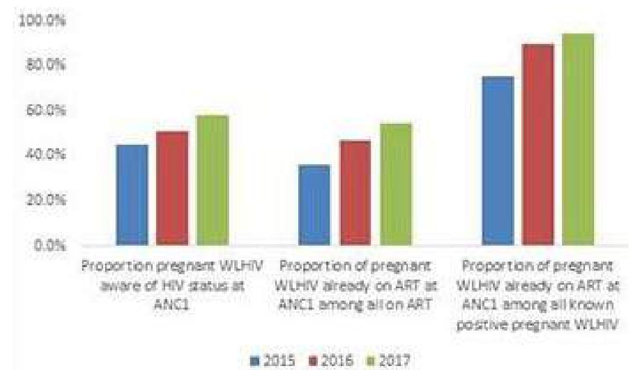
Background: Ensuring HIV testing for pregnant and breastfeeding women at points along the prevention of mother-to-child (PMTCT) cascade is of critical importance. In Swaziland, which has a national HIV prevalence and incidence among women aged 15+ of 32.5% and 1.7% respectively, national guidelines require retesting for HIV-negative pregnant women every 2 months. Understanding the frequency of seroconversion in this population is also important, as incident infections in pregnant women pose substantial risk for transmission to the child. We describe the proportions of pregnant women in Manzini Region, Swaziland, who tested positive after initial negative HIV test.
Methods: All HIV negative pregnant/lactating women are to be retested every 8 weeks during their antenatal/postnatal visits. We analyzed aggregate PMTCT data routinely reported to the Swaziland Ministry of Health between January 2016-September 2017. We examined the numbers of women newly attending ANC, with a known HIV status at first visit, completing HIV retesting in ANC or at delivery in the maternity, and the numbers testing HIV-positive at first visit or during retesting.
Results: Of the 17,739 pregnant women newly attending ANC during the period, 98% (17,384) were tested and/or had a known HIV + status including 4,132 (24%) who were already known to be HIV-positive and 1,945 (11%) who newly tested HIV positive. Of the 10,588 women that tested HIV-negative at first ANC visit, 9439 (89 %) women were retested during their ANC visits and 1149 (11 %) at delivery. Among women retested in ANC, 178 (1.9%) tested HIV-positive; in maternity, 27 (2.3%) tested HIV-positive.
Conclusions: In Swaziland, high numbers of pregnant women who test HIV negative on initial visits test HIV positive on repeat testing possibly representing acute infection and/or false negatives during initial testing. The maternal seroconversion can contribute significantly to the pediatric HIV burden, and needs attention as the country seeks to avert new HIV infections. In view of this and considering the limitations of aggregate data, further study is required to validate the findings. It is critical to continue supporting HIV prevention services including PrEP in pregnant women.

WEPEB120

Changes in proportion of new diagnoses of HIV infection in pregnant women living with HIV (WLHIV) and of entering pregnancy already on ART in PEPFAR programs

D.H. Watts[1], A.K. Radin[1], K. O'Connor[2], K. Kelling[2]
[1]*U.S. Department of State, Office of the Global AIDS Coordinator, Washington, United States,* [2]*Centers for Disease Control and Prevention, US DHHS, Division of Global HIV and TB, Atlanta, United States*

Background: Regimens for prevention of mother-to-child transmission (PMTCT) of HIV have evolved from single-dose Nevirapine to lifelong combination antiretroviral therapy (ART). Among women entering pregnancy on suppressive ART, transmission risk to the infant is below 1% and maternal mortality is reduced. Ideally, all women would enter pregnancy with known HIV status, and those WLHIV would be on suppressive ART. We evaluated the rates of HIV testing and positivity, including new versus known diagnosis, and of entering pregnancy on ART among pregnant women over time.
Methods: PEPFAR PMTCT program results from 2015-2017 for 20 countries were evaluated for the proportion of pregnant women with HIV status documented, and among those positive, the proportion who knew their status and those newly diagnosed. Among pregnant women receiving ART during pregnancy, the proportion entering pregnancy already on ART was evaluated over time and the proportion of women with a known diagnosis of HIV entering pregnancy on ART was calculated.
Results: During the three-year period, 36,947,696 pregnant women (95% of ANC attendees) had their HIV status documented and of these, 2,454,209 (6.6%) were LHIV. The proportion of WLHIV with known status at first antennal (ANC) visit, the proportion already on ART among all who received ART, and the proportion already on ART among WLHIV known before pregnancy across all 20 countries are shown below. The proportions of each increased annually, with 94.6% of women known to be LHIV already on ART at first ANC in 2017. All three indicators increased over time in each country. The proportion of known positive/total positive varied by country, ranging from 27% to 71% in 2015 and from 33% to 78% in 2017.



[Pregnant women with known HIV status and on ART at first antenatal visit]

Conclusions: The proportion of pregnant WLHIV aware of their HIV status has increased annually, but remains below 60%, emphasizing the need for additional efforts for HIV prevention and testing in young women even before pregnancy. Since the introduction of Option B+ and test and start policies, among women with known HIV infection, an increasing proportion enter pregnancy already on ART, optimizing maternal health and minimizing the risk of maternal-to-child transmission.

WEPEB121

Adverse perinatal outcomes associated with maternal HIV infection in South Africa

W.B. Santosa[1], E.S. Urias[1], S. Norris[2], J. Villar[1], S. Kennedy[1], J. Hemelaar[1]
[1]*University of Oxford, Nuffield Department of Women's & Reproductive Health, Women's Centre, John Radcliffe Hospital, Oxford, United Kingdom,* [2]*University of the Witwatersrand, School of Medicine, Developmental Pathways for Health Research Unit, Johannesburg, South Africa*

Background: HIV-positive mothers are at increased risk of having babies with adverse perinatal outcomes (APOs). The objective of this study was to assess the association between maternal HIV infection and APOs in accurately dated pregnant women in South Africa.
Methods: We conducted a prospective cohort study at the Chris Hani Baragwanath Hospital, Soweto, South Africa. Eligible women were those aged ≥18 years, Black South African, with singleton pregnancy and gestational age <14 weeks. Gestational age was estimated using a first-trimester ultrasound measurement of the crown-rump length in all women. Outcomes of interest included preterm birth (PTB), very PTB (VPTB), low birth weight (LBW), very LBW (VLBW), small for gestational age (SGA), very SGA (VSGA), stillbirth, neonatal death (NND), composite of APOs (composite outcome of PTB, LBW, SGA, stillbirth and NND) and composite of severe APOs (composite outcome of VPTB, VLBW, VSGA, stillbirth and NND). We used multiple logistic regression models to adjust for potential confounders: maternal age, education, marital status, socioeconomic status, smoking status, alcohol consumption, pre-pregnancy body mass index, parity, hypertensive disorders during pregnancy, history of PTB, history of LBW, history of stillbirth and history of NND.

Results: Data were collected on 404 HIV-negative and 229 HIV-positive mother and infant pairs. HIV-positive mothers were significantly more likely to be older (p< 0.001), less educated (p=0.0001) and parous (p=0.02) than HIV-negative mothers. Most HIV-positive mothers (98.4%) received antenatal antiretroviral therapy. Overall, there was a trend towards higher rates of each of the APOs in HIV-positive mothers compared to their HIV-negative counterparts. Maternal HIV infection was significantly associated with SGA (OR: 1.55; 95%CI:1.01, 2.38), NND (OR: 6.37; 95%CI:1.31, 30.91) and a composite of APOs (OR: 1.44; 95%CI:1.03, 2.03). After adjusting for potential confounders, NND (adjusted OR: 8.98; 95%CI:1.56, 51.65) and a composite of APOs (adjusted OR: 1.48; 95%CI:1.02, 2.16) remained significantly associated with maternal HIV infection.
Conclusions: Maternal HIV infection is associated with adverse perinatal outcomes, especially neonatal death and composite of APOs, in accurately dated pregnant women in South Africa. HIV-positive mothers should receive counselling regarding APOs, in addition to mother-to-child-transmission of HIV. Larger studies are needed to more accurately estimate APOs.

WEPEB122

Time of HIV diagnosis, viral load and CD4 count at antenatal care start in South Africa

D. Onoya[1], C. Nattey[1], C. Mongwenyana[1], N. Jinga[1], G. Sherman[2,3]
[1]University of the Witwatersrand, Health Economics and Epidemiology Research Office, Johannesburg, South Africa, [2]University of the Witwatersrand, Department of Paediatrics and Child Health, Johannesburg, South Africa, [3]National Institute for Communicable Disease, Johannesburg, South Africa

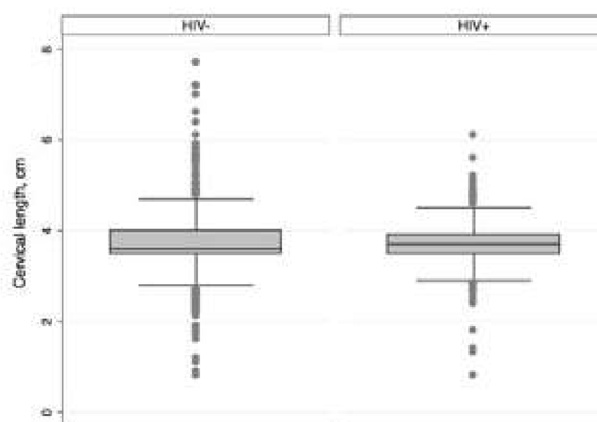
Background: The PMTCT program in South Africa is the most successful HIV prevention program given the effort in scaling up and maintaining the coverage of the service. However, as long as one third of women of childbearing age are HIV infected, the risk of HIV transmission will remain high. Therefore in the long run, it is important to ensure that the benefit of ART are sustained among previously initiated women and health care providers can focus more attention on women who newly enter the HIV care cascade through the PMTCT program.
Methods: We conducted an analysis of a cross-sectional survey among 411 HIV positive adult (>18 years) women who gave birth at Midwife Obstetrics Units (MOUs) in Gauteng between October 2016 and May 2017. Demographic, viral load (VL) and CD4 data at antenatal care (ANC) initiation were obtained from medical records of consenting women. We compared the CD4 count and VL suppression rates around ANC initiation (≤6 months before or ≤3 months after ANC start) among women with a pre-pregnancy HIV diagnosis to those who were diagnosed at ANC initiation. Predictors of having a suppressed VL at ANC initiation was assessed by logistic regression.
Results: Of the 411 participants, 239 (58.2%) had CD4 data and 172 (41.7%) had VL data for the period of interest. Overall women with a pre-pregnancy HIV diagnosis were more likely to present at ANC at higher CD4 (OR 2.5, 95%CI: 1.4-4.6 for CD4 >500, OR 2.0, 95% CI: 1.0-3.9 compared to CD4≤350 cell/µl) compared to those who were newly diagnosed. Similarly viral suppression rates were higher among women with pre-pregnancy HIV diagnoses (OR 2.3, 95% CI: 1.1-4.0 for VL< 100 copies/ml rather than VL>500 copies/ml).
Conclusions: The results suggest that HIV positive women with prior HIV care experiences enter ANC at better health levels than women who are diagnosed during ANC. This is encouraging and also means that the ANC processes can be streamlined to ensure that more resources are allocated to ensure that newly initiated women are adherent to ART and remain in care in the postpartum period.

WEPEB123

HIV status and viral load are not associated with shortened mid-trimester cervix, a major risk factor for preterm birth

J.T. Price[1], B. Vwalika[2], J. Winston[1], K. Rittenhouse[1], A. Kumwenda[2], E.M. Stringer[1], K.M. Lubeya[2], M.P. Kasaro[3], J.S.A. Stringer[1]
[1]University of North Carolina at Chapel Hill, Chapel Hill, United States, [2]Women and Newborn Hospital, Lusaka, Zambia, [3]University of North Carolina Global Projects Zambia, Lusaka, Zambia

Background: Maternal HIV and its treatment are associated with preterm birth (PTB) and other adverse birth outcomes in many studies. The mechanism(s) underlying this association is not well understood. It is conceivable that HIV could cause cervical shortening - a key risk factor for spontaneous PTB and an indication for vaginal progesterone prophylaxis. We evaluated whether maternal HIV serostatus or plasma viral load (VL) were associated with mid-trimester cervical length (CL).
Methods: We followed pregnant women prospectively in the Zambian Preterm Birth Prevention Study (ZAPPS) at the Women and Newborn Hospital in Lusaka, Zambia. Women underwent early ultrasound for gestational age determination at screening and returned for CL measurement between 16 and 24 weeks of gestation. We used logistic regression to evaluate the association between dichotomous variables (HIV infection, detectable VL) and CL.
Results: Between August 2015 and October 2017, 1451 women were enrolled into the ZAPPS cohort, of whom 1175 had at least one cervical length measurement performed at ≥ 16 weeks' gestation. Among the 293 (25%) HIV+ women, 261 (89%) had a recorded viral load, of whom 122 (47%) had detectable virus. Median CL was 3.6cm (IQR 3.5,4.0). In both univariate and multivariable logistic regression (adjusting for age, parity, and gestational age at the time of cervical measurement), CL did not vary by HIV status (aOR 0.88, p=.29). Among HIV-infected women, CL was not associated with detectable VL (aOR 0.80; p=.43).
Conclusions: In this urban African cohort, we found no evidence of association between HIV infection and shorter CL. We conclude that the risk of preterm delivery known to be associated with HIV is likely not derived from mid-trimester cervical shortening. Routine CL screening is therefore not warranted in women with the sole risk factor of HIV.



[Box plot of cervical length by HIV status]

WEPEB124

Mother-to-child transmission of HIV, pregnancy and infant outcomes among HIV-positive women from a tertiary care facility

I.C. Ianache[1], R. Radoi[1], R. Horghidan[1], A.C. Oprea[1,2]
[1]Victor Babes Hospital, HIV Department, Bucharest, Romania, [2]Carol Davila University of Medicine and Pharmacy, Infectious Diseases, Bucharest, Romania

Background: Due to particular HIV epidemiological aspects in Romania, we divided HIV positive women of childbearing age in 3 categories: with HIV acquired sexually, by parenteral mode (in early childhood) or by in-

jecting drug use (IDU). The aim of our study was to compare mother-to-child transmission rates (MTCT) and the pregnancy outcomes between the 3 categories.

Methods: Prospective study on HIV-positive mothers admitted to a Romanian tertiary health care facility between 1 January 2000 and 31 December 2016.

Comparison between the groups were performed using Fischer's exact or Chi square test for nominal variables and ANOVA test for continuous variables. Statistical analysis was performed using SPSS version 20.0.

Results: During the study period, 330 HIV-exposed live infants were born to 269 mothers. The overall MTCT rate was 10.9% (36/330), higher in IDU mothers 13.9% (6/43) and mothers with sexual mode of HIV acquisition 16.5% (25/151), compared to parenterally infected mothers 3.6% (5/136), (p= 0.001).The major risk factor for MTCT was late diagnosis in mothers, 28 (77.7%) of them being diagnosed after delivery.

Almost all IDU mothers (97.6%) were co-infected with hepatitis C, hepatitis B co-infection being more frequent in parenterally infected mothers (18.3%). Infants born to IDU mothers had higher rates of preterm delivery (37.2%) and lower birth weight (55.8%). (Table 1).

Congenital anomalies, diagnosed in 11 cases (3.3%), were more often in children born to parenterally infected mothers 3.6% (5/136) compared to mothers infected by sexual mode 3.3% (5/151) and IDU mothers 2.3% (1/43), but with no statistical significance (p=0.881). There were 2 cardiac anomalies (Fallot tetralogy with ventricular septal defect and atrial septal defect), 2 gastro-intestinal birth defects (intestinal atresia with gastroschisis and a malformation of the jejunum), agenesis of the diaphragm (1), planovalgus foot (2) strabismus (1), acro-mandibular syndrome (1) and hypospadias (1).

Conclusions: The MTCT transmission rate of HIV was significantly higher in injectable drug users and mothers infected by sexual mode, compared to parenterally infected mothers. Low birth weight, preterm delivery and co-infection with hepatitis C were associated more frequent with injecting drug use. However, the risk of congenital anomalies seems to be higher in parenterally infected mothers.

Maternal and infants characteristics	Mother infected by sexual mode (n=151)	Mother infected by parenteral mode (n=136)	IDU mothers (n=43)	p value
HIV transmission rate n (%)	25 (16.5)	5 (3.6)	6 (13.9)	0.001
HBV co-infection n (%)	7 (4.6)	25 (18.3)	1 (2.3)	0.001
HCV co-infection n (%)	8 (5.2)	5 (3.6)	42 (97.6)	<0.0001
CD4 cell count/mm3 median (IQR)	545 (382, 773)	553 (377, 676)	540 (455, 666)	0.399
Undetectable HIV viral load at delivery n (%)	33 (21.8)	72 (52.9)	2 (4.6)	<0.0001
Preterm births (< 37 months) n (%)	25 (16.5)	29 (21.3)	16 (37.2)	0.004
Low birth weight (<2500g) n (%)	31 (20.5)	34 (25.0)	24 (55.8)	<0.0001
Congenital anomalies n (%)	5 (3.3)	5 (3.6)	1 (2.3)	0.881

[Tabel 1. Pregnancy and infant outcomes in children born to HIV infected mothers]

Contraception

WEPEB125

The relationship between depo-medroxyprogesterone acetate and herpes simplex virus infection: Implications for HIV risk

J.D. Yssel[1], N.S. Abbai[2], T. Reddy[3], G. Ramjee[1,4,5]
[1]Medical Research Council South Africa, HIV Prevention Research Unit, Durban, South Africa, [2]University of KwaZulu-Natal, School of Clinical Medicine, Nelson Mandela School of Medicine, Durban, South Africa, [3]Medical Research Council South Africa, Biostatistics Unit, Durban, South Africa, [4]London School of Hygiene and Tropical Medicine, Department of Epidemiology and Population Health, London, United Kingdom, [5]University of Washington, School of Medicine, Department of Global Health, Seattle, United States

Background: In Sub-Saharan Africa, 8 million women preferentially use depot medroxyprogesterone acetate (DMPA) and norethisterone enanthate (Net-EN) for preventing pregnancy. Data from randomised control trials suggest a link between hormonal contraceptives (HC) and HIV acquisition among women in high HIV endemic areas; specifically injectable DMPA. There are however conflicting data, placing women at no such elevated HIV risk. With that in mind we sought to determine if women using HCs were at an increased risk of acquiring Herpes simplex virus-2 (HSV-2) infection that may act as a indirect proxy for HIV acquisition.

Methods: A restrospective sub-analysis of women enrolled in the Microbicides Development Programme (MDP) 301 trial at three Durban sites was performed. Demographic, behavioural and biological characteristics were collated and stratified by contraceptive use. HSV-2 and HIV testing was performed at enrollment and at follow up (week 40 and 52). Univariate and multivariate logistic regression assessed the effect of HC on HSV-2 acquisition. A Chi-squared test determined if the proportion of women with incident HIV infection was significantly different between HSV-2 incident and negative cohorts.

Results: 621 females were eligible for analysis. 58% used DMPA followed by 22% Net-EN and 20% oral contraceptives. 111 women had acquired an incident HSV-2 infection. Crude HSV-2 incidence was 12.8%, 20.1% and 18.8% per 100 woman-years in pill, DMPA and NET-EN users respectively. Regression univariate analysis revealed DMPA users at a 1.75 times elevated HSV-2 risk compared to women on oral contraception (OR 1.75, 95% CI 0.97-3.15). Women with an incident HSV-2 infection were 5 times more likely to be infected with HIV than their HSV-2 seronegative counterparts (15.93% vs. 3.17%; p=< 0.001).

Conclusions: Women using DMPA were at a moderate increased risk of acquiring an incident HSV-2 infection over oral contraceptives. Furthermore, we have identified a recent HSV-2 infection as a plausible contributing factor to the local HIV epidemic. It is a recommendation that women who reside in high HIV endemic communities be continually counseled about the importance of condom use, especially those using DMPA. This may be the most important strategy to ease the burden of both HSV-2 and HIV epidemics in the region.

WEPEB126

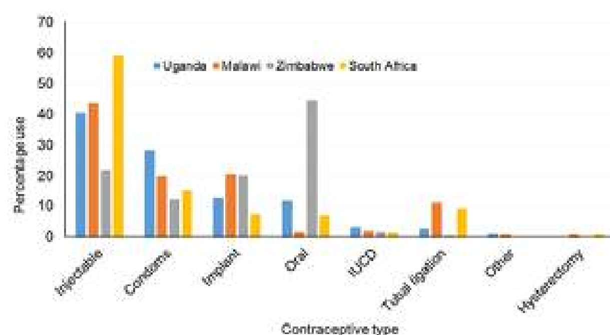
Contraceptive choices among women participating in a HIV-infected cohort: The PEPFAR PROMOTE Study

S. Hanley[1], N. Yende-Zuma[2], F. Matovu-Kiweewa[3], L. Chinula[4], T. Chipato[5], B. Makanani[6], S.R. Mathiba[7], J. Aizire[8], P. Radebe[9], M.-G. Fowler[10], T. Taha[10], US-PEPFAR PROMOTE Study Team
[1]Centre for the AIDS Programme of Research in South Africa (CAPRISA), Umlazi Clinical Research Site, Durban, South Africa, [2]Centre for the AIDS Programme of Research in South Africa (CAPRISA), Durban, South Africa, [3]Makerere University John's Hopkins University (MU-JU), Kampala, Uganda, [4]University of North Carolina Project, Lilongwe, Malawi, [5]University of Zimbabwe, College of Health Sciences Clinical Trails Unit, Harare, Zimbabwe, [6]College of Medicine-John's Hopkins Research Project, Blantyre, Malawi, [7]Perinatal HIV Research Unit (PHRU) University of Witwatersrand, Johannesburg, South Africa, [8]Johns Hopkins Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States, [9]Centre for the AIDS Programme of Research in South Africa (CAPRISA), Data Management Centre, Durban, South Africa, [10]Johns Hopkins University, Departments of Pathology and Epidemiology, Baltimore, United States

Background: The demand for modern family planning methods in Africa is inadequately met. Furthermore, finding a suitable method of contraception is challenging in the context of HIV given various drawbacks with currently available options. Long acting reversible contraception (LARC) has the potential to curb maternal morbidity and mortality; however the World Health Organization advises against concurrent use of implants and hepatic enzyme-inducing antiretroviral therapy (ART). Additionally there are negative perceptions towards intrauterine devices (IUCD); short/intermediate acting injectable and oral contraception (OCP) rely on user adherence; and use of progestogen injectables is not recommended long term due to effects on bone mineral density (BMD). This study aims to describe current contraception choices among African HIV-infected women.

Methods: In a prospective longitudinal cohort study across 8 sites in South Africa, Uganda, Zimbabwe and Malawi, HIV-infected women were enrolled between December 2016-June 2017. Reported contraception use was collected through structured enrolment interviewer-administered questionnaires. Descriptive analyses of overall and country-specific methods, and categories of contraceptive choices are presented.

Results: Overall, 1986 HIV-infected women were enrolled. Mean age was 31 years and 97.8% were on ART (including efavirenz). The prevalence of modern contraception use in all women was 80.2 % (1298/1617). Excluding pregnancy and not currently sexually active, contraceptive data was available on 1294 women. The frequency of contraception methods used was: injectables 545(42.1%); condoms 231(17.9%); progestogen implant 203(15.7%); OCP 190(14.7%); tubal ligation 88(6.8%); IUCD 24(1.9) %; Hysterectomy 7(0.5%), other 6(0.5%). Regular 569(28.7%) and infrequent 581(29.3%) condom use were in combination with other contraception. Preferred Contraceptive methods varied by country (figure). Categories of contraception methods included: 966(74.6%) short/intermediate acting (Injectable/OCP/Condoms), 227 (17.5%) LARC (Implant/IUD) and 95 (7.3%) permanent (TL/Hysterectomy). There were 1603 women on Efavirenz-based regimen; of these 166 (10.4%) received Implants.



[Contraception use by country]

Conclusions: Injectable and oral contraceptives remain popular choices in African women, followed by implants. However, long-term effects of injectable contraception in combination with ART on BMD and potential interactions with ART, require additional evaluation. Likewise, further education of health professionals/providers is needed to increase wider usage of LARC and IUDs; and to re-educate against use of progesterone implants among women on EFV-ART.

WEPEB127

Changes in peripheral blood mononuclear cells after use of depot-medroxyprogesterone acetate (DMPA)

A.C. Roxby[1], N. Hwang[2], E. Munene Muriuki[3], B. Chohan[4], K. Tapia[2], J. Kiarie[5], S.C. De Rosa[2]
[1]University of Washington, Medicine and Global Health, Seattle, United States, [2]University of Washington, Seattle, United States, [3]University of Nairobi, Nairobi, Kenya, [4]Kenya Medical Research Institute, Nairobi, Kenya, [5]World Health Organization, Geneva, Switzerland

Background: Depot-medroxyprogesterone acetate (DMPA), a commonly used hormonal contraceptive, may contribute to HIV acquisition risk in women. DMPA is a steroid hormone analogue. We hypothesized that DMPA use could lead to immune activation in peripheral blood, which is associated with increased HIV acquisition risk.

Methods: We enrolled postpartum HIV-negative women initiating DMPA in Kenya, and a control group of postpartum women using non-hormonal contraception (NHC). Peripheral blood mononuclear cells (PBMC) were collected at baseline (immediately before DMPA injection) and after 12 weeks. Using multicolor flow cytometry, we assessed markers of immune activation (CD38, HLA-DR, Ki67), senescence, differentiation state (naïve vs. memory), and CCR5 expression on CD4+ T cells (targets of HIV infection) and compared mean percentages using t-tests.

Results: In 2014-2015, 33 women enrolled after choosing DMPA and 21 women enrolled after choosing NHC. Women choosing NHC were further from delivery (9.9 weeks v. 6 weeks) than women choosing DMPA. Baseline PBMC measurements were similar in both groups except for one marker: women in the DMPA arm had higher mean percentages of activated CD4+CD38+HLA-DR+ T cells (0.57% NHC v. 1.05% DMPA, p< 0.001). Women in the NHC arm demonstrated no significant change in mean percentages of all cell subsets over 3 months of follow up. Compared to NHC, women using DMPA had a 1.8% increase in mean percentage of T cells expressing CD4+ (p=0.05), a 2.1% decrease in mean percentage of T cells expressing CD8+ (p= 0.03), and increases in CD27+CD45RA-CCR7+ central memory cells: (CD4+: 1.9% increase, p=0.02; CD8+: 2.3% increase, p< 0.001). Women using DMPA also had significant decreases over time in the mean CD16+CD56+ NK cell percentage of lymphocytes (2.4% decrease, p=0.05) and in CD4+CD28-CD57+ anergic T cells (1.5% decrease, p=0.02).

Conclusions: In this cohort study, DMPA use was associated with statistically significant, modest increases in peripheral CD4+ T cells and central memory cells. Strengths of this study were that DMPA dose was observed and a control group allows us to account for T cell changes in the postpartum period. These results could reflect tissue-level changes at the site of HIV infection and should be correlated with genital findings.

Cell Subset	Baseline mean %cells in NHC arm	Baseline mean % cells in DMPA arm	3 months change in % cells in NHC arm	3 months change in % cells in DMPA arm	Change in mean % cells (DMPA arm)-Change in mean % cells (NHC arm)	p-value
CD4+	55.5	55	0.66	2.42	1.8	***0.05***
CD4+CD28-CD57+	2.59	5.06	-0.04	-1.58	-1.54	***0.02***
CD4+CD27+ CD45RA-CCR7+	40.1	35.8	0.48	2.4	1.92	***0.02***
CD4+CD38+HLADR+	0.57	1.05	0.01	0.02	0.01	0.91
CD8+	32.7	32.4	0.03	-2.01	-2.05	***0.03***
CD8+CD28-CD57+	29.5	29.7	-0.73	-3.27	-2.55	0.09
CD8+CD27+ CD45RA-CCR7+	8.65	8.09	-0.11	2.21	2.32	***<0.001***
CD8+CD38+HLADR+	1.10	1.89	-0.13	-0.32	-0.19	0.73
CD16+CD56+ (NK-like T cells)	11.1	11.4	0.68	-1.71	-2.39	***0.05***

[Peripheral blood mononuclear cells subsets before and after use of DMPA compared to a control group using non-hormonal contraception]

Menopause

WEPEB128

The association between menopausal symptoms and antiretroviral adherence in women living with HIV

D. Solomon[1], F. Burns[2], R. Gilson[2], A. Rolland[1], C. Sabin[1], L. Sherr[3], S. Tariq[1], PRIME Study Group
[1]University College London, Institute for Global Health, London, United Kingdom, [2]University College London, Centre for Sexual Health & HIV Research, London, United Kingdom, [3]University College London, Health Psychology Unit, London, United Kingdom

Background: Despite increasing numbers of older women accessing HIV services, there remains a paucity of data on HIV and the menopause. We explore the association between severe menopausal symptoms and adherence to antiretroviral therapy (ART) in women living with HIV (WLWH).

Methods: Analysis of data on 625 women on ART recruited to the PRIME Study, an observational study of WLWH aged 45-60 in England in 2016-17. We used the Menopause Rating Scale to ascertain symptom severity (score ≥17 indicating severe menopause symptoms). This validated scale captures data on psychological, somatic (e.g. vasomotor symptoms) and urogenital (e.g. vaginal dryness) symptoms, Adherence was measured using the CPCRA Antiretroviral Medication Adherence Self-Report Form, with patients dichotomised into optimal (100% adherence in past 7 days) or suboptimal (< 100% adherence in past 7 days) adherence. Odds ratios (adjusting for ethnicity, employment, alcohol use, current smoking and basic needs met) were obtained using logistic regression.

Results:

	Optimal adherence N=565 (n,%)	Suboptimal adherence N=60 (n,%)	p-value[a]
Median age in years, (IQR)	49 (45 - 59)	49 (45 - 59)	0.70
Ethnicity			
Black African	406 (73.3)	39 (65.0)	
White UK	45 (8.1)	10 (16.7)	
Other	103 (18.6)	11 (18.3)	0.16
Employment			
Employed	387 (70.9)	32 (56.2)	
Unemployed	159 (29.1)	26 (44.8)	0.001
Education			
Did not complete school	61 (11.3)	6 (10.5)	
'O' level[b]	121 (22.3)	10 (17.5)	
'A' level[c]	102 (18.9)	17 (29.8)	
University	257 (47.5)	24 (42.1)	0.26
Enough money for basic needs			
All the time	235 (41.9)	11 (18.7)	
Most of the time	135 (24.2)	22 (37.3)	
Some/None of the time	191 (33.9)	26 (44.0)	0.005
Smoking			
No	510 (92.6)	48 (80.0)	
Yes	41 (7.4)	12 (20.0)	<0.001
High risk alcohol use[d]			
No	490 (92.3)	41 (74.6)	
Yes	41 (7.7)	14 (25.5)	<0.001
Most recent CD4 count (cells/mm^3)			
≥500	338 (68.0)	45 (79.0)	
200-500	123 (24.8)	10 (17.5)	
<200	36 (7.2)	2 (3.5)	0.22
Most recent HIV viral load			
Undetectable	479 (89.3)	52 (86.7)	
Detectable	57 (10.7)	8 (13.3)	0.53
Menopausal status			
Pre-menopausal	123 (21.9)	14 (23.3)	
Peri-menopausal	255 (45.5)	28 (46.7)	
Post-menopausal	183 (32.6)	18 (30.0)	0.68
All menopausal symptoms			
None/mild/moderate	418 (73.9)	27(45.0)	
Severe	147 (26.0)	33 (55.0)	<0.001
Somatic menopausal symptoms			
None/mild/moderate	476 (84.3)	46 (76.7)	
Severe	89 (15.8)	14 (23.3)	0.13
Psychological menopausal symptoms			
None/mild/moderate	419 (74.2)	32 (53.3)	0.01
Severe	146 (25.8)	28 (46.7)	
Urogenital menopausal symptoms			
None/mild/moderate	398 (26.4)	36 (60.0)	
Severe	167 (29.6)	24 (40.0)	0.095

[a] χ^2 or Kruskal-Wallis test; [b] equivalent to completing US Grade 10; [c] equivalent to completing US Grade 12; [d] using the Alcohol Use Disorders Identification Test (AUDIT-C) screening tool

[Characteristics of WLWH with optimal and suboptimal adherence]

Median age was 49 years (interquartile range: 45-59). The majority were Black African (n=445, 72.5%), with low rates of recreational drug use (n=16, 2.6%). A minority had a CD4 count< 200 cells/mm3 (n=38, 6.9%) or detectable HIV viral load (n=65, 10.9%); 10% (n=60) reported sub-optimal adherence. The majority were either peri- (n=283, 45.6%) or post-(n=201, 32.4%) menopausal; nearly a third of women (n=180) reported severe menopausal symptoms.

Adherence was associated with severity of menopausal symptoms, as well as employment status, financial ability to meet basic needs, and current smoking. Women who reported severe menopausal symptoms were almost twice as likely to report suboptimal adherence (AOR 2.47; 95% CI 1.27,4.82, p=0.008). In adjusted analyses, there was no association between adherence and severe symptoms in the psychological, somatic and urogenital menopausal domains individually (all p>0.1).

Conclusions: We present one of the largest studies to explore menopausal symptoms and ART adherence. The majority of our participants reported optimal adherence. Severe menopausal symptoms were significantly associated with sub-optimal adherence, however we cannot assess the direction of this relationship, highlighting the need for longitudinal data. Holistic care that assesses and addresses menopausal symptoms may support midlife WLWH in maintaining optimal ART adherence.

WEPEB129

Immunological differences and increased HIV susceptibility of CD4+ T cells from healthy post- verses pre-menopausal women

C. Tasker[1], N. Roche[2], T. Chang[1]
[1]Rutgers New Jersey Medical School, Public Health Research Institute, Newark, United States, [2]Rutgers New Jersey Medical School, Obstetrics Gynecology and Women's Health, Newark, United States

Background: Post-menopausal women are at a higher risk for HIV transmission compared to pre-menopausal women. Reasons for increased HIV risk are multi factorial and include hormone associated changes to vaginal and cervical epithetical structure, vaginal pH, condom use, and age associated immune suppression. We compared immunological markers associated with preferential HIV infection, HIV susceptibility, and the cytokine/chemokine profile of mucosal HIV transmission sites between healthy pre- and post- menopausal women.

Methods: 38 healthy women who met the eligibility criteria were enrolled. Patients were categorized into three age groups: group 1 pre-menopausal age range 18-28 (median age 23; IQR 20-26); group 2 pre-menopausal age range 30-43 (median age 37; IQR 34.5-40); group 3 post-menopausal age range 43-64 (median age 53; IQR 50-57). Peripheral blood and secretions from vaginal, endocervical, and rectal sites were collected. PBMCs were characterized by flow cytometry and the expression of cytokine/chemokines in vaginal, endocervical, and rectal secretions was determined by multiplex luminex assay.

Results: CD4+ T cells from group 1 had a significantly higher percentage of cells positive for integrin a4b7 compared to group 2 and a higher percentage of CD38+ cells (activation marker) compared to group 2 and 3. The percentage cells positive for HIV co-receptor CCR5 was higher in group 3, however this difference did not reach significance. Group 1 and 2 had a higher percentage of terminal effector memory cells (CD45RA+CCR7-) compared to group 3 while populations of naïve, central memory, and effector memory CD4+ T cells were unchanged between groups. Assessment of the susceptibility of PBMCs to HIV-1_{BaL} infection ex vivo found CD4+ T cells from post-menopausal women had higher percentage of HIV p24+ cells compared to group 1. Analysis of the cytokine/chemokine expression profile in vaginal, endocervical, and rectal secretions found older women in group 2 and group 3 had significantly lower levels of multiple soluble immune mediators compared to group 1.

Conclusions: This study presents clinically important information regarding immunological differences between pre- and post- menopausal women in regard to HIV transmission.
Developing a better understanding of the mechanisms involved in increased HIV transmission risk has important relevance in HIV prevention.

Clinical issues in men who have sex with men

WEPEB130

Alarming rates of pretreatment HIV drug resistance in key populations: Results of a global systematic review

V. Macdonald[1], L. Mbuagbaw[2], A. Verster[1], S. Bertagnolio[1]
[1]World Health Organization, Geneva, Switzerland, [2]McMaster University, Hamilton, Canada

Background: Key populations (KPs) (people who inject drugs (PWID), men who have sex with men (MSM), transgender people (TG), sex workers (SW) and prisoners) are disproportionately affected by HIV in all settings. HIV drug resistance (HIVDR) in KPs is poorly understood. We performed a systematic review to understand levels of pretreatment HIVDR (PDR) in treatment naive KPs.
Methods: We searched 10 electronic databases to identify studies reporting PDR in treatment naive KP groups. The search results were screened and data were extracted in duplicate, including study sample size, PDR prevalence and previous exposure to ARVs. Our analysis focuses on studies comparing levels of PDR in KP to those in the general population.
Results: Our search retrieved 602 articles of which 146 (81,835 participants) were eligible for inclusion. A subset of 50 studies comparing HIVDR in treatment naive general population and at least one KP group were included for analysis, allowing for within study comparison.
Prevalence of any HIVDR was higher in treatment naive MSM, SW and PWID compared to the general population although given limited data and heterogeneity between studies this difference only reached statistical significance for MSM (see table). A sub-analysis by WHO geographic region showed that in the Americas, PWID were more likely to carry HIVDR mutations than the general population (OR 1.55; 1.06- 2.77; p=0.02).
Conclusions: Treatment naive MSM, SW and PWID had consistently higher levels of any HIVDR compared to the general population, resulting in an increased risk of subsequent treatment failure and further spread of resistance. Our results have implications for HIV treatment in KP: 1) better surveillance of HIVDR in KP; 2) consideration of first-line ARV choices; and 3) increased viral load monitoring to promptly identify treatment failure. Our findings suggest that HIVDR mutations could be transmitted within KP groups and to their sexual and drug injecting partners making provision of prevention interventions for HIV positive KP and their partners imperative. Further research to understand the dynamics of HIVDR transmission and levels of virological suppression in treatment exposed KP is warranted. More data on HIVDR among prisoners and TG is needed.

	Individuals with any HIVDR / total number genotyped (%)	Individuals with any HIVDR / total number genotyped (%)		
	Key population	General population	Odds ratio	p value*
MSM	3077/21166 (14.5%)	1684/14925 (11.3%)	1.28 (1.08 - 1.52)	0.004
SW	23/90 (25.6%)	42/240 (17.5%)	1.04 (0.36 - 3.02)	0.940
PWID	839/2538 (33.1%)	1123/10015 (11.2%)	1.14 (0.81 - 1.59)	0.450
*Based on random effects meta-analysis of within-study odds ratio for HIVDR				

[Levels of HIV DR in treatment naive KP and general population]

Clinical issues in people who use drugs

WEPEB131

Depressive symptoms and association with substance abuse in the Miami adult studies in HIV (MASH) cohort

S. Martinez, A. Campa, G. Zarini, M. Mudgal, J. Tamargo, A. Sneij, A. Alohaly, M. Baum
Florida International University, Miami, FL, United States

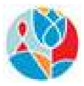
Background: Depression is common among people living with HIV (PLWH) and especially prevalent in drug using populations. Depression in PLWH has been associated with greater disease progression and mortality and reduced antiretroviral therapy (ART) adherence. This study examined the prevalence of depressive symptoms using the Center for Epidemiological Depression Scale (CES-D) and its association with substance abuse in HIV infected adults on ART in MASH cohort.
Methods: A total of 251 HIV+ adults from the MASH cohort were consented. Questionnaires on demographics, socioeconomic status, ART, illicit drug use and Alcohol Use Disorders Identification Test (AUDIT) and CES-D were completed. CES-D score of 15-21 was considered moderate depressive symptoms, and > 21 major depressive symptoms. Illicit drug use was determined with questionnaires and urine toxicology. CD4 cell count and HIV viral load were obtained from medical records. Regression models were controlled for age, gender, race/ethnicity and CD4 count.
Results: The median age was 53 years (IQR=49-58), 59% were male, and 65.7% were African American. The prevalence of moderate depressive symptoms was 35.5%; 22.3% had major depressive symptoms. Depressive symptoms were associated with higher AUDIT score (=0.172, SE=0.121, P=0.008). Although, depression was not associated with CD4 count or HIV viral load, there was a significant positive association between AUDIT and HIV viral load (=0.255, SE=0.654, P=0.039). Those with moderate depressive symptoms had greater odds of using marijuana (OR=1.94, 95%CI:1.07, 3.52, p=0.030), >1 illicit drug (OR=1.63, 95%CI:1.12, 2.37, P=0.011), sedatives (OR=1.95, 95%CI:1.08, 3.55, P=0.028) and any type of illicit drug (OR=1.86, 95%CI:1.07, 3.25, P=0.028). Drug use, regardless of type was associated with higher odds of higher viral load (OR=1.82, 95%CI:1.03, 3.24, P=0.041). Major depressive symptoms were associated with sedative use (OR=2.07, 95%CI:1.06, 4.03, P=0.033).
Conclusions: Depressive symptoms were prevalent and associated with substance abuse in the HIV+ adults on ART in the MASH cohort. Although HIV viral load was not directly associated with depression, substance abuse that included alcohol, sedatives, and illicit drug use were predictors of depression. A better understanding of depression and how it may affect risky substance use behaviors among PLWH is crucial to improving their care, quality of life, and adherence to ART.

WEPEB132

Medical and non-medical cannabis use among HIV-positive people who use illicit drugs in Vancouver, Canada: Implications for the planned legalization of cannabis

S. Lake[1,2], T. Kerr[1,3], N. Fairbairn[1], R. Barrios[4], J. Montaner[3,4], E. Wood[1,3], M.-J. Milloy[1,3]
[1]British Columbia Centre on Substance Use, Vancouver, Canada, [2]University of British Columbia, School of Population and Public Health, Vancouver, Canada, [3]University of British Columbia, Department of AIDS, Vancouver, Canada, [4]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada

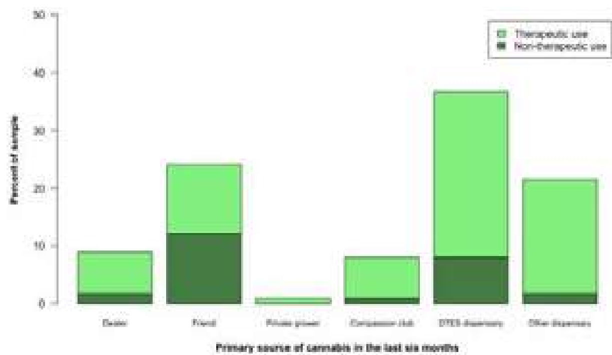
Background: The legalization of cannabis for medical and non-medical purposes is imminent in Canada. Cannabis is frequently reported among people living with HIV to manage symptoms of the disease and address side effects of antiretroviral therapy (ART). People who use illicit drugs (PWUD) living with HIV report comparatively higher rates of cannabis use, but little is known about reasons for cannabis use, particularly as they relate to HIV disease management, in this highly marginalized population.



Methods: Data was drawn from the AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS) study, a cohort of HIV-positive PWUD in Vancouver, Canada. This cross-sectional study was restricted to 224 participants who reported cannabis use in the previous six months between June 1 and December 1, 2016. Descriptive statistics were used to summarize sources of cannabis and reasons for use. Chi-square and Wilcoxon rank-sum tests were used to compare characteristics of therapeutic and non-therapeutic cannabis users.

Results: In total, three-quarters of participants (n=169) reported using cannabis for therapeutic purposes, most commonly to address nausea or loss of appetite (40.2%), pain (31.7%), sleep (29.9%), and stress (23.2%). About two-thirds of participants (n=148) obtained cannabis from local dispensaries or compassion clubs rather than dealers or other illicit means. None reported accessing medical cannabis through the government-approved system. Compared to participants who reported non-medical use only, those who reported therapeutic use were more likely to use cannabis daily, have an undetectable viral load, and have a higher CD4 cell count in the previous six-month period ($p < 0.05$).

Conclusions: The majority of HIV-positive PWUD in this study reported using cannabis therapeutically, including to manage HIV symptoms/ART side effects, substitute higher-risk substances, and treat mental or physical health. Despite this, no participants had government-authorized access to medical cannabis and most obtained cannabis through a "quasi-legal" source. Although longitudinal research is needed, the findings suggest that therapeutic cannabis use may be associated with favourable HIV disease and treatment outcomes. Monitoring the impact of Canada's planned regulatory system for legal cannabis on access to medical cannabis for this key vulnerable population should be prioritized.



[Figure. Sources of cannabis by type of use among 224 HIV-positive PWUD in Vancouver, Canada]

WEPEB133

Universal ART among people living with HIV who have problem substance use in NYC, 2014-2017

A. Campbell[1], D. Des Jarlais[2], M. Pavlicova[3], T.-H. Choo[4]
[1]Columbia University Medical Center and New York State Psychiatric Institute, Department of Psychiatry, New York, United States, [2]Icahn School of Medicine Mount Sinai, Department of Psychiatry, New York, United States, [3]Columbia University Mailman School of Public Health, Department of Biostatistics, New York, United States, [4]Columbia University Medical Center, Department of Psychiatry, New York, United States

Background: The intersection of HIV-related health outcomes and problem substance use is well documented. Since 2011, the New York City (NYC) Department of Health recommends that all HIV infected individuals be offered antiretroviral therapy (ART) regardless of disease progression. The "ART for All" study was designed to inform modifications to the implementation of universal ART among people living with HIV (PLWH) who have problem substance use. The current analysis seeks to describe this sample and identify classes of PLWH with problem substance use.

Methods: PLWH were recruited from sexual health clinics (n=35) and a detoxification unit (n=64) between 2014-2017 to participate in interviews every 6 months for 2 years. Baseline characteristics included: demographics, substance use, healthcare, social support and discrimination. Based on characteristics, a Latent Class Analysis (LCA) defined sub-classes of PLWH with problem substance use.

Results: The LCA model defining 3 latent classes was the best fit. Class 1 (91% detox participants) were older (84.5% ≥46), less employed (12.5%), receiving public insurance (100%), and had lower social support (M=38.5); 75% met alcohol use disorder, 87.5% stimulant use disorder, and self-reported ART adherence (≥90%) was 55.2%. Class 2 (100% sexual health participants) were younger, more likely employed (66.7%), had public insurance (56.7%) or were uninsured (26.7%), and had higher social support (M=59.3); 60% reported an alcohol use disorder and self-reported ART adherence was 100%. Class 3 (89.7% detox patients) were older (81.2% ≥46), less likely employed (5.6%), receiving public insurance (100%), and had higher social support (M=67.3). 64.1% had a stimulant use disorder, but reported more heroin use (62.9% of days) than cocaine (25.0%); and self-reported ART adherence was 82.4%. Viral suppression (≤ 200 copies/mL) at 6-month visit was 50% for Class 1, 66.7% for Class 2, and 35.1% for Class 3 (p=.04).

Conclusions: Although access to ART initiation did not appear to differ, detox participants had less stability, were more likely to have opioid or stimulant use disorders, and lower viral suppression rates. Continued focus on harm reduction strategies and psychosocial factors appear crucial to improving HIV outcomes; LCA may be useful in identifying key sub-classes of PLWH.

WEPEB134

„Defensive drugging" - preventing drug overdose in a dynamic opioid market

P. Coffin[1,2], E. Behar[1], K. Countess[1], J. Chang[3], T. Matheson[1]
[1]San Francisco Department of Public Health, San Francisco, United States, [2]University of California San Francisco, Medicine, San Francisco, United States, [3]University of California San Francisco, San Francisco, United States

Background: The U.S. is amidst an opioid overdose epidemic, increasingly characterized by fentanyl-related deaths that may not be as amenable to peer response due to rapid progression from overdose to death. There is thus an urgent need to develop interventions that avert the occurrence of any overdose event. To improve our understanding of behavioral factors contributing to overdose, we utilized data from a pilot intervention trial addressing the syndemics of opioid overdose, HIV, and HCV to assess subjects' understanding of the causes of personal compared to witnessed overdose events.

Methods: We analyzed 43 interviews from participants enrolled in REBOOT, a randomized-controlled trial of a behavioral intervention based on motivational interviewing to reduce overdose and HIV/HCV risk conducted from 2014-2016. Subjects were current users of illicit opioids (all but 2 injected) with opioid use disorder, had received take-home naloxone, and had overdosed within the past 5 years. Interviews were audio-recorded, transcribed verbatim, and analyzed using thematic content analysis rooted in grounded theory by three independent analysts to ensure interrater reliability. Analysts developed a codebook, including *a priori* codes and codes generated inductively from data, which was applied to all interviews. Any coding discrepancies were discussed with the entire research team.

Results: Participants described their personal overdoses differently from those they witnessed, in a manner consistent with actor-observer theory. The actor-observer theory is an explanatory framework used in social psychology positing that individuals may be more likely to assign responsibility of one's own actions to external factors, while assigning responsibility for others' actions to internal mechanisms. We identified three external themes central to how individuals characterized their personal overdose:
(1) change in potency or batch,
(2) luck, or
(3) ascribing blame to others.
Conversely, participants attributed witnessed overdoses to three primary internal factors:
(1) greed,
(2) inexperience, or
(3) stupidity/foolishness.

Conclusions: The differences between perceived causes of personal versus witnessed overdose align with actor-observer theory. Utilizing this theory in overdose prevention could support behavioral interventions aiming to encourage safer opioid use by teaching participants to employ universal safety precautions and always "expect the unexpected", akin to defensive driving courses developed for at-risk operators of motorized vehicles.

WEPEB135

Experiences and lessons learned in implementing the differentiated care model in HIV clinics in Nyamira County, Western Kenya, Jan -Sept 2017

J. Obunga[1], L. Odero[1], B. Kanyango[1], B. Burmen[2]
[1]PATH, HIV Prevention, Care and Treatment, Kisumu, Kenya, [2]Kenya Medical Research Institute Centre for Global Health Research, HIV Implementation Science and Services, Kisumu, Kenya

Background: Kenya, which is globally fourth with approximately 1.6 million PLHIV, adopted "Differentiated care model" (DCM) in 2017 to alleviate the burden on the health system. We describe experiences in implementing the DCM approach within Nyamira County of Kenya that has a HIV burden of 6.4% against the country's national average of 5.6%.

Description: Between January and September 2017DCM was rolled out in 103 HIV clinics; it commenced with an induction to the DCM as per the Kenyan national guidelines to health workers. The criteria for qualification for "DCM package for stable PLHIV", was that patients should have been on ART over 12months, aged above 20 years, completed IPT, be HIV virally suppressed, should have a BMI of ≥18.5 kg/m², not been treated for an opportunistic infection in the preceding 6 months, and if female should not be currently pregnant. Stable- PLHIV would be offered an option of long-ART prescription refill via a facility-based fast track option (FFT) or a community-based ART group (CAG) comprised of 3-6 persons that belonged to a community psychosocial support group or were drawn from the same locality.

Lessons learned: Twenty-six percent (3110/12257) of patients met criteria for stable-PLHIV. Forty (41.7%) health facilities had introduced DCM among (78%) 2419/3110 patients; other facilities did not due to patients not having completed IPT (68.2%) 9346/12257 or not being virally suppressed (20.6%), other reasons (11.2%). FT was highly preferred to CAG (84.7% vs. 15.3%) due to fear of inadvertent disclosure of a positive status to community members. With the introduction of "family clubs" (groups of 2 to 6 extended family members that opted to form a CAG on their own initiative), patients found it easier to adhere to medication and clinic visits.

Conclusions/Next steps: DCM did not alleviate patient workload as majority of patients preferred FFT. HIV programs should provide the necessary infrastructure to enhance health status of majority of PLHIV to well-PLHIV. An expanded definition of "stable patient" may be considered to include younger persons (e.g. school-going children) with committed care-givers. Specific adaptations of the recommended strategies may be required to facilitate the implementation of DCM.

WEPEB136

Clinical characteristics and hepatitis C (HCV) treatment outcomes among people who actively use drugs in an HIV cohort in Churachandpur and Moreh districts of Manipur, India

H. Mohan Kumar[1], C. Fortas[2], A. Mesic[3], A. Loarec[4], J. Shougrakpam[5], K. Romeo Singh[6], S. Sharmin[1]
[1]Médecins Sans Frontières, Mission Coordination, New Delhi, India, [2]Epicentre, Médecins Sans Frontières, Paris, France, [3]Médecins Sans Frontières, Operational Center, Amsterdam, Netherlands, [4]Epicentre, Paris, France, [5]Médecins Sans Frontières Manipur, Churachandpur, India, [6]Regional Institute of Medical Sciences, Imphal, India

Background: Hepatitis C treatment outcomes in active drug users coinfected with HIV/HCV is of interest to design programs of care. Treatment outcome in drug users is infrequently reported from limited resource contexts. MSF provides care to HIV/HCV coinfected patients through two clinics in Manipur state of eastern India. HCV care program includes integrated treatment for HCV, HIV, co-morbidites, psychosocial support and harm reduction services. Context experiences low-intensity conflict and high burden of HIV, HCV, Tuberculosis and drug use. This study explored HCV treatment outcomes among active drug users in a HIV/HCV coinfected population.

Methods: Retrospective cohort analysis was conducted on HIV/HCV coinfected patients treated for HCV between Oct 2017 & Jan 2018 at MSF clinics. Demographic, biological, clinical characteristics, treatment and outcome data of patients were retrieved from electronic database. Risk of negative treatment outcomes which included SVR12 failure, lost to follow up and death among patients actively using drugs was tested using step-wise logistic regression.

Results: Among 356 patients registered, treatment outcomes of 230 patients (74.1% male) were available. 28 (12.1%) patients, majority being male (n=26, 92.8%) actively used drugs during HCV treatment. Between active and non-drug users, 17/28 (60.7%) & 178/202(88.1%) cured, 10/28 (35.7%) & 18/202 (8.92%) failed, 1/28 (3.6%) & 4/202 (1.98%) were LFU and 0/28 & 2/202 (0.99%) died. Six patients failed SVR12 but attained SVR24; among whom 5 (83.3%) were treated with sofosbuvir+peginterferon+ribavirin. Of 11 patients with negative outcome and active drug use, four (44.5%) received interferon treatment. Negative treatment outcome risk in active drug users relative to non-users was 4.5 (95%CI 1.8-11.27, n=227) in model adjusted for sex, cirrhosis and interferon treatment.

Conclusions: Provision of HCV care in people actively injecting drug is feasible, when integrated with HIV and TB care, with link to psychosocial support and harm reduction. In our small sample size HIV/HCV coinfected patients actively using drugs during HCV treatment had higher risk of negative treatment outcomes. However, there was a strong association between the negative outcome with liver cirrhosis and interferon treatment, characteristics not linked to active drug use. Use of DAAs without delay is a pre-condition for successful treatment outcomes in this population.

Characteristics	Failure (%)	Success (%)	RR of failure (95%CI)	p value
Patients with treatment outcome (n=230)	35 (15.22)	195 (84.78)		
Drug use status				
Non user (n=202)	24 (11.88)	178 (88.12)	1.00	
Active user (n=28)	11 (39.29)	17 (60.71)	4.7 (2.0 - 11.45)	0.007
Genotype distribution (n=219)				
1 (n=75)	13 (37.14)	62 (31.79)	1.00	0.67
3 (n=78)	12 (34.29)	66 (33.85)	0.86 (0.36 - 2.0)	
4 (n=2)	1 (2.86)	1 (0.51)	4.76 (0.27 - 81.2)	
6 (n=64)	9 (25.71)	55 (28.21)	0.78 (0.30 - 1.96)	

[Table 1.0 Association of patient's key characteristics with treatment outcome]

WEPEB137

Tuberculosis testing and treatment among people who use drugs in Abidjan: Results and perspectives for a community-based approach implemented in Abidjan, Côte d'Ivoire

A. Bernier[1], G. Colin[2], N. Luhmann[1], L. N'zi[2], S. Houndji[2], A. Assoumou[2], D. Ramatou[3], J. Bouscaillou[1], L.-H. Adjahi[2], J. Evanno[2], R. Boulet[2], C. Doumenc-Aïdara[2], C. Dézé[2], A. Kouamé[3], R. Kouassi N'Guessan[4]
[1]Médecins du Monde, Paris, France, [2]Médecins du Monde, Abidjan, Cote D'Ivoire, [3]Programme National de lutte contre la Tuberculose, Abidjan, Cote D'Ivoire, [4]Institut Pasteur, Abidjan, Cote D'Ivoire

Background: Tuberculosis (TB) remains a major public health issue, which strongly affects high-risk populations - such as people living with HIV, prisoners and people who use drugs (PWUD). Despite a growing number of PWUD in the last decade in Sub-Saharan-Africa, data on TB prevalence and cascade of care among PWUD in this region are scarce. The objective of this study was to estimate TB prevalence and establish the TB testing and treatment cascade using a community-based approach for precarious PWUD in Abidjan, Côte d'Ivoire.

Methods: A cross-sectional study with prospective follow-up of TB positive participants was implemented in the two main open drug use scenes of Abidjan. Tuberculosis screening was offered to all PWUD by peer-educators (PE) and done in a mobile unit close to the drug consumption place. Participants with GeneXpert positive results were considered having a confirmed pulmonary TB. Linkage to public healthcare centers and community-based support (i.e., close follow-up by social workers and PE, regular psychosocial interviews, financial support for nutritional intake, self-support groups and family mediation visits) was offered to all TB positive participants who came to seek their results. Treatment outcomes were retrieved at the end of treatment.
Results: In total, 532 PWUD were enrolled (485 men (91.2%) and 47 women (8.8%)). The mean age was 35 years ; 75.8% of them had unstable housing. Almost all participants (99.6%) smoked heroin. Fifty-two pulmonary TB cases were confirmed (9.8%), including 9 rifampicin-resistant TB (17.3% of TB cases) and 8 (15.4%) HIV co-infections. Of the 52 TB positive participants, 40 started treatment. As of 26 January 2018, 22 of them (55.0%) were cured, 4 (10.0%) were still receiving treatment, 3 (7.5%) had treatment failures, 3 (7.5%) had died during the study and 8 (20%) were lost-to-follow up.
Conclusions: This study describes very high pulmonary and rifampicin-resistant TB among PWUD in Abidjan. Encouraging results were obtained in the tuberculosis testing and treatment cascade among PWUD using a community-based approach, despite strong challenges with this hard-to-reach population. Further research needs to look into TB epidemiology and care access in PWUD to make better progress in TB control in this region.

WEPEB138

Lack of effective opioid dependence and alcohol abuse treatment leads to high rates of treatment discontinuation among patients initiated on antiretroviral therapy in Kazakhstan

A. Deryabina[1], T. Ellman[2], B. Baiserkin[3], V. Ivakin[1], W. Killam[4]
[1]ICAP at Columbia University, Central Asia, Almaty, Kazakhstan, [2]ICAP at Columbia University, New York, United States, [3]Republican Center on Prevention and Control of AIDS, Almaty, Kazakhstan, [4]U. S. Centers for Disease Control and Prevention, Almaty, Kazakhstan

Background: Limited data are available on factors associated with treatment interruption among people living with HIV (PLHIV) initiated on antiretroviral therapy (ART) in Kazakhstan. Although, approximately 60% of all PLHIV have a history of injection drug use, access to opioid maintenance therapy remains limited.
Methods: We conducted a retrospective cross-sectional analysis of routinely collected data on 6339 ART-naive patients (≥15 years old) that initiated ART from 2014-2016. Bivariate and multivariate logistic regression analyses were conducted to assess factors associated with treatment interruption within 12 months of ART initiation.
Results: 3693 men and 2646 women initiated ART during the study period, including 2724 (43%) that ever injected drugs. The median age at ART initiation was 36 years (IQR=31-42 years). The median time between HIV diagnosis and ART initiation was 791 days (IQR=77-2129 days). Median baseline CD4 cell count at ART initiation was 257 cells/μl (IQR=144-361 cells/μl). 620 (9.8%) patients died and another 1106 (17.4%) stopped ART within the first 12 months after ART initiation. Median number of days between ART initiation and the first ART interruption was 170 (IQR=95-254 days).
On multivariate analysis, discontinuation of ART within the first 12 months of initiation was independently associated with reported ART toxicities (OR=2.87, 95% CI=1.94-4.26, p< 0.0005), injection drug use (OR=2.03, 95% CI=1.31-3.16, p=0.002) and reported alcohol abuse (OR=2.16, 95% CI=1.48-3.15, p< 0.0005).
Conclusions: Substance abuse including injecting drugs and harmful use of alcohol were associated with treatment discontinuation among patients initiated on ART in Kazakhstan. Implementation of effective alcohol abuse treatment and scale-up of opioid dependence treatment are needed to improve ART retention and adherence among PLHIV in Kazakhstan.

Clinical issues in transgender and non-binary populations

WEPEB139

Health resource utilization and health outcomes in a cohort of persons of transgender experience living with HIV/AIDS in New York City

E. Fusaris, J. Ernst, Y. Vazquez, S. Toussi, K. Steffens
Amida Care, New York, United States

Background: Transgender persons living with HIV/AIDS experience some of the highest rates of health disparities due to the contextual factors in which HIV occurs. There are significant research gaps related to comorbidities and integrated approaches to care among this population. There is a need for more data to answer pressing questions related to care for this population; comprehensive knowledge about health care outcomes is the first step needed in order to develop primary and secondary prevention interventions for persons of transgender experience.
Methods: Amida Care is a community sponsored, not-for-profit, Medicaid Special Needs health insurance Plan that serves over 6,400 individuals living with HIV/AIDS in New York City needing intensive services; approximately 400 are people of transgender experience. Amida Care developed a research cohort of 401 transgender persons living with HIV/AIDS served by the Plan in an effort to identify patterns in care that could inform effective strategies and priority interventions for reducing morbidity among persons of transgender experience.
Results: The mean age of the cohort is 38.5, the race/ethnicity breakdown is 63% Black, 27% Hispanic, 5% White, 5% Other, and the majority of the cohort resides in the Bronx borough. As a Managed Care Organization, Amida Care has access to claims data that is often difficult to obtain and centralize into one data warehouse. The top 3 co-morbidities experienced by the cohort as evidenced by ICD 9/10 codes are drug dependence (55%), depression (42%), and nutritional deficiency (29%). 88 (22%) of cohort members had gender affirming surgeries (since March of 2015) covered by the Plan. CD4 and viral load counts of cohort members were similar when compared to cisgender Plan members.
Conclusions: The results suggest that interventions for this population should focus on substance use programs, mental health initiatives, and nutrition. HIV-related laboratory results suggest that secondary HIV prevention medication/primary care adherence initiatives are working; however, more research is needed. Managed Care Organizations, with their access to claims, have a unique opportunity to mine and analyze data for populations disproportionately affected by health disparities that has the potential to inform primary and secondary HIV prevention strategies based on real-life data.

WEPEB140

Co-occurring psycho-social problems in transgender women living with HIV enrolled in a clinical trial in Argentina

I. Aristegui[1,2], P.D. Radusky[1,3], V. Zalazar[1], C. Frola[1], N. Cardozo[1,4], A. Gun[1], E. Fojo[1], M. Romero[4], P. Cahn[1], O. Sued[1]
[1]Fundacion Huesped, Buenos Aires, Argentina, [2]Universidad de Palermo, Buenos Aires, Argentina, [3]University of Buenos Aires, Department of Psychology, Buenos Aires, Argentina, [4]Asociación de Travestis, Transexuales y Transgéneros de Argentina (ATTTA), Buenos Aires, Argentina

Background: Despite universal access to public health in Argentina, and the Gender Identity Law passed in 2012, transgender women (TGW) continue being one of the most vulnerable communities. Estimated life expectancy is 35 years old and HIV prevalence is 34%. Co-occurring health problems, including poor mental health, stigma and discrimination, and economic hardship are syndemic factors that cumulatively determine HIV vulnerability in TGW. The objective of our research is to evaluate the impact of co-occurring psycho-social factors in the retention and adherence of TGW in HIV treatment. This abstract depicts preliminary baseline data.

Methods: 50 treatment-naïve HIV-1 TGW were enrolled in a longitudinal clinical trial and completed a series of social and psychological assessments (CES-D; 4-item suicidal-ideation screener; PID-5; Wellbeing Index; STAI). Frequencies, independent sample t-tests and bivariate correlations were calculated with SPSS 24.

Results: TGW's median age was 29 (IQR: 26-33), 74% reported current survival sex work and 62% drug use during the last year. 62% has incomplete secondary education, and 44% lives in community housing rooms. 50% has advanced HIV infection (27.1% CD4< 350, 22.9% CD4< 200). No significant differences in experiences of stigma and discrimination, mental health outcomes, and maladaptive personality traits were observed between advanced and non-advanced HIV TGW. However, the higher the Gender Identity Stigmatization (GIS), the higher the suicidal ideation (r=.52), depression (r=.51), and anxiety (r=.50) and the lower the quality of life (r=-.37). GIS was also associated with maladaptive personality traits (DSM-5): more negative affectivity (r=.48) and psychoticism (r=.39). More than half of the sample (70%) experienced clinical levels of negative affectivity (negative emotions and poor self-concept).

Conclusions: Results of this baseline analysis show that half of TGW initiate treatment with advanced HIV infection and present poor living conditions and co-occurrences of gender stigmatization and negative psychological outcomes. Since these factors might negatively impact in retention and adherence of HIV treatment, these results highlight the need of a multidisciplinary approach and a multi-component intervention (e.g., psychological assessments and gender affirmative practices) as standard of care when working with HIV TGW in clinical settings.

Clinical issues in migrants

WEPEB141

Comparing clinical outcomes of immigrants and citizens living with HIV in Botswana: A retrospective cohort study

T. Marukutira[1,2,3], D. Yin[4,5], B.R. Lee[5], L. Cressman[3], R. Kariuki[3], B. Malone[3], T. Spelman[1], S. Crowe[2,6], M. Stoove[1,2], M. Hellard[1,2], D. Dickinson[3]
[1]Burnet Institute, Public Health, Melbourne, Australia, [2]Monash University, Epidemiology and Preventive Medicine, Melbourne, Australia, [3]Independence Surgery, Gaborone, Botswana, [4]Children's Mercy, Kansas, United States, [5]University of Missouri-Kansas City School of Medicine, Kansas City, United States, [6]Burnet Institute, Melbourne, Australia

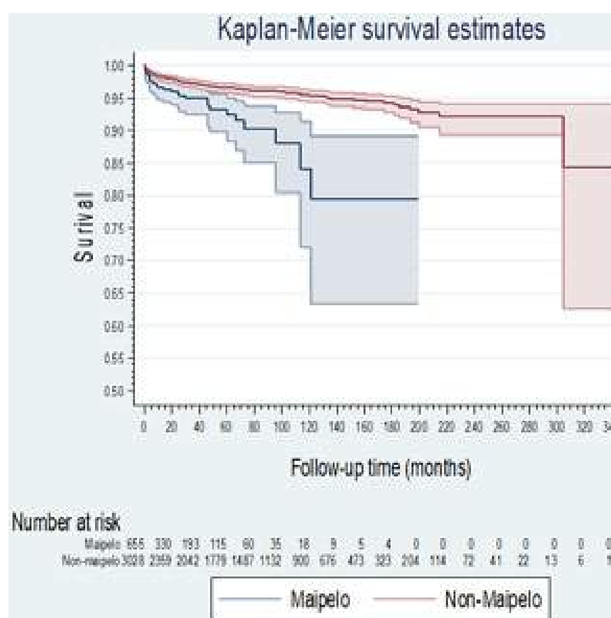
Background: Reaching the Joint United Nations Program on HIV/AIDS 90-90-90 targets requires inclusion of key and vulnerable populations. Mobile populations, especially immigrants living with HIV (ILHIV), encounter difficulties accessing healthcare. Botswana provides free access to HIV care for citizens, while non-citizens fund their own HIV care. Maipelo Trust, a non-governmental organization (NGO) in Botswana, offers financial support to ILHIV through an urban general practice clinic which also offers HIV care to citizens. We aimed to compare differences in antiretroviral therapy (ART) coverage, viral suppression, and mortality in ILHIV and citizens living with HIV attending the clinic between 2002 and 2016.

Methods: We conducted a retrospective cohort study using electronic medical records capturing clinical and laboratory data. Proportions were compared using chi-squared tests and logistic regression. Mortality was evaluated using Kaplan-Meier estimates and Cox proportional hazards model adjusted for age, baseline CD4, and time on ART. Viral suppression was defined as a viral load (VL) < 400 copies/mL.

Results: 4,042 people living with HIV were enrolled: 768 immigrants and 3,274 citizens (Table 1). Only 29% of ILHIV paid for own HIV care or had personal medical insurance; the remainder required NGO financial support. Most citizens (85%) had personal medical insurance, while 15% were government funded.

606 (79%) ILHIV initiated ART over the study period compared to 3,033 (93%) citizens (p< 0.001). Mean time on ART was 5 years in ILHIV and 12 years for citizens (p< 0.001). Half of ILHIV did not have a follow up VL after ART initiation compared to 8% of citizens (p< 0.001). Among those who had VL done, 66% of ILHIV and 73% of citizens had viral suppression (p< 0.001).

Mortality was higher among ILHIV. Overall 5-year survival was ~93% for ILHIV and ~97% for citizens (Figure 1). The ILHIV group was associated with 1.98 (95%CI 1.23-3.21) times the rate of death relative to citizens.



[Kaplan-Meier Survival estimates for immigrants (Maipelo) and citizens (Non-Maipelo) living with HIV]

Variable	Immigrants (%) (n=768)	Citizens (%) (n=3,274)	p-value
Median age (range), years	39 (0.25-84	48 (0.25-92)	
Male, n (%)	335 (44)	1,283 (39)	
Self-paying/medical insurance	226 (29)	2,773 (85)	
Initiated on ART, n (%)	609 (79)	3,033 (93)	<0.001
Proportion of all patients on ART with current (2016) VL results	296 (48.6)	2,798 (92.3)	<0.001
Proportion of patients with viral suppression	195 (66%)	2,042 (73%)	<0.001
Mortality:			
Hazard Ratio	1.98 (1.23-3.21)	Reference	0.005

[Table1: Demographic and clinical outcomes of Immigrants and Citizens]

Conclusions: ILHIV had poorer clinical outcomes compared to citizens and were unlikely to have capacity to fund their own HIV care. These results highlight the need to ensure inclusion of immigrants in mainstream-funded HIV treatment programs to reach HIV epidemic control.

Clinical issues in other vulnerable populations

WEPEB142

Longitudinal virological outcomes and factors associated with virological failure in behaviourally HIV-infected young adults on combination antiretroviral treatment in the Netherlands, 2000-2015

A. Weijsenfeld[1,2], C. Blokhuis[1], M. Stuiver[3], D. Pajkrt[1], F. Wit[2,4],
On behalf of the ATHENA Observational HIV Cohort
[1]Academic Medical Center, Emma Childrens Hospital, Pediatric Infectious Diseases, Amsterdam, Netherlands, [2]Academic Medical Center, Internal Medicine, Amsterdam, Netherlands, [3]Academic Medical Center, Department of Clinical Epidemiology Biostatistics and Bioinformatics, Amsterdam, Netherlands, [4]HIV Monitoring Foundation (Stichting HIV Monitoring), Amsterdam, Netherlands

Background: To maintain viral suppression in HIV-infected young adults is challenging. Studies show overall low HIV viral suppression rates in young adults (18-24 years) as compared to adults. Longitudinal data can

provide valuable insight on dynamics of viral suppression and variables of potential influence on virological failure (VF), but is scarce in HIV-infected young adults on cART.

Methods: We analysed data from 2000-2015 from the Dutch national HIV database of 827 HIV-infected young adults (YAs) on cART for a minimum of six months. VF was defined as two consecutive detectable plasma HIV-1 RNA measurements > 200 copies/ml. Generalized linear mixed model analyses were used to assess HIV VF over time and identify risk factors associated with VF.

Results: HIV VF during the young adult age occurred at least once in 28% of cases. The probability of experiencing VF decreased over the study period per calendar year (OR 0.80, 95% confidence interval [CI];0.75; 0.85). Factors significantly associated with VF were being infected through heterosexual contact (OR 4.21, 95%CI 1.64; 10.82) and originating from Latin America or the Caribbean (OR 3.08, 95%CI 1.33; 7.12). Effect was smaller yet significant in patients that started cART with a nadir CD4 count >500 (OR 5.96, 95%CI 1.63; 21.72). The occurrence of HIV VF decreases with older age, but after correcting for calendar year, not significantly.

Conclusions: In our large cohort of YA, a decrease in HIV VF was observed with older age. However, the effect of calendar time on improved outcomes was larger, with current suppression levels approaching the Dutch adult HIV population. These findings suggest that behaviourally HIV-infected YAs have greatly benefitted from improved cART regimes over time, that have become more potent, more forgiving and have fewer side effects. Specific subgroups continue to be at risk for suboptimal treatment.

WEPEB143

Same-day medical visit in newly diagnosed HIV patients decreases time to viral suppression

D.Y. Mohammed[1,2], E. Martin[3], Y. Babyants[4], J. Slim[5]
[1]Saint Michael's Medical Center, Infectious Diseases, Newark, United States, [2]William Paterson University, Nursing, Wayne, United States, [3]Rutgers University, Department of Pathology & Laboratory Medicine, New Brunswick, United States, [4]Rowan University, School of Osteopathic Medicine, Stratford, United States, [5]Saint Michael's Medical Center, Newark, United States

Background: Previous attempts to link patients to medical care involved meeting with a non-medical provider and obtaining baseline lab-work. The current impetus towards viral suppression (VS) includes rapid initiation of antiretroviral therapy(ART) which can only be accomplished if patients are seen in a timely manner by a medical provider. This study compared the proportion of patients with VS before and after implementation of a same- day medical visit for newly-diagnosed HIV patients in an adult inner-city clinic.

Methods: This is a retrospective review of data collected from 2014-2017 among newly-diagnosed patients in an inner-city clinic. Patients were included if they had at least one medical visit, one viral load and an antiretroviral prescription documented in the electronic medical record. Same-day visit with a medical provider was implemented in 2016. Fishers Exact test was used to evaluate the proportions of newly diagnosed and suppressed patients by demographic characteristics. Survival analysis for competing risks evaluated time to 1st suppressed viral load after

a) HIV diagnosis, and

b) ART initiation.

Results: Overall, 137 patients were newly diagnosed; 8 patients were censored as they were lost to care or moved prior to VS. New patients included males (81%), those aged 20-29 (45%), those with public insurance (43%), and those with non-AIDS status (79%). From 2014 to 2017, same-day medical visits for newly-diagnosed patients increased from 18% to 69%, the median time to VS decreased from 101 to 88 days after diagnosis and 70 to 35 days after receipt of ART. Overall VS increased from 91% to 97% and was similar among all population groups.

Conclusions: From 2014 to 2017, same-day medical visits as diagnosis increased almost four-fold, the median time to VS after diagnosis decreased by 13% and VS increased by 8%. This change in practice predates the current recommendations for rapid initiation of ART, which may become a reality when patients are seen by a medical provider on the same-day as a new diagnosis. This evaluation presents the potential to further decrease the median time to VS at this clinic with initiation of ART on the same-day as diagnosis.

WEPEB144

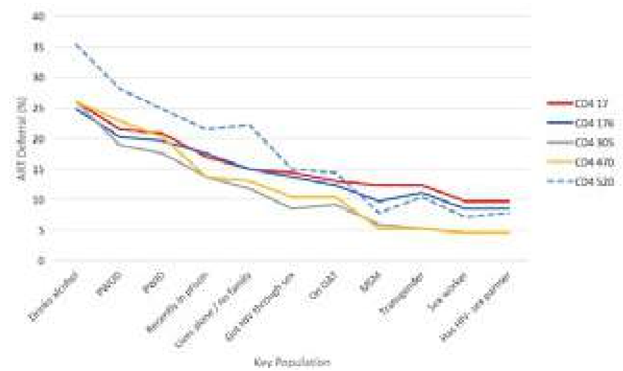
High rates of anti-retroviral treatment deferral for HIV-infected patients who use alcohol and drugs: Results from a national sample of medical doctors in Ukraine

T.D. Ottesen[1], J.A. Wickersham[2], O. Zezuilin[3], S. Antoniak[4], S. Antonyak[4], M. Polonsky[5], J. Lawrence[2], J. Rozanova[2], S. Dvoryak[3], I. Pykalo [3], A. Taroyants[3], M. Filippovych[3], F. Altice[2]
[1]Yale School of Medicine, Department of Infectious Diseases, Center for Interdisciplinary Research on AIDS, New Haven, United States, [2]Yale School of Medicine, Department of Internal Medicine, Section of Infectious Diseases, AIDS Program, New Haven, United States, [3]Ukrainian Institute on Public Health Policy, Kyiv, Ukraine, [4]Viral Hepatitis and AIDS Department of the Gromashevsky Kiev Institute of Epidemiology and Infectious Diseases, Kyiv, Ukraine, [5]Quinnipiac University School of Business, Hamden, United States

Background: Despite reductions in global HIV incidence and mortality, Ukraine continues to exhibit elevated HIV concentration in key populations and sub-optimal antiretroviral therapy (ART) coverage. Physicians are the gatekeepers to ART prescription and are understudied as barriers to scale-up in key populations.

Methods: A national sample of current ART-prescribing physicians (N=153) in Ukraine were surveyed between August and November 2017. Participants underwent a series of randomized, hypothetical clinical scenarios of PLWH and decided whether to initiate or defer ART. Scenarios varied based on 5 different CD4+ counts (CD4+: 17, 176, 305, 470, or 520) and 10 different patient prototypes (key populations). *Z* scores and McNemar's test for paired samples were used to test differences between key patient prototype and CD4+ count.

Results: Physicians were mostly female (80.4%), with 19 mean years of medical experience and trained in infectious diseases (76.5%); clinical work sites include dedicated HIV/AIDS centers (50.3%) or hospital (32.0%). Results are illustrated in Figure 1 below.



[Physician decisions to defer ART by CD4 count and key population (N=153)]

Patients who drink alcohol were most likely to have ART deferred (range: 24.8%-35.1%), even at the lowest CD4+ count (26.1%). Similar decisions to defer ART were observed for patients who use (PWUD range: 19.0%-28.1%) or inject (PWID range: 17.6%-24.8%) drugs. Patients on opioid agonist therapy like methadone (range: 9.2%-14.4%), however, were significantly (p< 0.001) less likely to have ART deferred compared with PWID and PWUD overall and when compared by CD4+ counts. Men who have sex with men (range: 5.2%-12.4%), transgender women (range: 5.2-12.4%), sex workers (range: 4.6%-9.8%), and having an HIV-uninfected sex partner (range: 4.6%-9.8%) had the lowest likelihood of ART deferral.

Conclusions: Irrespective of national guidelines recommending ART prescription to all PLWH irrespective of risk or CD4+ count, deferral of ART remains high in certain key populations, especially in PLWH who drink alcohol or have a substance use disorder. Concerning is the high deferral of ART for CD4+=17, relative to other CD4+ counts < 520, a group with markedly high risk for death. While ART deferral in substance-using PLWH may be related to concerns about adherence, adherence support rather than ART deferral should be prioritized to truly mitigate the current epidemic in Ukraine.

WEPEB145

Barriers and facilitators of higher patient activation levels among HIV-infected and uninfected midlife U.S. women

K.M. Weber[1], C. Bond[1], E. Daubert[1], L. McClellan[1], A.L. French[2], M.H. Cohen[3]

[1]Hektoen Institute of Medicine, Chicago, United States, [2]Stroger Hospital of Cook County, Department of Infectious Diseases, Chicago, United States, [3]Cook County Health and Hospitals System and Rush University Medical Center, Department of Medicine, Chicago, United States

Background: Higher levels of patient activation (PA) are associated with better health outcomes with chronic disease. Hibbard (2005) identified four stages of PA:
1) believing the patient role is important,
2) having confidence to take action,
3) actually taking action to maintain/improve health, and
4) staying the course under stress.
We sought to identify barriers/facilitators to achieving high activation levels among midlife women with HIV who experience significant life stressors and chronic disease burden.

Methods: We administered the well-validated 13-item Patient Activation Measure to 174 HIV-infected (HIV+) and 69 HIV-uninfected (HIV-) Chicago Women's Interagency HIV Study (WIHS) participants during a semiannual visit in 2017. We conducted cross sectional analyses using concurrently collected covariates. Resilience and PTSD were measured using the Connor-Davidson Resilience Scale (CD-RISC) and PTSD Civilian Checklist (PCL-C) respectively. Logistic regression was used to predict odds of being in the highest and upper two stages of activation.

Results: Women were predominantly black (77%), age≥50 (56%), poor (62% ≤ $18k), unemployed (59%), obese (49%), current smokers (44%), former/current drug use (37%), unstably housed (17%); 54% had hypertension, 24% had diabetes; with no significant difference by HIV status. Among HIV+, 75% were on HAART/≥95% adherent; 24% were viremic. Overall, 8% were in PA Stage (PAS)-1, 11% in PAS-2, 32% in PAS-3, and 49% in PAS-4 with similar distribution by HIV status. Employment, stable housing, and higher mean CD-RISC predicted greater odds of being in the highest PAS while current smoking, former/current substance use, and a PCL-C score≥44 predicted lower odds of PAS-4. With the exception of PTSD symptoms, all factors remained statistically significant for increasing/decreasing odds of PAS-4 after adjustment for age (per 10 years), race/ethnicity, education, and income (Table 1). Similar factors were statistically significant for predicting odds of PAS≥3 except PCL-C≥44 remained associated with lower likelihood even after adjustment.

Conclusions: HIV-infected and demographically similar uninfected U.S. women in this cohort study have high levels of activation. Programs that build resilience, reduce PTSD symptoms and substance abuse, and address housing instability may help facilitate greater patient activation among women with chronic disease.

	Unadjusted model OR (95% CI)	p-value	Adjusted model OR (95% CI)	p-value
Employed	2.651 (1.562-4.498)	<0.001	2.286 (1.222-4.277)	0.010
Stable Housing	2.942 (1.393-6.210)	0.005	2.971 (1.347-6.551)	0.007
Current smoker (vs. Never)	0.410 (0.218-0.770)	0.006	0.492 (0.245-0.987)	0.046
Former smoker (vs. Never)	0.709 (0.358-1.404)	0.324	0.806 (0.381-1.704)	0.572
Current hard drug user (vs. Never)	0.252 (0.087-0.729)	0.011	0.273 (0.090-0.825)	0.021
Former hard drug user (vs. Never)	0.447 (0.250-0.799)	0.007	0.490 (0.258-0.932)	0.030
PTSD Symptoms (>44 PCL-C)	0.501 (0.249-1.007)	0.052	0.579 (0.277-1.208)	0.145
Resilience (>Mean CD-RISC)	3.264 (1.842-5.782)	<0.001	3.065 (1.688-5.567)	<0.001

[Table 1. Predictors of high patient activation (Level 4: 'Stay the course under stress')]

WEPEB146

Housing instability increases rates of urgent care visits, emergency department visits and hospitalizations among PLHIV

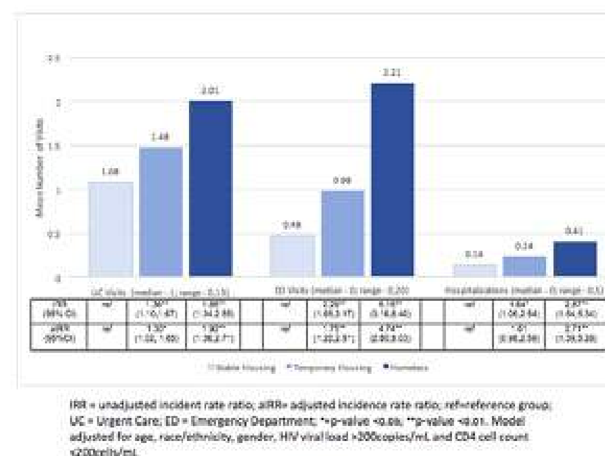
A. Clemenzi-Allen[1], E. Geng[1], D. Sachdev[2], S. Buchbinder[2], D. Havlir[1], M. Gandhi[1], K. Christopoulos[1]

[1]University of California, Division of HIV, Infectious Diseases and Global Medicine, San Francisco, United States, [2]San Francisco Department of Public Health, San Francisco, United States

Background: Housing instability is associated with acute care visits (ACV) among people living with HIV (PLHIV), but few analyses have evaluated how different levels of housing instability affect different ACV types. We evaluated the association between a three-category predictor variable of housing with urgent care (UC) visits, emergency department (ED) visits and hospitalizations in a large urban clinic-based cohort.

Methods: We collected self-reported housing data during check-in at a safety-net primary care HIV clinic in San Francisco from 2/1/17-7/21/17 using a pictorial survey depicting 6 different living arrangements. We defined housing as stable (Rent/Own, Hotel/Single Room Occupancy), temporary (Treatment/Transitional Program, Staying with Friends), or homeless (Homeless Shelter, Outdoors/In Vehicle). ACVs included visits to UC, ED or hospitalizations from 11/2016-11/2017 and included only ACVs in our hospital system. We calculated unadjusted and adjusted incident rate ratios (IRR) by ACV type using separate negative binomial regression models given over-dispersion of the outcome variable. We adjusted for age, gender, race/ethnicity, baseline CD4< 200 cells/mL and VL >200 copies/mL.

Results: 1,220 patients completed the survey. Median age was 50 years (IQR 41 to 57); 13% were female; 41% white, 24% black, 26% Latino, 9% other. 10% had CD4 < 200cells/mL and 29% had VL >200copies/mL. 1371 UC visits, 719 ED visits and 199 hospitalizations were observed. Of all patients, 13% had ≥1 hospitalization, 27% had ≥1 ED visit and 47% had ≥1 UC visit. Mean ACVs increased in a monotonic fashion by housing instability. Unadjusted and adjusted IRR of UC visit, ED visit or hospitalization were statistically significantly higher for those at all levels of housing instability compared to those stably housed, except when comparing the frequency of hospitalizations for those temporarily housed (Figure).



[Mean Acute Care Visits by Housing Status and Visit Type]

Conclusions: We demonstrate a "dose-response" between category of housing instability and frequency of ED visits, UC visits and hospitalizations among PLHIV. Although homelessness is associated with the highest rates of ACVs, temporary housing (compared to stable housing) is also associated with increased care utilization. Interventions are needed to mitigate the potential impact of housing instability on the least cost-effective forms of accessing care (e.g. ED visits, UC visits, hospitalizations) among PLHIV.

WEPEB147

Hazardous alcohol screening rates among persons with HIV following implementation of screening, brief intervention and referral to treatment in a large healthcare system in the United States

M. Silverberg[1], T. Levine-Hall[1], S. Sterling[1], J. Lam[1], C. Ellis[1], M. Horberg[2], A. Williams[3], C. Weisner[1,4], P. Volberding[4], S. Parthasarathy[1], D. Satre[1,4]
[1]Kaiser Permanente, Oakland, United States, [2]Kaiser Permanente Mid-Atlantic States, Mid-Atlantic Permanente Research Institute, Rockville, United States, [3]Tufts Medical Center, Institute for Clinical Research and Health Policy Studies, Boston, United States, [4]University of California, San Francisco, United States

Background: Hazardous drinking is common among persons with HIV (PWH) and associated with reduced antiretroviral adherence, HIV viral control and substantial morbidity and mortality. Effective alcohol interventions in routine clinical care rely on robust screening for hazardous alcohol use.
We evaluated the equality of screening rates across key subgroups among PWH following the rollout of Screening, Brief Intervention and Referral to Treatment (SBIRT) in a large integrated healthcare system in the United States.
Methods: We identified all adult PWH who were healthcare system members between July 2013 (rollout of SBIRT) and December 2017. Patients were followed until they were first screened (event of interest), or until death, lost-to-follow-up or December 2017. Factors evaluated included baseline age, sex, race/ethnicity (Black, White, Hispanic, Other), HIV transmission risk (heterosexual, injection drug use [IDU], men who have sex with men [MSM]), and prior AIDS defining illness (ADI). We estimated proportions screened from Kaplan-Meier plots and adjusted hazard ratios (HRs) from Cox Regression models.
Results: A total of 11,330 PWH were included, with 70% MSM, 52% White, 45% ≥50 years of age at baseline and 46% with prior ADI. Overall, 89% of PWH were screened by four years after SBIRT rollout. Screening was less likely among those 50-59 years (87%; HR 0.93, 95% CI 0.89-0.98) compared with those 18-49 years of age (90%; reference); less likely among Blacks (83%; HR 0.78, 95% CI 0.74-0.83) compared with Whites (90%; reference); less likely among heterosexuals (84%; HR 0.89, 95% CI 0.82-0.96) and higher among IDU (93%; HR 1.19, 95% CI 1.10-1.29) compared with MSM (89%; reference); and less likely among those with prior ADI (86%; HR 0.83, 95% CI 0.80-0.87) compared with those without prior ADI (91%; reference).
Conclusions: Screening for hazardous alcohol use was highly successful with 89% of all PWH screened after four years. However, demographic and clinical disparities suggest strategies are needed to reduce such screening disparities among PWH to allow for equal access to appropriate treatment.

WEPEB148

Comparison of viral load suppression rates between military and civilians on antiretroviral therapy (ART) in military facilities in Uganda

D. Bwayo[1], M. Ssemmanda[1], C. Wamundu[2], F. Young[3], R. Flueckiger[3], J. Akao[4], J. Bosco Ddamulira[1]
[1]RTI International, Global Health, Kampala, Uganda, [2]UPDF, HIV and AIDS Directorate, Kampala, Uganda, [3]RTI International, Global Health, Research Triangle Park, United States, [4]US Mission, Uganda, Department of Defence, Kampala, Uganda

Background: Despite global evidence that military personnel are disproportionately affected by HIV, data on HIV treatment outcomes among military men living with HIV remain sparse. Military personnel on antiretroviral therapy (ART) are subject to a risk-taking culture, which increases exposure to infection, and deployment in clinically-underserved areas, which limits treatment adherence.
This study, funded by United States President's Emergency Plan for AIDS Relief (PEPFAR) compared treatment outcomes between civilians and military personnel after initiating ART at military-managed health facilities in Uganda.
Methods: This cross-sectional study used data obtained from chart reviews and participant interviews. In total, 543 people living with HIV were randomly sampled from eight military ART clinics. Chi squared and t-tests were done to compare proportions and means, respectively. HIV viral load (VL) suppression was defined as a VL of < 1,000 copies/ml.
Results: Of the 543 participants, 229 were military (95% men) and 314 were civilian (30% men). The age structure between the two groups was comparable, with a mean age of 39.8 years (SD = 9.7). Levels of HIV VL suppression and those reporting >95% adherence were not significantly different between the two groups (i.e., 86.0%-87.3% and 85%-86.5%, respectively). There was no difference between baseline CD4 count, ART regimens, condom use, and level of education. Military participants had been on treatment longer (3.1 years compared to 2.9 years [p = 0.02]), were more likely to have disclosed their status to a spouse (57% compared to 44% [p = 0.01]), be married (91% compared to 61% [p = 0.001]) and have higher income (50% military compared to 11% civilians with >$100/month [p = 0.01]). Additionally, military participants were more likely to be recent transfers to the clinic (40.7% compared to 19.4% [p< 0.001]) and report alcohol use (49% compared to 29% [p< 0.001]).
Conclusions: Levels of HIV VL suppression were similar between military and civilians despite differences in socioeconomic, clinical, and behavioral characteristics. Military personnel on ART can achieve similar levels of treatment success when consistent care packages are offered. This implies that targeted military HIV treatment programs can contribute to attainment of national HIV control goals.

New PrEP products (e.g. TAF and other antiretrovirals, long acting oral and injectable drugs, topical PrEP/microbicides)

WEPEC149

Effectiveness of Pre-Exposure Prophylaxis (PrEP) in Brazilian public health facilities: One-year results of the combine! study

A. Grangeiro[1], M. Couto[1], D. Ferraz[2], E. Zucchi[3], M. Escuder[4], L. Denize[5], J. Oliveira[6], A. Fachel Leal[7], O. Carmo Luiz[6], T. Freitas[8], J. Villela Santos[9], L. Rosso[10], É. Arruda[11], R. Moraes[11], R. Munhoz[12], M.C. Giana[12], T. Pinheiro[13], A. Silveira[6], B. Kauss[13], G. Gomes[13], C. Brasileiro[11], A.C. Venci[13], G. Ardila[13], T. Areco[13], A.L. Eberi[13], M. Silvestrini[13]
[1]Universidade de São Paulo, Department of Preventive Medicine, São Paulo, Brazil, [2]Fundação Oswaldo Cruz, Ministry of Health, Brasilia, Brazil, [3]Universidade Católica de Santos, Graduate Program on Collective Health, University, Santos, Brazil, [4]Instituto de Saúde, São Paulo, Brazil, [5]Centro de Referência em DST e Aids, SES, SP, São Paulo, Brazil, [6]Universidade de São Paulo, São Paulo, Brazil, [7]Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, [8]Secretaria Municipal de Saúde de Porto Alegre, Porto Alegre, Brazil, [9]Secretaria Municipal de Saúde de Curitiba, Curitiba, Brazil, [10]Secretaria Municipal de Saúde de Ribeirão Preto, Ribeirão Preto, Brazil, [11]Hospital de Infectologia São José, Fortaleza, Brazil, [12]Centro de Referência e Treinamento DST/Aids, SES-SP, São Paulo, Brazil, [13]Universidade São Paulo, São Paulo, Brazil

Background: PrEP can be an important tool to address the recent increase of the HIV epidemic. We present the results of 1-year follow-up of PrEP implementation in public health facilities in Brazil.
Methods: PrEP, with daily use of TDF/FTC, was offered to users of five public health facilities (two voluntary testing centers, one general hospital specialized in infectious diseases and two HIV ambulatories). Candidates had to be over 16 years old, have high risk (eg, history of unprotected anal and vaginal sex or multiple casual partnerships) or high vulnerability to HIV (ie, drug use and sex work). Quarterly clinical consultations were conducted, including testing for HIV and syphilis, and monitoring of adverse events. Behavioral questionnaires were applied every six months. Associations were analyzed using Odds Ratio (p < 0.05), calculated by logistic regression.
Results: Between Nov 2016 and Nov 2017, 526 people took PrEP (uptake of 74%), with a mean time of 107 follow up days (IQ: 41-156), with a total of 1542 person-month. Main motivations reported for using PrEP

included desiring to improve sexual life quality (57%) and recognizing being at risk for HIV (42%). The odds of choosing PrEP increased among those who had more than 50 casual partners in the past 6 months (OR: 3.1, 95% CI 1.9-5.1), who treated an STI (OR: 2.0, 95% CI, 1.4- 2.7) and being male, white, with homosexual practices and higher schooling (OR: 1.9, 95% CI 1.4-2.5). No HIV infection was observed in the period. Retention was high (90%) and 65% returned to obtain medication before finishing their tablets. Half of the dropouts occurred in the first 30 days and were associated with being a sex worker (OR: 3.3; 95% CI: 1.3-7.9). The odds of dropout decreased among those who chose PrEP to increase protection (OR 0.4, 95% CI 0.2-0.8) and who previously used post-exposure prophylaxis (PEP) (OR 0.5, 95% CI 0.2-0, 9).

Conclusions: PrEP delivery in the routine care of Brazilian public health facilities was highly effective. Nevertheless, highly vulnerable groups, such as sex workers, had restricted access and a greater chance of abandonment in the initial period of PrEP use.

WEPEC150

Impact of long-acting cabotegravir as pre-exposure prophylaxis on the emergence of HIV drug resistance among men who have sex with men: A modelling study

B. Marshall[1], W. Goedel[1], M. King[1], A. Singleton[1], D. Durham[2], P. Chan[3], J. Townsend[4,5,6], A. Galvani[4,6,7]

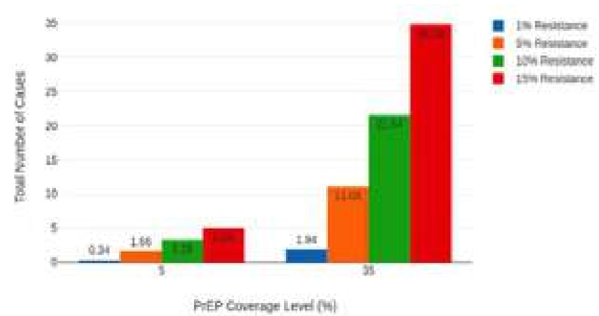
[1]Brown University, Department of Epidemiology, Providence, United States, [2]Yale University, Epidemiology of Microbial Diseases, New Haven, United States, [3]Brown University, Department of Medicine, Providence, United States, [4]Yale University, Department of Ecology and Evolutionary Biology, New Haven, United States, [5]Yale University, Department of Biostatistics, New Haven, United States, [6]Yale University, Program in Computational Biology and Bioinformatics, New Haven, United States, [7]Yale University, Center for Infectious Disease Modeling and Analysis, New Haven, United States

Background: Long-acting cabotegravir (LA-CAB) is currently being tested in phase III trials for use as long-acting injectable pre-exposure prophylaxis (LAI-PrEP) to prevent HIV infection. However, the emergence of drug resistant mutations with subtherapeutic levels of LA-CAB when injections are discontinued is a concern. We used an agent-based model (ABM) to estimate the impact of LAI-PrEP use on the development of drug-resistance among men who have sex with men (MSM).

Methods: We simulated HIV transmission in a dynamic sexual network representing 11,245 MSM in Atlanta, Georgia from 2015 to 2024. The model was calibrated to reproduce current HIV prevalence and incidence among MSM in Atlanta (30.3% and 3.9 per 100 person-years). We assumed agents received bimonthly LA-CAB injections, with retention in care rates based on phase II trial data (85% retained at 3 months). The efficacy of LA-CAB was estimated from published macaque data, and LA-CAB concentrations over time were estimated from human pharmacokinetic data. The impact of LA-CAB on the emergence of drug-resistant infections was modeled across different LAI-PrEP coverage levels (5% to 35%) and discontinuation rates, with varied probabilities of developing drug resistance as LA-CAB concentrations waned up to 12 months following LAI-PrEP discontinuation.

Results: Without PrEP use, there were an estimated 2,374 new infections from 2015 to 2024 among MSM. With 5% of MSM using LAI-PrEP, the cumulative number of new HIV infections over ten years was reduced by 5.8% compared to the scenario without PrEP. At this coverage level, infections resistant to LA-CAB were rare, ranging from 0-5 cases over ten years (Figure). With 35% of MSM using LAI-PrEP, the cumulative number of new HIV infections over ten years was reduced by 43.9%. At this level, infections resistant to LA-CAB were also rare, ranging from 2 to 35 incident drug resistant infections over the ten-year period. In sensitivity analyses, the number of drug resistant infections was proportional to discontinuation rates.

Conclusions: Simulations incorporating phase II clinical data and efficacy estimates from macaque models suggest that the emergence of resistance to LA-CAB will be rare. Further research is needed to monitor the development of drug resistance in ongoing LAI-PrEP efficacy trials.



[Total cumulative number of drug resistant HIV infections over a 10-year time period (2015-2024) among MSM in Atlanta]

WEPEC151

Updating communities on ASPIRE and ring studies in Zimbabwe

C. Mashoko

International Partnership for Microbicides (IPM), External Affairs, Cape Town, South Africa

Background: Lack of meaningful involvement of communities in HIV Prevention research, in particular clinical research targeting women - risk jeopardizing a study. While Community Advisory Boards play a critical role, this is often limited due to a number of factors, chief among them lack of resources. Good Participatory Practices have moved beyond simplistic definitions of ´community´ to encompass a diverse set of actors with various levels of proximity that impacts a women´s day to day lived realities. These include but are not limited to kinship networks, community services, and media agencies. The International Partnership for Microbicides partnered with the Southern African AIDS Trust Zimbabwe (SAT Zim) to keep the Zimbabwean community informed of two phase III randomized control studies (The Ring & ASPIRE studies); evaluating the safety and effectiveness of the Dapivirine vaginal ring for HIV prevention. Stakeholder engagement activities with journalists in trial communities sought to build correct knowledge facilitate discussion and participation with affected communities.

Description: SAT Zim provided training to 30 advocates and journalists in the communities of Harare and Chitungwiza, Zimbabwe. This resulted in a partnership with the Health Journalist Association of Zimbabwe, where health journalists were trained on the Ring Study and ASPIRE. Trained journalists mobilized other journalists within their networks and encouraged their participation across different stakeholder engagement activities hosted by SAT Zim.

Lessons learned: Meaningfully engaging journalist associations in clinical trials as part of stakeholder engagement strategies resulted in reaching a large community audience and led to sustained engagement that extended beyond the initial training. Engaging journalists from the onset of clinical trials resulted in ownership, timely and accurate reporting. To date, Zimbabwe has recorded zero negative media reports

Conclusions/Next steps: A cohort of 20 Health journalists who successfully finished the training was maintained and has further expanded knowledge gained to networks within their own journalistic spheres of influence. Resources are being mobilized to support Health Journalists Association of Zimbabwe to facilitate monthly research update meetings.

Other new prevention tools

WEPEC152

Determinants of voluntary or coerced sexual debut among Black female adolescents in Soweto, South Africa: Findings from the birth to twenty cohort study

D. Nyemba[1], M. Cornell[2], M. Mabaso[3], L. Richter[4], J. Ramjith[1]
[1]University of Cape Town, Division of Epidemiology & Biostatistics, School of Public Health & Family Medicine, Cape Town, South Africa, [2]University of Cape Town, Centre for Infectious Disease Epidemiology and Research, School of Public Health & Family Medicine, Cape Town, South Africa, [3]Human Sciences Research Council of South Africa, HIV/AIDS, STIs and TB, Cape Town, South Africa, [4]University of Witwatersrand, 4DST-NRF Centre of Excellence of Human Development, Johannesburg, South Africa

Background: Early sexual debut whether voluntary or coerced increases exposure to high risk sex which leads to unplanned teenage pregnancy, sexually transmitted infections including HIV and reproductive health problems during adolescence. Black African female adolescents in South Africa have been identified as a key population at increased risk of coerced sexual debut and HIV infection.
Methods: We used sample data from 908 Black African female adolescents collected longitudinally from the Birth to Twenty cohort in Soweto, South Africa, between 13 and 18 years of age. Primary outcome was sexual debut, and whether voluntary or coerced. We used logistic regression to investigate odds ratios and the associated significance. Cox Proportional Hazards regression analysis was conducted to examine the effect of potential risk factors on the time to overall sexual debut. We further explored the effect of these risk factors on time to first voluntary and time to first coerced sexual debut respectively (multiple event types) using competing risks method.
Results: Approximately 41% of the sample had experienced sexual debut by 18 years of age; 78% of these sexual debut experiences were voluntary while 18% were coerced and 4% were undisclosed. Coerced sexual debut was 2.6 (95% CI: 0.9; 7.7) times more likely to occur in adolescents with partners of the same age than adolescents who initiated sex with age-disparate partners. The overall median age at sexual debut was 18 years. High socio-economic status was protective of the hazard to experience coerced sexual debut (hazard ratio = 0.23). Secondary level for maternal education had a reduced hazard of 0.37 on experience of coerced sexual debut.
Conclusions: There is a need for interventions to delay sexual debut among Black female adolescents from low socio-economic backgrounds and lower maternal education. Interventions should target coercion between peers and partners of similar ages as well.

WEPEC153

Impact of a behavioral intervention on health outcomes among rural women living with HIV/AIDS at six month follow-up

A. Nyamathi
University of California, School of Nursing, Irvine, United States

Background: In India, women living with HIV (WLA) in rural regions face significant barriers to disease maintenance. Challenges include critical nutrition deficits related to access to and knowledge about diets that promote health and address HIV/AIDS-specific needs: Nutrition is a critical component of immune functioning, particularly for those living with HIV/AIDS who have an increased metabolic need to help fight the disease. This community-engaged intervention, based on a nurse-led Asha (Accredited Social Work Activist)-support healthcare model, sought to address this problem.
Methods: A prospective, randomized-controlled 2x2-factorial design assessed the impact of an Asha-support nutrition intervention. 20 Primary Health Centers serving WLA were randomized into one of four arms that included basic Asha-support: Asha-support only (control group), nutrition supplementation, nutrition education, and the combination of supplementation and education. Difference scores between baseline and 6-month follow-up for key physiological outcomes (body mass index [BMI], CD4 count) were analyzed using a mixed-models approach that accounted for clustering within geographic area. Covariates included age, MET, quality of life, food insecurity, social support, adherence, and years of education.
Results: Mean age was 34; 51% were widowed; average monthly income was $32 U.S. dollars; and about half had no formal education. On average, HIV diagnosis occurred 4 years earlier; average baseline CD4 count was 447. All groups improved CD4 count over the 6-month period: Asha only (difference=343.97), nutrition supplement (difference=356.15), nutrition education (difference=469.66), and nutrition supplement + nutrition education (difference=530.82). In fully adjusted models, compared to Asha-support only, both intervention groups demonstrated significantly greater improvements in CD4 count; the interaction term was also significant (p=.006). BMI also increased for all groups: Asha only (difference=.96), nutrition supplement (difference=1.28), nutrition education (difference=2.38), and nutrition supplement + nutrition education (difference=4.07). In comparison to control group, both intervention groups demonstrated higher mean increases in BMI; the interaction term was not significant (p=.799).
Conclusions: An Asha-based-nutrition intervention was efficacious at improving CD4 count and BMI in WLA in India. Interventions run by nurse-led community workers may be beneficial at meeting critical healthcare needs for vulnerable WLA. Implications for promoting effective HIV/AIDS care in India and other nations will be discussed.

WEPEC154

Calibrating estimators of HIV-1 infection time and founder multiplicity towards improved vaccine efficacy assessment

R. Rossenkhan[1], M. Rolland[2], P. Labuschagne[3], C.A. Magaret[1], L.N. Carpp[1], Y.H. Huang[1], E.E. Thommes[1], L. Zhang[1], N. Ndabambi[4], M. Logan[4], T. Holzman[1], M.-R. Abrahams[4], C. Anthony[4], S. Tovanabutra[2], C. Warth[1], G. Botha[3], D. Matten[3], S. Nitayaphan[5], K. Rono[5], A. Sekiziyivu[5], N. Michael[5], D. Chopera[6], L.A. Eller[2], F.A. Matsen IV[1], S. Travers[3], A. Poon[7], M.L. Robb[2], C. Williamson[4], P.B. Gilbert[1], P.T. Edlefsen[1]
[1]Fred Hutchinson Cancer Research Center, Vaccine and Infectious Disease Division, Seattle, United States, [2]U.S. Military HIV Research Program and Henry M. Jackson Foundation for the Advancement of Military Medicine Inc, Bethesda, United States, [3]South African Medical Research Council Bioinformatics Unit, South African National Bioinformatics Institute, University of the Western Cape, Cape Town, South Africa, [4]University of Cape Town, Cape Town, South Africa, [5]U.S. Military HIV Research Program, Bethesda, United States, [6]SANTHE (Sub-Saharan African Network for TB/HIV Research Excellence), Durban, South Africa, [7]University of British Columbia, Vancouver, Canada

Background: Knowledge of the time of HIV-1 infection and multiplicity of viruses that establish HIV-1 infection is crucial for in-depth analysis of the efficacy of various prevention modalities. Better estimation methods would improve the ability to characterize immunological and genetic sequence correlates of efficacy within preventive efficacy trials of HIV-1 vaccines and monoclonal antibodies.
Methods: We developed new methods for infection timing estimation and multiplicity estimation using maximum likelihood estimators that shift and scale (calibrate) estimates by fitting true infection times and founder multiplicities to a linear regression model. These methods also incorporate non-sequence covariates, including measurements of the viral load, HIV-1 diagnostics and alignment statistics, such as the mean entropy across alignment positions. Using Poisson models of measured mutation counts and branching process models (phylogenetic trees), we analyzed longitudinal HIV-1 sequence data from the RV217 and CAPRISA 002 acute HIV-1 infection cohort studies.
Results: We used leave-one-out cross validation to evaluate the prediction error of these calibrated estimators versus that of existing estimators, and found that both infection time and founder multiplicity can be estimated with improved accuracy and precision by calibration. Calibration considerably improved all estimators of time since HIV-1 infection, in terms of reducing bias to near zero and reducing root mean squared error (RMSE) to 5-10 days. Calibration of multiplicity assessments yielded strong improvements with near-perfect predictions in most cases.

Conclusions: Our study addresses an important and globally relevant need to improve HIV prevention and treatment intervention assessment through improved approaches to estimate timing of HIV infection and founder multiplicity. The unique granularity of the viral sequence data generated in recent HIV-1 acute infection trials has provided a valuable opportunity to build and evaluate our comprehensive pipeline, which brings together available tools and provides statistical calibration for estimators of the time of HIV-1 acquisition and founder multiplicity with enhanced accuracy and in a systematic and reproducible way.

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WEPEC155

Feasibility and acceptability of symptom screening of sexually transmitted infections: HPTN0 71 (PopART) trial in Zambia and South Africa

C.R. Phiri[1], A. Schaap[1,2], M. Phiri[1], S. Floyd[2], S. Griffith[3], R. Hayes[2], S. Fidler[3], K. Shanaube[1], H. Ayles[1,2]

[1]Zambart University of Zambia Ridgeway Campus, Lusaka, Zambia, [2]London School of Tropical Medicine and Hygiene, London, United Kingdom, [3]Imperial College, London, United Kingdom

Background: HPTN071 (PopART) is a 3-arm community-randomized trial in 21 communities, 12 in Zambia and 9 in South Africa. The trial will determine the impact of a combination prevention intervention on HIV incidence. Community HIV care-providers (CHiPs) deliver the intervention to all households in intervention communities. Due to the close association between HIV and sexually transmitted infections (STIs) screening questions for symptomatic STIs are included as part of the intervention.

Methods: Verbal consent was obtained for individuals 18 years and older, with assent for those < 18. An STI screening tool was delivered by CHiPs to identify signs or symptoms suggestive of an STI (presence of genital sores/growth, vaginal/urethral discharge, dysuria, lower abdominal pains). All those screening positive were referred to the clinic for routine STI diagnosis and treatment. We present data for the period September 2016 to November 2017.

Results: Overall 94.8% of households (70,831/74,657) were enumerated, including total of 192,697 household members aged ≥15 years. 139,892 individuals consented to the intervention and 95.7% (133,985/139,892) were screened for STIs. Overall, among those screened, 1.3% (1,775/133,985) reported STI symptoms. Prevalence of STI symptoms was higher in South Africa 1.6% than Zambia 1.2% (p=0.0031), and commonest among the 20-24 age-group in South Africa (2.3%) and among 25-29 age-group in Zambia (1.7%). Prevalence was similar in both males and females in Zambia, but higher in females in South Africa (OR1.37, 95%CI 1.17-1.61). Those testing HIV-positive at this visit by the CHiPs were more likely to report STI-symptoms than those testing HIV-negative (OR3.9, 95%CI 2.8-5.3 in Zambia and OR4.4, 95%CI 3.6-5.5 in South Africa), and were also more likely to report symptoms than those who were already diagnosed with HIV previously (self-reported HIV). Individuals not previously known to have HIV and who declined testing at this visit had the lowest prevalence of STI symptoms (Table 1).

Conclusions: Large scale community-based STI symptom screening of individuals using a simple tool is acceptable and feasible. Symptoms of STIs were more common amongst young adults in both countries, and also in those newly identified with HIV. STI screening should be incorporated into community based HIV testing programs.

Factor	SA	OR*)	95% CI	Zambia	OR*)	95% CI
STI symptomatic	669/41,390 (1.62%)			1,106/92,595 (1.19%)		
Sex						
Male	236/17,388 (1.36%)	1		448/39,457 (1.14%)	1	
Female	433/24,002 (1.80%)	1.37	1.17 – 1.61	658/53,138 (1.24%)	1.07	0.95 – 1.21
Age group						
15-19	68/5,023 (1.35%)	1		127/16,484 (0.77%)	1	
20-24	170/7,489 (2.27%)	1.65	1.24 – 2.19	311/20,308 (1.53%)	2.03	1.65 – 2.50
25-29	138/7,239 (1.90%)	1.39	1.03 – 1.86	251/15,218 (1.65%)	2.21	1.78 – 2.74
30-34	101/6,456 (1.56%)	1.12	0.82 – 1.53	140/11,461 (1.22%)	1.63	1.28 – 2.08
35-39	84/4,610 (1.82%)	1.30	0.94 – 1.80	109/8,787 (1.24%)	1.64	1.27 – 2.12
40-44	43/3,509 (1.23%)	0.84	0.59 – 1.27	59/6,333 (0.93%)	1.22	0.90 – 1.66
45 and older	64/7,083 (0.90%)	0.69	0.49 – 0.98	109/14,014 (0.78%)	1.01	0.78 – 1.31
HIV-status						
Tested HIV-negative	448/23,265 (1.93%)	1		770/66,416 (1.16%)	1	
Self-reported HIV-positive	73/4,939 (1.48%)	0.70	0.54 – 0.90	169/10,051 (1.68%)	1.42	1.20 – 1.68
Tested HIV-positive	48/648 (7.41%)	3.85	2.81 – 5.26	102/2,053 (4.97%)	4.43	3.58 – 5.48
Declined testing	99/12,538 (0.79%)	0.39	0.31 – 0.48	65/14,075 (0.46%)	0.40	0.31 – 0.51

*) Adjusted for community

[Table 1. Associated Factors of STI Symptoms]

Reaching and recruiting key populations for HIV services (online, offline, online-to-offline)

WEPEC156

Reaching the hard-to-reach: Strategies to maximize recruitment of youth at risk or living with HIV, ATN CARES project

M. Koussa[1], S.-J. Lee[1], L. Kozina[2], M.I. Fernández[3], M.J. Rotheram-Borus[1], Adolescent Medicine Trials Network (ATN) CARES

[1]UCLA, Psychiatry & Biobehavioral Sciences, School of Medicine, Semel Institute, Los Angeles, United States, [2]Tulane University, School of Medicine, New Orleans, United States, [3]Nova Southeastern University, Fort Lauderdale, United States

Background: The Centers for Disease Control and Prevention (CDC) estimates that 22% of new HIV infections diagnosed in 2015 were among youth 13 to 24 years of age. Youth with HIV are the least likely to be linked to care and achieve long-term viral suppression.Itis critical to identify youth living with HIV to ensure they receive optimal treatment and care services. Itis also imperative to identify high-risk HIV negative youth to ensure they are linked to appropriate HIV prevention services. This study highlights the Adolescent Medicine Trials Network (ATN) CARES' community-based strategy to identify, recruit and engage youth at risk, living with HIV, or acutely infected with HIV.

Description: Youth 12 to 24 years of age are being recruited in Los Angeles County and New Orleans. Initial screening with the 4th generation Alere™ HIV Combo test assigns youth to one of three studies (acute infection study (n=36), HIV-positive (n=220) stepped care intervention study (n=220), and HIV-negative randomized four-arm intervention study (n=1500).

Lessons learned: To successfully identify and recruit youth at risk or living with HIV, the following five steps were applied:

1). Identify the underserved key vulnerable youth through key community based organizations (CBOs) serving the homeless, incarcerated, and lesbian, gay, bisexual, or transgender (LGBT) youth;

2). Examine the context and needs of youth (e.g., HIV testing, STI testing and referral, housing services, mental health service referrals, and substance abuse treatment referrals);

3). Utilize multiple engagement approaches (e.g., automated messaging, online peer support, in-person coaching);

4). Select and support the right implementation strategy (e.g., recruitment by CBO staff vs. recruitment by research team); and

5). Provide ongoing monitoring and iterative adjustment of recruitment strategies with CBO staff.

Conclusions/Next steps: To date, ATN CARES successfully recruited 11 youth with acute/treatment naïve recent HIV-infections, 49 HIV-positive youth, and 494 high-risk HIV-negative youth. Community engagement plays a vital, often lifesaving role for vulnerable youth, especially in contexts where support services are underutilized and hindered by many structural factors. The five steps outlined here can serve as a guide to effectively recruit and engage youth at risk or living with HIV.

WEPEC157

Navi*gay*te Brooklyn - using online outreach to connect Black and Latino men who have sex with men to PrEP/PEP services in New York City, USA

O. Anene, M. Montgomery MPH, E. Koffler MPH, L. Cambar

CAMBA Inc., HIV Prevention and Navigation Services, Brooklyn, United States

Background: In New York City, Brooklyn had the highest number of HIV diagnoses among the five boroughs in 2016. This may be attributed, in part, to cultural biases, misinformation, and poorer health-seeking behaviors associated with recently migrated, undocumented, and uninsured residents. HIV programs have focused efforts on the hardest to reach populations and have adopted novel outreach strategies, including using social media and dating apps. Funded by the New York City

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Department of Health, CAMBA's Navi*gayte* Brooklyn program aims to engage and connect men who have sex with men (MSM) to HIV prevention and care services, via traditional and non-traditional outreach.
Description: Navi*gayte* Brooklyn conducts in-person and online outreach to Black and Latino MSM, providing PrEP/PEP education, linkages to biomedical and behavioral interventions and supportive services. Community influencers are hired to conduct outreach on gay dating/hook up sites. Their profiles designate them as health educators who provide HIV and sexual health information. Through direct messaging, anonymous sexual health assessments are conducted, PrEP/PEP information is provided, and appointments are scheduled.
Lessons learned: Navi*gayte* Brooklyn has been successful at engaging clients via online outreach. From April to December 2017, 20 clients were enrolled into PrEP and PEP services; 16 (80%) were engaged from gay hook up applications. Often clients are seeking non-HIV related services, and HIV services are introduced after successful linkages to food pantry, immigration, or housing programs. Our anonymous assessments indicate MSM in Brooklyn have access to sexual health information, but experience barriers to accessing services, including fear of disclosing sexual behaviors and issues with navigating the healthcare system. Online outreach provides some anonymity, potentially reducing the fear and stigma of discussing sexual and social service needs and of seeking an LGBT health provider.
Conclusions/Next steps: Online outreach has great potential for engaging hard-to-reach populations, by providing information conveniently and privately through users' electronic devices or accounts. Interventions must include strategies to manage barriers in settings where services are available, but access might be low.

WEPEC158

Using social networking in reaching subpopulations of hard-to-reach men who have sex with men in Lagos, Nigeria

C.C. Ifekandu[1], D. Offie[1], E. Shoyemi[1], J. Njab[1], W. Tun[2]
[1]*Population Council, HIV Division, Abuja, Nigeria,* [2]*Population Council, HIV Division, New York, United States*

Background: Due to multiplicity of factors, especially with the introduction of the Same Sex Marriage Prohibition (SSMP) Act, key populations, especially men who have sex with men (MSM), no longer consider physical hotspots as safe spaces. Thus, innovative strategies are needed to reach these highly hard-to-reach MSM. The Elton John AIDS Foundation (EJAF) Project explores innovate ways of reaching MSM through partnership with MSM-friendly public and private healthcare facilities in order to increase HIV positivity yield, HIV testing service (HTS) coverage, and linkage to and retention in HIV treatment.
Methods: Thirty (30) focal persons drawn from various MSM networks in Lagos were trained on how to conduct HTS from October 2016 to May 2017. These persons had responsibilities of recruiting and enrolling MSM into care and treatment. Clients were recruited via the physical hotspots (e.g., bars/clubs) and social media platforms. A cross-sectional analysis of data collected of MSM reached with HTS by focal persons between May and July 2017 were used for this analysis.
Results: A total of 525 MSM were recruited for HIV testing, 32% of whom were recruited through social networking sites (e.g., Badoo, WhatsApp, Grindr, Facebook); the remaining were recruited at physical hotspots. The mean age was 21 years, and 22% had never been tested for HIV within the past 6 months. The positivity rate was 9.6% among all who tested; the positivity yield was 36% among those recruited through social networking sites and 5.4% among those recruited at hotspots. [WT1]
Those recruited through social network were more likely to have paid for sex within the past 6 months (34% versus 28%; p-value) and more likely to have had unprotected anal sex with casual sex partners in the last 3 months (67% versus 51%; p-value) compared to those recruited by other means. Retention in ART treatment was 92% for clients being tracked through social networking versus 64% through the physical approaches.
Conclusions: This analysis shows that risk behaviors are linked to network factors and that risk behaviors are clustered within networks. HIV interventions in Nigeria need to leverage social media for HIV prevention and treatment purposes.

WEPEC159

Finding the men: Lessons on using workplace-based structural interventions targeting uniformed personnel to meet the 90-90-90 targets

A. Watsemba[1], G. Luboobi[1], L. Ayebale[1], J. Hayuni[1], B. Wandera[2], A. Mitchell Le Few[3], R. M Flueckiger[3], M. Lopez[4], E. Tanga[2]
[1]*RTI International, USAID/Uganda HIV and Health Initiatives in Workplaces Activity, Kampala, Uganda,* [2]*World Vision Uganda, USAID/Uganda HIV and Health Initiatives in Workplaces Activity, Kampala, Uganda,* [3]*RTI International, Research Triangle Park, North Carolina, United States,* [4]*World Vision, Inc., Federal Way, WA, United States*

Background: The USAID/Uganda HIV and Health Initiatives in Workplaces Activity (HIWA) endeavors to reduce incidence of HIV among Uganda Police Force (UPF), the Uganda Wildlife Authority (UWA), private security guard (PSG), and hotel employees, and to improve quality of care for those infected and affected. Many of these workers are men deployed in hard-to-reach areas and thus have limited access to HIV services. USAID/HIWA aims to increase availability of, access to, and uptake of comprehensive, high-quality HIV services at the workplace to contribute to achievement of UNAIDS 90-90-90 targets.
Description: To achieve the first 90 target—90% diagnosed—HIWA supports workplace HIV policy development and dissemination, behavior change communication, and targeted workplace HIV testing services at times aligned to work schedules. To achieve the second 90 target of 90% of the diagnosed on antiretroviral therapy (ART), HIWA promotes enabling policies that link HIV-positive people to ART and encourage disclosure of HIV-positive status to supervisors to ensure time off to access HIV treatment. To achieve the third 90 target of 90% of those on ART achieving viral suppression, HIWA supports establishing workplace support groups for HIV-positive employees to encourage adherence to treatment, and a mobile health platform, with a 24-hour hotline.
Lessons learned: The contexts within sectors and workplaces are unique, so interventions must be adapted to the individual needs of the specific workplace. During the first two years, HIWA successfully implemented HIV initiatives in UPF, UWA, PSG, and hotel workplaces to increase access to quality HIV services and improve men's use of HIV services. HIWA identified 1,234 HIV-positive men among hard-to-reach populations and successfully linked them into HIV care and support. HIWA found success through adopting a participatory process where HIV workplace policies were developed with input from partners across sectors.
Conclusions/Next steps: Workplace structural interventions are essential to reach the UNAIDS 90-90-90 targets and strengthen sustainability, which is particularly important as external donor funding for HIV declines. In male-dominated workplaces, these interventions can effectively reach the men who have proven difficult to find in the community setting.

WEPEC160

Sabrang: Reaching the un-reached among MSM and transgender people through a mobile health application

N. Kumar[1], P. Dhall[2]
[1]*MAMTA - Health Institute for Mother and Child, Chronic Diseases, New Delhi, India,* [2]*Varta Trust, Leadership and Management of the Organisation, Kolkata, India*

Background: The national HIV response in India has no focussed online outreach programmes on information provision, stigma reduction, addressing discrimination and services access among MSM and transgender women (adolescents and young adults). The m-health intervention addresses this gap. It consists of Sabrang, an interactive learning mobile application with textual, video-graphical and gamified content on sexuality, gender identity, self-stigma, and STI/HIV/AIDS and legal rights. It includes features of GPS enabled health services and chat with community-friendly health professionals. The intervention is led by MAMTA in partnership with three community groups active in the National Capital Region of India.

Description: A mixed research methodology was undertaken to quantitatively and qualitatively measure the results of the intervention against key indicators among the application users. Cross sectional pre-post study, design with purposive and convenient sampling was used to select respondents among MSM and transgender women aged 15-24 years for the quantitative evaluation. Five focus group discussions with different sub-sections and age groups of the target audiences were conducted. Key informant interviews were conducted with three lead representatives of the partner organisations.
Lessons learned: Knowledge on mode of HIV transmission increased from 62.7% to 78.7% and HIV transmission myths decreased from 51.3% to 34.2%. Users reported receiving useful information on the risk of STI/HIV infection, STI/HIV prevention and treatment, HIV testing and counselling, gender identity, sexuality, self-stigma and legal rights. GPS enabled services access and chat facility were reported to be among most useful features. Around 78% of the users recommended the application to others emphasizing the privacy element of the application.
Conclusions/Next steps: Large sections of MSM and transgender women in India are believed to have moved on to digital media for social and sexual networking. But most sexual health interventions continue with physical outreach. Sabrang experience shows that online interventions with interactive and culturally sensitive content can successfully impact sexual health attitudes, knowledge and health-seeking behaviours, But they must address felt needs around stigma, gender transition and legal aid, avoid text heaviness, and gain the trust of the users around confidentiality concerns.

WEPEC161

Innovative approaches to advancing key populations programming in Ghana despite inauspicious environment

P. Ayamah[1], H. Nagai[2], C. Ohene-Adjei[1], A. K. Nyanor[2], R. Afriyie[1], R. Aperko Sackitey[1]
[1]Ghana AIDS Commission, Technical Services Division, Accra, Ghana, [2]JSI Care Continuum, Accra, Ghana

Background: Ghana, like many other African countries have laws that criminalise KP activities. Besides, the two major religions in Ghana, Christianity (71.2%) and Islam (17.6%) regard homosexuality and sex work as abominable. There exist traditions, cultural values and a vibrant media which are highly averse to KP lifestyles. In spite of these odds, KP interventions in Ghana are yielding remarkable results.
Description: The Ghana AIDS Commission (GAC) initiated a legal audit in 2010 in which a team of experts analysed anti-KP laws in Ghana to identify toeholds which could be leveraged to advance KP interventions. To ensure evidence-based KP programming, in 2011, the first Integrated Bio-Behavioral Surveillance Study (IBBSS) for MSM and FSW were conducted. In the same year, the KP Strategic Plan; and KP Standard Operating Procedures (undergoing revision) were developed. In 2014, the first PLHIV Stigma Index study was conducted. KP competent health workers were trained, deployed and drop-in centres have been established. Helpline Counsellors (HLCs) have been engaged to provide live telephone-based counselling to KPs (FSW & MSM). KP BCC materials were developed, (undergoing revision) and distributed with strict care. In 2016, a new GAC Act was passed which provides for non-discrimination against PLHIV and KPs. There exists a strong collaboration with law-enforcement agencies and the media.
Lessons learned: HIV prevalence among FSW plummeted from 11.1% in 2011 to 7% in 2015. The prevalence among MSM was 17.5% in 2011; current prevalence is to be determined through an ongoing IBBSS. Between April and September 2017, HLCs referred 1,100 KPs for HTS, 430 (39%) of whom tested positive for HIV. 340 (79%) of those who tested positive were initiated on ART. The outcome of the legal audit empowered a strong public health argument for making services available to KP. Effective collaboration with law enforcement agents and the media has resulted in humane enforcement of anti-KP laws and professional reportage.
Conclusions/Next steps: A multi-facetted approach to KP programming helps improve their access to services despite widespread prejudice. Second Ghana Men's Study, PrEP and HIV Self Testing acceptability study are currently underway - all in furtherance of KP programming and the national HIV response.

WEPEC162

Casting a broader net: Increasing HIV case-finding among key populations using performance-based incentives and social networks in Cote d'Ivoire

T. Lillie[1], D. Kamali[2], R. Prakash[3], J. Dje[2], N. Persaud[1]
[1]Family Health International 360, Washington, DC, United States, [2]Family Health International 360, Abidjan, Cote D'Ivoire, [3]Karnataka Health Promotion Trust (KHPT), Bengaluru, India

Background: Identifying people living with HIV, and linking them to treatment is critical to controlling the epidemic. USAID- and PEPFAR-supported and FHI 360-led LINKAGES/Cote d'Ivoire project implemented the enhanced peer outreach approach (EPOA) to expand the delivery of HIV services to female sex workers (FSWs) and men who have sex with men (MSM) to engage those not previously reached by the project. The EPOA used incentives and social networks to improve HIV case-finding.
Description: The EPOA was implemented among FSWs in 14 communes and MSM in eight communes over five weeks (JuneJuly 2017). Eighty-nine peer outreach workers (POWs) (73 FSWs, 16 MSM) were trained within three community-based organizations. Three hundred and fifty-six peer mobilizers (PMs) were selected, and each mobilizer was given four or more coupons to distribute. Each POW and PM received $1-3 USG per successful recruitment, HIV test, or link to treatment. Programmatic data were analyzed to review newly registered KPs, testing, HIV case-finding, treatment initiation, and social network dynamics.
Lessons learned: A total of 18,796 coupons (15,524, FSWs; 3,272, MSM) were distributed and 3,476 FSWs and 744 MSM (22.3%, FSWs; 22.7%, MSM) were reached and tested. Ninety percent of those tested were new to the program, and 92% of individuals were recruited through PMs. The average network size for FSWs was 7.4 and MSM was 28.3. FSW PMs recruited outside of their age group whereas MSM recruited within the same age group.
Of those tested, 194 (5.6%) FSWs and 110 (14.2%) MSM were newly diagnosed with HIV. Of those tested positive, 149 (77%) FSW and 95 (87%) MSM were successfully linked to ART. By comparison, 5,840 FSWs and 1,539 MSM were tested (62% and 67% of the total), but only 106 FSWs (1.81%) and 93 MSM (6.04%) were diagnosed HIV positive during traditional outreach. For both FSWs and MSM, HIV case-finding was significantly higher during EPOA than during routine outreach ($p < 0.01$).
Conclusions/Next steps: EPOA was successful in recruiting new KP individuals and increasing HIV case-finding. In future implementation, findings can be used to improve targeting to ensure that KPs receive testing and treatment services.

WEPEC163

Project moxie: A pilot-study of video counseling and home-based HIV testing for transgender youth

R. Stephenson[1], S. Sullivan[2], E. Riley[2]
[1]University of Michigan School of Nursing, Health Behavior and Biological Sciences, Ann Arbor, United States, [2]University of Michigan, Center for Sexuality and Health Disparities, Ann Arbor, United States

Background: Transgender youth experience some of the highest HIV rates in the United States, and experience a number of structural barriers that may limit their engagement in HIV testing, prevention and care. Telehealth may provide an opportunity for transgender youth to experience HIV testing in their own home. This project aims to examine whether the addition of counseling provided via telehealth coupled with home-based HIV testing can create gains in routine HIV testing among transgender youth.
Methods: Project Moxie involves a pilot randomized control trial (RCT) of 110 transgender- identified youth ages 15-24, who are randomized on to a 1:1 basis to a control or intervention arm.Participants are recruited online via social media from across the US. Participants in the control arm are sent a home HIV testing kit. Participants in the intervention arm receive a home HIV testing kit plus a video-chat counseling session with a remotely located counselor. The video-chat session provides pre and post prevention counseling and examines barriers to future HIV testing.

Motivational interviewing techniques are used to problem solve barriers to future HIV testing. The pilot study aimed to examine acceptability, willingness and safety of the intervention.
Results: 110 transgender youth aged 15-24 are enrolled, with study assessments at baseline, 3 and 6 months. Retention was high, over 90% at all study assessments. All participants ordered HIV testing kits and all were successfully delivered. Participants reported high levels of satisfaction (>95%) with the telehealth intervention, willingness to regularly repeat the intervention (92%) and willingness to recommend the intervention to others (91%). No dropped calls were experienced during the video-chat sessions. A small number of participants selected to have kits delivered to addresses other than their familial home, and conducted the video-chat sessions from other locations.
Conclusions: A low bandwidth, HIPPA compliant video-chat software offers a unique opportunity to provide counseling coupled with home-based HIV testing for transgender youth. Youth reacted favorably to the ease of the telehealth intervention. Telehealth may provide an opportunity not only to provide counseling for those testing at home, but to also provide the behavioral skills to encourage future participation in HIV prevention and care.

WEPEC164

What characteristics predict whether intervention participants successfully recruit previously undiagnosed HIV-positives from their risk networks?

L.D. Williams[1], A. Korobchuk[2], P. Smyrnov[2], G. Nikolopoulos[3], D. Paraskevis[4], J. Schneider[5], S.R. Friedman[1]
[1]National Development and Research Institutes, Institute for Infectious Disease Research, New York, United States, [2]Alliance for Public Health, Kyiv, Ukraine, [3]University of Cyprus, Medical School, Nicosia, Cyprus, [4]National and Kapodistrian University of Athens, Medical School - Department of Hygiene, Epidemiology, and Medical Statistics, Athens, Greece, [5]University of Chicago Medical School, Department of Medicine and Center for HIV Elimination, Chicago, United States

Background: Although case-finding interventions using social and risk networks show great promise for diagnosing the HIV-unaware and linking them to care (Smyrnov et al., in press), such interventions can be limited by the extent to which participants are willing and able to recruit their network members. Participant characteristics predicting successful recruitment of targeted network members, if identified, might be leveraged to modify or refine such interventions and improve their efficacy.
Methods: The TRIP project in Odessa, Ukraine recruited and tested 1271 (injection and sex) risk network members (79.2% male; 44.7% reporting injection) of 42 HIV-positive "seeds" (i.e., initial participants). Networks were recruited two "Steps" (i.e., network links) from each seed. 183 network members were newly diagnosed as HIV-positive (NDP) based on a combination of self-report and medical records. These NDPs were recruited by 75 participants (seeds and Step 1 network members). Exploratory bivariate logistic regression analyses were conducted predicting successful recruitment of an NDP from participant characteristics.
Results: Seeds and Step 1 network members were significantly more likely to recruit NDPs to TRIP if they reported injecting drugs (O.R.=2.51; p< .0001); were recently infected (O.R.=2.95; p=.001); or were themselves NDP (O.R.=2.25; p=.004).
HIV-positive participants overall were more likely than HIV-negative network members to recruit NDPs (O.R.=2.35; p=.001), but HIV-positive participants who were neither recently infected nor NDP were not significantly more likely than HIV-negative network members to recruit NDP.
Participants reporting exchange sex (O.R.=9.32; p=.07) and those who reported always using condoms (O.R.=1.81; p=.077) were marginally more likely to recruit NDPs. Homelessness, employment status, drug treatment participation, education level, number of sexual partners, syringe sharing, gender, and age were not significant predictors of NDP recruitment.
Participants who reported more HIV-related stigma, both in terms of personally experiencing stigmatizing events (O.R.=0.12; p=.022) and in terms of observing stigmatizing attitudes of friends and family (O.R.=0.36; p=.043), were less likely to recruit NDP.
Conclusions: Findings suggest that case-finding efforts should prioritize high-risk individuals (NDP, recently-infected, PWID, sex workers) and their networks for locating undiagnosed HIV-positives. Future work should test this in other settings and should develop on-site, pre-network-recruitment stigma-reducing interventions to address stigma's negative effects on recruiting.

WEPEC165

A pilot randomized, controlled trial of financial incentives and commitment contracts to promote HIV retesting among at-risk, HIV-uninfected adults in rural Uganda

G. Chamie[1], A. Ndyabakira[2], D. Emperador[1], K. Marson[1], M. Kamya[3], D. Havlir[1], D. Kwarisiima[4], H. Thirumurthy[5]
[1]University of California, San Francisco, San Francisco, United States, [2]Makerere University-University of California, San Francisco Research Collaboration, Mbarara, Uganda, [3]Makerere University College of Health Sciences, Kampala, Uganda, [4]Makerere University-University of California, San Francisco Research Collaboration, Kampala, Uganda, [5]University of Pennsylvania, Philadelphia, United States

Background: Retesting for HIV is critical to identify newly infected persons and reinforce prevention services among at-risk adults. The Uganda Ministry of Health recommends retesting key populations every three months. However, optimal strategies to promote retesting are unclear. We sought to test incentive strategies to promote retesting among at-risk, HIV-uninfected adults in rural Uganda.
Methods: We distributed recruitment cards at venues frequented by adults considered at-risk for HIV, including bars and transport hubs. Each card could be exchanged for a free, clinic-based health evaluation, with a cash incentive (~US$4) for one-time HIV testing. Adults who tested HIV-negative were offered enrollment in a randomized trial comparing incentives for retesting 2-3 months later. We randomized participants to three groups (1:1:3):
a) no incentive;
b) standard cash incentive (~US$4); and
c) commitment contract, in which participants could voluntarily make a deposit that would be returned with added interest (totaling ~US$4) upon retesting.
The contract group had low- and high-value deposit arms (~US$0.70 or $1.40). Outcomes included feasibility (i.e. % of contract group who made a deposit), HIV retesting, and HIV seroconversion.
Results: Of 164 recruitment cards distributed, 151 (92%) adults presented cards and tested for HIV. Median age was 31 years (IQR: 25-37), 112 (74%) were men, and 23 (15%) tested HIV-positive. Of 128 HIV-negative adults, 123 (96%) enrolled and were randomized: 74 (60%) to commitment contracts, 25 (20%) to standard incentives, and 24 (20%) to no incentive. Of contract participants, 93% made a deposit and 7% declined (**Table**). Participant characteristics and HIV retesting uptake are shown (**Table**). Overall, 76% retested: uptake was highest in the standard incentive group (88%) and lowest in high-value contract (69%) and no incentive (70%) groups. Among contract participants who made a deposit, retesting was 81% in low- and 76% in high-value groups. No seroconversions were observed.

	No Incentive (Control)	Standard Incentive	Commitment Contract: Low-value deposit	Commitment Contract: High-value deposit	Total
Number enrolled	24	25	38	36	123
Median age (IQR)	30 (28-36)	30 (25-37)	32 (25-37)	31 (25-35)	31 (25-37)
Male, n (%)	19 (79)	17 (68)	31 (82)	24 (67)	92 (75)
Married, n (%)	18 (75)	18 (72)	28 (74)	27 (75)	91 (74)
Self-reported earnings in 1 week in USD, median (IQR)	$14 (11-29)	$14 (9-23)	$14 (7-20)	$14 (6-20)	$14 (7-20)
Successful deposits, n (%)	N/A	N/A	36 (95)	33 (92)	69/74 (93)
Reported willing to deposit, n (%)	23 (96)	23 (92)	N/A	N/A	46/49 (94)
HIV Retesting Uptake	17 (70.8)	22 (88.0)	29 (76.3)	25 (69.4)	93 (75.6)

[Table. Characteristics and HIV retesting uptake of at-risk, HIV-uninfected adults enrolled in a randomized trial of incentive strategies to promote retesting]

Conclusions: In a pilot, randomized controlled trial of incentive strategies to promote HIV retesting among at-risk adults in Uganda, randomization to commitment contracts was feasible and had high acceptability (93%). Our findings suggest use of incentives for HIV retesting is feasible and merits further comparison in a larger trial.

WEPEC166

Can online interventions enhance HIV case finding and linkages to care? Comparing offline and online monitoring data from a combination prevention program with MSM and transgender women in Central Ameria

A.J. Cabrera Oliva, S. Lungo, C. Castellan, C. Palma
Pan American Social Marketing Organization, Guatemala City, Guatemala

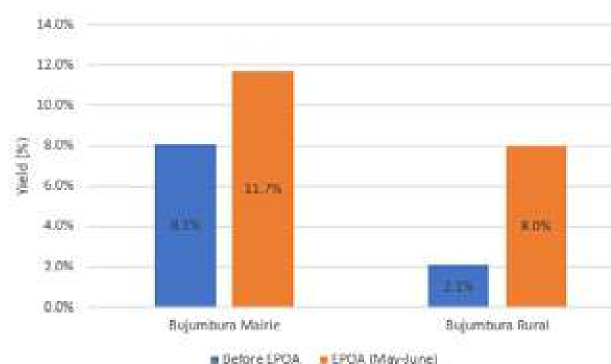
Background: Under the USAID Combination Prevention Program for HIV in Guatemala, El Salvador, Honduras and Panama, the Pan American Social Marketing Organization (PASMO) implements offline and online interventions to increase HIV testing services (HTS) uptake among at-risk MSM and transgender women (TW), and link reactive cases to care. Offline interventions use an adapted respondent driven sampling recruitment model with "recruiters" (peers who refer individuals in their social network), and "seeds" (reactive individuals who refer partners and others in their social network). Online recruitment is performed by PASMO "cyber-educators" trained to use social media platforms (i.e. Facebook and WhatsApp) to generate demand for and refer to HTS among at-risk MSM and TW with emphasis on "hidden" populations. HTS is performed by PASMO counselors, laboratory technicians, or private laboratories.
Methods: PASMO uses a Unique Identifier Code (UIC) to track program participants from initial engagement through entry of care. The UIC is assigned by the counselor performing HTS or the cyber-educator and the information is documented in print monitoring forms. Print or online vouchers are used to refer to HTS. On a monthly basis, PASMO enters the monitoring data into its management information system, allowing it to track the number of individuals reached, percentage of individuals who receive HTS, yield (number of reactive cases identified per number of tests), and percentage linked to care.
Results: From October 2016 to September 2017, PASMO reached a total of 10,343 MSM and TW across the four countries through offline interventions, of which 10,187 (98%) received HTS, 406 were reactive (yield of 1 of every 26), and 52% were linked to care. When comparing to those reached through online interventions alone, PASMO reached 6,219 individuals, of which 2,096 (34%) received HTC, 152 were reactive (yield of 1 of every 13 tests), and 64% were linked to care.
Conclusions: PASMO's offline and online strategies contribute to HIV case finding among MSM and TW in Central America. Although online interventions reach a smaller number of individuals and test a smaller percentage, a better yield is produced, and a greater proportion of individuals are linked to care, proving an effective intervention for concentrated epidemics.

WEPEC167

The domino effect: Tapping into female sex workers' social networks to increase demand and use of HIV services from previously unengaged women in Burundi

T. Lillie[1], D. Gashobotse[2], T. Niyongabo[2], D. Sakubu[2], G. Kamariza[2], V. Ranebennur[3], M. Hamdallah[1], N. Persaud[1]
[1]*Family Health International 360, Washington, DC, United States,* [2]*Family Health International 360, Bujumbura, Burundi,* [3]*Family Health International 360, New Delhi, India*

Background: HIV case finding is the cornerstone to treatment initiation yet many programs struggle to engage populations not already reached through existing services. The enhanced peer outreach approach (EPOA) complements traditional outreach by incorporating performance based incentives linked to program milestones and working through untapped social networks to engage unidentified, hard-to-reach, and high-risk key population (KP) members — including female sex workers (FSWs) — for HIV services. The goal is to increase HIV case finding, link HIV-positive KP members to treatment, and connect HIV-negative KP members with services that will help them remain negative.
Description: Through the USAID- and PEPFAR-funded LINKAGES project, EPOA was implemented for nine weeks in two districts in Burundi—Bujumbura Mairie and Bujumbura Rural. Seventy-five peer outreach workers (POW) were trained in EPOA through two community-based organizations and provided with four or more coupons for free HIV testing. They distributed the coupons to peers, and in turn asked their peers to distribute the coupons to other peers in each of their networks. If friends or acquaintances of those peers got tested for HIV, both the peer and POW received an in-kind incentive.
Lessons learned: In both districts, a total of 2,451 coupons were distributed. A total of 929 (37.9 percent) FSWs were tested, 100 (10.7 percent) were found positive, and 90 (90 percent) were initiated on treatment. The average HIV case-finding rate was 11 percent, compared to the 5 percent HIV case finding found in the three months before the introduction of EPOA. Compared to KPs tested during routine programming, those who were tested through EPOA were 2.5 times (95 percent CI: 1.97-3.25; $p < 0.01$) more likely to test HIV positive. There were no significant differences in HIV case-finding rates between Bujumbura Marie and Bujumbura Rural (11.7 percent [84/717] vs. 8.0 percent [16/212]; p=0.09). See Figure 1.



[Figure 1. Burundi, HIV-positive case finding before and after EPOA]

Conclusions/Next steps: The preliminary data demonstrate the potential effectiveness of EPOA in identifying HIV-positive KPs and initiating them on treatment. LINKAGES/Burundi is scaling up EPOA in the other provinces where it operates. More widespread implementation of EPOA with high-risk populations not currently engaged in HIV programs could accelerate progress towards the UNAIDS' 90-90-90 goals.

WEPEC168

Applying innovative methods to improve HIV testing uptake and case finding among men who have sex with men in Mali

S. Garangue Souko[1], T. Madani Moctar Saidou[2], A. Lambert[3], A. Ag Altini[1], E. Papworth[4], D. Bore[2], D. Mohamed Amadou[5], F. Sidibe[1], M. Hamdallah[3], E. Cooper[3], A. Dit Agali Wele[5], H. Rodriguez Sherman[3], S. Cisse[6], J. Bashi Bagendabanga[2]
[1]*SOUTOURA, Bamako, Mali,* [2]*FHI360, LINKAGES, Bamako, Mali,* [3]*FHI360, LINKAGES, Washingtown, United States,* [4]*4Avery Franklin Consulting llc, Atlanta, United States,* [5]*CSLS, Bamako, Mali,* [6]*USAID, Bamako, Mali*

Background: In Mali, the USAID- and PEPFAR-supported LINKAGES project provides HIV prevention, care, and treatment services to key populations (KP). Social stigma, discrimination, and violence against men who have sex with men (MSM) constitute major barriers to accessing services. Due to challenges reaching MSM during the first six months of the project, a reinforced MSM outreach approach was designed to increase use of HIV prevention services.
Description: In July 2017, the USAID and PEPFAR supported LINKAGES project, through the local NGO Soutoura, and in collaboration with the government, implemented an innovative outreach approach to reinforce the MSM program in four regions: Bamako, Kayes, Segou, and Sikasso.

The reinforced approach consisted of training in and implementation of: i) community-based programming integrating an MSM environment assessment; ii) HIV risk assessment; iii) sub-group MSM engagement; and iv) an peer networking approach. Aggregate monthly data of MSM reached and tested for HIV by age group and location were analyzed for the pre-intervention period (January-June 2017) and post-intervention period (July-December 2017). The younger sub-group was defined as MSM under 24 years. A chi-square test was used to compare the HIV case finding between periods.

Lessons learned: During the intervention period, the project experienced a 30% increase in MSM reached compared to the pre-intervention period, mainly due to increases reaching older MSM (135%). However, HIV screening in the two age groups was mixed; older MSM reached were less likely to be screened post-intervention while younger MSM were more likely to be screened post-intervention. Among those screened, HIV case finding increased from pre- to post-intervention (2% to 7%, p=0.001), with similar results across age groups.

Conclusions/Next steps: The increase in HIV case finding indicates that the reinforced outreach approach was effective at engaging MSM at higher risk for HIV. MSM sub-group engagement of older MSM was also successful, as was HIV testing for younger MSM. LINKAGES will continue to implement this approach in Mali, examine gaps, such as barriers to testing in older MSM, and find potential solutions. This approach may be feasible in other African countries where MSM experience stigma and discrimination.

		Intervention		
	Before	(Qpr period)	After	(Qpo period)
MSM screened for HIV	397/758	52%	577/983	59%
MSM HIV+*	8	2%	38	7%
Younger MSM screened for HIV	223/587	38%	393/581	68%
Older MSM screened for HIV	174/171	102%	184/402	46%
Younger MSM HIV+*	5	2%	26	7%
Older MSM HIV+*	3	2%	12	7%
*p<0.05				
Qpr period: January-June 2017	Qpo period: July-December 2017			

[Impact of MSM outreach intervention on HIV prevention, testing, and case finding among MSM in Mali]

WEPEC169

Quadrupling HIV case finding: Social media improves HIV testing and HIV case finding among key populations in Myanmar

K. Gustafson[1], M.M. Lwin[1], H. Ko Ko[1], T.N. Oo[1], R. Kelly[2]
[1]Population Services International (PSI) Myanmar, Yangon, Myanmar, [2]USAID Burma, Yangon, Myanmar

Background: At Population Services International's TOP clinics serving key populations, there was consistently high HIV yield among peers using social media. Myanmar experienced a digital technology leapfrog. From 2013 to 2017, the cost of SIM cards dropped from $1,000 to $1.50. By 2017, there were 14 million new social media users and 14 million new internet users in Myanmar -- 70% of whom accessed the internet through mobile phones. Sweeping policy changes and rapid introduction of smart phones presented an unprecedented opportunity to reach key populations in Myanmar.

Description: In January 2017, PSI invested in a dedicated social media team at TOP to responded to private messages (on Facebook, Line, Beetalk, GRINDR and Viber), fielded hotline calls and offered online referral vouchers, which allowed us to track each conversation from online messaging to arrival at the clinic. Patients show their online referral vouchers at registration at the clinic and are eligible to receive a $1 incentive. TOP also posted daily to its separate MSM-targeted and FSW-targeted Facebook pages, private Facebook groups, and Instagram account. TOP also supplied phones to peer outreach workers, enabling them to hold private outreach conversations through Viber, overcoming a common barrier for sex workers to learning about services.

Lessons learned: Before the social media team, yields from clients recruited through the Facebook page were high - 21% in Yangon - but total numbers of clients coming from the site were still low (121 tested, 26 HIV+). After establishing the social media team with support from USAID and PEPFAR, the total number of clients reporting to TOP centers for HIV testing quadrupled from 121 to 589. Yield remained high at 19%. Rates of ART enrollment among these clients (93%) were similar to the high rates among those reached through traditional outreach (90%). TOP clients often send in photographs of opportunistic infections by private message, suggesting there are still substantial numbers of PLHIV among Myanmar's hidden populations who have progressed to AIDS and are not on ART.

Conclusions/Next steps: Active engagement with social media for case finding has produced significant increases in HIV testing yields.

WEPEC170

The role of social media in sexual connectivity among men who have sex with men (MSM) in Kenya & South Africa: Potential for innovative online sexual health promotion interventions

A. Bourne[1], S. Tenza[2], A. Smith[3], J. Liku[4], K. Moodley[2], A. Tukai[4], R. Kabuti[4], E. Fearon[5], W. Nutland[5], P. Weatherburn[5], J. Kimani[4,6], T. Palenee-Phillips[2]
[1]La Trobe University, Australian Research Centre in Sex, Health & Society, Melbourne, Australia, [2]Wits Reproductive Health Institute, Johannesburg, South Africa, [3]University of Oxford, Nuffield Department of Population Health, Oxford, United Kingdom, [4]Partners for Health & Development, Nairobi, Kenya, [5]London School of Hygiene & Tropical Medicine, Department of Social & Environmental Health Research, London, United Kingdom, [6]University of Manitoba, Nairobi, Kenya

Background: MSM in both Kenya and South Africa are at significant risk for HIV, other STIs and mental ill-health. Social stigma and, in Kenya, political hostility, has created significant barriers to the provision of traditional health promotion interventions to MSM. With the rapid escalation of smartphone use across both countries, new avenues for intervention may exist. This study sought to understand the challenges and opportunities that online platforms present for health promotion with MSM.

Methods: Between June 2016 and July 2017, in-depth interviews were carried out with 60 MSM (aged 19-56) equally recruited via purposive sampling from Nairobi and Johannesburg. Semi-structured interviews examined if and how men used social media (including generic and gay-specific sites/apps) for online interaction with other MSM, including the mechanisms, benefits and challenges of use.

Results: Thirteen men were living with HIV and 31 had not tested within the previous 6 months. The majority (n=54) of participants across the age spectrum used social media on a regular basis to engage with other MSM, most frequently Facebook and WhatsApp groups. Both platforms were used for sexual facilitation purposes in manner less common in high-income settings, allowing for the exchange of sexual material, access to sex workers or clients, and the organisation of one-on-one/group sex. Although not risk free, social media platforms afforded a safer environment in which to meet other MSM, helping to build confidence in accessing MSM safe spaces in person (e.g. bars or community-based services) and enabled risk-management conversations ahead of time. Careful management of online identities was required so as not to inadvertently disclose sexual orientation or lose control of identifying images, such a profile photos.

Conclusions: Social and sexual media spaces provide an opportunity for MSM in Kenya and South Africa to meet, make friends and facilitate sex. There is significant scope for the delivery of HIV prevention and care interventions for MSM in these countries via social media. Promoting techniques for safer sexual connections in social media should therefore be prioritised. Sufficient resources should also be directed towards delivering and evaluating high quality online peer-based education and healthcare referrals.

WEPEC171

Assessment to determine reasons for repeat testing amongst key populations and the general population

O. Fajemisin
Society for Family Health, Research, Measurement and Results, Abuja, Nigeria

Background: The burden of HIV in Nigeria is high, especially amongst key populations (KPs). Nigeria seeks to identify at least 90% of the persons who are HIV positive these identified persons on treatment. The SFH supports this process amongst KPs and the general population. Analysis of the program data revealed a percentage of persons who identified as positive had known previously. This study aims to determine the factors leading to repeat testing amongst persons who knew their HIV status.
Methods: The assessment used mixed method approach. All data generated during programming in the year 2017 available at the time of the study was analyzed. Knowledge gained from the assessment of existing data was used to carry out guided interviews with the implementers in focal states.
Results: As many as 40% of PWID, 59% of FSW, 50% of MSM and 20% of the general population who tested positive for HIV previously knew their HIV status in the first semester of 2017. While this decreased slightly in the second semester of the year. It remained high. This was attributed to the fact that refusal to test for HIV by KPS can be looked on by their peers as evidence of the fact that they are known positives. Retesting was therefore a means to conceal a known HIV status. Beyond this, some were in denial and sought a second opinion. Others were checking to see if "miracle cures" (had occurred.
Mot all persons with a known status had commenced HIV care. Retesting, therefore, offered the opportunity to reach these persons who have yet commenced HIV care/ART or who were "lost to follow-up".
Conclusions: Effort must be made to ensure that all identified HIV positive KPs complete their referral within a week. Counselling and follow-up of persons who already know their status but are **not** on treatment should mirror to reflect that of those persons who are newly identified. Counsellor Testers may need further training to overcome these new issues emerging especially amongst key populations.

WEPEC172

PrEP-plus: An unanticipated outcome of a program for pre-exposure prophylaxis

W. Valenti[1], A. Zuppelli[1], M. Lecker[1], D. Hall[2]
[1]Trillium Health, Rochester, United States, [2]MOCHA Center, Rochester, United States

Background: Trillium Health (TH) is a community health center in Rochester, NY USA, a medium-sized city. Founded in response to the AIDS epidemic (1989), TH offers multidisciplinary primary/specialty care for HIV, HCV, STIs, and LGBTQ health.
Description: TH's PrEP program began in 2014 with print advertising/ marketing, and outreach at community events, bars/clubs in response to New York State's End the HIV Epidemic by 2020 inititiative (EtE), similar to global 90/90/90. 550 patients are enrolled. Staff includes 4 peer "PrEP specialists," and insurance navigator. An outreach specialist piloted „digital outreach" (DO) using smartphone "hookup" apps for MSM. Recently, TH merged with The MOCHA Centers for LGBTQ people of color where programs focus on linkage to care (PrEP, PEP, STI screening/ treatment, care management, and primary care (PC). A support group for transgender people of color has also linked people to care. PrEP-Plus includes a Clinical Pharmacist who sees patients, orders labs and medications to improve access. Nursing staff obtains STI screening specimens. Our in-house pharmacy offers 24/7 PEP.
Lessons learned:
1. PrEP is a gateway to primary care; 60% of PrEP patients receive PC with TH.
2. DO is 3 times more effective than physical outreach at linking people to care.
3. Support groups link people to care.
4. PrEP-Plus has identified acute HIV infection and established HIV infection candidates for Rapid Start Antiretrovirals (RSA).
5. Peer PrEP specialists (mean age 24) relate well to patients, perform rapid HIV testing, patient sexual history taking, identify barriers to care and, with supervision, screen for acute HIV infection and identify PEP candidates.
Conclusions/Next steps: PrEP-Plus is critical to EtE. PrEP programs can develop into "PrEP-Plus" and provide opportunities beyond traditional HIV prevention. We have used our experience to plan for both program and for PrEP target enrollment using an evidence-based ratio of 13 people taking PrEP to prevent 1 HIV infection. Planning includes extending DO to The MOCHA Center, a PrEP support group for people of color, aggressive care management services to ensure adherence to treatment and to address housing, transportation and other social determinants of health, and a standardized approach to RSA among all TH providers.

Innovative HIV testing strategies (peer-led testing, peer-mediated testing, self-testing with and without online/offline support, use of fourth generation and recency assays)

WEPEC173

Utilisation of HIV self-testing among rural gay and bisexual men and ethnic minorities in New Zealand

J.G. Rich, G. Agbozo, J. Beaumont, J. Myers
New Zealand AIDS Foundation, Auckland, New Zealand

Background: HIV transmission in New Zealand is concentrated among gay, bisexual, and men who have sex with men (GBM) and migrant communities. In 2016, GBM accounted for 89% of HIV notifications where infection was considered locally acquired. Past HIV prevention efforts have kept HIV prevalence, and incidence low in New Zealand, compared to other countries. Yet, the rise of new infections is indicative of the need for improved prevention strategies.
HIV self-testing (HST) was identified as a tool to address barriers to testing for typically hard to reach GBM, including indigenous Māori and other ethnic minorities, those in rural areas, and African migrants. An ongoing HST pilot project, consisting of 500 HST kits, seeks to study the utilization, acceptability, and pre and post test health seeking behaviours.
Description: The HST service was promoted to GBM through community events and social media. Individuals searching for the nearest HIV testing service on the NZAF website, are shown HST as an option.
Clients are asked to verify order details using a unique code via SMS. The shipped order contains an Oraquick Advance Rapid Test, printed instructions, educational materials, and links to an instructional video. During the order process an option is provided for additional telephone support. Two SMS reminders to report results are sent to clients. If no results are reported at 28-days after shipment, a peer educator attempts to contact the client.
Lessons learned: The uptake of the service among target groups, and HIV positivity rate, compared favourably with rapid HIV tests conducted in community settings.

	HIV self-test kits shipped by NZAF between 1 Dec 2017 and 31 Jan 2018 (n=126)	Rapid HIV tests completed at NZAF community centres 1 Oct - 21 Dec 2017 (n=1089)
% clients GBM	86%	83%
% GBM clients indigenous Māori	9.9%	4.5%
% GBM clients Pacific Islander	4.5%	2.3%
% clients African	7.1%	1.3%
% clients outside Auckland, Wellington or Christchurch	54%	1.4%
% GBM reporting non-recent testing (never or not in last 12 months)	90%	34%
# preliminary positive results	2 (both linked to care)	2 (1 linked to care)
Positivity rate (positives per 1000 tests)	15.9	1.8

[HIV self-testing service utilisation, compared with testing in community settings]

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Conclusions/Next steps: Thus far, HST is increasing utilisation of HIV testing among typically hard to reach GBM in New Zealand. Full results will be available by June 2018 with recommendations on whether to scale-up this strategy.

WEPEC174

Understanding who accepts and who is reached through secondary distribution of HIV self-tests in a cluster-randomised trial of door-to-door offer of HIVST nested in four HPTN071 (PopART) communities in Zambia

B. Hensen[1], A. Schaap[1,2], C. Mulubwa[2], K. Shanaube[2], S. Floyd[1], M. Phiri[2], V. Bond[1,2], B. Chiti[2], M. Simwinga[2], A. Mwinga[2], H. Ayles[1,2], on behalf of the HPTN 071 (PopART) Study Team
[1]*London School of Hygiene and Tropical Medicine, London, United Kingdom,* [2]*Zambart, Lusaka, Zambia*

Background: In sub-Saharan Africa, men are harder to reach with HIV-testing services (HTS) than women. HIV self-testing (HIVST) and secondary distribution of HIVST are strategies that may increase men's HTS uptake. Measuring HIVST outcomes through secondary distribution is challenging. In a cluster-randomised trial of door-to-door offer of HIVST as an option for HTS, lay counsellors also offered HIVST for secondary distribution to absent partners. We describe characteristics of individuals accepting HIVST for their partner and of individuals for whom a secondary distribution HIVST result was recorded.

Methods: This study was nested within a community-randomised trial of a universal test-and-treat intervention (HPTN071(PopART)). Sixty-six zones in four PopART communities were randomized to the HIVST intervention or PopART standard-of-care. In HIVST intervention clusters, lay counsellors offered individuals choosing to test the option of HIVST or finger-prick HIV-testing. Individuals aged ≥18-years whose partner was absent were offered HIVST for this partner. We describe characteristics of individuals accepting a secondary distribution HIVST and of the individuals for whom a secondary distribution HIVST result was recorded. In this abstract, data on use and results of secondary distribution HIVST are reported by the distributor.

Table. Characteristics of individuals accepting an HIVST for secondary distribution and those reported to have used a secondary distribution HIVST

Characteristics of index client who accepted HIVST for secondary distribution (N=822)			
		%	n
Sex	Male	10.6	87
	Female	89.4	735
Age	<30	53.5	440
	30+	46.5	382
Previously resident in the in same zone*	No	34.7	285
	Yes	65.3	537
HIV status as reported to lay counsellor	Never self-reported HIV+	97.9	805
	Ever self-reported HIV-positive	2.1	17
Accepted HTS among individuals eligible for HTS (not self-reported HIV-positive; n=805)	No	8.2	66
	Yes - finger prick only (no HIVST)	17.0	137
	Yes - HIVST (either supervised or unsupervised)	74.8	602
Characteristics of individuals for whom a secondary distibution HIVST result was reported (N=323)			
		%	n
Sex	Male	87.6	283
	Female	12.4	40
Age	<30	33.4	108
	30+	66.6	215
Previously resident in the community*	No	38.7	125
	Yes	61.3	198
Participation in previous rounds (round 1 (R1); round 2 (R2)) of PopART service delivery	Resident in R1 and R2 of PopART, but did not consent to participate in R1 or R2	8.7	28
	Resident in R2 (but not R1) of PopART, but did not consent to participate in R2	14.9	48
	Participated in PopART in R1 and/or R2, and self-reported HIV+ status	1.6	5
	Participated in R1 and/or R2 of PopART, and tested HIV-negative with lay counsellor	26.0	84
	Participated in R1 and/or R2 of PopART, but declined HIV testing offer from lay counsellor	10.2	33
	Was not resident in the zone in R2, or aged ≤15 at the time of R2	38.7	125
Result of HIVST as reported by partner (distributor of HIVST)	Non-reactive	93.5	302
	Reactive	6.5	21

* PopART delivers services in rounds of service delivery, the current study is a third round of service delivery. Before this third round, there were rounds 1 and 2 of service delivery

[Characteristics of individuals accepting an HIVST for secondary distribution and those reported to have used a secondary distribution HIVST]

Results: In HIVST clusters, 9.0% (n=822) of 9,105 individuals aged ≥18-years seen by lay counsellors accepted a secondary distribution HIVST (Table). 89.4% (n=735/822) were female and 2.1% (n=17/822) self-reported their HIV-positive status. Half (n=401/822; 48.8%) reported that their partner used the distributed HIVST. Among the 3,105 individuals absent at a first household visit, results of secondary distribution HIVST were recorded for 10.4% (n=323); 87.6% (n=283/323) were male, 66.6% (n=215/323) were aged ≥30. 38.7% (n=125) had not previously been seen in the PopART intervention as they had only recently become resident, 8.7% (n=28) were resident but had not previously participated in PopART; 10.2% (n=33) previously declined an offer of HTS.

Conclusions: In this trial, relatively few HIVST were distributed for secondary use. About half of secondary distribution HIVST were reportedly unused by study end-date. Secondary distribution reached men, and individuals who previously declined to participate in PopART or an offer of HTS. Targeted secondary distribution of HIVST could be considered in settings where men are harder-to-reach with HTS.

WEPEC175

More than just a testing service: Evolution of a peer-led rapid HIV and STI testing service in response to shifting community needs

D. Leitinger[1,2], K. Ryan[2,3], P. Locke[1], K. Burgess[1], A. Pedrana[2,3,4], M. Stoové[2,3]
[1]*Victorian AIDS Council, Services, Melbourne, Australia,* [2]*Burnet Institute, Disease Elimination, Melbourne, Australia,* [3]*Monash University, School of Public Health and Preventive Medicine, Melbourne, Australia,* [4]*Harvard T.H. Chan School of Public Health, Department of Nutrition, Cambridge, United States*

Background: PRONTO! opened in August 2013 as Australia's first shop-front and peer-led community-based rapid HIV testing service for gay, bisexual and other men who have sex with men (GBM) in the context of a resurgent HIV epidemic driven by undiagnosed infection. While initially offering standalone peer-delivered HIV testing to overcome structural and stigma-related barriers to frequent testing, broader aims emerged in response to community needs. These included creating a safe space supporting entry into regular sexual health testing and knowledge transfer, particularly for younger GBM, providing comprehensive STI testing, becoming a major part of PrEP expansion and supporting the creation of a dedicated gender diverse health service.

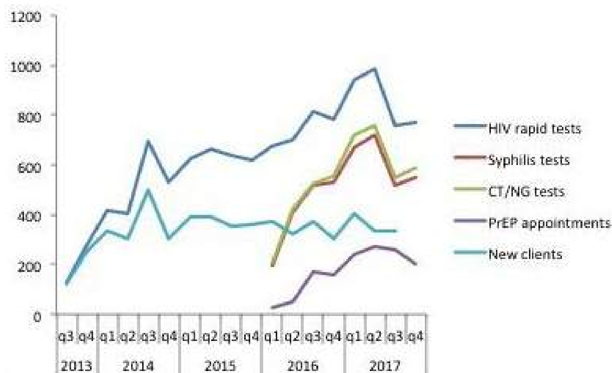
Description: PRONTO!'s evolution is detailed in Table 1 and service utilisation summarised in Figure 1. Developments were informed and supported by a mixed-methods evaluation and a governance structure including local government (responsible for funding), evaluators, reference laboratory experts, peak community HIV organisations and all major local GBM-focussed sexual health services.

Lessons learned: While the original service model's convenient, comfortable and engaging peer environment appeared to overcome barriers to frequent testing, standalone HIV testing contributed to suboptimal return HIV testing rates and missed opportunities to detect STIs. Service expansion was required to respond to client needs for comprehensive sexual health care, demand for new biomedical intervention approaches and improve reach to gender and geographically diverse populations while preserving the valued peer relationship. Outcomes of service changes included significantly increased return testing after introducing STI testing and SMS reminders, the PrEP clinic rapidly reaching capacity and strong uptake of outreach services.

Conclusions/Next steps: Cooperative partnerships between government, evaluators, health service providers and community organisations enabled PRONTO! to respond to shifting community needs and prevention priorities. While a lack of government subsidy for rapid HIV tests (unlike conventional serology) has limited their rollout in Australia, the PRONTO! experience demonstrates their capacity to facilitate community-engaged and responsive models of care. Further directions include meeting rising demand for PrEP and addressing persistent financial, social and geographical barriers to frequent testing for rural populations and migrants ineligible for free STI testing through Australia's universal healthcare system.

Date	Service introduced
August 2013	PRONTO! opens offering rapid HIV testing only, funded for two years
July 2014	PRONTO! outreach in gay social and sex on premises venues begins
January 2015	PRONTO! pop-up testing at LGBTIQ festivals begins
February 2015	PRONTO! rapid HIV testing trial within an existing primary care clinic begins
May 2015	Additional four years of funding announced
February 2016	STI testing (syphilis, chlamydia, gonorrhoea) and parallel HIV serology begins; SMS reminders introduced; Co-location with a gender diverse health clinic PrEP clinic opens
August 2017	Dedicated peer-delivered STI and rapid HIV testing for gender diverse clients begins
December 2017	Satellite PRONTO! clinic opens in a regional centre

[Table 1: timeline of service evolution at PRONTO!]



[Figure 1: service utilisation at PRONTO!, August 2013-December 2017 (new client data only to September 2017)]

WEPEC176

HIV testing strategies in Europe

S. Desai[1], L. Tavoschi[2], L. Combs[3], S.F. Jakobsen[3], A. Sullivan[4], D. Raben[5], V. Delpech[1], S. Croxford[1]
[1]Public Health England, London, United Kingdom, [2]European Centre for Disease Prevention and Control, Stockholm, Sweden, [3]CHIP, Centre of Excellence for Health, Immunity and Infections, Rigshospitalet, Copenhagen, Denmark, [4]4. Chelsea and Westminster Hospital NHS Foundation Trust, London, United Kingdom, [5]CHIP, Centre of Excellence for Health, Immunity and Infections, Rigshospitalet, Department of Infectious Diseases, Copenhagen, Denmark

Background: In recent years, new technologies and approaches to the implementation of HIV testing have emerged. The objective of this systematic review was to critically appraise and synthesise recent evidence on strategies/approaches aimed at increasing the uptake of HIV testing in Europe.

Methods: Systematic searches were run in Medline, Embase, PsycINFO, Cochrane and Scopus including studies published between January 2010 and March 2017. Abstracts from relevant conferences (2014-2017) were also reviewed. Title and abstract screening was used to select studies presenting strategies to improve HIV testing. Study selection, data extraction and critical appraisal were performed by two independent reviewers. Outcomes of interest included uptake and positivity.

Results: The searches resulted in 368 studies; over half were from Northern Europe (55%) and many of the remainder from Spain and France. A number of approaches to improve HIV testing were identified: HIV testing implementation (n=156), audits to identify gaps in testing (n=80), education interventions (n=16), campaigns (n=16), economic evaluations (n=13), communication technologies (n=8) and clinical and decision making tools (n=8). Testing implementation included 63 studies targeting risk groups (10-99% tested for HIV), 18 self-testing/sampling (10-78%), 18 emergency departments (3-66%) and 28 primary care (4-94%); 70 utilised rapid testing (4-98%) and 13 focussed on indicator condition testing (4-91%). Audits revealed between 22-64% of patients with indicator conditions were not tested for HIV at an earlier attendance. Only 28 studies presented before and after intervention data with testing rates 4-72% before and 12-85% after. Education interventions focussed on medical staff/students (n=14) and inpatients (n=3). The majority of campaigns promoted national/European HIV testing week (n=10). Innovative use of technology to increase HIV testing included: use of social media to offer testing (n=1), active testing recall via text message (n=1), educational videos for testing offer (n=2), computer testing prompts (n=1), automatic test ordering (n=2) and risk assessing (n=4).

Conclusions: This review has identified several promising strategies to achieve high HIV test uptake across a variety of settings in Europe. However, there are considerable missed opportunities for earlier HIV diagnosis. Few interventions reported before/after data, preventing evaluation of improvement in test coverage and very few studies were from Eastern Europe.

WEPEC177

Increased HIV case finding rate among MSM and TG in Laos from a community-led HIV oral fluids screening project

K. Sayabounthavong[1], V.-A. Souriyo[2], S. Mills[3], P. Girault[3], R. Vannakit[4]
[1]Lao Center for HIV/AIDS and STI, Vientiane, Lao People's Democratic Republic, [2]Lao Positive Health Association, Vientiane, Lao People's Democratic Republic, [3]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [4]United States Agency for International Development Regional Development Asia, Bangkok, Thailand

Background: HIV prevalence among men who have sex with men (MSM) in Laos has been estimated to 1.6% in 2014 while for transgender (TG) this prevalence was around 3.1% in 2012. Based on the regional epidemiological context, particularly in neighboring countries, the HIV prevalence among MSM and TG remain low.

Furthermore, HIV testing services are only provided in governmental structures, mainly health facilities, where stigma and discrimination is still impeding the access to services for these populations.

Methods: The USAID LINKAGES Project in collaboration with the Lao Center for HIV/AIDS and STI and LaoPHA, a local community-based organization, developed a community-based peer-driven HIV oral fluids screening (test-for-triage) project since September 2016 in three provinces bordering with Thailand. On-to-offline outreach activities were initiated during the last two quarters of 2017. Monitoring data were collected in real time using a mobile data collection application.

Results: The positivity rate using all reactive results (n=46) during September-December 2017 reached almost 6%. As depicted in Figure 1, there was a steady increase of MSM and TG screened reactive under test-for-triage from October 2015 to December 2017. During the last quarter of 2017, positivity rate significantly varied across key populations (p-value = 0.016) and was higher among MSW and TGSW: 18 (4.5%) out of 398 MSM screened; 3 (2.4%) out of 126 TG tested; 20 (9.7%) out of 206 MSW tested; and 5 (8.2%) TGSW tested (Fisher exact: 0.016). Those recruited through social media were more likely to be screened reactive when meeting offline.

Out of the total recruited and screened through on-to-offline (n =55), 8 (14.5%) were screened reactive, and all of them accessed HTC services for HIV confirmatory testing; while out of the total recruited and screened through face-to-face recruitment (n=736), 38 (5.2%) screened reactive (p-value = 0.004) and 36 (95%) accessed HTC services.

[Figure 1. Calendar Quarter]

Conclusions: It is critical that CBSs are encouraged to recruit more peers, as it seems a promising strategy contributing to the increase case finding. Program data will be compared with the last IBBS recently conducted in December 2017. Profile of individuals screened reactive versus non-reactive will be assessed to further target outreach.

WEPEC178

Improving access to HIV testing services among clients of FSWs: Experiences of the LINKAGES project in Zomba and Machinga, Malawi

W. Mtonga Kamphale[1], D. Kanthunzi[2], B. Nkhoma Somba[3], P. Mkukumira[1], M. Mkandawire[4], B. Sabao[5], M. Mkandawire[6]
[1]Youth Net and Counseling (YONECO), Programs, Lilongwe, Malawi, [2]Youth Net and Counseling (YONECO), M & E, Zomba, Malawi, [3]Youth Net and Counseling (YONECO), Media, Zomba, Malawi, [4]Youth Net and Counseling, Adminstration, Zomba, Malawi, [5]Youth Net and Counseling (YONECO), Programs, Zomba, Malawi, [6]FHI 360, Programs, Lilongwe, Malawi

Background: In Malawi, HIV prevalence among clients of female sex workers is 16.2% compared to the national prevalence of 8.8%. Clients are regarded as a priority population because they are vulnerable to HIV infection and transmission due to their interaction with female sex workers (FSWs) and other risk behaviors, like not using condoms. Though clients are typically difficult to identify and reach with comprehensive HIV services, we were successfully able to reach them through peer outreach in the Zomba and Machinga districts of Malawi through the PEPFAR/USAID-supported LINKAGES project.
Description: The LINKAGES project held focus group discussions with FSWs to identify categories of clients. We then conducted additional focus group discussions with 112 of the identified clients (who were bicycle, minibus and taxi operators; minibus touts; fishermen; and truck drivers) to explore their service needs. The project trained 50 peer educators among clients of FSWs to reach out to their peers with a wide range of comprehensive HIV messages. The project also trained 50 peer navigators among HIV-positive clients of FSWs to reach out to their HIV-positive peers with treatment adherence messages. Day and moonlight outreach services were provided on weekly basis to the clients within hot spots, at times that were convenient to them.
Lessons learned: Between January and September 2017, a total of 6,187 clients were reached with HIV prevention, care, and treatment interventions; 5,059 tested for HIV and received results, of whom 284 (6%) tested HIV positive and were all initiated on treatment. There were 5,023 clients screened for STIs, and 249 (5%) of them were diagnosed and treated. We also did repeat HIV testing at 3 months, and of the 248 people who were tested this time, only one seroconverted (0.4%).
Conclusions/Next steps: · We successfully identified a hard-to-reach group and provided them with comprehensive HIV prevention, care, and links to treatment.
· A seroconversion rate of 0.4% among repeat testers, which is similar to national incidence, will serve as a bench mark against which continuing prevention efforts can be evaluated.

[HIV services Cascade for clients of FSWs]

WEPEC179

Enhancing HIV testing coverage through peer-driven recruitment models among transgender women in Pattaya

P. Potasin[1], T. Nakpor[1], K. Krajan[1], M. Avery[2], S. Mills[2], S. Charoenying[2], A. Arunmanakul[2], R. Vannakit[3]
[1]Sisters Foundation, Pattaya, Thailand, [2]LINKAGES/Thailand, FHI 360, Bangkok, Thailand, [3]United States Agency for International Development Regional Development Asia, Bangkok, Thailand

Background: Transgender individuals (specifically transgender women and transgender sex workers) are at elevated risk of HIV infection due to stigma and discrimination against their gender and illegal status of work. Although HIV testing is key to achieving epidemic control, only a limited number of transgender people know their serostatus. The USAID- and PEPFAR-supported LINKAGES project in Thailand introduced the Enhanced Peer Mobilization (EPM) model to improve access to high-risk transgender women and transgender sex workers and strengthen HIV testing uptake among these groups.
Description: The EPM model was adopted by Sisters Foundation, a transgender-led organization in Pattaya that provides quality and non-discriminatory comprehensive health services to transgender women. Under the EPM, a small team of full-time and trained Community-Based Supporters (CBS) was responsible for managing an informal network of incentivized Peer Mobilizers (PMs) to recruit peers from their social networks to receive an HIV testing Data on risk behaviors and referral were collected real-time on smartphones with a reminder system to inform CBS to monitor referral to an HIV testing service.
Lessons learned: The introduction of EPM by Sisters led to greater reach in the transgender community as well as increased uptake of testing among transgender women. Prior to the introduction of EPM, between October 2015 and September 2016, Sisters reached 945 transgender women and transgender sex workers and tested 387 trans individuals. Among those tested, 38 were diagnosed HIV positive. During October 2016-September 2017, the number of transgender people reached increased significantly to 1,549. The HIV testing rate doubled, compared to the previous year, to 783 individuals, 52 of which tested positive. The contribution of engaging PMs in cabaret theatres accounted for 25% (n=189) of clients tested and 37% (n=19) of the HIV case finding.
Conclusions/Next steps: The EPM recruitment strategy leveraging transgender social networks improved access to those at elevated risk of HIV infection and uptake of HIV testing among transgender individuals. Sisters will continue to work with existing networks of key opinion transgender leaders as well as to scale up recruitment of transgender peer mobilizers in different contexts, especially factories and educational institutions.

WEPEC180

Who is using the HIV Self-test among Black/African-American MSM and transgender women in New York City? Baseline results from project TRUST

V. Frye[1,2], L. Wilton[3], M.Q. Paige[2], D. Lucy[2], G. Ortiz[2], V. Nandi[2], B. Koblin[2]
[1]City University of New York School of Medicine, Community Health and Social Medicine, New York, United States, [2]New York Blood Center, New York, United States, [3]Binghamton University, Binghamton, United States

Background: Increasing consistent HIV testing is critical to the United States' HIV prevention strategy, particularly among Black/African-American gay/bisexual and other men who have sex with men (MSM) and transgender women (TW). HIV self-testing may increase consistent testing.
Methods: We analyzed baseline survey data from 347 MSM and TW enrolled in 2016/17 in "TRUST," a randomized controlled trial of a dyadic (friend pairs) intervention to increase consistent HIV self-testing among young (mean age = 23.7 [sd=4.8]) MSM and TW. We describe frequency, motivations, contexts and characteristics of HIV self-testing in the sample.

Results: The majority (87%) had HIV tested in their lifetimes; 50% in the last three months. 54% knew about the HIV self-test and 13% had self-tested in their lifetimes; 3% in the last 3 months. There were no statistically significant differences in age, race/ethnicity, US-birth, sexual identity, or socioeconomic status between those who had and had not ever self-tested. Of those who had ever self-tested, most (64%) had only used it once; 18 reported that their most recent test was a self-test. Almost a quarter (23%) got the self-test from a drug store; 23% from a friend; 20% on-line. A third (34%) received the test from a health professional or test counselor. Two-thirds did the self-test at home; 16% at a friend/sex partner's home. The majority tested themselves, although 16% reported having a friend or sex partner test them and 2 reported being tested by their mothers. Approximately half conducted the test alone, with the remainder having friends, counselors or mothers present. The most common reason for self-testing was wanting to do it themselves (34%); having one available (29%); wanting to do it in private (27%); and easier than going to clinic (20%).
Conclusions: HIV self-testing offers another option for those at risk of infection. These results suggest that, among at-risk Black/African-American MSM and TW, there is significant room for increased uptake of self-testing. Further, those who are self-testing are not typically self-testing alone and are motivated by a desire for privacy, control and easy access. Dissemination should integrate these findings into efforts to promote self-testing to increase consistent testing among at-risk populations.

WEPEC181

Development and application of a social entrepreneurship testing model to promote HIV self-testing among men who have sex with men

F. Zhong[1], W. Cheng[1], W. Tang[2], H. Xu[1], G. Meng[3], P. Lin[4], Y. Gu[1]
[1]Guangzhou Municipal Center for Disease Control and Prevention, Section of AIDS Control and Prevention, Guangzhou, China, [2]University of North Carolina, Chapel Hill, United States, [3]Lingnan Partners Community Support Center, Guangzhou, China, [4]Guangdong Center for Disease Control and Prevention, Guangzhou, China

Background: HIV self-testing (HIVST) offers an opportunity to increase HIV testing among people not reached by facility-based services. However, the promotion of HIVST is limited as a consequence of insufficient community engagement. We built a social entrepreneurship testing (SET) model to reach more hidden people and promote HIVST linkage to care among Chinese men who have sex with men (MSM).
Description: The SET model includes a few key online steps. Each participant paid a US$23 (refundable) deposit to receive a kit for HIVST and syphilis self-testing. The test results were sent to the platform by the participants and interpreted by the Community based organizations (CBO). Meanwhile, the deposit was returned to each participant. The CBO can provide online counselling services in any step anytime. For participant who was HIV-positive, the CBO provided referring to confirmation testing in Center for Disease Control and Prevention, psychological supporting, and linkage to care.
Lessons learned: During the evaluation phase of April-June 2015, 198 MSM in Guangzhou purchased self-testing kits. Most of them were aged from 18 to 34 years (84.4%) and met partners online (93.1%). 123 (62.2%) of them had more than 2 male partners in the last 6 months. In addition, 27.8% of participants had never been tested for HIV before. Overall, feedback was received from 192 participants (97.0%) and the HIV prevalence was 4.5% (8/178). All of the screened HIV-positive individuals sought further confirmation testing and were linked to care. Therefore, the SET model of HIVST is feasible and acceptable. In the promotion phase of 2016 and 2017, 1696 and 1740 HIVST kits were purchased in Guangzhou, the percentages of feedback were 82.0% and 85.5%, and the HIV prevalences were 2.0% (28/1391) and 2.1% (31/1487) respectively. Furthermore, the SET model was also promoted successfully in other cities or counties in Guangdong and Shanxi province, delivering about 700 kits and receiving feedback from more than 80% of participants in 2017.
Conclusions/Next steps: Using an online SET model to promote HIV self-testing among Chinese MSM is promising and effective. This model can be utilized well in many cities and adds a new testing platform to the current testing service system.

WEPEC182

Results from a randomized controlled trial of an intervention to match young Black men and transwomen who have sex with men or transwomen to HIV testing options (All About Me)

B. Koblin[1], V. Nandi[2], S. Hirshfield[3], M.A. Chiasson[3], L. Wilton[4], D. Usher[1], D.R. Hoover[5], V. Frye[1,6]
[1]New York Blood Center, Project ACHIEVE, New York, United States, [2]New York Blood Center, New York, United States, [3]Public Health Solutions, New York, United States, [4]Binghamton University, Binghamton, United States, [5]Rutgers University, Department of Statistics, Piscataway, United States, [6]City College of New York, CUNY, New York, United States

Background: HIV testing is critical to HIV prevention and treatment. In the U.S., it is recommended that high-risk individuals test every 3-6 months. Among Black/African-American MSM, who are disproportionately affected by HIV, there is a critical need to increase consistent HIV testing. Current testing options include self-testing, couples HIV test-counseling (CHTC), and clinic-based testing, though few efficacious HIV testing interventions exist for young Black MSM and transwomen. "All About Me" was developed as a brief, web/mobile-based intervention that provided a personalized recommendation for an individual's "optimal" HIV testing method, hypothesized to increase HIV testing.
Methods: From 2016-2017, 236 Black/African-American, HIV-negative (self-report), sexually active (past 12-month insertive/receptive anal intercourse with a man/transwoman), aged 16-29, MSM or transwomen living in the New York City area were randomized to one of two conditions (1:1 in randomly ordered age blocks). Participants in the experimental condition completed an algorithm, based on behaviors and personal characteristics found to be associated with HIV testing option preferences, yielding the personalized recommendation. Controls were given information about various testing approaches, but no recommendation. Analysis of outcomes, self-reported testing over 6 months of follow-up, was conducted on an intent-to-treat basis.
Results: Self-reported HIV testing during the 6-month follow-up period increased from 62.4% to 84.6% ($p< 0.001$), but did not differ by study arm (experimental: 67.9% to 85.3%; control: 57.1% to 83.9%) ($p=0.85$). Use of the HIV self-test did not differ by study arm at 3- or 6-month time points (3-month: experimental: 12.0%; control: 12.7%; $p=0.88$; 6-month: experimental: 8.6%; control: 4.9%; $p=0.30$).
Use of CHTC did not differ by study arm during follow-up (3-month: experimental: 10.2%; control: 8.2%; $p=0.61$; 6-month: experimental: 10.8%; control: 5.9%; $p=0.22$). Among intervention participants, 19.5% reported using their recommended testing method at 3-months and 16.1% at 6-months.
Conclusions: Increasing consistent HIV testing among high-risk groups is a National HIV/AIDS Strategy priority. Although testing among study participants increased by 20%, receiving a personalized recommendation did not impact HIV testing rates. It may be that engaging in a study about HIV testing motivated participants to increase HIV testing regardless of study arm, obscuring the impact of the algorithm.

WEPEC183

Profile and motivations of people who are using the HIV self-test: Results from the "VIH: Teste-Toi Toi-même" study in France

K. Champenois[1], V. Coquelin[2], V. Supervie[3], D. Rahib-Kersaudy[4], N. Lydié[4], A. Velter[4], J. Ghosn[5], T. Greacen[1]
[1]EPS Maison Blanche, Laboratoire de Recherche, Paris, France, [2]AIDES, Pantin, France, [3]Inserm UMR1136, Paris, France, [4]Santé Publique France, Saint-Denis, France, [5]AP-HP Hôpital Hôtel-Dieu, Paris, France

Background: HIV self-tests (HIVST) are expected to increase the uptake and frequency of HIV testing, particularly for key populations. One year after the HIVST received approval for sale in France, are people from vulnerable populations actually using HIVST?
Methods: An online survey was launched in October 2016 with the objective of describing the profile and motivations of people interested in or having already used the HIVST. Participants were recruited via ads on

Facebook, dating aps and websites, and community networks, with a particular focus on social media for two key communities in France: men who have sex with men (MSM) and migrants from Sub-Saharan Africa.

Results: Of the 4554 respondents who completed the survey, 355 (8%) declared having already used an HIVST. A total of 308 (87%) were MSM; 21 (6%) were women. People who had used the self-test were more likely to live in the Paris area (35% vs. 25% in the overall sample), to have a university diploma (62% vs. 49%), to be currently employed (77% vs. 61%) and to have a monthly income over 1600€ (59% vs. 42%). All MSM (100%) and 93% of non-MSM had had sexual intercourses in the preceding year with a median of 10 partners for MSM versus 3 for non-MSM. Non-MSM were more likely to have a steady partner than MSM (68% vs 53%), but less likely to use a condom with casual partners (13% vs 28% stated always wearing a condom).

Participants gave three main reasons for having used an HIVST: rapidity accessing results (74%), autonomy (60%) and convenience (57%). One in four (27%) had used an HIVST more than once. All participants who had used an HIVST declared having already done an HIV test during their lifetime and 83% had been tested in the preceding year. However, of the three respondents who declared receiving a positive result, only one had sought confirmation for this test result.

Conclusions: The present survey targeting vulnerable populations highlights rapidity accessing results, autonomy and convenience as key motivations for self-testing. However the question of linkage to care remains open and clearly requires further investigation.

WEPEC184

Online self-testing service yields yearly growth, high user satisfaction, stable STI positivity rates and lower HIV rates among MSM in the Netherlands

K. Vermey[1], H. Götz[2,3,4], M. Kroone[5], U. Davidovich[5], W. Zuilhof[1]
[1]Aidsfonds - Soa Aids Nederland, Amsterdam, Netherlands, [2]Municipal Public Health Service Rotterdam-Rijnmond, Rotterdam, Netherlands, [3]National Institute for Public Health and the Environment, Bilthoven, Netherlands, [4]University Medical Center Rotterdam, Rotterdam, Netherlands, [5]GGD Amsterdam, Amsterdam, Netherlands

Background: In the Netherlands, men who have sex with men (MSM) are at elevated risk for HIV and other STIs. To enable early diagnosis and treatment, MSM are recommended to test twice a year. To facilitate regular STI screening of MSM who are asymptomatic and did not receive partner notification, Dutch public health organisations (PHOs) piloted Man tot Man Testlab, a free online self-testing service in 2008. Ten years after its first implementation, Testlab has become a structural component of PHOs' testing services across the Netherlands.

Description: Testlab is embedded in a comprehensive online resource for MSM (Man tot Man) that provides pre- and post-test information and tailored advice about sexual risk. Users register online and answer questions about their sexual history. Eligible users receive a testing form for a nearby diagnostic laboratory. Here users get tested for HIV, syphilis, gonorrhoea and chlamydia without scheduling an appointment. PHOs communicate the results online and refer positive cases to their STI clinic for free treatment and counselling.

Lessons learned: Between 2008-2017, the number of consultations grew from approximately 530 to more than 7.000 per year. Despite this growth the overall STI positivity rate remained high around 14%, while HIV rates dropped to 0.5%. Over time, the amount of users ever tested for HIV before increased to 93% while median age decreased to 33 years. Testlab primarily reached higher educated, younger MSM at considerable risk for bacterial STIs. One in four reported an STI diagnosis in the previous year. An online survey among users showed high satisfaction and recurrent use of the service; 88% would choose Testlab for their next STI test. Two out of three were tested via Testlab in the past six months, meeting national recommendations for regular testing.

Conclusions/Next steps: Continuously reaching MSM at high risk for STIs, Man tot Man Testlab has been successfully implemented since 2008, achieving yearly growth, high STI positivity rates and good user satisfaction. In the coming years, the need and opportunities for online self-testing are expected to grow further as MSM, especially those taking PrEP, will be advised to be tested up to four instead of two times a year.

WEPEC185

Experiences with use of oral HIV self-testing (HIVST) among men who have sex with men (MSM) and linkage to care: Translating evidence to programmatic strategies for HIVST scale-up in Nigeria

O.O. Dirisu[1], W. Tun[2], A. Sekoni[3], L. Vu[2], E. Shoyemi[1], J. Njab[1], S. Ogunsola[3], S. Adebajo[1]
[1]Population Council, Abuja, Nigeria, [2]Population Council, Washington DC, United States, [3]University of Lagos, Lagos, Nigeria

Background: HIV self-testing (HIVST) offers an alternative to facility-based HIV testing services, particularly for highly stigmatized populations such as men who have sex with men (MSM). HIVST facilitates privacy, confidentiality, and convenience. Lessons learned from user experiences are invaluable in developing programmatic strategies for scale-up of HIVST programs and facilitating linkage to care.

Methods: MSM aged 17-59 years (N=319) who were HIV-negative or of unknown status were recruited by peer educators for a pilot HIVST distribution intervention study in Lagos, Nigeria. Participants completed a baseline survey and received two HIVST kits. A helpline counselor followed-up with calls at 5/30/80 days from baseline to provide support. After three months, a post-intervention survey (N=257), in-depth interviews with 20 MSM purposively selected from the cohort and two focus group discussions (with 12 peer educators) were conducted to explore MSM self-testing experience, operational aspects of HIVST kit distribution, and linkage to HIV care. Interviews were audio-recorded, transcribed verbatim and analyzed using thematic analysis. We report the post-intervention qualitative findings here.

Results: Qualitative results indicated that majority of participants were very satisfied with their use of the test kit because it made HIV testing less cumbersome, demystified the testing process, and improved confidentiality. Most participants found the pictorial illustrations to be self-explanatory and easy to follow. There was consensus among participants that a 24/7 helpline was a critical resource for addressing concerns with the kit use, receiving counselling and guidance on linkage to care for those who test positive. Most who reported using the helpline did so to receive confidential, non-judgmental advice from the counselor about the next steps to take, and those who tested positive found the guidance for linkage to care extremely valuable. Some participants, however, reported that inclusion of pre-counselling information on the HIVST kit would help reassure MSM who are prone to self-harm prior to testing.

Conclusions: Lessons learned from user experiences in this study show that the scale-up of HIVST in Nigeria must include provision of adequate pre-and post- test counselling information as well as the availability of helpline support to improve user experience and linkage to care for those who test positive.

WEPEC186

Willingness to use HIV self-testing: Results from the Malawi Population-based HIV Impact Assessment (MPHIA) 2015-16

J.M. Cuervo Rojas[1], E. Radin[1], S. Saito[1], S. Delgado[1], S. Jonnalagadda[2], D. Payne[3], E. Kim[3], M. Tsoka[4], M. Nzima[5], T. Kalua[6], A. Auld[3], MPHIA Study Group
[1]ICAP at Columbia University, New York, United States, [2]Centers for Disease Control and Prevention (CDC), Atlanta, United States, [3]Centers for Disease Control and Prevention (CDC), Lilongwe, Malawi, [4]Centre for Social Research University of Malawi, Zomba, Malawi, [5]UNAIDS Malawi, Lilongwe, Malawi, [6]Malawi Ministry of Health, Lilongwe, Malawi

Background: HIV self-testing (HIVST) is an innovative strategy recommended by the World Health Organization (WHO) to increase HIV testing coverage. National estimates of its acceptability are lacking in Malawi.

Methods: MPHIA was a nationally representative survey with a stratified cluster sample design, in which 11,386 households and 19,652 adults aged 15-64 were interviewed. HIV testing was performed in consenting participants. This analysis excludes respondents who tested HIV positive and were aware of their status, and presents weighted estimates of the percentage of the population that would use an HIV self-test kit if it were

available. Analysis weights account for sampling selection probabilities and adjust for nonresponse and noncoverage. Logistic regression was used to determine factors associated with the willingness to perform self-testing.

Results: Among 17,799 eligible respondents aged 15-64 years, 72% (95% CI 71%,73%) indicated that they would use HIVST. The willingness to use HIVST was significantly higher among males (76%, 95%CI 75%,77%) than among females (68%, 95%CI 67%,69%). Among females, age, education, socioeconomic status, and HIV testing history were independently associated with the willingness to use self-testing; while among males, only education, and testing history were independently associated (Table). The willingness to use self-testing was significantly lower among females aged 15-24 and 45-64 than among those aged 25-44 years, among males and females who had never tested for HIV in comparison with those who ever tested, and among those whose HIV status was unknown for the survey (did not consent to testing). Among females but not among males, those in the two highest wealth quintiles in comparison with those in the three lowest, and those HIV-positive who were unaware of their status in comparison with the HIV-negative were more willing to use HIVST.

Conclusions: In Malawi, the willingness to perform HIVST is high, especially among two priority populations: males and those HIV-positive unaware of their status. This represents an opportunity to increase testing coverage in a country where the major gap for the achievement of the UNAIDS 90-90-90 targets is in diagnosis, with 27% of those infected unaware of their status, and low testing frequency in the general population.

		Females				Males		
Characteristic		Percentage who would use an HIV self-test kit if available in the country % (95% CI)	Number of observations	Adjusted Odds Ratio aOR (95% CI)		Percentage who would use an HIV self-test kit if available in the country % (95% CI)	Number of observations	Adjusted Odds Ratio aOR (95% CI)
Residence	Rural......... Urban	65 (64,67) 79 (76,81)	6415...... 3641	Ref 1.17 (0.99,1.37)		75 (74,77) 80 (78,81)	4808........ 2935	Ref 1.02 (0.86,1.21)
Education	No education or Primary Secondary or more than secondary	63 (62,65) 83 (81,85)	7024..... 3027	Ref 2.39 (2.07,2.76)		72 (70,74) 83 (82,85)	4532........ 3209	Ref 1.84 (1.59,2.13)
Marital Status	Ever married Never married	68 (67,70) 66 (63,68)	7883..... 2164	Ref 0.93 (0.77,1.13)		78 (77,80) 73 (71,75)	4769........ 2963	Ref 0.88 (0.72,1.08)
Wealth Quintile	Lowest / Second/ Middle Fourth / Highest	61 (60,63) 76 (74,77)	4362..... 5694	Ref 1.53 (1.38,1.70)		74 (72,75) 79 (77,80)	3184......... 4559	Ref 1.14 (0.98,1.33)
Age (years)	15-24......... 25-44......... 45-64	65 (63,67) 73 (71,74) 61(58,64)	3970..... 4595..... 1491	0.76 (0.67,0.86) Ref--- 0.73 (0.64,0.84)		73 (71,75) 79 (77,81) 77 (74,79)	3037......... 3427......... 1279	0.85 (0.68,1.06) Ref 0.99 (0.83,1.20)
HIV Testing History	Ever tested Never tested	70 (69,72) 58 (55,61)	8369..... 1682	Ref 0.62 (0.54,0.72)		80 (78,81) 70 (67,72)	5049......... 2689	Ref 0.66 (0.57,0.76)
HIV Status (as tested by the survey) and HIV+ awareness (based on self-report and ARV detection)	HIV-positive unaware of status.......... HIV-negative Unknown HIV status	81 (75,86) 69 (68,71) 57 (53,60)	289....... 8398..... 1369	1.69 (1.15,2.49) Ref 0.55 (0.47,0.65)		79 (71,86) 77 (76,79) 68 (64,71)	200.......... 6477......... 1066	1.07 (0.66,1.71) Ref 0.56 (0.47,0.67)
*Adults 15-64 who based on testing performed by the survey were HIV-negative, HIV-positive unaware of their status, and with unknown HIV status (i.e. did not consent to the testing).								

[Table. Willingness to use HIVST among adults aged 15-64. Weighted percentages and Adjusted Odds Ratios by selected demographic characteristics. Malaw]*

WEPEC187

"If you don't have the courage to go get a test, you won't have the courage to go for treatment": Consumer perspectives on the introduction of HIVST in Central America

J. Wheeler[1], I. Fortin[2], N. Gallardo[2], P. Letona[2], S. Lungo[2]
[1]PSI, Washington, United States, [2]PASMO, Guatemala, Guatemala

Background: The introduction HIV self-testing (HIVST) could overcome stigma-related barriers to HIV testing among Central America's vulnerable populations. The Pan American Social Marketing Organization, through the USAID Combination Prevention Program in Central America, explored knowledge and acceptability of HIVST among vulnerable populations in four studies. This analysis summarizes HIVST knowledge and intentions among men who have sex with men (MSM), online MSM and female sex workers (FSW), and describes factors that may support or hinder the success of HIVST introduction in Central America.

Methods: The results presented come from four 2017 research studies: population-based RDS/time location studies among 1922 MSM and 617 FSW in three Honduran cities; an online study among a convenience sample of 622 MSM residing in Guatemala, El Salvador, Honduras, Nicaragua and Panama; and an ethnographic study among 50 NGO-affiliated MSM and TW (Transgender Women) in Guatemala. Univariate and bivariate statistics are presented for quantitative indicators. Qualitative data was analyzed thematically. Results were validated through a consultative focus group with the target population.

Results: Twenty percent of MSM and FSW, and one-third of TW had heard of HIVST in Honduras, despite their unavailability. After a brief description, >90% of respondents agreed that they would take and HIVST if presented the opportunity. Key reasons for not accepting one included not trusting the test (36%-40%) and preferring to receive services at a clinic (18%-20%). Results from the qualitative study highlight that there is limited exposure to HIVST, but strong feelings (favorable and unfavorable) regarding the introduction of HIVST in the MSM/TW community. Some view HIVST as a means to increase the frequency, regularity, access and privacy of HIV testing. While other MSM/TW NGO/community leaders suggested that, absent counseling, HIVST could lead to risk behaviors and potential violence. Participants also expressed confusion and doubts regarding HIVST and operationalizing linkages to care and access to medications.

Conclusions: While there is little knowledge of the HIVST in the region, vulnerable populations have favorable intentions toward accepting HIVST. These results are consistent with studies in other contexts. Successful introduction of HIVST will require engagement and buy-in of civil society groups.

WEPEC188

The role of youth champions in linkage of adolescents and youth from the community for HIV testing services

M. Buwembo[1], A. Kabarambi[2]
[1]Protecting Families Against HIV/AIDS, Masaka, Uganda, [2]MRC/UVRI and LSHTM Research Unit, Entebbe, Uganda

Background: At national level, young people find challenges accessing HIV testing services at health facilities because they do not fit in or even fear stigmatization from their parents and health workers. Others do not know where to get youth friendly services. We describe how youth champions played a key role in linking up their peers to youth friendly centres for HIV testing services in Kalungu district.

Methods: PREFA with support from UKAID set up youth friendly centres in 12 health facilities in Kalungu District run by 24 health workers trained in handling youth as they come for services including HIV counselling and testing.

24 active youth who could ably mobilize and sensitize their peers were selected by the health facility management committee and trained by PREFA in counselling and mobilization skills. These are called youth champions whose main role is to go to the community targeting 40 households per month to identify peers eligible for HIV testing. Linkage was done using carbonated referral notes. The youth champion retained

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a copy of this note which had locator details of the referred person. Follow up at the facility was made to check whether those referred reached. In case they did not reach, a home visit was made after a week to establish reasons for not reaching the referral point. Those from far were referred to the nearest outreach station attached to the youth friendly center.
Results: Between October 2016 and September 2017, 11520 households were reached, 4366 youths were referred to the 12 health facilities. The biggest number of youth referred was 1653 in 10-14 years' category.
2656 were tested for HIV and given results 45 were linked to care 4321 were linked to HIV prevention services. The biggest number of youth tested was 1127 in 20-24 years' category.
Youth champions play a great role in reaching out to peers and linking them to the designated youth friendly centers to get services. Documentation of referrals helps to track linkage completion.
Conclusions: Having youth reach out to their peers and training health workers reduces stigma associated with HIV testing among the youth.

WEPEC189

Integrating voluntary referral from HIV-positive people into a risk-network engagement approach to improve case detection and linkages from outreach in India

P. Mugundu Ramien[1], R. Bandi[2], J.R. Nagadasu[2], N.M. K[2], D. Damara[2], A.K. Reddy[1], M. Mathew[1], G. Shreenivas[1], B. George[1], J.J. Baishya[3]
[1]FHI 360, LINKAGES Project, New Delhi, India, [2]FHI 360, LINKAGES Project, Vijayawada, India, [3]USAID India, Project Management Specialist (HIV/AIDS), New Delhi, India

Background: In India, key population (KP) outreach is associated with relatively low HIV case-finding rates, despite surveillance estimates of high HIV prevalence among KPs. In response, the USAID- and PEPFAR-supported LINKAGES/India project, led by FHI 360, introduced the enhanced peer outreach approach (EPOA). The EPOA adapts respondent-driven sampling from surveillance to improve the capacity of outreach to engage KPs at highest risk of HIV and link them to services. To further optimize this approach, we explored opportunities to extend the EPOA with voluntary partner referrals from identified HIV-positive individuals.
Methods: From July to October 2017, we conducted the EPOA, targeting men who have sex with men (MSM) and transgender (TG) women not covered by the national KP intervention program in four subdistricts of Andhra Pradesh, India. Primary seeds were encouraged to serve as peer mobilizers (PMs), referring peers within their social or sexual networks to nearby HIV testing services. Clients who were successfully referred to HIV testing were then asked if they would serve as PMs and were provided four coupons with unique identifying codes to refer their peers. In November and December 2017, we supplemented the EPOA with an index-based HIV testing approach, by offering HIV-positive clients voluntary assisted partner notification in a manner consistent with World Health Organization guidelines.
Results: The distribution of 648 EPOA coupons through 12 primary PM seeds and 150 secondary PMs resulted in 353 successful referrals (54.5%) to HIV testing. Of these 353 participants (286 MSM and 67 TG women), 67 (18.9%) were confirmed HIV positive. Over time, the clients reached through the EPOA declined from 160 (July) to 43 (October). However, 28 HIV-positive index clients identified were counselled to provide voluntary referrals of their partners for HIV testing; they successfully referred 44 additional clients (38 MSM and 6 TG women) and 13 (29.5%) of whom were diagnosed HIV positive. Ninety-two percent of all newly identified cases were linked to HIV treatment services to date.
Conclusions: Augmenting the EPOA with HIV index-based referral approaches has contributed to additional HIV case detection among KPs, and underscores the dividends of innovating to combine and integrate prevention approaches.

WEPEC190

Improving voluntary HIV testing in low and middle income countries (LMIC): A report from a field experiment in Ecuador

M. Macis[1], M. Grunauer[2], R. Izurieta[3], P. Phan[1], M. Reina Ortiz[3], E. Terán[2]
[1]Johns Hopkins University, Carey Business School, Baltimore, United States, [2]Universidad San Francisco de Quito, Escuela de Medicina, Quito, Ecuador, [3]University of South Florida, College of Public Health, Tampa, United States

Background: HIV/AIDS prevention and control relies heavily upon timely diagnosis and treatment. UNAIDS has set the 90-90-90 target by 2020 (i.e. 90% of PLHIV know their status, 90% of those diagnosed will be under treatment, and 90% under treatment will achieve viral suppression). HIV/AIDS under-detection may stretch scarce public health resources in LMIC. We conducted a field experiment in a LMIC to test the hypothesis that a financial incentive intervention, compared to an information-only or to a behavioral nudge, will significantly increase voluntary HIV testing.
Methods: A randomized controlled trial was conducted in a large Ecuadorian city that carries a disproportionate burden of HIV/AIDS from June to December 2017. Consented participants were randomly assigned to one of three arms: 1) control arm where participants received information on HIV testing; 2) soft-commitment (behavioral nudge) arm, where participants received a narrative to overcome social stigma and activate the sense of social responsibility; and, 3) financial incentive arm where participants were offered a US$10 reward received either at time of testing or when they picked up their test results. Participants were recruited from three heavily trafficked public sites around the city. Socio-demographic information was captured using a self-administered survey. The identities of the participants were masked. Outcomes included testing rate and HIV seropositivity rate. Chi-square tests were used to compare rates across treatment arms.
Results: 7,721 participants were approached and 1,321 got tested. Randomization was effective and no systematic biases were identified. Socio-demographic variables (age, ethnicity, education and previously tested for HIV) did not differ between treatment arms ($p>0.05$). Testing rate was 12.2%, 11.3% and 33.5% for control, behavioral nudge and financial incentive treatment arms, respectively ($p< 0.05$). HIV seropositivity rate was 1.2% for participants in both control and behavioral nudge arm and 1.5% for financially incentivized participants ($p>0.05$). These were individuals that would have gone undetected but for the intervention.
Conclusions: Our preliminary results indicate that financial incentives provided at the time of outreach can overcome the psychosocial barriers of voluntary HIV/AIDS testing. The subsequent detection of new HIV/AIDS cases support infection control with early intervention, limit economic costs, and improve surveillance accuracy.

WEPEC191

Towards 90-90-90: Findings from innovative peer driven outreach approach for rapid HIV case detection among people who inject drugs in Kyrgyzstan

A. Moldokmatova[1], D. Saliev[1], M. Kan[2], A. Estebesova[1], O. Samoilova[2]
[1]Populations Services International/Central Asian Branch, Bishkek, Kyrgyzstan, [2]Populations Services International/Central Asian Branch, Almaty, Kazakhstan

Background: The HIV epidemic in Kyrgyzstan is mainly concentrated among people who inject drugs (PWID). The last size estimation was 25,000 PWID (2014). Nearly 50% of those infected with HIV do not know their status, making clear the need for innovative case finding strategies as peer driven outreach (PDO) in addition to traditional prevention. PDO is based on chain recruitment within the target groups.
Methods: The paper attempts to explore the effectiveness of PDO in case finding in Kyrgyzstan. Routine data collected through MIS online database is analyzed in STATA 13.0, including descriptive and explorative (multivariate) analysis.
Results: During 4 months' period, 5,349 PWID were recruited and tested through PDO and 106 HIV+ cases were found (23% of all cases in the country for the same period). Recruitment continued for an average of

5 waves (Range: 0-15). The majority of clients were male (80.9%), from urban areas (58.6%) and aged 25-49 years old (82.4%).
The majority of HIV+ cases (71.7%) were identified at waves 2-6, and no cases were detected after wave 12. Clusters with HIV+ seeds were on average shorter than those with HIV- seeds (4 vs. 5 waves, p< 0.05) and had fewer PWID tested (538 vs. 4,811, p< 0.01). However, the odds of having an HIV+ test result were higher in clusters with HIV+ seeds (OR=1.89, 95% CI: 1.13-3.17). Further, the yield among clients recruited by HIV+ PWID was significantly higher compared to those reached through HIV- PWID (5.0% vs. 1.8%, p< 0.001) though most of HIV cases were found through HIV-PWID (89 of the total 106 cases). Yield was highest in the first wave of recruitment by an HIV+ client, and decreased as waves continued (9.1% in 1st wave, 2.5% in 2nd wave).
Conclusions: The PDO approach is effective in quick reaching a high number of PWID with HIV testing or HIV prevention activities. Case detection can be increased through recruitment of effective HIV+ seeds and controlling the length of negative waves in clusters. Training or education for better recruitment of partners and other support to seeds can increase their effectiveness.

WEPEC192

OptTEST programme interventions for Indicator Condition HIV testing are effective in significantly increasing HIV testing rates in non-specialist healthcare settings across Europe

A. Sullivan[1], C. Rae[1], I. Sperle[2], S. Jakobsen[2], J.D. Kowalska[3], R. Lugo Colon[4], L. Lemsalu[5], M.J. Perez Elias[6], A. Vassilenko[7], N. Badridze[8], V. Sikolova[9], G. Kutsyna[10], M. Rayment[1], D. Raben[2], J. Lundgren[2], OptTEST for HIV in Europe
[1]Chelsea and Westminster Hospital NHS Foundation Trust, London, United Kingdom, [2]Rigshospitalet, University of Copenhagen, CHIP, Copenhagen, Denmark, [3]Hospital for Infectious Diseases, Warsaw, Poland, [4]CEEISCAT, Barcelona, Spain, [5]National Institute for Health Development, Tallinn, Estonia, [6]Hospital Ramon y Cajal, Madrid, Spain, [7]Belarusian State Medical University, Minsk, Belarus, [8]AIDS and Clinical Immunology Research Centre, Tbilisi, Georgia, [9]National Institute of Public Health, Prague, Czech Republic, [10]Hospital Rubejnoe, Rubejnoe, Ukraine

Background: OptTEST, an EU co-funded project, aimed to improve HIV detection and linkage to care across Europe. Part of this programme was to improve HIV Indicator Condition (IC) testing (HICT) by introducing a clinic policy, utilising implementation tools and delivering quality improvement (QI) interventions.
Methods: From Jan 2015, an HICT policy was introduced for up to 3 ICs (Pneumonia, Hepatitis B and C, Infectious Mononucleosis-like syndrome (IM)) in different clinical settings (primary care, emergency department, Acute Medical Unit, Specialist OPD) in 10 pilot countries. Baseline retrospective audits (offer and number of tests/total presenting with IC) were performed. Programme data collection included IC, age, HIV status, test offer, test performed, test result and transfer to care details (including CD4 cell count and treatment initiation). Implementation tools included a strategic pack (slide set, guideline review protocol, financial calculator), interactive service design module, staff training module and resource pack. Plan-do-study-act interventions were designed and implemented by local study teams and monitored using run charts.
Results: To the end of July 2017 43 sites had begun testing in 8 countries. Of the 9661 HIV tests performed 97 were positive: 1.00% [95%CI 0.82-1.22]. Offer (where data was available) and testing rates all increased significantly, overall: 48.12% [46.24-50.00] to 93.1% [92.5-93.58] and 39.82% [38.10-41.57] to 90.8% [90.27 - 91.37] respectively, both p< 0.05 . Uptake of offer was above 90% for all ICs at baseline (range 90.03 - 91.58%) and increased significantly for all except IM (range 92.10 - 99%). Of those patients testing positive, data is currently available for 95, of whom 74 (78%) transferred to care, with a median CD4 count of 345 cells/ul (range 2-1304); 53% were late presenters.
Conclusions: Introduction of HICT policy, supported by implementation tools and QI increased HIV testing offer rate by 81% and testing rate by 128%; this approach is an effective way to increase HIV testing and identify cases of undiagnosed HIV in non-specialist healthcare settings.

	BEFORE		OptTEST		
INDICATOR CONDITION	HIV +ve (num/denom)	% [95%CI]	HIV +ve (num/denom)	% [95%CI]	p
Hepatitis	20/662	3.02 1.91-4.55	23/7053	0.33 0.21-0.48	<0.05
Pneumonia	11/322	3.41 1.81-5.56	36/1558	2.31 1.65-3.15	NS
IM	17/310	5.48 3.34-8.46	38/1050	3.62 2.61-4.88	NS
TOTAL	48/1294	3.70 2.78-4.85	97/9661	1.00 0.82-1.22	<0.05

[HIV prevalence: baseline and during OptTEST]

WEPEC193

Developing a voluntary partner referral strategy for HIV testing among key populations: A pilot program in the Dominican Republic

C. Barrington[1], J. Knight[2], H. Gomez[2], M. Perez[2], Y. Donastorg[2], D. Kerrigan[3,4]
[1]University of North Carolina at Chapel Hill Gillings School of Global Public Health, Health Behavior, Durham, United States, [2]Instituto Dermatalogico y Cirugia de Piel Dr. Huberto Bogaert Diaz, Unidad de Vacuna e Investigacion, Santo Domingo, Dominican Republic, [3]American University, Department of Sociology, Washington DC, United States, [4]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States

Background: Partner notification strategies are a hallmark of sexually transmitted infection prevention/control programs. There is renewed interest in such approaches to increase HIV testing yield and early diagnosis. We previously piloted partner referral with female sex workers living with HIV in the Dominican Republic (DR) and their steady partners and found high levels of acceptability, unmet need for HIV testing, and yield.
Description: Our team, under the USAID/PEPFAR-supported and FHI 360-led LINKAGES Project, reviewed peer-reviewed and grey literatures and consulted with local key informants to develop a voluntary partner referral (VPR) strategy in the DR including:
1) a manual for passive and active referral modalities;
2) participatory training on implementing VPR and strengthening cultural competency for working with diverse types of partners and; and
3) protocol and tools for documenting implementation and outcomes data.
Lessons learned: The first lesson was the need to shift away from "partner notification", which emphasizes the act of informing a partner, to "partner referral", which focuses on the act of supporting a partner to test. We also included "voluntary" to emphasize the importance of both voluntary referrals among index patients (IPs) as well as voluntary uptake among partners. From August to December 2017, across four clinics, 76 IPs were offered VPR. Among IPs,10 identified as MSM and one as transgender; six reported active involvement in sex work. Sixty-eight (89%) accepted participation and identified 69 partners for referral, mostly steady partners (70%). Forty-three (62%) partners came for HIV testing, 42 (98%) were tested, and 17 (45%) were newly diagnosed. All newly diagnosed partners initiated treatment. The most common modality of referral was passive/patient-initiated (83%). Implementation has required continuous training. The time burden has created challenges to wider use of VPR in participating clinics.
Conclusions/Next steps: Based on the initial findings documenting acceptability and yield, we are training seven new NGO and governmental HIV clinics. We will continue to monitor acceptability and outcomes and conduct qualitative interviews with providers, IPs, and referred partners on their experiences with VPR. Future scale-up should consider the cost and value-added of each VPR modality and how to tailor VPR to different partner types.

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Utilizing a network model in HIV case-finding among people who inject drugs (PWID) in Northeast India

P. Goswami[1], B. George[1], S. Mathew[1], A. Singh[2], K. Ditya[1], N. Bakshi[1], R. Khiangte[1], T. Jamir[1], N. Roshan[1]
[1]FHI 360, India, New Delhi, India, [2]FHI 360, Project Sunrise, New Delhi, India

Background: Success in achieving the UNAIDS 90-90-90 target largely depends on reaching the first 90, i.e. 90% of people living with HIV know their HIV status. It is critical to reach out to individuals who have not yet been tested for HIV. It is also challenging to reach and test people who inject drugs (PWID), especially in remote locations in Northeast India.
Description: Project Sunrise, funded by President's Emergency Plan for AIDS Relief (PEPFAR) and implemented in Northeast states, initiated HIV case-finding through the network of known HIV-positive PWID. Known HIV-positive PWID within the government-supported targeted interventions (TIs) were selected and approached by outreach workers to refer spouses and individuals from their injecting and sexual networks who had not yet been reached by the TI. The outreach workers of the TI contacted the referred clients, counseled them, and accompanied them for HIV testing. The project has completed two periods of this chain referral process and will continue for several more months until there is no more HIV case detection.
Lessons learned: During October and November 2017 we identified 383 injecting partners through 237 index PWIDs. Of these 383, 238 injecting partners were contacted and counseled, and 211 PWID were tested for HIV. Among these 211 all had never been tested for HIV, 20 (9.5%) were confirmed HIV positive, and 19 were initiated on ART. Out of 12 spouses of index HIV-positive PWID contacted, three were tested for HIV and two were confirmed HIV-positive. No HIV cases were found among sexual partners of index HIV-positive PWID. Based on our experience, reaching out to individuals within injecting networks is easier than reaching those in sexual networks. PWID were reluctant to disclose their sexual partners due to social taboos.
Conclusions/Next steps: This innovative network model improved HIV case detection among PWID and reached injecting networks outside the coverage of the Indian national program. More efforts are required to reach out to the sexual partners by adopting more targeted strategies. Project Sunrise will advocate with the National AIDS Control Organization (NACO) to incorporate and scale up such approaches within the national TI program.

WEPEC195

Partner notification based on urine self-sampling for officially-sanctioned HIV testing in cooperation with community-based organizations among men who have sex with men in Beijing, China

Y. Lyu[1], X. Feng[2], X. Nie[3], Y. Tian[4], W. Xing[1], J. Yao[1], Y. Jiang[5]
[1]National Center for AIDS/STD Control and Prevention, Chinese Center for Disease Control and Prevention, National HIV/HCV Reference Laboratory, Beijing, China, [2]Beijing YouAn Hospital, Capital Medical University, Beijing, China, [3]Beijing Jingjing Concentric Volunteers Development Center, Beijing, China, [4]Zhongnan Hospital of Wuhan University, Department of Blood Transfusion, Wuhan, China, [5]Chinese Center for Disease Control and Prevention, National HIV/HCV Reference Laboratory, Beijing, China

Background: Partner notification (PN) in generally acknowledged to be an important element of controlling sexually transmitted infections (STIs) and HIV. However, given that both HIV infection and homosexuality remain highly stigmatized in China, health department and clinics face great challenges in performing sexual partner mobilization among MSM. We developed a model of urine self-sampling for HIV testing (USST) to conduct a PN and HIV testing program for MSM in cooperation with MSM-serving Community-based organizations (CBOs) in Beijing.
Methods: We cooperated with MSM-serving CBOs to conduct HIV testing intervention in MSM gathering areas of Beijing from December 2015 to January 2016. MSM who were reached and were willing to have a HIV test were referred as on-site MSM in our study. They were referred to CBO-run HIV testing points for HIV oral rapid testing and urine self-collection. The staff of CBO interviewed them face-to-face to complete a questionnaire, collect information on their sexual partners, and encourage them to take packages of oral rapid testing kit together with disposable urine sampling kit for their sexual partners who would perform oral rapid testing, collect urine, and mail them back to the designed laboratory. Personal details including socio-demographic characteristics and results of oral rapid testing were collected through self-administered questionnaires.
Results: In total, 60 on-site MSM were reached and were willing to take 70 packages for their sexual partners. Of 70 packages, 69 urine samples and questionnaires were obtained. For on-site MSM, the positive rate of HIV oral rapid testing and urine ELISA were 3.3% (2/60) and 6.7% (4/60), separately. Nevertheless, the positive rate of HIV oral rapid testing and urine ELISA among their sexual partners were 7.2% (5/69) and 15.9% (11/69), respectively. In addition, 100% (15/15) of the individuals screened as urine ELISA HIV positive were followed up within five weeks. Of these, 50% (2/4) and 72.7% (8/11) were reported as newly identified for on-site MSM and their sexual partners, respectively.
Conclusions: Combining the advantages of CBOs and officially-sanctioned HIV testing services, it was feasible and efficient to implement the promotion of PN based on USST model among MSM in cooperation with CBOs.

WEPEC196

Are US black, Hispanic and white YMSM at risk for HIV acquisition being tested in accordance with national HIV testing recommendations? Results from a national study

R. Merchant[1], S. Marks[2], M. Clark[3], T. Liu[4], J. Rosenberger[5], J. Bauermeister[6], K. Mayer[7]
[1]Harvard Medical School, Emergency Medicine, Boston, United States, [2]Brigham and Women's Hospital, Boston, United States, [3]University of Massachusetts Medical School, Worcester, United States, [4]Brown University, Providence, United States, [5]Pennsylvania State University, University Park, United States, [6]University of Pennsylvania, Philadelphia, United States, [7]Harvard Medical School, Boston, United States

Background: Since 2006, the United States (US) Centers for Disease Control and Prevention (CDC) has recommended HIV testing for men-who-have-sex-with-men (MSM) at least once annually, with more frequent testing based on continued risk of HIV acquisition. Given the recent increases in HIV acquisition among US black, Hispanic and white young adult MSM (YMSM), there is concern that YMSM are not being tested in accordance with CDC recommendations. Among a national sample of US black, Hispanic and white YMSM at higher risk for HIV based on self-reported sexual behaviors, we aimed to: (1) determine how well their HIV testing history aligns with CDC HIV testing recommendations, and (2) identify structural and other barriers to testing.
Methods: Using multiple social media platforms, we recruited black, Hispanic, and white US YMSM (18-24 years-old) who reported condomless anal intercourse (CAI) within the prior year. Participants completed an online survey regarding their sexual behaviors, HIV testing history, HIV risk perception, and healthcare access. Multivariable logistic regression was used to examine factors associated with HIV testing in accordance with national guidelines.
Results: Of the 1,835 YMSM who had CAI within the prior year, 30% (95% CI: 28-32%) had not been tested for HIV in the past year. Of the 552 not tested within the past year, 62% (95% CI: 58-66%) had never been tested. Factors associated with not being tested in the past year included not having a primary care provider, discomfort with asking a provider for an HIV test, living outside of a large city/suburb, younger age, and greater self-perception of having an undiagnosed HIV infection.
Conclusions: Almost a third of YMSM at high risk for HIV infection had not been tested for HIV in the past year in accordance with national guidelines, and a substantial proportion never had been tested. Structural, knowledge, risk perception, and clinician relationship barriers must be overcome to improve HIV testing in this higher risk population. Implementation research examining how to address structural and health systems barriers, such as lower access to and trust in medical care, to promote adoption of HIV testing guidelines among this population are warranted.

n=1,835	Not tested in the past year (includes never tested and tested over a year ago) versus tested in the past year aOR (95% CI)	Never tested versus ever tested (tested in the past year and tested over a year ago) aOR (95% CI)	Tested over a year ago versus tested in the past year aOR (95% CI)
Race/Ethnicity			
Black	Reference	Reference	Reference
Hispanic	1.37 (0.98, 1.92)	1.27 (0.83, 1.92)	1.43 (0.89, 2.28)
White	1.26 (0.91, 1.75)	1.26 (0.84, 1.89)	1.20 (0.76, 1.92)
Age (one-year decrease in age)	1.15 (1.09, 1.23)	1.30 (1.21, 1.40)	1.05 (0.95, 1.15)
Community size			
Large city or surrounding suburb	Reference	Reference	Reference
Non-large city or surrounding suburb	1.71 (1.35, 2.18)	1.79 (1.33, 2.41)	1.50 (1.07, 2.09)
PCP or Clinic			
No	2.00 (1.53, 2.60)	1.77 (1.29, 2.43)	1.99 (1.39, 2.87)
Yes	Reference	Reference	Reference
Comfort with asking for HIV Test from PCP			
Not comfortable	2.66 (2.05, 3.44)	3.23 (2.41, 4.33)	1.65 (1.39, 2.89)
Comfortable	Reference	Reference	Reference
Healthcare insurance			
Yes	1.27 (0.94, 1.71)	1.09 (0.76, 1.56)	1.40 (0.92, 2.13)
No	Reference	Reference	Reference
Education completed			
High school diploma/GED or less	1.18 (0.87, 1.60)	1.21 (0.85, 1.73)	1.10 (0.70, 1.73)
Currently enrolled/completed college or enrolled in high school	Reference	Reference	Reference
Self-perceived likelihood of undiagnosed HIV infection			
Possible	1.46 (1.07, 1.99)	1.18 (0.82, 1.72)	1.78 (1.10, 2.90)
Not possible at all	Reference	Reference	Reference

Key: aOR: adjusted odds ratio, PCP: primary care provider, GED: general education diploma

[Factors Associated with Lack of HIV Testing among US YMSM]

WEPEC197

Assisted and unassisted notification and HIV testing for the sexual and injecting partners of people living with HIV in Vietnam: Preliminary results of the HIV testing-to-treatment cascade

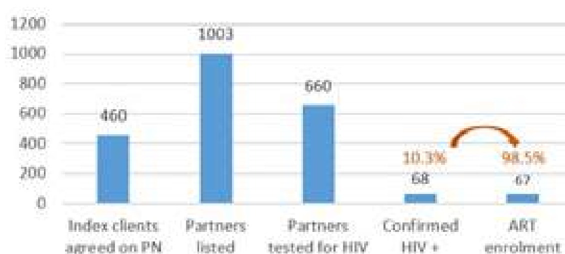
H.A. Doan, H. Ngo, B. Vu, K. Green, A. Bao, Y. Nguyen
PATH, Hanoi, Vietnam

Background: Vietnam adopted the 90-90-90 targets in December 2014 but annual HIV testing uptake among key populations (KP) was low and steady (~30%). In October 2015, USAID/PATH Healthy Markets (HM) launched pilot HIV lay provider and self-testing services, with the aim of increasing the uptake of HIV testing and HIV-positivity yield among KP. By December 2016, this pilot demonstrated a significantly improved positivity rate: 5.4%, compared to 1.6% among KP in conventional testing. To determine if partner notification (PN) was acceptable among those recently HIV-diagnosed and their partners, and effective in further increasing HIV positivity yield, HM piloted integrative assisted and unassisted PN into these services.

Methods: HM trained HIV lay providers—community-based organizations (CBO) and village health workers—provided partner notification counseling to index clients (HIV-infected individuals, mostly men who have sex with men or people who inject drugs), who were either identified through HIV lay and self-testing or already receiving antiretroviral treatment. From May-December 2017, both assisted and unassisted PN were offered, based on client preference. We analyzed monthly service reports to measure PN acceptability, percentage of index client that agreed to participate in PN, and effectiveness: HIV testing-to-treatment cascade for both assisted and unassisted PN.

Results: Between May and December 2017, 460 out of 488 (94.3%) index clients agreed to provide a list of high risk partners. Among 1,003 sexual and injecting partners identified, averaging 2.2 partners per index client, 66% of listed partners were successfully reached and tested for HIV. 10.5% were newly HIV diagnosed and 98.5% were successfully enrolled in treatment services

Conclusions: The pilot demonstrated high acceptability for PN services, better outcomes for assisted PN and resulted in a doubling HIV-positivity yield and a very strong HIV testing-to-treatment cascade. Results suggest that PN could be a valuable addition to HIV lay testing, supporting Vietnam to achieve the 90-90-90 targets by 2020.



[Figure 1. Cascade of HIV testing through partner notification approach (May to December 2017)]

WEPEC198

High-yield HIV testing, facilitated linkage to care, and prevention for female youth in Kenya (GIRLS Study): Preliminary baseline findings

I. Inwani[1], K. Agot[2], C.M. Cleland[3], N. Chhun[4], S.O. Rao[2], M. Anam[2], P. Macharia[1], J. Kinuthia[1], P. Cherutich[5], R. Nduati[6], A.E. Kurth[4]
[1]Kenyatta National Hospital, Nairobi, Kenya, [2]Impact Research and Development Organization, Kisumu, Kenya, [3]NYU Rory Meyers College of Nursing, New York, United States, [4]Yale University, School of Nursing, New Haven, United States, [5]Ministry of Health, Nairobi, Kenya, [6]University of Nairobi, Nairobi, Kenya

Background: Adolescent girls and young women (AGYW) ages 15-24 years are twice as likely as their male peers to be infected, making females in sub-Saharan Africa the most at-risk group for HIV infection.

Methods: Within a framework of implementation science, we are evaluating interventions to increase uptake of HIV testing, linkage to and retention in care, and prevention among AGYW. We compare two "seek" recruitment strategies, three "test" strategies, and pilot "linkage" to care interventions among AGYW in western Kenya. Participants are recruited from Homa Bay, Mbita, and Ndhiwa subcounties representing urban, fishing, and rural communities. AGYW are recruited via home-based or community-based strategies that run concurrently. AGYW are offered three testing options: oral fluid HIV self-testing; immediate staff-aided rapid HIV testing; or health care facility referral. Newly diagnosed HIV positives are enrolled in a trial (SMART design) to pilot adaptive interventions to support initial linkage to care. We also evaluate a primary prevention messaging intervention to support high risk HIV-negative AGYW to reduce their HIV risk behavior and adhere to HIV retesting recommendations.

Results: We have enrolled 664 participants, 518 (78.0%) in the home; 146 (22.0%) at mobile health events. Mean age was 19.6 (SD:2.4); 118 (17.8%) are 15-17 years old. 86% reported ever having sex, with sexual debut mean age of 16 years (SD:1.96). Only 34.9% reported condom use at last sex. Most, 534 (80.4%) chose staff-aided testing, with 126 (19.0%) choosing self-testing, and 4 (0.6%) health care facility referral. Newly diagnosed HIV-positive participants (21/664) all enrolled in the pilot, and 15 (71.4%) have been confirmed linked to care. Out of 631 HIV negatives, 112 (17.7%) were identified as high risk and 68 randomly selected have been enrolled to the HIV-negative cohort.

Conclusions: Preliminary findings indicate AGYW prefer the home-based recruitment strategy and staff-aided HIV testing regardless of recruitment site. Although HIV prevalence among AGYW (3.2%) is lower than reported for the region (27.8%), prevalence of high risk HIV-negative AGYW demonstrates the importance of prevention interventions at the point where it is most needed.

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WEPEC199

Building mobile phone-connected diagnostics and online pathways for HIV care: Early findings from the m-Africa formative study in KwaZulu-Natal, South Africa

O. Adeagbo[1], C. Herbst[1], N. Dlamini[1], T. Mhlongo[1], P. Sonnenberg[2], C. Estcourt[3], A. Blandford[4], V. Turbe[5], M. Thomas[6], K. Herbst[7], D. Pillay[7,8], R. McKendry[5], M. Shahmanesh[7,9]
[1]Africa Health Research Institute, Social Science Research Unit, Somkhele, Mtubatuba, South Africa, [2]University College London, Infection and Population Health, London, United Kingdom, [3]Glasgow Caledonian University, School of Health and Life Sciences, Glasgow, United Kingdom, [4]University College London, Institute of Digital Health, London, United Kingdom, [5]University College London, London Centre for Nanotechnology, London, United Kingdom, [6]Imperial College London, Department of Materials, London, United Kingdom, [7]Africa Health Research Institute, Somkhele, Mtubatuba, South Africa, [8]University College London, Division of Infection and Immunity, London, United Kingdom, [9]University College London, Institute for Global Health, London, United Kingdom

Background: Globally, South Africa has the highest number of people living with HIV/AIDS. The Province of KwaZulu-Natal (KZN) has a prevalence of 45% in antenatal clinics, and within our vicinity, 30% of people are unaware of their status and only 50% of those diagnosed reach clinical services within one year. Uptake of confidential HIV testing services is key to achieving the 90-90-90 objectives. However, extant HIV counselling and testing strategies are inadequate in our settings and new approaches are needed. This study aims to develop a new generation of mobile phone-connected HIV diagnostic tests and online clinical care pathways to support decentralised HIV testing (including self-testing), linkage to care, and prevention in South Africa.

Methods: Twenty-five semi-structured in-depth interviews and four focus group discussions were conducted (between November 2017 and January 2018) with healthcare providers and potential end-users (both sexes aged 18-58 years) in uMkhanyakude district in KZN, to understand their views of HIV care including HIV self-testing (HIVST) and their willingness to use the proposed technology. Themes were identified from the interview transcripts, manually coded and thematically analysed following an interpretivist approach.

Results: Participants (particularly males) believe that HIVST and the proposed technology for diagnostics and linkage to care will benefit them and others given its privacy and time saving when compared to fixed clinics. Most participants would like to make an appointment via phone with a health worker (non-community member) and meet at home or elsewhere for consultation or treatment to reduce stigma. However, some potential end-users raised concerns that people may commit suicide after testing HIV positive, without provider support. This was deemed less of an issue by providers, given the community awareness of HIV management. Overall, participants believe that community awareness (involving traditional leaders) is key to the success of HIVST and the proposed technology.

Conclusions: Despite a few concerns, participants show high levels of willingness to perform HIVST and to use online pathways technology for HIV care. The proposed technology could be a game-changer in achieving the 90-90-90 objectives given its potential to attract first-time testers and hard-to-reach populations. Implementation must draw on the support of community leaders.

Rapid/Same-Day ART initiation

WEPEC200

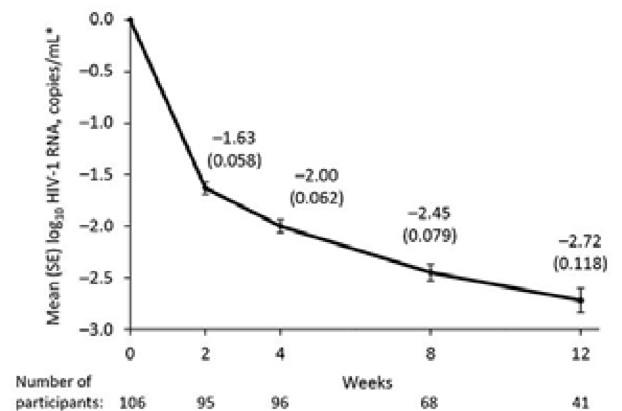
Darunavir/cobicistat/emtricitabine/tenofovir alafenamide (D/C/F/TAF) in a Test-and-Treat model of care for HIV-1 infection: Interim analysis of the DIAMOND study

G.D. Huhn[1], G. Crofoot[2], M. Ramgopal[3], J. Gathe Jr.[4], R. Bolan[5], C. Bicer[6], R.B. Simonson[7], R.E. Nettles[7], K. Brown[7], K. Dunn[7]
[1]The Ruth M. Rothstein CORE Center, Chicago, United States, [2]Crofoot Research Center, Houston, United States, [3]Midway Immunology and Research Center, Fort Pierce, United States, [4]Therapeutic Concepts, Houston, United States, [5]Los Angeles LGBT Center, Los Angeles, United States, [6]BICER Consulting & Research, Antwerp, Belgium, [7]Janssen Scientific Affairs, LLC, Titusville, United States

Background: Test-and-Treat models in newly diagnosed, HIV-1-infected patients have led to improved virologic outcomes, retention in care, and decreased mortality. Antiretroviral regimens used in this setting should optimally be a single-tablet regimen (STR), abacavir-sparing, well tolerated, and have a clinically-proven high genetic barrier to resistance. D/C/F/TAF (approved in Europe; under regulatory review in the US) is the only STR that possesses these qualities.

Methods: DIAMOND (ClinicalTrials.gov: NCT03227861) is an ongoing, phase 3, single-arm, open-label, prospective, multicenter study assessing the efficacy/safety of D/C/F/TAF 800/150/200/10 mg in a Test-and-Treat model over 48 weeks. Adults diagnosed with HIV-1 infection within 14 days were immediately enrolled and started on D/C/F/TAF without screening/baseline laboratory information. Investigators reviewed screening/baseline laboratory findings as results became available; patients not meeting predefined safety or resistance stopping rules continued treatment. A planned interim analysis for retention and clinical outcomes was conducted when all patients reached Week 4 of enrollment.

Results: Baseline patient (N=109) characteristics were: median (range) age 28 (19-66) years; 13% women; 32% African American; median (range) HIV-1 RNA 4.6 (1.3-8.2) $\log_{10}$ copies/mL; 24% ≥100,000 copies/mL; median (range) CD4+ count 369 (7-1,082) cells/mm^3; 21% < 200 cells/mm^3. Median (range) time from diagnosis to screening/baseline was 5 (0-14) days; 29% of patients enrolled within 48 hours of diagnosis. At the interim analysis, 95.4% (104/109) of patients continued on D/C/F/TAF and only 5/109 discontinued (3 due to safety stopping rules, 1 protocol violation, 1 adverse event [AE]). Through Week 12, mean HIV-1 RNA decreased by 2.72 $\log_{10}$ copies/mL (n=41; Figure). Incidences of grade 3 (5.5%) and serious (2.8%) AEs were low, with no grade 4 AEs or deaths. Week 24 results will be available for presentation.



[Figure. Mean (SE) change from baseline in $\log_{10}$ HIV-1 RNA over time.]

Conclusions: In the first known phase 3 trial of an STR in a Test-and-Treat model, a decline in HIV-1 RNA ≥2.00 $\log_{10}$ by Week 4 and patient retention of >95% on D/C/F/TAF were achieved at interim analysis, with no discontinuations due to predefined resistance stopping rules or lack of

efficacy. Organizations utilizing Test-and-Treat models should consider D/C/F/TAF as a preferred treatment option as it is the only agent with phase 3 data supporting its use in this setting.

WEPEC201

A comparison of outcomes of same day versus delayed Antiretroviral treatment (ART) initiation in the 'Test and Treat era' in Kenyatta National Hospital

S. Juliet Eshiwani, K. Mutai, P. Muiruri, E. Kubo
University of Nairobi/Kenyatta National Hospital Center of Excellence HIV Management (KNH/UoN CoE HM), Care and Treatment, Nairobi, Kenya

Background: A generation free from HIV is now feasible through universal Antiretroviral treatment for all people living with HIV. Late HIV diagnosis, late ART initiation and poor retention in care are challenges in achieving the UNAIDS 90-90-90 targets . Structural barriers such as poor linkages, patient and providers attitudes on willingness and readiness to start ART are the main impediments to same day ART initiation . Kenya adopted test and treat strategy in September 2016. This study compared viral suppression rates, ART adherence, development of new opportunistic infections and death events in patients who chose to initiate ART on the same day of HIV diagnosis versus those who delayed during the implementation period.
Methods: A retrospective cohort study analyzed electronic medical records of HIV positive patients 18 years and above, enrolled from September 2016 - June 2017. HIV-positive individuals were offered ART using a targeted approach by fast linkage, point of care CD4 testing and intensified counseling about HIV . Patients ultimately made the choice on when to initiate ART. Baseline characteristics and outcomes associated with same day ART were tested using Chi square, independent t and Mann Whitney U tests.
Results: Of the 367 patients who were eligible to initiate ART, 167(45.5%) started ART on the same day of HIV diagnosis. The average time taken to initiated ART in the delayed group, was 15 days. After 6 months of ART, more patients on the same day ART arm, 98 (78.5%) had achieved viral suppression HIV RNA< 20 copies/ml compared to 125 (71.3%), p=0.163. At baseline, 122 (77.7%) of patients in the same day arm were in WHO stage 1 and 2. Adherence to appointments was at 73.1% in the same day ART arm compared to 78% among those who delayed (p=0.269). Attrition from care was similar in both arms at 27.5% vs 26.5%, of note no death or transfer was reported in the same day arm.
Conclusions: Similar clinical outcomes are seen in patients in both arms of the study. Sub optimal adherence to ART and poor retention in care pose significant barriers to the effectiveness of the test and treat strategy.

WEPEC202

Peer navigation is strongly associated with increased uptake of same-day ART initiation among KPs living with HIV in Angola

M.D.R. Domingos Ferreira Nunes[1], M.L. Furtado[2], R. Pedro[3], C. Pedro[4], M. Goggin-kehm[5], D. Boyee[6], A. Diaz[4], G. Cristino[4], J. Cardao[7]
[1]Management Sciences for Health, Health Programs Group, Luanda, Angola, [2]Instituto Nacional de Luta contra a SIDA (INLS), Luanda, Angola, [3]Associação de Mulheres Vivendo com o VIH, MWENHO, Luanda, Angola, [4]Management Sciences for Health, Luanda, Angola, [5]FHI 360, Washington, DC, United States, [6]FHI 360, Dar E Salaam, Tanzania, United Republic of, [7]USAID, Luanda, Angola

Background: In October 2015, the PEPFAR-funded LINKAGES project in Angola began working with civil society organizations (CSOs) to provide key populations (KPs) — sex workers (SWs), men who have sex with men (MSM), and transgender people — with access to the full cascade of HIV services. While CSOs improved their ability to reach and test KPs, they struggled to link those who tested positive into care and treatment. The antiretroviral therapy (ART) initiation rate for KPs who tested positive in the first seven months of the program was only 19 percent (11/53). LINKAGES Angola integrated peer navigation into the program to improve ART initiation.
Methods: In May 2016, LINKAGES introduced HIV-positive peer navigators (PNs). The PNs would meet positive KPs for posttest counseling and accompany them to the health facility to start ART. We started with few PNs, and in May 2017, the program increased its number so that each team of peer educator and HIV counsellor had a navigator. The government of Angola supported in principle same-day ART initiation for KPs since October 2015 but did not make official the policy until September 2016. This is a retrospective analysis of routine program data on ART initiation.
Results: Same day ART-initiation is strongly associated (p< 0.0001, Fisher's exact test) with being assigned to a PN. Out of 355 KP+ patients, 62,8% (n=159) who were accompanied by a PN were initiated on ART the same day of their first medical consultation compared to only 29,4% (n=30) who initiated ART on the same day without the support from a PN. The rates of same-day ART initiation have improved over time, as shown in fig 1. From May 2017, with 68% of patients being initiated on ART the same day to 100% of patients on same-day ART by January 2018.
Conclusions: Employing PNs can substantially increase ART initiation rates. It is important that PNs meet beneficiaries on the day their test results are provided so that they can forge a bond right away. Well trained PNs are educating health professionals and empowering patients. LINKAGES in Angola will work with more PNs to maintain 100% same-day ART initiation.

WEPEC203

Operational feasibility and scope of same-day ART initiation under the WHO treat-all approach in the public sector of southern Swaziland- a prospective cohort study

B. Kerschberger[1], R. Nesbitt[1], Q. Mpala[1], C. Mamba[1], E. Mabhena[1], S.M. Kabore[1], M. Pasipamire[2], A. Telnov[3], B. Rusch[3], I. Ciglenecki[3]
[1]Medecins Sans Frontieres (OCG), Mbabane, Swaziland, [2]Ministry of Health (SNAP), Mbabane, Swaziland, [3]Medecins Sans Frontieres (OCG), Geneva, Switzerland

Background: Since 2017 WHO recommends antiretroviral therapy (ART) initiation on the day of HIV diagnosis. However, its feasibility in resource constrained settings remains uncertain. We describe predictors and outcomes of same-day ART in a well-established routine public sector HIV programme in Swaziland.
Methods: This is a prospective cohort of adults (≥16 years) newly enrolled into HIV care and eligible for ART irrespective of CD4 cell count (WHO treat-all approach) at 9 health facilities in southern Swaziland, between 10/2014 and 3/2016. ART was offered on the day of HIV care registration (same-day ART) and deferred for up to 3 months for patients not ready to start treatment. Follow-up time was until 12/2016. We identified predictors of same-day ART initiation utilizing multivariate logistic regression analysis. Flexible parametric survival models were built to compare time from facility-based HIV-care registration and time from ART initiation (for patients successfully initiated on ART) to the composite endpoint loss to follow-up/death.
Results: Of 1726 patients registered in HIV-care, with median age of 30 (IQR 25-36) years, 413/1726 (23.9%) were pregnant, and 556/1726 (32.2%) and 332/1726 (19.2%) had CD4 cell counts ≤200 and >500 cells/microliter. Overall, 842 (48.8%) patients initiated same-day ART. In deferred ART (n=884), 747 (84.5%) initiated treatment at a median of 10 (IQR 7-22) days and 137 (15.5%) did not start ART. The probability of same-day ART initiation was increased for pregnant women (vs men) (aOR 3.55, 95%CI 2.46-5.11), HIV diagnosis ≥15 days (vs diagnosis on day of registration) (2.14, 1.64-2.81) and recent study period (1.93, 1.49-2.50). It was decreased for secondary (vs primary) care facility (0.24, 0.19-0.30) and presumptive TB cases (0.47, 0.30-0.74). For same-day ART, crude 2-year HIV-care attrition was lower (27.6% vs 32.5%; p=0.009) while ART-attrition was higher (27.6% vs 21.3%; p=0.003) compared to deferred ART. Confounder adjusted analyses also showed a tendency of decreased risk of HIV-care attrition (aHR 0.85; 95%CI 0.69-1.05) while the risk of ART-attrition remained increased (1.65; 1.30-2.10).

Conclusions: Although same-day ART retained more patients in HIV-care, attrition was increased in patients on ART. Improved understanding of patient readiness is required to reduce adverse outcomes of same-day ART and inform its scale-up.

Demonstration and pilot projects for PrEP, PEP, male circumcision

WEPEC204

A comparative study of risk among adolescent girls and young women who accept or decline PrEP uptake from a community-based mobile clinic

E. Rousseau-Jemwa[1], C.L. Celum[2], J.M. Baeten[2], L.-G. Bekker[1]
[1]*Desmond Tutu HIV Centre, Institute of Infectious Diseases and Molecular Medicine, University of Cape Town, Cape Town, South Africa,* [2]*University of Washington, Department of Global Health, Medicine and Epidemiology, Seattle, United States*

Background: Achieving an AIDS-free generation critically depends on identifying populations at highest HIV risk and scaling up HIV testing, knowledge of HIV status, and HIV prevention uptake, including PrEP. An understanding about adolescent girls and young women (AGYW) acceptance or declining PrEP uptake is needed, which we evaluated in a PrEP delivery project through an adolescent mobile clinic.

Methods: A demonstration project (POWER) was implemented to determine whether AGYW at risk for HIV are motivated to start PrEP and what the preferable mode of distribution could be. Prevention including PrEP was offered to all sexually active AGYW ages 16-25 accessing sexual reproductive health services (SRHS) from an accessible, friendly, adolescent-tailored mobile clinic servicing limited-resource high disease-burden communities of Cape Town, South Africa. All AGYW completed a standardized sexual behaviour HIV risk assessment and risk reduction counselling. A causal-comparative approach, using chi-squared and t-tests, explored the potential effect of HIV risk factors comparing AGYW accepting to those who declined PrEP.

Results: Between June-December 2017, 347 AGYW accessed SRHS in which PrEP was offered and 25% (n=87) initiated PrEP on the same day. Overall, there was no significant difference in total HIV risk factors reported by acceptors (median=3 risk factors) and decliners (median=3) of PrEP. No significant difference in correlates of PrEP accepters and decliners were observed in age of sexual debut, whether her primary partner has other partners, knowing her partner's HIV status, or being involved in intergenerational or transactional sex. Factors significantly associated with PrEP uptake were visiting the mobile clinic previously ($p< 0.001$); frequent HIV testing (every 3 months; $p< 0.001$); inconsistent condom use ($p< 0.023$); and reporting multiple partners themselves ($p< 0.011$).

Conclusions: No significant difference existed in risk factors in AGYW accepting or declining PrEP uptake from the mobile. PrEP uptake in this cohort was associated with AGYW's 'personal agency' in sexual and health-seeking behaviour more than the risks associated with their current partners. The incongruity between HIV risk awareness and how that translates to behaviour (PrEP uptake) indicates that demand creation should include messaging to build AGYW's confidence to take ownership of their health and thus apply self-using prevention options.

WEPEC205

Worldwide PrEP: Online-to-offline HIV prevention for foreigners in Bangkok

N. Yaemim[1,2], B. Yaemim[1], K. Jonas[2]
[1]*Pulse Clinic Bangkok, Bangkok, Thailand,* [2]*Maastricht University, Maastricht, Netherlands*

Background: Formal Pre-Exposure Prophylaxis (PrEP) as a form of bio-medical prevention is not available in many countries, while generic PrEP available in Thailand offers low threshold access to this form of HIV prevention. Yet this form of access requires special online-to-offline measures and a counselling procedure that is tailored to the needs of foreign clients and a travelling population.

Description: Pulse Clinic Bangkok implemented an online-to-offline procedure to counsel men-having-sex-with-men (MSM) for PrEP and to provide HIV & STI testing, PrEP provision and regimen advice on location. From January till September 2017, after engaging in online counselling first, 2028 became so-called "PrEP tourists" with visits to the clinic. A total of 1703 (84%) returned for follow up visits after the initial visit. MSM can engage via different social media channels and gay dating apps with the clinic prior to their visit. During these chats knowledge about PrEP is provided. Later visits can be scheduled also outside regular office hours. Special online and offline counselling for substance users and alternative HIV prevention strategies for MSM who later (have/want to) stop using PrEP are offered. Clients are empowered and furnished with the knowledge to arrange HIV testing and continuous medical follow-up in their home countries.

Lessons learned: There is a large number of so-called "PrEP tourists" who regularly procure PrEP in Thailand and make use of local medical service provision. While continuously procuring PrEP via Bangkok, HIV testing and continuous medical follow up is also executed with local health care providers in their home countries. Overall, this mode of provision allows PrEP access for vulnerable MSM populations who cannot access PrEP at home. Yet at the same time, due to split health care provision, potential sero-conversions cannot always be traced.

Conclusions/Next steps: Affordable PrEP can contribute to a successful individual HIV prevention strategy even for MSM who cannot access PrEP formally in their home countries (e.g. due to lack of availability, high costs or stigmatizing health services). The model applied here comes with high counselling demands for medical service providers, and demands a high level of independent, responsible individual health care management by the PrEP users themselves.

WEPEC206

Pre-exposure prophylaxis in Zambia: Policy engagement and initial implementation

C. Claassen[1], L. Mwango[2], M.-C. Lavoie[3], I. Gashongore[2], E. Mubanga[4], D. Mumba[4], L. Mulenga[5], R. Sheneberger[1]
[1]*University of Maryland Baltimore, Center for International Health, Education, and Biosecurity, Institute of Human Virology, Lusaka, Zambia,* [2]*Maryland Global Initiatives Corporation - Zambia, Lusaka, Zambia,* [3]*University of Maryland Baltimore, Center for International Health, Education, and Biosecurity, Baltimore, United States,* [4]*National HIV/AIDS/STI/TB Council, Lusaka, Zambia,* [5]*Ministry of Health, Lusaka, Zambia*

Background: Pre-exposure prophylaxis (PrEP) is a highly effective HIV prevention measure not yet widely deployed in sub-Saharan Africa. The University of Maryland Baltimore (UMB) has worked with the Zambian Ministry of Health (MOH) to develop and implement national guidelines for PrEP. Since September 2016, UMB has engaged MOH and stakeholders on key population (KP) health services, leading to the first implementation of PrEP in Zambia.

Description: UMB provided medical and technical expertise to MOH to introduce PrEP in the 2016 Zambia National Consolidated ART Guidelines for sero-discordant couples (SDCs) and persons at high risk of HIV infection. The 2017 guidelines expanded eligibility with risk-based criteria targeting KPs, including SDCs, men who have sex with men (MSM), female sex workers (FSWs), and transgender (TG) persons. From April to November 2017, UMB piloted a PrEP intervention package at Railway Clinic, a KP referral site in Lusaka, that included community education about PrEP and trained 24 health care workers (HCWs) on PrEP service delivery. We present programmatic data on PrEP initiation and follow-up at one month.

Lessons learned: Discussions with KPs show near-universal positive perception of PrEP, but cite KP stigma, HCW reluctance, and negative media reports as barriers to PrEP access. In eight months of program implementation, UMB identified 649 HIV-negative clients: 168 (26%) were screened for PrEP, 57 (34%) were eligible, and 50 (88%) enrolled in PrEP; of those, 32 (64%) followed up at one month. Enrollment among SDCs (5/5), MSM (31/31), and TGs (5/5) was 100%, but 54% among FSWs (9/16). One-month follow-up was 100% among FSWs (9/9), 80% among SDCs (4/5), 60% among TGs (3/5), and 52% among MSM (16/31).

Conclusions/Next steps: A concerted collaboration between MOH, UMB, and other implementing partners resulted in the introduction of PrEP into Zambian national guidelines. Initial implementation shows high interest but rapid loss to follow-up following initiation. SDCs demonstrate high uptake and adherence; MSM and TG high uptake but moderate adherence, and FSWs moderate uptake but high adherence. Low screening rates may reflect HCW reluctance to offer PrEP. Further work should focus on HCW training and sensitivity, client education and adherence, and decreasing social barriers to accessing PrEP.

WEPEC207

Predictors of low medication possession ratio (MPR) in individuals receiving PrEP in the EPIC-NSW study in New South Wales (NSW), Australia

F. Jin[1], J. Amin[1,2], R. Guy[1], S. Vaccher[1], C. Selvey[3], I. Zablotska[4], J. Holden[3], K. Price[5], D. Weerasinghe[1], B. Yeung[1], G. Levitt[1], E. Ogilvie[1], A. McNulty[6], D. Smith[7], D. Cooper[1], A. Grulich[1], Expanded PrEP Implementation in Communities NSW South Wales (EPIC-NSW) Research Group
[1]The University of New South Wales, The Kirby Institute, Kensington, Australia, [2]Macquarie University, Department of Health Systems and Populations, Sydney, Australia, [3]NSW Government, Ministry of Health, Sydney, Australia, [4]Sydney University, Westmead Clinical School, Sydney, Australia, [5]AIDS Council New South Wales, Sydney, Australia, [6]Sydney Sexual Health Centre, Sydney, Australia, [7]North Coast HIV/Sexual Health Services, Lismore, Australia

Background: Medication adherence is a critical determinant of the efficacy of daily TDF/FTC as HIV PrEP, and adherence has varied widely in clinical trials and in some population-based settings. We report one-year medication possession ratio (MPR) as a proxy measure of adherence, and predictors for low MPR in a population-based study of rapid, targeted, and high-coverage PrEP implementation in NSW, Australia.
Methods: EPIC-NSW is a single arm study of daily TDF/FTC as PrEP. Adherence was evaluated in the 3,700 individuals at high-risk of HIV who were enrolled between March and October in 2016 and followed for a minimum of 12 months. Drug dispensing logs were reviewed and one-year MPR was determined as the total number of TDF/FTC pills dispensed from the date of first dispensing to the end of the first year of follow-up divided by 365. Total dispensing was truncated to a maximum of 365 doses. We examined predictors of low MPR (less than 80%).
Results: Participants were almost all men (99.4%) and identified as gay (95.5%). Median age was 36 years (interquartile range (IQR) 30-45 years). Most (55.6%) were Australian-born, lived in suburbs with a high concentration of gay men (gay Sydney, 38.2%) or elsewhere in Sydney (47.7%). The median one-year MPR was 97.8% (IQR: 74.0%-100.0%), and low MPR (< 80%) was recorded in 30.1% of participants. Younger men were significantly more likely to have low MPR than their older counterparts (46.5% aged under 25 and 23.1% aged above 45, p trend< 0.001). Low MPR was also more common in transgender people (50.0%) than in cisgender men (30.0%, p=0.033), and in bisexual (36.9%) and heterosexual (58.8%) men compared with gay men (29.7%, p=0.006). Participants who lived outside Sydney (35.9%) and other metropolitan areas of Sydney (30.3%) were more likely to have low MPR than those who lived in gay Sydney (28.0%, p=0.007). In multivariate analysis, younger age (p< 0.001) and sexual orientation other than gay (p=0.005) were significant predictors for low MPR.
Conclusions: Median MPR was high in EPIC-NSW. Low MPR, possibly indicating poor coverage of risk events, was more common in the young and in those who were not gay-identified.

WEPEC208

Understanding risk among male participants enrolled at clinicians' discretion in a PrEP demonstration trial in Victoria, Australia

J. Asselin[1], K. Ryan[1], V. Cornelisse[2,3,4], B. Price[2], N. Roth[2,3], J. Wilcox[5], B. Tee[6], C. Fairley[4,7], C. Chang[2], J. Armishaw[2], O. Vujovic[2], M. Penn[6], P. Cundill[6], G. Forgan-Smith[8], J. Gall[9], C. Pickett[10], L. Lal[1,2], A. Mak[2], T. Spelman[1,11], D. Murphy[12,13], C. El-Hayek[1,14], S. Ruth[6], C. Batrouney[6], J. Lockwood[2], J. Hoy[2], R. Grant[15,16], M. Stoové[1,14], E. Wright[1,2,11]
[1]Burnet Institute, Melbourne, Australia, [2]Alfred Hospital, Department of Infectious Diseases, Monash University, Melbourne, Australia, [3]Prahran Market Clinic, Melbourne, Australia, [4]Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, [5]Northside Clinic, Melbourne, Australia, [6]Victorian AIDS Council, Melbourne, Australia, [7]Monash University, Central Clinical School, Faculty of Medicine, Nursing and Health Sciences, Melbourne, Australia, [8]Collins Street Medical, Melbourne, Australia, [9]ERA Health, Melbourne, Australia, [10]Ballarat Community Health, Ballarat, Australia, [11]Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [12]University of Sydney, Department of Gender and Cultural Studies, Sydney, Australia, [13]University of New South Wales, Centre for Social Research in Health, Sydney, Australia, [14]Monash University, School of Population Health and Preventive Medicine, Melbourne, Australia, [15]University of California, San Francisco, United States, [16]San Fransisco AIDS Foundation, San Francisco, United States

Background: PrEPX is a large population-level, multi-site, HIV pre-exposure prophylaxis (PrEP) implemenation project in Victoria, Australia. PrEPX eligibility criteria reflected the updated 2017 Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM) PrEP guidelines and are based on sexual behaviour, a diagnosis of sexually transmitted infections (STI) and/or methamphetamine use in the prior three months; clinicians have discretion to enroll individuals not meeting these criteria. We explore HIV risk and motivation for PrEP among individuals enrolled at clinicians' discretion.
Methods: We identified PrEPX study participants enrolled at clinicians' discretion between July 26, 2016 and July 31, 2017 and conducted a thematic analysis of clinicians' free-text responses, to explore reasons for discretionary enrolment. Using data from sites participating in the ACCESS sentinel surveillance system we evaluated baseline bacterial STI (syphilis, chlamydia and gonorrhea) positivity and using self-reported ACCESS behavioural survey results we identified men at high HIV risk (>10 anal sex partners, condomless anal sex, group sex, recreational drug use in past six months) among participants not meeting PrEP prescribing guidelines.
Results: 1067 of the 3343 participants (32%) were enrolled at clinicians' discretion. The most common reasons reported for discretionary enrolment were the 'added protection of PrEP' (n=413, 39%), reporting sexual risk beyond the three-month recall period (n=296, 28%), psychological or emotional benefit (e.g. HIV related anxiety) (n=175, 16%) and perceived/intended future HIV risk (n=87, 8%).
Of the 2384 participants enrolled at ACCESS clinics with baseline behavioural and STI data available, 748 were enrolled at discretion (31%). Of these, 73/748 (10%) had an STI at baseline and 423/748 (57%) reported high HIV acquisition risk behaviour in the past six months in their survey. At baseline only 172 participants enrolled at discretion within ACCESS clinics (7%) did not have an STI diagnosis, or a history of high HIV acquisition risk identified by the clinician or in their behavioural survey.
Conclusions: Greater than 90% of PrEPX participants were at high risk for HIV acquisition at baseline in addition to having several other motivators to seek PrEP. These findings support the revised 2017 ASHM PrEP guidelines that include discretionary PrEP prescription.

WEPEC209

Barriers to PrEP implementation: The Ministry of Health demonstration projects in Swaziland

N. Gambu[1], S. Matse[1], M. Pasipamire[1], D. Chilongozi[2]
[1]*Ministry of Health (Swaziland), Mbabane, Swaziland,* [2]*Fhi360, Mbabane, Swaziland*

Background: Whilst the efficacy of HIV pre-exposure prophylaxis (PrEP) is proven, little is known about feasibility and acceptability of implementing (PrEP) in Swaziland. We present our experience in implementing oral PrEP demonstration projects amongst population at substantial risk of acquiring HIV infection from August to December 2017.
Methods: We used a Ministry of Health national implementation framework in collaboration with three partners; FHI 360, Clinton Health Access Initiative and Medicine San Frontiers using oral PrEP preparations of TDF/3TC 300mg or TDF/FTC 200mg. Ethical approvals were obtained from Swaziland Ethics Committee. Eighteen MoH clinics were chosen to implement the projects. Consenting participants aged 16 and above, who are sexually active, HIV sero-negative and at substantial risk of acquiring HIV infection were enrolled in the project. HIV testing was conducted at 0, 1 and 3 months visits. Clients who missed an appointment were followed-up three days after their scheduled visit expired and three phones calls at 2-days intervals were made. MoH approved tools were used to collect quantitative and qualitative data.
Results: A total of 1003 clients were screened, 76%(n=762) were established at substantial risk. Of these, 55%(n=422) were eligible and 93%(n=360) were initiated on PrEP. Among those initiated 75%(n=281) were females (10 self-identified as female sex workers and 1 man who have sex with men). Non-condom use was cited as the reason for accepting PrEP in 84%(n=303) of the PrEP initiates. Sixty percent(n=216) returned for their one-month follow-up visit and among those who did not, 27%(n=39)) were contacted by phone calls and 38%(n=15) cited various personal reasons for not showing up including distance to travel to clinic for PrEP refills. Twenty three percent (n=9) cited that they were no longer at risk and opted out.
Conclusions: PrEP uptake is promising and the demonstration project appears well integrating in existing MoH clinics. Key barriers to PrEP implementation remains as retention. PrEP demonstration projects should consider innovative ways to improve retention, for meaningful impact in HIV prevention.

WEPEC210

"It's like plan B for HIV!" Formative research results of PEPTALK: A study to design and test a media campaign to drive demand for, uptake of and adherence to PEP

J. Fagan[1], V. Frye[2], A. Lawal[3], M. Mosley[3], J. Yap[4,5], E. Greene[6,7], B. Zingman[4]
[1]*Montefiore Mecial Center, Albert Einstein College of Medicine, Bronx, United States,* [2]*City University of New York School of Medicine, Community Health and Social Medicine, New York, United States,* [3]*City University of New York School of Medicine, New York, United States,* [4]*Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, United States,* [5]*City University of New York School of Public Health, New York, United States,* [6]*New York Blood Center, Project ACHIEVE, New York, United States,* [7]*Columbia University, Epidemiology, New York, United States*

Background: PEP is an effective and underutilized HIV prevention tool in the United States. The PEP treatment period offers opportunities for promoting uptake of PrEP. However, among some gay/bisexual and men who have sex with men (MSM) and transgender women (TW) PEP awareness and uptake is low. PEPTALK conducted formative research to inform a multi-media campaign to drive demand for PEP among Black/African-American MSM/TW in upper Manhattan and the Bronx, NY.
Methods: We conducted 38 in-depth interviews and 5 focus groups (N=48) with participants: 18+; male at birth; Black/African-American; at-risk (condomless insertive/receptive anal intercourse with a man past 6 months); HIV-negative/unknown status; Bronx or upper Manhattan resident/worker. Interviews and groups covered sexual health; "exposure"; PEP awareness/experiences; barriers to and facilitators of PEP use; and diffusion of innovation (DoI).
Results: What behaviors constitute "exposure" varied by HIV knowledge level and the term itself was not consistently understood or well-received. PEP knowledge tended to be low and PEP was sometimes confused with PrEP. Among those who knew about PEP, several compared it to "Plan B" for pregnancy prevention.
When participants knew about PEP, they had often learned from friends or fellow MSM/TW and sometimes health professionals. Concerns about PEP focused on access and cost, and effectiveness. PEP users reported that PEP reduced anxiety, noting however that sometimes anxiety persisted since one cannot tell if PEP is "working" (observability). In terms of other DoI domains, disadvantages of PEP are that it cannot be tested or observed; positives are that it is relatively simple to use and is a good "back-up" (but not the first line of prevention).
Media messages and images were generated and tested, with feedback emphasizing the need to clarify the difference between PEP and PrEP; the desire to see PEP effectiveness data; and use of analogies that increase understanding ("Plan B for HIV"). Diversity in images presented was assessed to crucial.
Conclusions: PEP awareness is low; campaigns must make a distinction between PEP and PrEP. Simple and easy to understand messaging is needed. Increasing access via accessible PEP/PrEP providers and pharmacies is important, but without awareness and demand, these will not increase PEP uptake.

WEPEC211

Men who have sex with men (MSM) eligible for PrEP: Do they differ from other MSM clinic attendees?

D. Ogaz[1], H. Mohammed[1], J. Saunders[1], H. Reaney[2], N. Iyanger[1], P. Blomquist[1], G. Hughes[1], A. Williams[3], S. McCormack[4], M. Desai[5], L. Waters[6], C. Priestley[7], K. Manavi[8], A. Sullivan[4], A. Nardone[1], B. Gazzard[4], N. Gill[1]
[1]*Public Health England, HIV/STI Department, London, United Kingdom,* [2]*St Stephen's Clinical Research, London, United Kingdom,* [3]*Bart's Health NHS Trust, London, United Kingdom,* [4]*Chelsea and Westminster Hospital NHS Foundation Trust, London, United Kingdom,* [5]*The National Institute for Health and Care Excellence, Manchester, United Kingdom,* [6]*Central and North West London NHS Foundation Trust, London, United Kingdom,* [7]*Dorset County Hospital NHS Foundation Trust, Dorchester, United Kingdom,* [8]*University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom*

Background: The PrEP Impact Trial, a non-randomised trial, began recruitment in October 2017 in sexual health clinics in England. We report early findings from participating clinics on MSM PrEP-eligible by clinical assessment compared to other MSM attendees.
Methods: GUMCAD, the national sexually transmitted infection surveillance system, collects clinical and demographic data for each patient attendance, and since the start of the trial, has included PrEP eligibility codes. We extracted data from GUMCAD for HIV-negative MSM aged ≥16 who attended participating clinics from trial start to 30-Nov-2017. A proxy indicator of high HIV risk was based on data available from the preceding year, defined as: a prior HIV-negative test and an ano-genital bacterial STI. Using Pearson's ^{2} test, we compared PrEP-eligible MSM to other MSM attendees by ethnicity, age-group, clinical history and our proxy HIV risk indicator.
Results: A total of 13,967 MSM attended 41 trial clinics during the study period. Of these, 3,657 (26%) were identified at high HIV risk. Of all MSM attendees, 16% (2,262/13,967) were assessed as PrEP-eligible by clinicians; compared to those not assessed eligible, there was a higher proportion of PrEP-eligible MSM aged ≥35 (50% vs 41%; p< 0.001) and of white ethnicity (81% vs 79%, p=0.006).
Among attendees, there was greater proportion of PrEP-eligible MSM with a history of an HIV test in the previous year (75% vs 57%; p< 0.001) and identified at high HIV risk (39% vs 24%; p< 0.001).
Conclusions: Initial data indicate that MSM assessed as PrEP-eligible are at higher HIV risk than those not eligible, suggesting that PrEP is being appropriately targeted. Nonetheless, a quarter of MSM not coded as eligible for PrEP met proxy high HIV risk indicators; this may represent poor coding or missed opportunities for PrEP.
Our proxy measure for high-risk was based on historical GUMCAD data where patients cannot be tracked across clinics, a key limitation of our

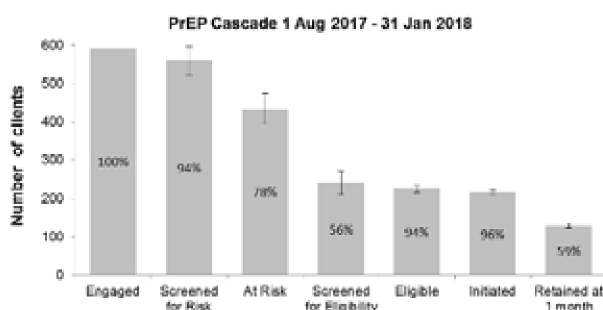
analysis. Based on these preliminary analyses, there are significant differences in clinical and demographic characteristics in MSM assessed as eligible for PrEP; these characteristics will need to be monitored as the trial continues.

WEPEC212

HIV pre-exposure prophylaxis (PrEP) for the general population in Swaziland: A detailed cascade study

A. Hettema[1], A. Hughey[1], C. Oldenburg[2], S. McMahon[3], S. Kohler[3], C. Lejeune[1], S. Matse[4], T. Bärnighausen[3]
[1]Clinton Health Access Initiative, Mbabane, Swaziland, [2]University of California, San Francisco, United States, [3]Heidelberg University Institute of Public Health, Heidelberg, Germany, [4]Ministry of Health, Swaziland National AIDS Program, Mbabane, Swaziland

Background: Under the leadership of the Swaziland Ministry of Health (MOH) a prospective cohort study was started in August 2017 with the aim to assess the operationalization of oral pre-exposure prophylaxis (PrEP) in one of the world´s first public-sector demonstration projects of PrEP for the general population in sub-Saharan Africa.
Methods: Between 1 August 2017 and 31 January 2018, clients attending any of the six public-sector primary care clinics participating in the PrEP demonstration project were informed about PrEP. Those interested in PrEP received counselling and clinical eligibility screening. If eligible, same-day PrEP initiation was offered. Data from the six clinics was extracted from MOH risk assessment forms and client files, and analyzed. A clustered linear probability model was used to identify differences in males and females progressing across each step of the cascade.
Results: Among the 592 clients individually engaged in PrEP, 94% (95%CI: 88-101) consented to HIV risk screening. A majority of clients screened were female (85%), which reflects clinic attendance composition. Overall 78% (95%CI: 69-87) of clients screened were identified as at risk for HIV. Those at risk and expressing interest (55%; 95%CI: 42-68) were assessed for clinical eligibility and 94% (95%CI: 90-97) of those were eligible to start PrEP. The majority of eligible clients (96%, 95%CI: 94-99) initiated PrEP, and 59% (95%CI: 55-63) returned 1-month after PrEP initiation. Comparing behaviors across the cascade by gender, the proportion of males identified as at risk, interested in PrEP and assessed for clinical eligibility was higher than those of females ($p< 0.05$). There was no difference in PrEP clinical eligibility. Although males were found to be more likely to initiate PrEP ($p< 0.05$) there was no statistically significant difference in the proportion of males and females retained at 1 month.



[Overall PrEP cascade showing percentages of clients engaged in PrEP who progressed across each step of the PrEP cascade.]

Conclusions: PrEP engagement of the general population attending public-sector primary-care clinics is acceptable but engagement of males is lagging. Large proportions of those who can benefit from PrEP do not initiate, or they disengage within one month. Increased efforts are needed to understand the reasons for PrEP decline and early discontinuation, and to find innovative ways to bring men into the PrEP cascade.

WEPEC213

Safety and acceptability of day 0 Foreskin Removal PrePex™ circumcision among men in Kenya

K. Agot, R. Bosire, J. Ambia, D. Muhuaya, J. Juma, M. Onyango, O. Spala, B. Ayieko, H. Ogola
Impact Research and Development Organization, Research, Kisumu, Kenya

Background: PrePex™ is a nonsurgical circumcision device being promoted to speed up the scale-up of voluntary medical male circumcision (VMMC) in Africa. However, concerns over odour and the risk of anaerobic infection such as tetanus when the foreskin is left for a week, undermines its acceptability. A modified PrePex™ procedure where the foreskin is removed on day 0 (Day0 Foreskin Removal Procedure (Day0 FRP)) may address these concerns. We assessed the safety and acceptability of Day0 FRP in Kisumu, western Kenya.
Methods: A phase IV, open-label, single-center, single-arm study was conducted among men aged 13-49 years seeking VMMC. After written informed consent (parental consent with minor assent for those aged 13-17 years), participants were offered HIV testing services, educated on the PrePex™ circumcision, assessed for contraindications to circumcision, administered a questionnaire, then offered Day0 FRP. They were scheduled for phone follow-up on days 3, 21, 28, 35 and 42 and in-person follow-up on days 7, 14 and 49. Outcome measures were safety and acceptability. Pain was assessed using visual analog scale (VAS). Percentages were used to summarize selected attributes on safety and acceptability.
Results: Between September and November 2017,515 participants underwent Day0 FRP, with 4 (0.77%, 95% CI 0.23-2.06) adverse events (AEs) reported between day 0 to 22: 3 were moderate (2 self-removals and 1 device displacement that were corrected by surgical intervention) and one was severe (mild tetanus possibly related to circumcision). Of the 505 participants contacted 3 days post device placement, 2.3% reported unusual odour and 5% (25/496) had difficulty in passing urine. Pain was highest (2, IQR; 2-4) during device removal, with 22% (114/512) and 97% (497/512) reporting pain before and after device removal, respectively. Only 5% (23/511) reported being disturbed while wearing the device or that it affected their usual daily activities. Wound healing, as assessed by full epithelialization and no granular tissue formation, showed that 97% were completely healed by day 49.
Conclusions: This study demonstrates that Day0 FRP PrePex™ circumcision method is acceptable and relatively safe, hence should be considered for men concerned about surgical circumcision or odour following PrePex Day7 FRP.

WEPEC214

Provision of youth-friendly VCT and VMMC during football training sessions and sports tournaments to drive hard-to-reach adolescents to clinical services

L. Brooks[1], O. Mezouar[2]
[1]TackleAfrica, Programme Management, Kilifi, Kenya, [2]TackleAfrica, Programme Management, Nairobi, Kenya

Background: Lack of youth-friendly and affordable services, peer- and self-stigma, fear and low level of understanding of the benefits of both Voluntary Counselling and Testing (VCT) and Medical Male Circumcision over traditional practices can pose significant barriers to effective HIV prevention for adolescents.
Description: Observations from a program in Kenya funded by a grant from PEPFAR as part of the DREAMS Innovation Challenge, managed by JSI, indicated the effectiveness of using weekly football sessions and regular football tournaments as tools for reaching, mobilizing, educating and providing adolescents with VCT and VMMC information and services. Football coaches trained as sexual health educators provided adolescents with a trusted source of information. The football team provided a natural support network for adolescents that can be lacking in a clinical setting. In January 2017 a cohort of forty community football coaches were trained to deliver innovative and interactive football drills, with VCT and VMMC sexual health messages built-in to the sessions.

All learning and information unfolded through play, making education interactive and experiential. By linking with the Ministry of Health and local NGOs, free, confidential VCT and VMMC were provided at pitch side, taking services to where the young people were and removing significant barriers to access. In one year, 895 interactive football sessions with integrated sexual health messaging reached 1314 players; 859 of those attended more than 5 sessions. 1211 VCT services completed; 414 VMMC performed.

Lessons learned: Weekly football sessions and quarterly tournaments, where medical advice and clinical services are available for free to adolescents in a youth-friendly setting, are key ways to create demand and drive uptake of VCT and VMMC.

Conclusions/Next steps: The intervention will expand in year 2 to additionally reach the wider community, and not just those adolescents enrolled in the weekly football sessions. Tournaments and other outreach events proved successful in engaging older age groups and people who do not play football, but who took advantage of the free services offered in a friendly non-clinical setting in the heart of their communities.

WEPEC215

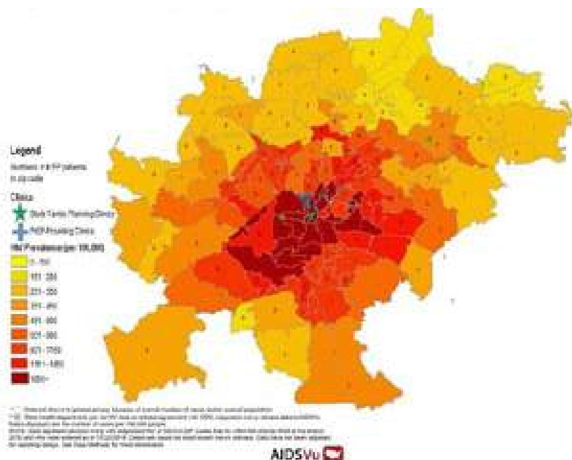
Evidence for public family planning clinics as potential PrEP delivery sites in the Southern U.S.

J. Sales[1], R. Steiner[1], A. Phillips[1], A. Patel[2], T. Renfro[1], C. Cwiak[2], A. Sheth[2]
[1]Emory University, Rollins School of Public Health, Behavioral Sciences and Health Education, Atlanta, United States, [2]Emory University, School of Medicine, Atlanta, United States

Background: Atlanta is a geographic "hot spot" for HIV in minority women. Public family planning (FP) clinics are vital sources of care for women in high HIV burden areas, and could be ideal delivery sites for pre-exposure prophylaxis (PrEP), which is currently underutilized by women. Little is known about PrEP interest and eligibility among women seeking care at public FP clinics.

Methods: We performed a PrEP screening and referral training for providers in 4 of the 25 public FP clinics in the Atlanta metropolitan statistical area (AMSA). Among 500 women seen in these clinics after the training (47% ≤28 years; 69% Black; 12% Hispanic), we conducted a pre-visit survey of HIV risk indicators (e.g., partner HIV status, recent STI, transactional sex) and post-visit survey of PrEP interest, provider counseling, and referral. We mapped patients and clinics against zipcode-level HIV prevalence data to assess clinic reach and contextualize patient geographic risk.

Results: FP clinic patients lived in 103 of 113 (91%) AMSA zip codes; 313 (63%) lived in zip codes with HIV prevalence >0.8%, and 196 (39%) in zip codes with prevalence >1.85% (Figure 1). Of the 376 sexually active women, 110 (29%) had ≥1 risk indicator consistent with PrEP eligibility. Among PrEP-eligible women, 72 (66%) reported the provider talked to them about PrEP and 32 (29%) were interested in taking PrEP; only 20 (18%) accepted a referral to an off-site public PrEP clinic. Overall, 19% previously knew about PrEP, and 76% were more willing to take PrEP if provided by the FP clinic.



[Figure 1. Number of Atlanta Family Planning Clinic Patients Enrolled by Zip Code-Level HIV Prevalence]

Conclusions: Public FP clinics in AMSA overwhelmingly serve women who reside in communities with high HIV prevalence. Despite nearly a third of women reporting HIV risk indicators consistent with PrEP eligibility, few knew about PrEP. Once informed about PrEP by FP providers, most women expressed interest if it were offered at the FP clinic, but few accepted an off-site referral. Our results demonstrate strong patient acceptability and interest in PrEP delivery in public FP clinics and highlight the potential impact that PrEP capacity building in this setting may have on PrEP scale up for women in high HIV burden areas.

WEPEC216

Willingness and actual use of pre-exposure prophylaxis in men who have sex with men in Taiwan: Results from a 2017 Hornet/HEART survey

S.W.-W. Ku[1], P. Huang[2], A. Garner[3], A. Bourne[4], C. Strong[5], S.-S. Chen[6], P.-C. Huang[7], F.-M. Jan[6], S. Howell[3], N.-Y. Ko[8], W.-W. Wong[6]
[1]Taipei Veteran General Hospital Hsinchu Branch, Division of Infectious Diseases, Department of Medicine, Hsinchu, Taiwan, Province of China, [2]University of California, Department of Communication, San Diego, United States, [3]Hornet Networks Limited, Hong Kong, Hong Kong, [4]Australian Research Centre in Sex, Health & Society La Trobe University, Melbourne, Australia, [5]National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Department of Public Health, Tainan, Taiwan, Province of China, [6]Taipei Veterans General Hospital, Division of Infectious Diseases, Department of Medicine, Taipei, Taiwan, Province of China, [7]HIV Education And Research Taiwan (HEART), Taipei, Taiwan, Province of China, [8]National Cheng Kung University and Hospital, Department of Nursing, Tainan, Taiwan, Province of China

Background: Men who have sex with men (MSM) remain the most affected population by HIV infection in Taiwan. Taiwan CDC implemented the first pre-exposure prophylaxis (PrEP) demonstration project in 4 major cities from October 2016 to December 2017. However the willingness and actual use of PrEP in the MSM community since PrEP implementation in Taiwan remained unknown.

Methods: We conducted a survey by convenience sampling of the users of a social network application for MSM in Taiwan. The survey was conducted between November 22 and December 22, 2017. The survey included 15 questions regarding age, residence, HIV serostatus, PrEP-related indications, PrEP awareness, willingness and current use. The users were invited to take the survey by responding the app inbox messages. Responses from the same IP address were excluded.

	Without willingness Without current use		With willingness Without current use		With willingness With current use	
	AOR (95% CI)	P	AOR (95% CI)	P	AOR (95% CI)	P
Age (18-25 vs. >25)						
	1.00	Ref	.77 (.59, 1.02)	.065	.27* (.10, .74)	.011
Residence (Major cities vs. others)						
	1.00	Ref	1.06 (.77-1.47)	.716	7.71* (1.00, 59.20)	.050
Pre-survey awareness of PrEP (Yes vs. No)						
	1.00	Ref	.94 (.71-1.24)	.649	1.58 (.61-4.11)	.351
Awareness of serostatus (Yes vs. No)						
	1.00	Ref	.88 (.65-1.18)	.382	4.22 (.94-18.96)	.061
Any PEP in the past 12 months (Yes vs. No)						
	1.00	Ref	2.00* (1.27-3.13)	.003	7.18* (3.23-15.96)	.000
Any CLAI with men in the past 3 months (Yes vs. No)						
	1.00	Ref	1.43* (1.10-1.87)	.009	2.35* (1.04-5.28)	.039
Any STI diagnosed in the past 12 months (Yes vs. No)						
	1.00	Ref	1.36 (.85-2.17)	.197	2.40 (.81-7.14)	.115
Any chemsex in the past 3 months (Yes vs. No)						
	1.00	Ref	1.34 (.80-2.24)	.261	2.73* (1.11, 6.74)	.030

*P< 0.05

[Table. Multinominal logistic regression for factors associated with willingness and current PrEP use]

Results: There were a total of 2,009 responses, of which 1,734 were eligible for analysis. The respondents had a mean age of 28.3 years (SD, 7.8), and nearly 80% lived in the major cities. There were 10.3% of the respondents reported HIV-positive. More than half of the respondents were aware of PrEP (58.0%). Nevertheless, there were only 1.4% used dai-

ly PrEP and 1.7% used on-demand PrEP currently. Among those who reported HIV-negative or unaware of one's serostatus, there were a quarter reported willingness to use PrEP in the coming 6 months. The major reasons affecting PrEP willingness were difficult access (52.3%) and high cost (48.4%). Multinominal logistic regression model revealed previous use of post-exposure prophylaxis (PEP) and having condomless anal intercourse (CLAI) were significantly associated with PrEP willingness; meanwhile younger age, residence in major cities and having Chemsex, in addition to previous PEP use and having CLAI, had significant correlation with the respondents' willingness and actual use of PrEP. (Table)
Conclusions: While the actual use of PrEP remained low in Taiwan, our research has identified a gap between awareness, willingness and initiation of PrEP. To bridge PrEP efficacy to the real world setting, policy makers, the providers and the community should address these barriers with different strategies to scale up PrEP use in the future.

WEPEC217

HIV preexposure prophylaxis uptake after low-intensity outreach to patients with sexually transmitted infections

R. Guinness[1], J. Volk[2], L. Hurley[2], T. Tobias[2], J. Marcus[3]
[1]Kaiser Permanente, Graduate Medical Education, San Francisco, United States, [2]Kaiser Permanente, San Francisco, United States, [3]Harvard Medical School, Cambridge, United States

Background: Patients with rectal sexually transmitted infections (STIs) and syphilis are at risk for HIV acquisition, yet many are not using preexposure prophylaxis (PrEP). We assessed the feasibility and preliminary effectiveness of a one-time email or letter to individuals in this at-risk population to increase linkage to PrEP care.
Methods: We identified all HIV-uninfected adult members of a large integrated healthcare system, Kaiser Permanente (KP), in San Francisco and Oakland, who were not on PrEP and were diagnosed with rectal gonorrhea or chlamydia, or treated for syphilis, during January-July 2017. These patients were sent a secure, password-protected email message through the KP electronic health record, or a letter if email was not available. Information about PrEP was provided, as well as information about how to access PrEP at KP, including a phone number for self-referral or additional information. We assessed feasibility by the proportion of emails opened, and preliminary effectiveness by the proportion of patients linked to PrEP care in the following three months, using Fisher's exact tests to identify characteristics associated with linkage to PrEP care.
Results: A total of 128 HIV-uninfected patients had a rectal STI (56.3%) or syphilis (43.7%), and were sent a one-time email (77.3%) or letter (22.7%). Patients had a median age of 36 (IQR 28-52), most were male (94.5%), and 37.6% were White, 28.1% Hispanic, 15.6% Asian, and 14.8% Black. Of those sent an email, 78.8% read the message, 12.4% were linked to PrEP care, and 11.3% initiated PrEP; no individuals sent letters were linked to PrEP care (p=0.07). Among those sent an email, Hispanics were more likely to be linked (32.0%) compared with White (4.8%) and Black (0%) individuals (p=0.019; Table 1).

	Outreach by email or letter			Outreach by email		
	No linkage	Linkage	*P*	No linkage	Linkage	*P*
Race/ethnicity, n (row %)			0.037			0.019
White	46 (95.8)	2 (4.2)		40 (95.2)	2 (4.8)	
Hispanic	28 (77.8)	8 (22.2)		17 (68.0)	8 (32.0)	
Asian	16 (88.9)	2 (11.1)		15 (88.2)	2 (11.8)	
Black	19 (100.0)	0 (0.0)		10 (100.0)	0 (0.0)	
Other/Unknown	5 (100.0)	0 (0.0)		3 (100.0)	0 (0.0)	

[Table 1. Characteristics associated with linkage to PrEP care after outreach via email or letter]

Conclusions: A one-time secure email to HIV-uninfected patients with recent STIs is feasible and may be sufficient to increase linkage to PrEP care, while there were no patients linked to PrEP care in the group sent letters. Linkage to PrEP care was higher among Hispanic individuals compared with other racial/ethnic groups. Additional outreach may be needed to overcome barriers to PrEP uptake among Black individuals at risk of HIV acquisition.

WEPEC218

Rapid uptake of care by men who have sex with men who use informally and self-obtained pre-exposure prophylaxis in Amsterdam: The InPrEP project

S.H. Hulstein[1], E. Hoornenborg[2], A. Matser[2], A. Hogewoning[1], Y. van Duijnhoven[2], M. Prins[2,3], H. De Vries[1,4]
[1]GGD Amsterdam, STI Clinic, Amsterdam, Netherlands, [2]GGD Amsterdam, Infectious Diseases, Amsterdam, Netherlands, [3]Academic Medical Center, Internal Medicine, Amsterdam Infection & Immunity Institute (AI&II), Amsterdam, Netherlands, [4]Academic Medical Center, Dermatology, Amsterdam, Netherlands

Background: Pre-exposure prophylaxis (PrEP) is a highly effective method to prevent HIV among men who have sex with men (MSM). In the Netherlands, an unknown number of MSM have chosen to self-obtain PrEP through informal ways, as PrEP is not yet implemented and costs are not reimbursed . We initiated a program to prevent potential harm caused by unmonitored PrEP use and assessed the uptake of informal PrEP and related care.
Description: Starting September 2017, with additional funding from the Amsterdam City Council we implemented a program at the Amsterdam sexually transmitted infections (STI) Clinic, InPrEP, providing PrEP-related health care for informal PrEP users and intended future users. Care encompassed quarterly monitoring visits in accordance with Dutch PrEP guidelines. STI, including hepatitis C virus, HIV and kidney function tests were performed at each visit and visitors were counseled on PrEP related subjects, e.g. adherence and sexual health. PrEP is prescribed if indicated, however not provided by the STI clinic.
Lessons learned: In less than 4 months 2928 MSM visited the Amsterdam STI clinic of which 273 (9.8%) reported PrEP use in the past 3 months. 140 informal PrEP users (mostly highly educated MSM, median age 32; IQR 26-42) have been included into the program, which shows that MSM want to use PrEP even if they have to obtain PrEP informally and have to cover medication costs. Several different dosing regimens were used or combined: 54.4% of users used daily PrEP, 36.5% event-driven PrEP or both 7.0%. Other non-evidence based regimens (e.g. alternately one day on, on day off PrEP) were used by 2.1% of users. No incident HIV infections nor serious adverse events (e.g. renal failure) were observed.
Conclusions/Next steps: The very rapid uptake of PrEP-related health care shows the popularity of PrEP use among MSM and the high need for PrEP-related care among informal self-obtaining PrEP users. Upscaling of PrEP-related care is needed in the Netherlands to meet the demand. Informal PrEP users used both daily and event-driven dosing regimens, indicating that implementation programs should offer both modalities to ensure optimal uptake of PrEP.

WEPEC219

Sexual behavior and PrEP uptake among young African women in a demonstration project about PrEP delivery

D. Travill[1], L.G. Bekker[2], S. Delany-Moretlwe[1], E. Bukusi[3], J. Imrie[1], E. Rousseau-Jemwa[2], V. Omollo[3], L. Kidoguchi[4], J. Morton[4], G. O'Malley[4], G. Barnabee[4], R. Heffron[4], A. van der Straten[5], S. Roberts[5], J. Haberer[6], R. Johnson[4], J. Baeten[4], C. Celum[4], POWER Study Team
[1]Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [2]Desmond Tutu HIV Foundation, Cape Town, South Africa, [3]Kenya Medical Research Institute, Kisumu, Kenya, [4]University of Washington, Seattle, United States, [5]Research Triangle Institute, San Francisco, United States, [6]Massachusetts General Hospital, Boston, United States

Background: Adolescent girls and young women (AGYW) in sub-Saharan Africa are an important population who could benefit from PrEP. We assessed PrEP uptake and sexual behavior in the Prevention Option for Women Evaluation Research (POWER) cohort.
Methods: POWER is an open label PrEP implementation project investigating PrEP delivery for AGYW aged 16-25 years. PrEP is integrated with reproductive health services at family planning clinics (Kisumu, Kenya), an adolescent and youth-friendly clinic (Johannesburg, South Africa [SA]) and a mobile van for reproductive health services for youth (Cape Town, SA). AGYW are offered PrEP according to national guidelines at quarterly visits over three years. Using baseline demographic and behavioral data,

a standardized risk score derived from the VOICE clinical trial was calculated. This VOICE risk score (VRS) was modified to exclude bacterial STIs and HSV2 seropositivity, which are not available at screening, and has a maximum score of 8; VRS ≥4 correlated to an annual HIV incidence >3% and VRS ≥5 correlated to >9% annual HIV incidence in VOICE.
Results: From June through December 2017, 330 AGYW enrolled in POWER (Kisumu n=137, Johannesburg n=107, Cape Town n=86). The median age is 20.5 years (interquartile range [IQR]=19-22) and marital status varied by geographic region (30% married in Kenya vs. 0% in SA). Most participants (82%) were single but had a steady sexual partner, and 17% reported >1 partner in the past three months. Two-thirds (68%) did not know their partners' HIV status and only 4% were in a known serodiscordant relationship. Self-reported consistent condom use was low (18%) and half (54%) reported contraceptive use. HIV risk, as measured by the VRS, was high: 72% had a VRS ≥5 and 93% had a VRS ≥4. PrEP uptake at the initial visit was 90% across all sites. The main reasons for declining PrEP were fears of HIV stigma or partner reactions.
Conclusions: AGYW in Kenya and South Africa had evidence of high HIV risk using a previously validated risk score, indicating that women initiating PrEP would benefit from it. Notably, they also had high willingness to initiate PrEP when delivered in these youth-friendly settings.

WEPEC220

Outcomes of a pilot intervention of voluntary medical male circumcision and HIV education program for adolescent street youth in Western Kenya

P. Shah[1], M. Kibel[2], D. Ayuku[3], D. Makori[1], E. Kamaara[4,5], E. Choge[4,5], J. Nyairo[5], P. Abuya[5], M. Wahome[4,5], J. Wachira[3], P. Braitstein[1,2,3]
[1]Academic Model Providing Access to Healthcare (AMPATH), Eldoret, Kenya, [2]University of Toronto, Dalla Lana School of Public Health, Department of Epidemiology, Toronto, Canada, [3]Moi University, College of Health Sciences, Department of Behavioural Sciences, Eldoret, Kenya, [4]Moi University, School of Arts and Social Sciences, Department of Philosophy and Religious Studies, Eldoret, Kenya, [5]African Christian Initiation Program, Eldoret, Kenya

Background: There is a substantial epidemic of HIV among street-connected children and youth (SCY) in Eldoret, Kenya. Voluntary male medical circumcision (VMMC) is extremely effective in reducing the risk of HIV transmission. For many Kenyans, circumcision and traditional teachings are a cultural rite of passage. This paper describes the outcomes of a pilot project offering a coming-of-age initiation retreat that included VMMC and educational modules to this population.
Methods: Through outreach and sensitization, male street youth aged 12-24 were invited to participate. The retreat took place over 10 days in three groups from December 2016 to May 2017. After circumcision and healing, youth participated in education modules covering sexual health, substance abuse, HIV/AIDS, and life skills. Pre- and post quantitative surveys assessed HIV knowledge and attitudes, resilience, and self-esteem. HIV knowledge was scored out of 20, and the RS-14 and the Rosenberg Self-Esteem Scale were used to measure resilience and self-esteem, respectively. Pre- and post-intervention response frequencies were compared using McNemar's test, and composite scores were compared using the paired Student's T-test or the Wilcoxon Sign-Rank test.
Results: One hundred and sixteen male SCY (median age 14, IQR 13-15) took part. There was a significant increase in HIV knowledge scores before and after the retreat (15.6 vs. 17.6, p=0.001), with those aged 12-14 showing a greater increase compared to the older age group. There was a significant increase in the number of youth who thought condoms were safe (85.2% vs. 95.7%, p< 0.005), who said a man and a woman should decide to use a condom together (27.8% vs. 56.5%, p< 0.001), and who said they would treat a friend the same way if they found out they were HIV positive (68.7% vs. 87.0%, p=0.001). RS-14 scores increased after the retreat (77.5 vs. 80.8, p< 0.001), and there was a non-significant increase in RSES scores (26.0 vs. 26.4%).
Conclusions: This pilot project demonstrated that it is possible to effectively engage SCY, a hard-to-reach and high-risk population, in HIV prevention interventions. Tailored HIV education may improve knowledge, attitudes, and perceptions around HIV, as well as contribute to positive mental wellbeing of SCY.

WEPEC221

PrEP for HIV prevention in Shiselweni, Swaziland: Early uptake and month one retention

R. Nesbitt[1], Q. Mpala[1], C. Mamba[1], B. Kerschberger[2], E. Mabhena[1], M.L. Tombo[1], L. Garcia Abrego[1], M. Daka[1], S. Mathurin Kabore[2], S. Matse[3], M. Pasipamire[3], A. Telnov[4], N. Staderini[4], J. Goiri[4], I. Ciglenecki[4]
[1]Médecins Sans Frontières, Nhlangano, Swaziland, [2]Médecins Sans Frontières, Mbabane, Swaziland, [3]Ministry of Health, Swaziland National Aids Program, Mbabane, Swaziland, [4]Médecins Sans Frontières, Geneva, Switzerland

Background: Despite a major reduction in HIV incidence of 44% from 2011-2016 in Swaziland, specific populations remain at high risk, particularly young women and sero-discordant couples. In 2015, the WHO strongly recommended that oral pre-exposure prophylaxis (PrEP) be offered to people at substantial risk of HIV. The Ministry of Health and Medecins Sans Frontieres are conducting a prospective cohort study of PrEP to determine uptake and retention among people at high risk in the rural region of Shiselweni since September 2017.
Methods: Adults (≥16 years) testing HIV negative at 10 sites were offered a risk assessment with a counsellor, comprising six risk behaviours. Those at risk and interested in PrEP were screened for eligibility by a nurse, excluding acute HIV infection (AHI), renal impairment, and hepatitis B. Here we report predictors of early uptake using logistic regression and one month retention in clients screened between September and December 2017.
Results: Out of 438 HIV negative people screened for risk of HIV infection, 333(76%) were identified at risk, reporting a median of 2 risky behaviours in the past six months. Of those, 170 (51%) were interested in PrEP, and 121 (36%) initiated PrEP. Median age was 26.7 years (IQR 21-36), 99 (82%) were female. Females initiating PrEP were younger than males (p=0.01), and all clients initiated on PrEP below 20 years were female. Among those initiated, 47 (39%) reported an HIV positive partner. In multivariable analysis among clients at risk, age below 20 and above 40 years (aOR 2.53, 95 %CI: 1.22-5.26, p=0.01; OR 4.67, 95% CI 1.53-14.22, p=0.007) and an HIV positive partner (aOR 4.13, 95 %C I1.75-9.74, p=0.001) were predictive of PrEP initiation. Among 108 clients initiating between September and November 2017, 69 (64%) returned for month one follow up visit, with no difference by gender (p=0.67).
Conclusions: The majority of HIV negative people screened for risk in Shiselweni are at risk of HIV infection. Interest in PrEP is moderate; however, there is demand among high risk target groups, namely young women and those reporting sero-discordant relationships. Strategies to increase PrEP demand and retention are required in order to optimize this intervention.

WEPEC222

Retention and adherence to PrEP among MSM and transgender women in Thailand's 'Princess PrEP program': The key population-Led PrEP program

J. Jantarapakde[1], S. Pengnonyang[1], T. Sungsing[1], P. Meekrua[2], P. Brutrat[2], P. Panpet[3], F. Suwan[3], S. Pangpoom[4], S. Sangtong[5], S. Singhor[6], S. Promthong[1], P. Phiayura[1], W. Sirisakyot[1], P. Rattakitvijunnanakorn[1], P. Mingkwanrungruang[1], D. Trachunthong[1], S. Charoenying[7], S. Mills[7], R. Vannakit[8], N. Phanuphak[1], P. Phanuphak[1]
[1]The Thai Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand, [2]Service Workers In Group Foundation, Bangkok, Thailand, [3]Rainbow Sky Association of Thailand, Bangkok, Thailand, [4]Sisters Foundation, Chonburi, Thailand, [5]MPlus Foundation, Chiang Mai, Thailand, [6]Caremat, Chiang Mai, Thailand, [7]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [8]Office of Public Health, U.S. Agency for International Development Regional Development Mission Asia, Bangkok, Thailand

Background: Key population (KP)-led PrEP service delivery is an innovative and promising way to deliver PrEP in a non-judgemental and accessible way to people truly in need of PrEP. The 'Princess PrEP program' in Thailand provides PrEP without cost to MSM and transgender women (TGW) in KP-led clinics by trained KP community health workers (KP-CHW).

Methods: PrEP was provided to MSM and TGW in 7 KP-led clinics in Bangkok, Chiang Mai, Chonburi, and Songkhla, using 'Same-Day PrEP flow'. KP-CHW assessed risks, screened for acute retroviral symptoms, performed HIV testing, and collected blood for creatinine clearance (CrCl) and HBsAg. HIV test results were available within an hour and 1 PrEP bottle was given on the same day. KP-CHW contacted PrEP clients 1-2 days later to inform them of their CrCl and HBsAg and provide guidance to continue/discontinue PrEP. Self-administered questionnaires were used to collect demographic and behavioural risk data. We used binary logistic regression to identify factors associated with PrEP adherence and retention.
Results: During January 2016-June 2017, 937 MSM and 146 TGW accessed PrEP through this program. Mean (±SD) age was 28.7 (±7.2) years and 32.7% aged <18 years at first sex. In the past 3 months, 62% had multiple partners, 46.9% self-perceived moderate/high HIV risk, 42.5% used condoms inconsistently, 32% reported substance/stimulant drug use, and 19.3% had group sex. At months 1, 3 and 6, 72.4%, 61%, and 52% were retained, respectively. Among those retained, 95.8% reported taking PrEP >/=4 pills/week. There was no seroconversion among PrEP-adherers. HIV incidence (95% CI) among PrEP non-adherers was 3.65 (1.52-8.77). Age >25 years (aOR=1.96, 95%CI=1.46-2.62, *P*=0.007), being MSM (aOR=3.49, 95%CI=2.29-5.31, *P*=< 0.001), and having bachelor degree and above (aOR=2.30, 95%CI=1.72-3.08, *P*=0.04) increased PrEP adherence. Being MSM (aOR=1.83, 95%CI=1.24-2.69, *P*=0.005) and being ≥18 years at first sex (aOR=1.42, 95%CI=1.08-1.86, *P*=0.048) increased retention.
Conclusions: This KP-led PrEP program successfully reached MSM and TGW who were at high risk for HIV. Innovative approaches to address inadequate retention and adherence among PrEP users, especially those who are TGW, young, and have low education, are urgently needed in order to achieve the maximum prevention benefit of PrEP.

WEPEC223

High prevalence of curable STIs among young women initiating PrEP in Kenya and South Africa

J. Morton[1], E. Bukusi[2], S. Delany-Moretlwe[3], L.-G. Bekker[4], V. Omollo[2], D. Travill[3], E. Rousseau-Jemwa[4], L. Kidoguchi[1], R. Johnson[1], C. Celum[1], J. Baeten[1], for the POWER Study Team
[1]*University of Washington, Seattle, United States,* [2]*Kenya Medical Research Institute, Kisumu, Kenya,* [3]*Wits Reproductive Health and HIV Institute, Johannesburg, South Africa,* [4]*Desmond Tutu HIV Foundation, Cape Town, South Africa*

Background: Sexually transmitted infections (STIs) are common worldwide, although data on STI prevalence are often lacking for settings in Africa due to limited diagnostic resources. For women interested in initiating pre-exposure prophylaxis (PrEP) for HIV prevention, diagnosis of an STI is a potential marker for HIV risk and treatment can reduce onward STI transmission as well as HIV risk.
Methods: The Prevention Options for Women Evaluation Research (POWER) Cohort is an open label PrEP implementation project for sexually active HIV-negative women ages 16-25 in Cape Town and Johannesburg, South Africa and two clinics in Kisumu, Kenya. PrEP is delivered in accordance with national guidelines; nucleic acid amplification testing for gonorrhea and chlamydia is conducted at baseline and if positive, national standard of care treatment provided.
Results: To date, 330 women have enrolled, of whom 300 (91%) women accepted PrEP. Median age was 20.5 years. Most women (86%) were unmarried and 17% reported having more than one current sex partner. A third of women (34%) tested positive for a curable STI (29% *Chlamydia trachomatis* and 11% *Neisseria gonorrhoeae*, with 6% having both infections). STI prevalence was high at all sites: 40% and 16% at the two clinics in Kisumu, 38% in Cape Town, and 35% in Johannesburg (Table). Younger women were significantly more likely to have an STI than older women (53% prevalence among ages 16-17 years, 39% ages 18-21, and 22% ages 22-25, p<0.01). Only 5.5% of women reported symptoms of an STI at the time of testing.
Conclusions: Young women in Kenya and South Africa participating in a PrEP implementation project had high prevalence of gonorrhea and chlamydia, a marker of high HIV risk as well as a cause of adverse reproductive health consequences. Interventions for STI prevention, diagnostic testing, and optimized treatment for young women are urgently needed.

	Gonorrhea and/or Chlamydia	Gonorrhea	Chlamydia	Both Gonorrhea and Chlamydia
Kenya - Kisumu (private family planning clinic) (n=81)	32 (40%)	12 (15%)	28 (35%)	8 (10%)
Kenya - Kisumu (public family planning clinic) (n=49)	8 (16%)	4 (8%)	5 (10%)	1 (2%)
South Africa - Cape Town (mobile service delivery) (n=79)	30 (38%)	9 (11%)	27 (34%)	6 (8%)
South Africa - Johannesburg (youth-friendly clinic) (n=98)	34 (35%)	9 (9%)	29 (30%)	4 (4%)
Total (n=307)	104 (34%)	34 (11%)	89 (29%)	19 (6%)

[Curable STI prevalence by site]

WEPEC224

A PrEP demonstration project among female sex workers in India: Lessons for scaling up

S. Reza-Paul[1], L. Lazarus[1], R. KN[2], V. MS[2], M. Ramaiah[2], M. Becker[1], S.M. Mahmud[1], R. Lorway[1], S. Moses[1]
[1]*University of Manitoba, Winnipeg, Canada,* [2]*Ashodaya Samithi, Mysore, India*

Background: Despite the success of HIV prevention interventions for female sex workers (FSW), reducing HIV incidence in this population remains a challenge. The efficacy of PrEP has been well-established, but the ability to scale-up PrEP among FSW in India is uncertain. We implemented a PrEP demonstration project over the past 3 years, in partnership with Ashodaya Samithi, a community-based organization of FSW in Mysore and Mandya, south India.
Methods: We examined prospectively the introduction of PrEP, together with HIV prevention services. Community mobilizers regularly followed-up and monitored progress. Community-led strategies promoted and supported adherence to the drug regimen, a daily oral single dosage of tenofovir disoproxil fumarate (TDF) 300mg + emtricitabine 200mg. Eligibility criteria included: FSW >18 years old; tested negative for HIV, pregnancy, and hepatitis B; creatinine clearance >60ml/min. Participants underwent follow-up every 3 months for 15 months to test for HIV, pregnancy, and renal function, along with physical examination, reinforcement of HIV prevention measures, and a questionnaire on socio-demographic characteristics and drug adherence. A sample of women provided blood for TDF levels.
Results: 707 FSW were screened for the study, and 55 were ineligible. Of the 652 eligible, 647 were enrolled. To date, 617 have completed 15 months follow-up and 23 are still being followed, for 99% retention. The median age was 35, 91% practiced home-based sex work, and the remainder street-based; 86% reported a regular sex partner. GI side effects were reported initially by 82 FSW, decreased over time, and did not require stopping PrEP. No other adverse events were reported. Reported condom use remained high, and only 6 episodes of STIs were identified and treated (syndromic). There were no positive RPR or HIV tests. In two separate rounds, 85 and 84 participants underwent TDF blood testing; drug levels >40ng/ml were detected among 80% and 90% respectively.
Conclusions: We documented high levels of study retention and PrEP adherence. Generating community consensus around PrEP and fostering community-driven mobilization and adherence support strategies were central to high and consistent uptake. Low STI prevalence supports self-reported high condom usage. Policy advocacy to include PrEP as an additional HIV prevention tool is planned.

Scale-up of PrEP, PEP, male circumcision

WEPEC225

PrEP implementation in New York State: Using technical assistance to support clinical scale-up

C. Ferraris, T. Wilder, N. Harris
Mount Sinai Institute for Advanced Medicine, New York, United States

Background: Fewer than 10% of people in the U.S. who meet criteria for HIV pre-exposure prophylaxis (PrEP) have received a prescription. In tandem with education and awareness efforts for consumers, clinical settings need to scale-up efforts on PrEP delivery. However, providing PrEP comes with its own challenges ranging from staff buy-in, limited resources, and revisiting existing clinic workflows. More research is needed to understand what guidance and tools sites require to expand PrEP service provision.
Description: Seven PrEP implementation technical assistance (TA) sessions were held across New York State (NYS) over a two-year period. These sessions were initiated by leadership teams in various medical settings seeking to streamline and expand their PrEP services and facilitated by program staff and clinical content experts. A preliminary conventional content analysis of the TA sessions was performed to understand larger themes and devise next steps.
Lessons learned: Clinical sites requesting TA sessions comprised of two family planning settings, two community health clinics, two hospital centers, and a student health center. Initial themes from the content analysis showed that clinical sites required the most assistance with clinic flow, HIV testing technologies, and electronic medical record (EMR) utilization. Clinic flow as a theme related to the understanding of how PrEP screening, education, adherence counseling, and STI testing can be split between multiple staff roles. Most sites indicated they wanted to follow a comprehensive health approach, usually used for HIV positive individuals, and sought guidance on how to leverage this model for HIV negative individuals. Sites also sought guidance about HIV testing technologies and testing best practices when initiating and following a consumer on PrEP. Lastly, sites were interested in examining how EMRs can be used to help medical providers screen candidates, discuss the necessary points of education, and provide counseling in a streamlined manner.
Conclusions/Next steps: To ensure PrEP reaches its potential, more guidance and assistance is needed. Clinical sites indicated a need for more implementation resources around best practices in clinic flows, incorporation of the latest HIV testing technologies, and utilizing EMRs to support medical providers in screening for and prescribing PrEP.

WEPEC226

PrEParing for implementation: Very low PrEP awareness in a sample of men who have sex with men and transgender women reporting condomless receptive anal intercourse in Lima, Peru

W. Gonzales-Saavedra[1], R.C. Passaro[2,3], E.R. Segura[2], A. Perez-Brumer[4], A. Florez[1], M. Reyes[1], R. Lama[1], E. Cachay[1], J.L. Clark[2], R. Cabello[1,2]
[1]*Asociación Civil Via Libre, Lima, Peru,* [2]*South American Program in HIV Prevention Research, David Geffen School of Medicine, University of California, Los Angeles, United States,* [3]*College of Medicine, University of Tennessee Health Science Center, Memphis, United States,* [4]*Columbia University Mailman School of Public Health, New York, United States*

Background: While men who have sex with men (MSM) and transgender women (TW) have been the focus of numerous combined HIV prevention strategies, these groups still account for more than 60% of new HIV infections in Peru. To improve understanding of factors influencing pre-exposure prophylaxis (PrEP) knowledge and uptake, we studied PrEP awareness and motivations/barriers to PrEP use among MSM and TW in Peru.
Methods: In a 2017 cross-sectional study of rectal STI screening and HIV prevention, MSM/TW reporting condomless receptive anal intercourse (cRAI) were tested for rectal gonorrhea (GC) and chlamydia (CT), syphilis, and HIV. PrEP awareness was assessed by asking participants if they had heard about "PrEP", "Pre-Exposure Prophylaxis," or "Daily Truvada to Prevent HIV". Poisson regression analyses (adjusted for age, education, sexual orientation, size of the participant's gay-identified social network, and HIV testing history) estimated correlates of PrEP awareness separately for HIV-negative MSM and TW.
Results: Out of 465 MSM (median age 27 years) and TW (median age 30 years), only 24.0% (87/357) of MSM and 23.2% (25/108) of TW had heard of PrEP. While PrEP awareness among MSM was associated with prior HIV testing (aPR, 95% CI: 3.74, 1.57-8.92), no factors were associated with PrEP awareness in TW. MSM and TW with prior knowledge of PrEP reported similar barriers (fear of adverse effects (46.9%) and cost (27.8%)) and motivations to use PrEP (lapses in condom use (66.2%) and additional protection against HIV infection (40.3%)). 95.0% of MSM and 93.5% of TW surveyed stated they would be interested in learning more about and/or using PrEP in the future. MSM and TW who were not aware of PrEP had higher frequencies of syphilis (7.6% vs. 1.1%; p=0.02) and rectal GC/CT (23.6% vs. 15.2%; p=0.06) than those who were aware of PrEP.
Conclusions: Despite a history of clinical research assessing PrEP efficacy and implementation in Peru, PrEP awareness among MSM/TW at high-risk of HIV infection is very low. Innovative strategies, like incorporating PrEP education into rectal STI screening programs, are needed to increase awareness and uptake among MSM and TW who have not previously been engaged by HIV prevention services.

WEPEC227

A self-administered internet survey on socioeconomic disparities in access to and willingness to take PrEP among Latino MSM in San Antonio, TX

M. García[1], G. Saw[2]
[1]*Houston Health Department, Houston, United States,* [2]*UTSA, San Antonio, United States*

Background: Latino Men who have Sex with Men (LMSM) are the second largest group affected by HIV in the US and incidence rates continue to grow for LMSM ages 25-34 in 2016. Racial disparities persist among PrEP use and LMSM are less likely to consider PrEP as a viable option, which requires further research to enhance access to PrEP for LMSM.
Methods: LMSM in San Antonio, TX were recruited to complete a self-administered Internet survey. Participants were asked about their awareness and current use of PrEP. Only LMSM currently not on PrEP were asked about their willingness to take PrEP. Chi-square and multiple regression analyses were conducted to test the significant differences in PrEP-related measures between higher and lower socioeconomic status (SES) groups, measured by education (some college or below vs. bachelor's degree or above) and household income (< $49,999 vs. ≥$50,000).
Results: Of 154 LMSM (Mean age = 25.2) who self-reported HIV negative, 52.6% had a bachelor's degree or higher and 50.6% had an annual household income of ≥$50,000. Higher-educated and higher-income LMSM reported significantly higher rates of PrEP awareness (92.6% vs. 32.9% and 93.6% vs. 34.2%) and PrEP usage (72.8% vs. 1.4% and 75.6% vs. 1.3%). Lower-educated and lower-income LMSM currently not on PrEP had significant lower level of willingness to take PrEP daily (56.9% vs. 86.4% and 54.7% vs. 100%) and concerns associated with PrEP-related side effects such as "nausea, dizziness, vomit, diarrhea, or stomach pain" (15.3% vs. 59.1% and 13.3% vs. 73.7%), "liver damage" (5.6% vs. 40.9% and 5.3% vs. 47.4%), and "kidney damage" (6.9% vs. 40.9% and 8.0% vs. 42.1%). Lower-income LMSM not on PrEP reported significant higher levels of mistrusting the government giving them PrEP (46.7% vs. 21.1%) and PrEP as an experimental drug (57.3% vs. 21.1%). Higher-educated and higher-income LMSM not on PrEP had significant higher levels of being stigmatized as sexually promiscuous for taking PrEP (86.4% vs. 61.1% and 84.2% vs. 62.7%).
Conclusions: Prevention programs promoting PrEP should address concerns for low-SES LMSM on PrEP side effects and misconceptions of PrEP as an experimental drug, whereas for high-SES LMSM on PrEP related stigmatization.

WEPEC228

Exploring the use of pre-exposure prophylaxis (PrEP) for HIV prevention among high risk drug users in treatment

R. Shrestha, M. Copenhaver
University of Connecticut, Allied Health Sciences, Storrs, United States

Background: Despite unequivocal evidence supporting the use of pre-exposure prophylaxis (PrEP), its scale-up has been gradual overall, and nearly absent among people who use drugs (PWUD). We implemented the use of PrEP as a part of an integrated primary HIV prevention approach among PWUD who exhibited high HIV transmission risk behaviors. In the present study, we explored the experiences, attitudes, acceptability, disclosure status, risk compensation-related attitudes, and barriers to adherence among PWUD using PrEP.

Methods: Between September 2016 and July 2017, we recruited 40 HIV-uninfected, methadone-maintained people, who reported HIV-risk behaviors, and initiated on PrEP. We conducted both quantitative and in-depth semi-structured qualitative interviews that primarily focused on experiences, attitudes, acceptability, disclosure status, risk compensation-related attitudes, and barriers related to PrEP adherence.

Results: Results showed that participants were highly satisfied and perceived PrEP as valuable and acceptable (mean: 77.7±13.9) for HIV prevention. Participants reported high adherence to PrEP with a mean adherence score of 87.6 (±18.6). A considerable proportion of the participants reported to have disclosed their PrEP status to other people (77.5%), and out of these, 67% disclosed their status to their friends, 45.2% to their spouse, followed by their parents (25.8%) and children (6.5%). The most highly endorsed facilitators to PrEP adherence were use of memory aids, no out-of-pocket cost, perceived benefit, and support from social network. The barriers to adherence included side-effects, stigmatization, requirement of daily dosing, and accessibility of PrEP services. Additionally, participants expressed disagreement with the overall risk compensation-related attitudes (i.e., decreased personal concern about engaging in HIV risk behavior due to their perception that PrEP is now fully protecting them from contracting HIV) and indicated no increased engagement in risk behaviors while on PrEP.

Conclusions: The results from the current study provide preliminary evidence supporting the successful integration of PrEP within the substance abuse treatment setting, where high risk PWUD can be readily reached. We believe our findings have encouraging implications for future public health research and for health promotion interventions, practices, and policies for PWUD, particularly in real world treatment settings.

WEPEC229

Describing levels of uptake and non-uptake of voluntary medical male circumcision services during HPTN 071 (PopART) study, Zambia

E. Sakala
Zambart, PopART Intervention, Lusaka, Zambia

Background: : HPTN 071 (PopART) is a 3-arm community-randomized trial in 21 communities, 12 in Zambia and 9 in South Africa, which will determine the impact of a combination prevention intervention on HIV incidence. Community HIV-care Providers (CHiPs) delivered the intervention door-to-door for 4 years, offering HIV testing, TB screening, referral to care for HIV or TB, and providing other services, including information and referral for voluntary male medical circumcision (VMMC). We analyzed VMMC uptake by men who received the intervention from 8 Zambian intervention communities.

Methods: Participants eligible for circumcision were males who were not circumcised and not known to be HIV positive. VMMC status was determined by self-report and entered electronically. Those who were not known to be HIV positive and not circumcised were referred to the health facility. CHiPs followed up referred clients a month later or during any subsequent visits to establish if they had been circumcised. During follow up those found not circumcised if still HIV negative, and expressing a willingness to be circumcised, were referred again.

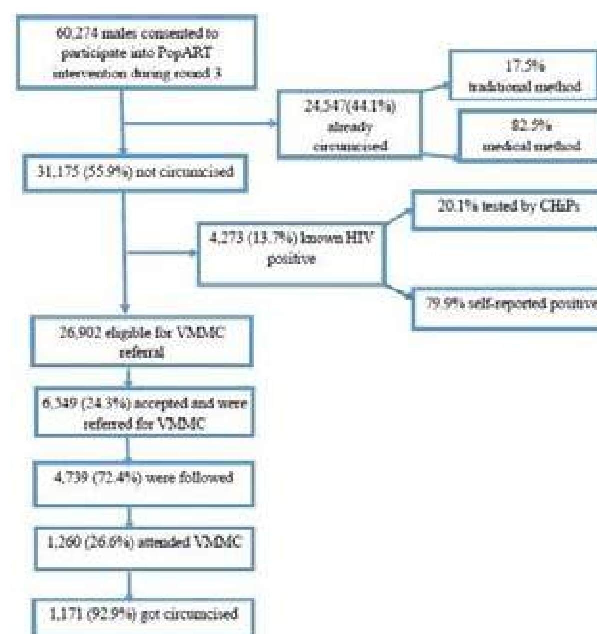
The data analyzed were collected from CHiPs records for the final year of the intervention (September, 2016 to September 2017).

Results: During this period, 60,274 males consented to participate in the PopART intervention, and we were able to ascertain the circumcision status of 55,722. Of these, 24,547(44.1%) were already circumcised (17.5% traditional & 82.5% medical methods). Of those not circumcised, 4,273 (13.7%) were known HIV positive leaving 26,902 who were not known to be HIV positive and uncircumcised, and therefore eligible for VMMC referral. Of those eligible, 6,549 (24.3%) accepted referral and were referred for VMMC, and of those referred, 4,739 (72.4%) were followed up at least once after referral. Among those followed up, 1,260 (26.6%) had attended a health facility for VMMC, and of those attending the health facility 1,171 (92.9%) received VMMC. Males aged between 18-24 years were more likely to be circumcised than those ≥25 years (Table 1)

Conclusions: Door to door information delivery and referral can contribute to more males taking up VMMC, but there is still a large drop-out between referral and seeking circumcision.

Age group (years)	Community 1	Community 2	Community 5	Community 6	Community 8	Community 9	Community 10	Community 11	All
18-19	20/74 (27.0%)	5/36 (13.9%)	38/127 (29.9%)	28/68 (41.2%)	38/199 (19.1%)	32/160 (20.0%)	17/32 (53.1%)	12/22 (54.5%)	190/718 (26.5%)
20-24	28/131 (21.4%)	14/70 (20.0%)	73/236 (30.9%)	75/144 (52.1%)	104/437 (23.8%)	70/338 (20.7%)	37/79 (46.8%)	10/29 (34.5%)	411/1,464 (28.1%)
25-34	15/149 (10.1%)	12/70 (17.1%)	55/197 (27.9%)	62/160 (38.8%)	70/427 (16.4%)	51/306 (16.7%)	53/100 (53.0%)	9/41 (22.0%)	327/1,450 (22.6%)
35-44	11/67 (16.4%)	6/27 (22.2%)	22/101 (21.8%)	31/81 (38.3%)	34/188 (18.1%)	32/146 (21.9%)	18/34 (52.9%)	3/14 (21.4%)	157/658 (23.9%)
45+	6/29 (20.7%)	3/12 (25.0%)	14/81 (17.3%)	19/95 (20.0%)	13/107 (12.1%)	15/87 (17.2%)	14/31 (45.2%)	2/7 (28.6%)	86/449 (19.2%)
All	80/450 (17.8%)	40/215 (18.6%)	202/742 (27.2%)	215/548 (39.2%)	259/1,358 (19.1%)	200/1,037 (19.3%)	139/276 (50.4%)	36/113 (31.9%)	1,171/4,739 (24.7%)

[Table 1: Proportion of clients who received VMMC among those referred and had follow up data available, by community and age group]



[Flow diagram showing the VMMC cascade of participants during PopART interventions in Zambia for the period September, 2016 to September, 2017]

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WEPEC230

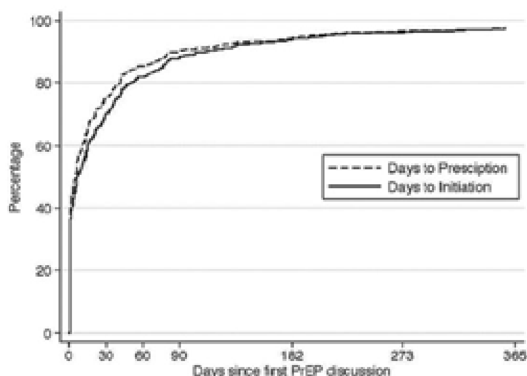
Delays in PrEP initiation among at-risk patients in a large network of primary care clinics

M.A. Spinelli[1], H. Scott[1,2], E. Vittinghoff[3], A.Y. Liu[2], A. Morehead-Gee[4], R. Gonzalez[2], M. Gandhi[1], S.P. Buchbinder[2,3]
[1]University of California, Division of HIV, ID and Global Medicine, San Francisco, United States, [2]San Francisco Department of Public Health, Bridge HIV, San Francisco, United States, [3]University of California, Department of Epidemiology and Biostatistics, San Francisco, United States, [4]University of California, Department of Medicine, San Francsico, United States

Background: Reducing delays in PrEP initiation is critical in high-risk populations to reduce HIV incidence. We sought to examine factors associated with timely PrEP initiation in the San Francisco Public Health Primary Care Clinics (SFPCC).
Methods: Demographic data, prescriptions, and dates of first PrEP discussion and patient-reported PrEP initiation date were abstracted from charts of SFPCC PrEP users from 3/1/13-7/31/17. We examined factors associated with shorter intervals between first chart-documented PrEP discussion and: 1. first PrEP prescription; 2. patient-reported PrEP initiation date, using a Cox proportional-hazards model, with hazard ratios (HR) >1 indicating associations with earlier prescription/initiation.
Results: Overall, 403 PrEP-using patients had pharmacy and visit data available. Mean age was 37; 85% were male; 8% Asian, 13% African-American, 27% Latino, 17% other, 36% White. PrEP starts increased every year, from 67 in 2013/14 to 165 in 2016. Overall, 65% were prescribed PrEP with an indication of MSM; 16% sero-different relationship, 13% transgender women having sex with men, 5% high-risk heterosexual, and 1% IDU. Of initiators, 24% received panel management/patient navigation support. Patients received a prescription and initiated PrEP after first PrEP discussion after a mean of 34 days and 37 days respectively. For 30%, PrEP initiation was delayed >30 days, and 10% waited >90 days. In an adjusted Cox proportional-hazards model, only receipt of panel management/patient navigation was associated with shorter intervals between PrEP discussion and PrEP prescription (HR:1.57; 95% CI:1.16-2.12). When examining the alternate outcome of time between PrEP discussion and patient-reported PrEP initiation date, panel management/navigation remained significant (HR:1.54; 1.14-2.09). However, African-American race compared to White race was now associated with longer delays in PrEP initiation (HR: 0.69; 0.49-0.97).

	Adjusted HR for PrEP Prescription (95% CI)	p-value	Adjusted HR for PrEP Initiation (95% CI)	p-value
Age	1.00 (0.99-1.01)	0.420	0.99 (0.99-1.00)	0.046
Male sex at birth	0.98 (0.69-1.40)	0.930	0.89 (0.62-1.27)	0.530
Race/ethnicity vs. White: Asian	1.18 (0.78-1.78)	0.440	1.05 (0.69-1.58)	0.830
Black	0.82 (0.58-1.15)	0.250	0.69 (0.49-0.97)	0.032
Latino	1.08 (0.82-1.41)	0.590	1.02 (0.77-1.34)	0.910
Other	0.74 (0.55-1.01)	0.060	0.70 (0.51-0.95)	0.022
Insurance vs. uninsured: public	0.84 (0.61-1.15)	0.270	0.84 (0.61-1.16)	0.290
private	0.93 (0.56-1.54)	0.770	1.02 (0.61-1.69)	0.950
Panel management/ patient navigation	1.57 (1.16-2.12)	0.004	1.54 (1.14-2.09)	0.006

[Factors Predictive of Earlier PrEP Prescription and PrEP Initiation in a Cox Proportional-Hazards Model (Also Adjusted for PrEP Indication and Year)]



[Kaplan-Meier Curve Depicting Time from PrEP Discussion to Initial PrEP Prescription and Patient-Reported PrEP Initiation]

Conclusions: Nearly 1/3 of at-risk patients experienced delays of >1 month in initiating PrEP, and 10% had delays of >3 months. African-Americans, who have the highest HIV incidence in San Francisco, were more likely to experience delays in PrEP initiation, but not in receipt of a prescription. Close follow-up after initial PrEP prescription, with the support of patient navigation and panel management, could reduce delays in PrEP initiation and racial/ethnic disparities across all high-risk groups.

WEPEC231

Proportion of early infant male circumcisions (EIMC) performed compared to male deliveries in eight pilot sites in Iringa, Tanzania

A. Hellar[1], K. Ngonyani[1], A. Christensen[1], M. Machaku[1], T. Maokola[1], M. Drake[1], F. Phiri[1], A. Maganga[1], M. Mohamed[2], R. Salim[2], G. Lija[3], J. Mushy[3], E. Mlanga[4]
[1]Jhpiego, AIDSFree/VMMC, Dar es Salaam, Tanzania, United Republic of, [2]President's Office Regional Authority and Local Goverment, Iringa RHMT, Iringa, Tanzania, United Republic of, [3]Ministry of Health Community Development Gender Elderly and Children, National AIDS Control Program (NACP), Dar es Salaam, Tanzania, United Republic of, [4]USAID, Dar es Salaam, Tanzania, United Republic of

Background: Following attainment of 80% Voluntary Medical Male Circumcision (VMMC) coverage for HIV prevention among adolescents and adults in Iringa and Njombe regions, Jhpiego, with support from PEPFAR through USAID under the AIDSFree Project started implementing EIMC services to maintain circumcision prevalence over time. The initial EIMC pilot started in four health facilities, then expanded to eight. The facilities included five hospitals, two health centres and one dispensary, all of which provide labor and delivery services. Lessons learned from this pilot will be used to inform other regions in the country during EIMC scale-up.
Methods: We conducted a retrospective review of the client-level EIMC database and of facility delivery statistics to determine the average number of EIMCs per males born in the eight pilot EIMC sites from January - December 2016.
Results: In total, 924 infants received EIMC services in the eight facilities during the review period. The average monthly number of circumcisions conducted per facility ranged from 6-17 EIMCs. Facilities with low number of male deliveries were more effective in providing EIMC services compared to sites with high number of male deliveries (See Table 1). One facility had reached >100% of male infants circumcised possibly by reaching infants born a home or from other facilities.
61.5% of infants circumcised were born in the same facility where they received EIMC services, 33.3% in another facility and 5.1% were born at home. There was no huge difference in the absolute number of infants circumcised in the facilities based on the geographical location or level of the facility.

Facility Name	Geographical location	Total EIMCs Jan-Dec 2016	% out of Total EIMCs	Average monthly EIMCs	Total male deliveries Jan-Dec 2016	Average monthly male births	% of males circumcised
Frelimo Hospital	Urban	119	12.9	10	521	43	23%
Igumbilo Dispensary	Urban	71	7.7	6	84	7	85%
Ilula District Hospital	Semi-urban	167	18.1	14	1151	96	15%
Ipogolo Health Centre	Urban	199	21.5	17	323	27	62%
Iringa Referral Hospital	Urban	81	8.8	7	2285	190	4%
Kidabaga Health Centre	Rural	68	7.4	6	54	5	126%
Mafinga Hospital	Urban	114	12.3	10	908	76	13%
Tosamaganga District Hospital	Urban	106	11.5	9	509	42	21%
Grand Total		924	100.0				

[Table 1: Proportion of EIMCs conducted by facility level, location and number of male infant deliveries in Iringa, January - December 2016]

Conclusions: There is a potential to increase the proportion of infants circumcised especially in sites with a higher volume of male infant births. This shows a need to enhance demand creation efforts during antenatal care and immediate after delivery. Our analysis revealed that the number of EIMCs performed might not be affected by the geographic location or level of the facility. With the proportion born at home who were reached with EIMC services, EIMC services may represent a pathway to health services for male infants.

WEPEC232

Baseline characteristics and risk behaviors among men who have sex with men and transgender women who chose On PrEP and Off PrEP in PrEP demonstration project in Northern Thailand

S. Chariyalertsak[1,2], Q. Kaewpoowat[2,3], T. Supindham[2], P. Saokhieo[2], R. Songsupa[2], S. Taejaroenkul[2], R. Khampan[2]
[1]Chiang Mai University, Faculty of Public Health, Chiang Mai, Thailand, [2]Chiang Mai University, Research Institute for Health Sciences, Chiang Mai, Thailand, [3]Chiang Mai University, Faculty of Medicine, Chiang Mai, Thailand

Background: With an HIV incidence >3% annually among Thai MSM and TGW, the new effective HIV prevention tool as Pre-Exposure Prophylaxis (PrEP) with daily TDF/FTC should be considered as part of comprehensive HIV prevention in people at substantial risk of HIV infection recommended by WHO. We explored baseline factors between MSM/TGW who chose On-PrEP and Off-PrEP in PrEP demonstration project in northern Thailand.
Methods: "PrEP@Piman" is the PrEP demonstration project run at one VCT Clinic (namely "Piman") in Chiang Mai. MSM/TGW aged ≥18 years old who came for HIV testing were informed about daily PrEP as free services for one year if they interested to participate. There were 117 participants who were screened and 105 clients enrolled into PrEP@Piman study between December 2015 and February 2017. Demographic, sexual/behavioral data, and reason to choose On-PrEP or Off-PrEP were collected by computer-assessed self-interview at baseline. Consented HIV testing, HBS-ag, Syphilis, Creatinine Clearance and Urine Protein were performed at baseline. HIV testing will be checked every 3 months when they came back and for drug refill if they were On-PrEP.
Results: Twelve clients were excluded at screening, 1 had HIV+, 4 had HBS-ag+. All screening participants had normal kidney function test. Among 105 clients, 82(78%) chose On-PrEP and 23(22%) Off-PrEP at baseline. Compared between On-PrEP and Off-PrEP, 14.6% and 8.7% were TGW, mean age 26.7 years and 22.8 years, 7 clients and none had Syphilis positive, and 30 % (21/72) and 6.3% (1/16) estimated their own current risk of HIV infection above 40%. There were 7 On-PrEP and 3 Off-PrEP clients reported having HIV+ partners. Common reasons to choose On-PrEP were; 97% prevent HIV infection with other tools, 47% engaged in higher sexual risk and 46% inconsistent condom used. Common reasons for Off-PrEP were; 78% concerned side effects, 47% hated to take daily drug, 34% no problem with other prevention methods and 17% fear stigma as HIV+ people.
Conclusions: Our finding showed main factors and reasons to choose On-PrEP and Off-PrEP among MSM/TGW in Chiang Mai. Both providers and users need to understand these complexities and have better strategies to implement PrEP services for these population.

WEPEC233

Understanding willingness to use oral pre-exposure prophylaxis for HIV prevention among men who have sex with men in China

X. Wang[1], A. Bourne[2,3], P. Liu[1], J. Sun[4], T. Cai[5], G. Mburu[6,7], M. Cassolato[6], B. Wang[6], W. Zhou[1]
[1]Wuhan Centers for Disease Prevention and Control, Wuhan, China, [2]Australian Research Centre in Sex, Health & Society, La Trobe University, Melbourne, Australia, [3]Sigma Research, London School of Hygiene and Tropical Medicine, London, United Kingdom, [4]AIDS Care China, Kunming, China, [5]AIDS Care China, Nanning, China, [6]International HIV/AIDS Alliance, Brighton, United Kingdom, [7]Division of Health Research, Lancaster University, Lancaster, United Kingdom

Background: Oral pre-exposure prophylaxis (PrEP) is recommended as an additional prevention choice for men who have sex with men (MSM) at substantial risk of HIV. The aim of this study was to evaluate the extent, and reasons, for MSM's willingness to use oral PrEP in Wuhan and Shanghai, China.
Methods: Between May and December 2015, a cross-sectional survey was conducted among 487 MSM recruited through snowball sampling in physical locations frequented by MSM and through social media applications. Exploratory factor analysis was used to group reasons for being willing or not willing to use PrEP. Chi-square tests were used to explore bivariate associations between groupings of reasons for being willing or unwilling to use PrEP, and key sociodemographic and sexual-behavioral characteristics of MSM.
Results: Overall, 71.3% of respondents were willing to use PrEP. The most commonly reported reasons for being willing to use PrEP were preventing HIV infection (91.6%), taking responsibility for own sexual health (72.6%) and protecting family members from harm (59.4%). The main reasons for being unwilling to use PrEP were being worried about side effects (72.9%), the necessity of taking PrEP for long periods of time (54.3%) and cost (40.4%). Individual characteristics that influenced the type of reasons given for being willing or unwilling to use PrEP included being married to a woman, having a regular sex partner, rates of condom use with regular and casual sex partners, and the number of casual sex partners.
Conclusions: The introduction of PrEP in China could benefit from promotion campaigns that emphasize its role in preventing HIV infection, in taking responsibility for own sexual health, and in protecting family members from potential harm. To reduce uptake barriers, it will be essential to provide accurate information to potential PrEP users about the mild and short-term nature of side effects, and the possibility of taking PrEP only during particular periods of life when the risk of HIV exposure might be highest.

WEPEC234

Experience with introduction of PrePex device for medical male circumcision for HIV prevention in Kenya (2013-2017)

E. Odoyo-June[1], N. Owuor[2], K. Agot[3], S. Davis[4], J. Hines[4], P. Musingila[1], C. Kisia[5], K. Serrem[6], A. Wanyonyi[6], K. Bartilol[6]
[1]US Centers for Disease Control and Prevention (CDC), DGHT, Nairobi, Kenya, [2]JHPIEGO, Kisumu, Kenya, [3]Impact Research and Development Organization, Kisumu, Kenya, [4]US Centers of Disease Control and Prevention, DGHT, Atlanta, United States, [5]World Health Organization Kenya Office, Nairobi, Kenya, [6]Ministry of Health, National STD/AIDS Control Program, Nairobi, Kenya

Background: Since 2013 Kenya has undergone the three stages outlined in the World Health Organization (WHO) framework for clinical evaluation of male circumcision devices to introduce PrePex in its Voluntary Medical Male circumcision (VMMC) program for HIV prevention. We present experiences from this process.
Description: PrePex was first introduced in Kenya in 2013 during pilot research which assessed its effectiveness, safety and acceptability among 417 adult men. Its safety and operational requirements were further evaluated among 2,195 men under active adverse events (AE) surveillance in routine health care settings in 2015 and 2016. In August 2016, PrePex was endorsed for an open-ended passive roll out which continues to date.
Lessons learned: In the pilot research phase, PrePex circumcision was effective and well-accepted but associated with a higher rate of moderate/severe AEs (5.9% vs 0.2%) and 1-2 weeks longer time to healing than conventional surgical circumcision. Under active AE surveillance, PrePex remained well accepted and with lower moderate/severe AE rate (0.3%) as providers gained experience in its use. In the ongoing passive roll out, 1,134 PrePex circumcision have been conducted and 5 AEs (including one non-fatal tetanus) reported. In 2017, WHO reported a 30 fold higher risk of tetanus associated with PrePex compared to conventional surgical circumcision and recommended full immunization against tetanus (TT) prior to PrePex placement; this let to operational challenges undermining its further roll out.
Conclusions/Next steps: Although PrePex circumcision was initially shown to be effective, safe and well accepted in Kenya, the new requirement for documented full TT immunization before its application has revealed a gap in immunization coverage among Kenyan males. This has hampered widespread use of PrePex as few Kenyans have documentary evidence of full TT immunization and logistics for multiple clinic visits for immunization before PrePex placement are challenging. Thus, PrePex circumcision should only be rolled out in settings with high TT coverage among eligible males or where provision of protective doses of TT before each placement is feasible. Innovative Strategies are needed for efficient use of PrePex in VMMC while minimizing the risk of tetanus.

WEPEC235

Predictors of male circumcision uptake during the Botswana Combination Prevention Project (BCPP) mobilization

T. Marukutira[1,2,3], L. Block[4], L.A. Mills[5], J. Moore[4], P. Bachanas[4], T. Schissler[6], R. Mosha[6], N. Bock[4], O. Komotere[6], K. Mukokomani[7], T. Diswai[6], S.M. Davies[4]
[1]US Centers for Disease Control and Prevention, Botswana Combination Prevention Project, Gaborone, Botswana, [2]Burnet Institute, Public Health, Melbourne, Australia, [3]Monash University, Epidemiology and Preventive Medicine, Melbourne, Australia, [4]US Centers for Disease Control and Prevention, Atlanta, United States, [5]US Centers for Disease Control and Prevention, Gaborone, Botswana, [6]Jhpiego, Gaborone, Botswana, [7]Botswana-Harvard AIDS Institute Partnership, Gaborone, Botswana

Background: Male circumcision (MC) is a proven HIV prevention intervention in sub-Saharan Africa, but uptake has been low in some countries, including Botswana. Better characterization of men who accept versus reject MC could inform demand creation efforts, but information on men who reject MC is rarely available. The Botswana Combination Prevention Project (BCPP) collected population-level data on demographics and HIV risk factors and offered free MC, allowing comparison of those who did and did not accept MC.
Methods: BCPP, a community-randomized trial, enrolled 16-49 year old citizen residents of 30 communities randomized to receive either intensified standard-of-care services or HIV prevention interventions including mobile HIV testing and MC, between October 2013 and February 2016. During the 6-8 week MC surge in the 15 intervention communities, MC was offered in tents or a mobile clinic. All male participants with an HIV-negative test or unknown status who reported being uncircumcised were offered linkage to MC by peer escort, phone-based and in-person mobilization, appointments, reminder calls, and transport. Demographic and risk factors were compared between those who did and did not undergo MC using chi-squared testing.
Results: Of the 15,970 eligible men, 8,534 (53%) reported being uncircumcised. Of these, 577 (7%) underwent MC during the surge. Men who did not get MC were substantially older and more likely to be employed and ever married (Table 1). They had a statistically higher but essentially identical likelihood of reporting two or more sex partners in the past year. They were substantially more likely to believe their recent partner was HIV-positive (15% vs. 5%).

Demographic and risk factors	Underwent MC (n=577)	Did not undergo MC (n=7957)	Chi-sq	p value
Mean age in years (standard deviation)	25 (8)	29 (9)	N/A	<0.001
Completed secondary school	473 (82%)	6252 (79%)	2.83	0.09
Never married	534 (93%)	6521 (83%)	39.68	<0.001
Employed	183 (32%)	3231 (45%)	32.86	<0.001
Reported last sexual partner HIV-positive*	17/354 (5%)	816/5250 (16%)	36.89	<0.001
>1 sexual partner in past 12 months	45 (8%)	469 (7%)	37.38	<0.001
*Among those with at least one sexual partner in the past 12 months				

[Table 1: Demographic and risk factors of men undergoing or not undergoing male circumcision (MC)]

Conclusions: Older age, ever having married, employment, and an HIV-positive partner were factors associated with not seeking MC. Male circumcision programs could improve outreach to men with HIV-positive partners due to their high risk, while also reaching out to the general population. Characterizing and addressing unique barriers to MC for employed and older men may also improve general uptake.

WEPEC236

Depression, network influences and uptake of HIV pre-exposure prophylaxis (PrEP) in men and transgender individuals screening for HIV prevention trial participation

S. Wood[1], K. Morales[2], D. Metzger[3], A. Davis[4], D. Fiore[4], Q. Jackson[1], H. Koenig[5], N. Dowshen[6], R. Gross[7], I. Frank[5]
[1]Children's Hospital of Philadelphia, Division of Adolescent Medicine, Philadelphia, United States, [2]University of Pennsylvania Perelman School of Medicine, Department of Biostatistics, Epidemiology and Informatics, Philadelphia, United States, [3]University of Pennsylvania Perelman School of Medicine, Department of Psychiatry, Philadelphia, United States, [4]University of Pennsylvania Perelman School of Medicine, HIV/AIDS Prevention Research, Philadelphia, United States, [5]University of Pennsylvania Perelman School of Medicine, Division of Infectious Diseases, Philadelphia, United States, [6]University of Pennsylvania Perelman School of Medicine, Pediatrics, Philadelphia, United States, [7]University of Pennsylvania Perelman School of Medicine, Infectious Diseases, Philadelphia, United States

Background: We aimed to assess the relationship between depression and HIV pre-exposure prophylaxis (PrEP) uptake, and determine whether social network PrEP awareness increased utilization. We hypothesized that depression would decrease HIV prevention behavior, and social network influences would increase PrEP uptake and modify the hypothesized association between depression and uptake.
Methods: Cross-sectional study of men and transgender (TG) individuals pre-screening for HIV Vaccine Trials Network and HIV Prevention Trials Network clinical trial participation in Philadelphia, PA. Participants were aged >18 years, born male or identifying as TG, with a history in the preceding six months of anal intercourse with ≥2 TG partners or with any male or TG partners if intercourse was condomless. Survey measures assessed demographics, sexual practices, depression (Patient Health Questionnaire-8, cutoff >10), PrEP use, and network PrEP awareness (# individuals with whom participants discussed PrEP in the prior week). Multivariable logistic regression assessed associations between depression and PrEP uptake, adjusting for age, race, gender, and high HIV risk (Menza score ≥1). An interaction term between network PrEP awareness and depression tested for effect modification.
Results: Participants (n=214) were 88% cisgender males, 7% TG females, 1% TG males, and 3% other gender; and were 44% African-American and 19% Latino. Median age was 27 years (IQR 23-33). Prior PrEP awareness was reported by 92% and PrEP uptake by 33%. Depression was identified in 11%, and median PHQ-8 score was 3 (IQR 0-7). In multivariable logistic regression, there was no significant association between depression and PrEP uptake (aOR 1.71, 95% CI: 0.66-4.44), and no effect modification by network PrEP awareness (aOR 0.97, 95% CI 0.71-1.33). Each additional social contact with whom participants discussed PrEP conferred a 16% greater odds of PrEP uptake (aOR 1.16, 95% CI: 1.02-1.31). African-American race (aOR 2.01, 95% CI: 1.04-3.88) and high HIV risk (aOR 2.51, 95% CI: 1.23-5.1) were also associated with greater odds of uptake.
Conclusions: In this diverse U.S.-based sample, there was no association between depression and PrEP uptake. The greater uptake with increasing PrEP-related network interactions, suggests that social network norms influence initiation. Network-level interventions may hold promise for increasing PrEP uptake.

WEPEC237

Perceived barriers to pre-exposure prophylaxis use among HIV-negative men who have sex with men and transgender women in Tijuana, Mexico: A latent class analysis

R. Patrick[1], J. Jain[1], A. Harvey-Vera[1], S.J. Semple[2], G. Rangel[3], T.L. Patterson[2], H.A. Pines[1]
[1]University of California, San Diego, Department of Medicine, La Jolla, United States, [2]University of California, San Diego, Department of Psychology, La Jolla, United States, [3]US-Mexico Border Health Commission, Tijuana, Mexico

Background: Pre-exposure prophylaxis (PrEP) is an effective intervention to prevent HIV infection among high-risk populations, including men who have sex with men (MSM) and transgender women (TW). Although not currently approved for use in Mexico, PrEP demonstration projects are underway. Understanding barriers to PrEP uptake among those at greatest risk is essential to informing future PrEP programs. We aimed to identify classes of perceived barriers to PrEP use among HIV-negative MSM and TW in Tijuana, Mexico, and identify HIV risk factors associated with class membership.
Methods: From 03/2016-09/2017, 397 participants recruited via venue-based and respondent-driven sampling completed interviewer-administered surveys assessing socio-demographics, sexual and drug use behaviors, and perceived barriers to PrEP use. Barriers were assessed across 4 domains: individual, interpersonal, structural, and product. Latent class analysis was performed to identify distinct classes with respect to perceived barriers to PrEP use. Multinomial logistic regression was used to identify HIV risk factors associated with class membership.
Results: Participants had a median age of 39 years (IQR 29-46), 97% were male, and 34% were gay-identifying. Nearly half perceived themselves at elevated risk for HIV (49%) and 72% reported condomless anal sex (past 4 months). We identified 3 distinct classes characterized by
(1) a high level of perceived barriers across domains (14%),
(2) a low level of perceived barriers (50%), and
(3) perceived product barriers (i.e., side-effects and cost) (37%).
Compared to membership in the class characterized by a low level of perceived barriers, membership in the class characterized by a high level of perceived barriers class was associated with greater levels of internalized stigma related to being MSM/TW (AOR=1.10; 95% CI: 1.04-1.18) and meeting sex partners at sex venues (AOR=6.32; 95% CI: 1.34-29.75), while membership in the class characterized by product barriers, was associated with greater levels of internalized stigma related to being MSM/TW (AOR=1.04; 95% CI: 1.00-1.08), seeing a healthcare provider (past year) (AOR=1.77; 95% CI: 1.01-3.11), and meeting sex partners at bars/discos (AOR=2.13; 95% CI: 1.09-4.18).
Conclusions: Programs which reduce stigma related to being MSM/TW and engage MSM/TW attending high-risk venues may decrease barriers to PrEP uptake within these populations in Tijuana.

WEPEC238

Successful implementation of PrEP among LGBT youth at an urban Community Health Center

U. Belkind[1], P. Carneiro[2], P. Meacher[2], A. Radix[2]
[1]Callen-Lorde Community Health Center, Health Outreach to Teens (HOTT), New York, United States, [2]Callen-Lorde Community Health Center, New York, United States

Background: PrEP is an effective way to prevent HIV infection. It is currently approved for 18 years and older, but there is great interest in studying its efficacy in younger adolescents. Initial studies show barriers to initiation and retention (lack of parental consent, low PrEP knowledge, financial issues, lower adherence) but have concluded that it is a safe and viable alternative for this age group. Real-life experiences providing PrEP for youth will hopefully inform better practices and help reduce barriers to access.
Description: This is an overview of PrEP implementation in a multi-disciplinary, youth-focused, urban community health center based in New York City that yearly serves over 1,500, mainly LGBTQ youth age 13-24 years. We have prescribed PrEP for the last 4 years in a team-based approach consisting of clinicians, case managers, dedicated nurses, outreach coordination, and a PrEP access specialist, insurance navigators and an on-site pharmacy.
Early on, we recognized that patients accessing PrEP did not reflect the demographics of our program with an overrepresentation of white, cis-males. Subsequent data-driven quality improvement measures included creating information materials reflecting our clinic's racial and gender diversity, enhanced HIV testing and one-on-one counseling about PrEP especially for patients with rectal STIs regardless of self-described sexual behaviors and risk-taking. Alongside these measures, ongoing advocacy efforts resulted in legislative changes allowing youth younger < 18 years to access PrEP without parental consent.
From January 2014 to December 2017, we have started 242 youth on PrEP.
Table 1 describes the changes in patient population accessing PrEP over the last 4 years.
Lessons learned: PrEP is a viable option for youth. Clinic-wide interventions such as educational materials (handouts, videos) that reflect gender, racial and ethnic diversity, along with clinician-driven counseling, and insurance navigation promote PrEP uptake.
Conclusions/Next steps: Close monitoring of clinic-wide data is necessary to monitor access to PrEP services and expose gender/race/age disparities. Multidisciplinary teams, development of multi-media messaging to address knowledge gaps and incorporating patient input are necessary to driving success.

Year	2014	2015	2016	2017	TOTAL
Total n(%)	16	48	84	94	242
Male	13 (81)	32 (67)	53 (63)	48 (51)	146 (60.3)
Female	0	0	2 (2.4)	3 (3.2)	5 (2.1)
TG Female	3 (19)	14 (29)	22 (26.2)	34 (36.2)	73 (30.2)
TG Male	0	2 (4)	7 (8.4)	9 (9.6)	18 (7.4)
Hispanic	6 (37.6)	22 (45.8)	33 (39.3)	40 (42.6)	101 (41.7)
White, Black, Other	6 (37.5), 3 (18.8), 7 (43.7)	20 (41.7), 12 (25), 16 (33.3)	31 (36.9), 19 (22.6), 34 (40.5)	31 (33), 24 (25.5), 39 (41.5)	88 (36.4), 58 (24), 96 (39.6)
15-20 years, 21-24 years	7 (43.8), 9 (56.2)	18 (37.5), 30 (62.5)	32 (38.1), 52 (61.9)	37 (39.4), 57 (60.6)	94 (38.8), 148 (61.2)

[Table 1]

WEPEC239

Young male's uptake and acceptability of medical male circumcision in South Africa: A mixed method, longitudinal community-based study

P. Smith[1], K. Gill[1], T. Bennie[1], J. Dietrich[2], G. Gray[2], L.-G. Bekker[1]
[1]Desmond Tutu HIV Centre, Cape Town Area, South Africa, [2]Perinatal HIV Research Unit, Johannesburg, South Africa

Background: Young South Africans are at risk of HIV infection due to sexual risk behaviour in endemic HIV. While evidence suggests that scaled medical male circumcision (MMC) can help curb HIV infection rates in countries such as South Africa, evidence for MMC acceptability is needed. Both MMC and traditional circumcision are practised in South Africa, with certain cultural ethnicities preferring one over the other. Traditional circumcision may occur after sexual debut and foreskin removal may be incomplete. We investigated the acceptability of MMC versus traditional circumcision in Cape Town and Soweto, two culturally distinct settings in South Africa in the MACHO study.
Methods: MACHO was a mixed methods, longitudinal cohort study which investigated preferences for, attitudes, and uptake of elective MMC in 100 males (14-17 years), their guardians and other key informants in Cape Town and Soweto. Data were collected via researcher administered surveys, interviews, and focus groups and the dyads were followed up over a 24 month period.
Results: Results: 100 adolescent boys (Cape Town n=50;, Soweto n=50;) and their guardians were enrolled with a mean age of 15 (IQR: 14-16.)
Cultural ethnic composition (Table 1) was as follows:
Cape Town: 44 (88%) Xhosa, 1 (2%) Zulu, 3 (6%) Sotho/ Tswana, 2 (4%) Other

Soweto: 12 (26%) Xhosa, 25 (54%) Zulu, 9 (20%) Sotho/ Tswana, 0 Other
At baseline 27% had sexually debuted with a median age of 16 (IQR: 15-17). Prior to circumcision 0/50 boys in Cape Town preferred MMC, while in Soweto 42/50 preferred MMC. Each boy had on average 13,6 months (range 12-24 months) follow up, with 13 circumcisions done in 1361 months follow up time. Soweto participants were 11 times more likely to have been circumcised than those in Cape Town (p=0.001, HR 11,11 95% CI: 1,09 - 113,33).
Conclusions: Cultural beliefs and tradition strongly influenced MMC acceptability and uptake. Despite reasonable knowledge about the benefits of early MMC, many young males delay uptake, reducing the benefits of MMC before sexual debut. Programs to promote circumcision should take into consideration cultural and traditional mores and efforts should be made to ensure all circumcision is safe, effective and acceptable.

	Xhosa	Zulu	Sotho/ Tswana	Other
Cape Town	44 (88%)	1 (2%)	3 (6%)	2 (4%)
Soweto	12 (26%)	25 (54%)	9 (20%)	0

[Table 1: Cultural Ethnic Composition]

WEPEC240

Pre-exposure prophylaxis (PrEP) implementation, uptake and retention in Germany - results of the PRIDE study

P. Mysior[1,2], A. Schafberger[3], I. Perea[4], A.-L. Brillen[1], B. Bartmeyer[5], V. Bremer[5], E. Tenberken[2], U. Marcus[5], H. Streeck[1]
[1]Institute for HIV Research, Essen, Germany, [2]Birken Apotheke, Cologne, Germany, [3]Deutsche AIDS Hilfe, Berlin, Germany, [4]Bundesministerium für Gesundheit, Berlin, Germany, [5]Robert-Koch-Institute, Berlin, Germany

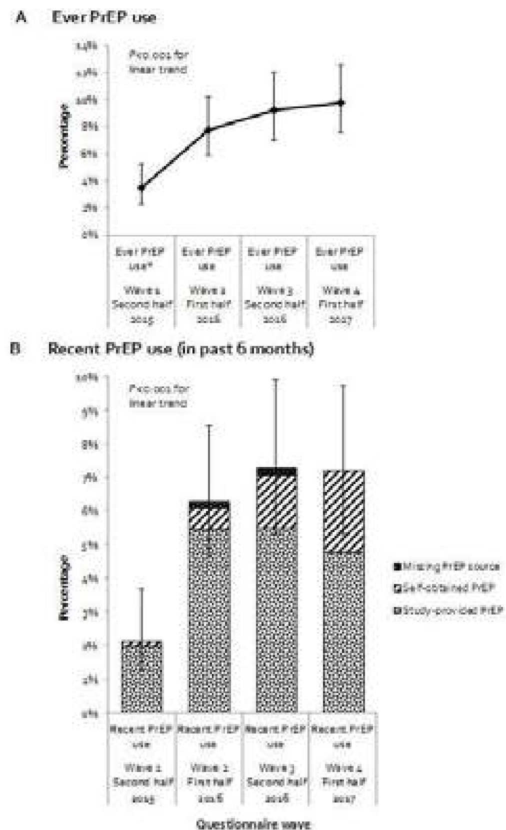
Background: Pre-exposure prophylaxis (PrEP) for HIV prevention was approved by the European Medical Agency in 2016, however, high costs prevented widespread use in Germany. We therefore implemented a novel distribution pathway by October 2017 that reduced monthly PrEP costs by 16fold.
Methods: Access to PrEP was linked to a monitoring system for prescriptions. Users were asked to participate in a questionnaire to understand motivation, PrEP intake frequencies, perceived HIV risk and recent STD diagnosis.
Results: Within a month prescriptions doubled from 514 to 1082. While an estimated minority of 10% had previously obtained PrEP from outside sources (e.g. online pharmacies), 98% had now switched to the new available system. Extrapolation of the current available data suggest an estimated PrEP use of ~2500 PrEP user/month within the first year in Germany. Interim-evaluation of 550 questionnaires from PrEP users demonstrated a homogenous population of well-educated men who have sex with men, median age 38 (range:18-71) and 83% of German descent. The overwhelming motivation to use PrEP was to compensate for HIV risk while having condomless anal intercourse. However, at start of PrEP implementation the majority perceived their own risk to acquire HIV as low to medium (81%), while only a subset (17%) considered themselves to be at risk for HIV infection. In contrast, 39% of the PrEP user had a diagnosis of gonorrhoea, syphilis or chlamydia in the 6 months before starting to use PrEP and 28% had condomless anal intercourse in the absence of other prevention methods. Those that had an STD within the last 6 months had a significant higher risk perception than those that did not (p=0.008; Fishers Exact). Analysis of the follow up questionnaire (n=56) revealed that 78% of the PrEP user indicated to have not missed any PrEP dose, while 20% indicated that they forgot to take at least 1 pill (avg. 1,25 pills ±1,25). Furthermore, 25% indicated to have been diagnosed with an STD since last visit.
Conclusions: Taken together, our data from PrEP implementation in Germany demonstrates a large uptake of the new prevention method in individuals, who wish to compensate for HIV risk while having condomless anal intercourse.

WEPEC241

Pre-exposure prophylaxis among men who have sex with in the Amsterdam Cohort Studies: Use, eligibility and intention to use

W.P.H. van Bilsen[1], L.N. Coyer[1], J.P. Bil[1], U. Davidovich[1], E. Hoornenborg[1], M. Prins[1,2], A. Matser[1]
[1]Public Health Service of Amsterdam, Department of Infectious Diseases, Amsterdam, Netherlands, [2]Academic Medical Center, Department of Internal Medicine, Amsterdam Infection & Immunity Institute (AIII), Amsterdam, Netherlands

Background: In the Netherlands, HIV pre-exposure prophylaxis (PrEP) is not covered by health insurance and is not available free-of-charge except to participants of two PrEP studies. We examined time trends in use of PrEP, characteristics of PrEP users, PrEP eligibility and intention to use PrEP among HIV-negative MSM from the Amsterdam Cohort Studies (ACS).
Methods: We used data from four 6-monthly questionnaires, collected between 2015-2017. PrEP use over time was examined in logistic regression models using generalized estimating equations. Using descriptive statistics, we compared PrEP users before first initiation and non-PrEP-users. Based on national guidelines, MSM were considered eligible for PrEP if they had one of the following: condomless anal sex (CAS) with a partner with unknown/seropositive HIV status, rectal STI (chlamydia/ gonorrhea) and/or a post-exposure prophylaxis prescription in the past six months. The number of potential PrEP users was estimated based on observed eligibility and intention to use PrEP.



[Reported ever and recent PrEP use among MSM participating in the Amsterdam Cohort Studies between 2015-2017 (four 6-montly waves of questionnaires).]

Results: We included 687 HIV-negative MSM. Most were born in the Netherlands (n=545, 79%) and educated to at least college degree (n=529, 77%). Median age was 40 (IQR 33-47) years at wave 1. Recent PrEP use (in past 6 months) was reported by 57/687 (8%) MSM. Recent PrEP use increased over calendar time (p<0.001) to 7% in 2017. PrEP users did not differ from non-PrEP users in socio-demographics, but had

a significantly higher median number of casual sex partners, more often reported CAS and chemsex with casual partners, and more often had an STI in the 6 months before initiation (all p<0.05). Overall, PrEP eligibility criteria were met by 32%, of whom 22% ever reported use of PrEP. The proportion with a high intention to use PrEP was higher among eligible than among non-eligible MSM (51% vs. 24%, p<0.001). Based on these findings, we estimate that between 2,903-5,370 eligible MSM in Amsterdam can be expected to use PrEP.
Conclusions: PrEP use increased over time but remained under 10%, even though 32% met the eligibility criteria, of whom 51% had a high intention to use PrEP. This suggests that a large proportion of Dutch MSM at risk could benefit from PrEP.

WEPEC242

From PrEP to "We are PrEPARED" - the Dutch example of preparing health care providers and MSM users for PrEP

C.A. Blom, 'PrEPARED' Dutch National PrEP Working Group
Aidsfonds - Soa Aids Nederland, Amsterdam, Netherlands

Background: In the Netherlands, PrEP is not yet reimbursed, awaiting advice of the Dutch Health council in 2018. At the same time, activist groups promote access to informal PrEP, and generic versions of PrEP have become available since July 2017. However, health care providers and the primary PrEP users (mainly MSM) both lack knowledge on PrEP; this impedes PrEP uptake and proper use. To improve this we initiated a national working group in June 2015, developing a comprehensive approach to PrEP implementation in the Netherlands.
Description: A national working group with all relevant parties was facilitated by Soa Aids Nederland. Representatives from policy planning, research, general practitioners, STI clinics, national public health institutes, pharmacies, target group and activist groups met bi-monthly. This group mapped main barriers to the implementation of PrEP, coordinated activities addressing these barriers, collated and analyzed data to inform policy making, protocol development, knowledge development and lobby. Finally, funding was obtained to roll out a three-tiered approach to prepare all relevant stakeholders for PrEP implementation. This included:
(1) information for MSM-eligible for PrEP,
(2) training programmes for health care professionals,
(3) development of structures (manuals, forum, registration) within national (public) health care.
Lessons learned: Although informal and formal PrEP use increased, knowledge gaps among health care providers and MSM still need to be addressed. The coordination in the national working group made it possible to implement a comprehensive approach, to influence policy and to obtain funding, with broader and quicker impact than single actor activities.
Conclusions/Next steps: We developed a structured and coordinated national approach to roll out PrEP among health care services, supporting formal and informal PrEP use, prior to reimbursement. This approach can serve as a model for other countries facing the same challenges.

WEPEC243

Awareness, understanding and barriers to oral pre-exposure prophylaxis (PrEP) use among gay, bisexual and other men who have sex with men (GBMSM) in Nairobi and Johannesburg: A two-site qualitative study

R. Wanjiru[1], S. Tenza[2], W. Nutland[3], P. Weatherburn[3], A. Smith[4], J. Kimani[5], T. Palanee-Phillips[2], A. Bourne[6]
[1]Partners for Health and Development, Research, Nairobi, Kenya, [2]Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [3]London School of Hygiene and Tropical Medicine, Department of Public Health, Environments and Society, London, United Kingdom, [4]University of Oxford, Oxford, United Kingdom, [5]Partners for Health and Development, Clinical, Nairobi, Kenya, [6]La Trobe University, Melbourne, Australia

Background: South Africa and Kenya are among the first African countries to approve use of oral PrEP for those at high risk of HIV acquisition. High rates of HIV prevalence and sexual risk behaviors are reported among GBMSM in Nairobi and Johannesburg. GBMSM also face substantial challenges in accessing HIV prevention, testing and treatment. However, initial PrEP uptake has not been as high as expected. Our study examined likely acceptability and potential barriers to PrEP use in both cities.
Methods: Between June 2016 and July 2017, in-depth interviews were carried out with 30 GBMSM in Nairobi and 30 in Johannesburg, recruited in clinical and community settings and via snowballing. Interviews used standardized question route to assess prior awareness of PrEP; acceptability and perceived barriers to use. We also explored the likely acceptability of future PrEP delivery options. Transcribed data were subjected to thematic analysis using NVivo.
Results: In Johannesburg no interviewee had ever used PrEP and less than a third knew what it was, but up to three-quarters would consider future use. In Nairobi, two GBMSM had tried PrEP in a demonstration project but only a quarter knew what PrEP was. Two thirds would consider future use. In both cities among those that heard of PrEP most confused it with Post-Exposure Prophylaxis (PEP). Among GBMSM who expressed an interest in future use, the primary motivations were avoiding HIV and managing anxieties associated with sex. Willingness to consider future use was high, but most perceived PrEP as an addition to condoms not a replacement. There were widespread concerns about potential side effects and the stigma that might arise if users were perceived to have HIV or be "promiscuous". Considerable scepticism was expressed about potential future topical formulations (rectal microbicides) but potential users expressed interest in long-term (injectable) formulations and intermittent dosing.
Conclusions: In both Nairobi and Johannesburg awareness and understanding of PrEP remains very limited and considerable health promotion efforts will be required to explain its utility and create demand for it. GBMSM recognize PrEP's potential to reduce incidence and anxiety about HIV but remain concerned about potential stigmatization of users.

WEPEC244

PrEP uptake among middle age and older individuals in rural Kenya

W. Olilo[1], M. Petersen[2], E. Wafula[3], C. Koss[3], D. Kwarisiima[4], K. Kadede[1], T. Clark[3], E. Charlebois[3], C.R. Cohen[3], E.A. Bukusi[1], M.R. Kamya[4], D. Havlir[3], J. Ayieko[1]
[1]Kenya Medical Research Institute, Centre for Microbiology Research, Nairobi, Kenya, [2]University of California, Berkeley, Berkeley, United States, [3]University of California, San Francisco, San Francisco, United States, [4]Makerere University, Kampala, Uganda

Background: Pre-exposure prophylaxis (PrEP) markedly reduces HIV acquisition and is an important tool for HIV prevention. In Africa, implementation of PrEP has largely focused on young women and adolescent girls, sex workers and men who have sex with men. Middle age and older adults may also be at high risk for HIV acquisition, yet little is known about their risk perception and willingness to start PrEP. We sought to understand HIV risk perception and uptake of PrEP among individuals aged ≥45 years in rural Kenya.

Methods: Community-wide HIV testing was conducted in the SEARCH study (NCT01864603) using mobile community health campaigns (CHCs) supplemented by home-based testing. HIV-negative individuals were eligible for PrEP based on either self-referral or a HIV-acquisition risk score derived from HIV seroconversions in the region. Data on PrEP uptake and HIV risk perception were collected among PrEP eligible individuals aged ≥45 years in six rural communities in Kenya. Logistic regression was used to identify factors associated with uptake of PrEP.
Results: Individuals aged ≥45 years comprised 26% (N=4792) of 18,251 HIV-negative adults (≥15 years) in the six communities; 401 (8%) of these older individuals were classified as PrEP-eligible (265 by risk score, 136 through self-referral), and 143 (36% of those eligible) initiated PrEP within two weeks of testing. Men were more likely to initiate PrEP than women (41% vs. 30%; aOR 2.89; 95%CI:1.33,6.29), while those employed in the fishing, transportation, and entertainment industry were less likely to initiate than other occupations such as farming (23% vs. 58%; aOR 0.17; 95%CI:0.08,0.36). Men who were head of household were more likely to initiate PrEP, while women who were head of household were less likely to initiate PrEP.
Common reasons to initiate PrEP among the older adults included multiple sexual partners of unknown HIV-serostatus (48%), known discordant relationships (22%), polygamous marriage (20%), and being inherited or a wife inheritor (3%).
Conclusions: In a rural Kenyan population with high HIV prevalence, those ≥45 years demonstrate interest in starting PrEP. However, uptake remains relatively low. New approaches to improve PrEP delivery are required to reduce HIV acquisition among older adults at high risk of infection.

WEPEC245

Community level PrEP programming addressing the challenges of facility-based follow-up for pre-exposure prophylaxis (PrEP) ART refills among PWUD, SW and MSM in Uganda: MARPI clinic experience

R. Kansiime[1], J.R. Lule[2], P. Kyambadde[1], M. Kinawa[1], I. Kakooza[1], R. Kindyomunda[3]
[1]Most At Risk Populations Initiative, National STI Control Unit, Kampala, Uganda, [2]Most At Risk Populations Initiative (MARPI), Programs, Kampala, Uganda, [3]UNFPA, Programmes, Kampala, Uganda

Background: The Ministry of Health with support from PEPFAR are piloting pre-exposure prophylaxis among selected health sites in Uganda including those providing key populations´ friendly services. Specific attention has been to provide SW and PWUD who are at high risk of exposure to HIV given the high HIV prevalence and increased sexual and injection risks. MARPI clinic, one of the KP partners who are implementing PrEP among SW and MSM has integrated PrEP in its facility and community level services delivery.
Description: MARPI implemented PrEP starting from July 2017 to KPs (SW, PWUD and MSM) in Kampala and the surrounding districts. KPs were referred to MARPI and initiated on PrEP. During follow-up there were challenges with re-fills and follow-up. As a solution to the challenges, a community component was added. of the 646 (MSM, SW and PWUD), 78% returned for drug re-fills while 22% did not. The main reason for failed return were not contactable by telephone (41%), travelled (14%), ART side effects (9%), wrong telephone contacts (8%) and temporal stoppage (8%). Follow-up after addition of the community-based PrEP programme, 69% of the 144 who had failed to return received PrEP refills at community level but there were challenges with 45 (31%). The main challenges at community level were having travelled (44%), not at home and not contactable by phone (33%), side effects (11%), being busy (7%).
Lessons learned: Adding a community component to the MARPI facility PrEP programme reduces the challenges of failed telephone contact and decreases missed drug re-fills. The challenges of facility-level PrEP program differ from community-level PrEP. Lack of telephone contact and travelling are major challenges at the two program levels for SW, MSM and PWUD in Kampala. Side effects to ART is a challenge that is common to both.
Conclusions/Next steps: Facility PrEP programmes when integrated with community-based components reduces failed refills by reducing telephone call-based failures. More resources are needed to enhance community level services delivery to SW, MSM and PWUD as a complement to the facility-level PrEP program.

WEPEC246

A systematic review of interventions to increase adult men's uptake of voluntary medical male circumcision for HIV prevention in East and Southern Africa

C. Figueroa[1], J. Samuelson[2], S. Taoka[3], B. Hensen[4]
[1]World Health Organization, HIV, Geneva, Switzerland, [2]World Health Organization (WHO), Geneva, Switzerland, [3]King's College Hospital, London, United Kingdom, [4]London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: According to WHO data, 14.5 million men and boys were circumcised by the end of 2016 in East and Southern Africa, representing a dramatic increase in availability and uptake of VMMC services. Despite this level of scale up showing the feasibility of VMMC and efforts to increase demand in 14 countries of East and Southern Africa that included VMMC as an additional HIV prevention strategy, progress in increasing coverage among adult males, particularly over 25s, has been modest relative to the 90% target for 2020. We conducted a systematic review to evaluate interventions that led to an increase in VMMC uptake among adult men and should be considered for implementation by decision-makers of VMMC programmes.
Methods: We systematically searched electronic databases (EMBASE, PubMed and Global Health Library) for peer-reviewed articles for two different periods, 01 January 2005 to 22 October 2015 and 23 October 2015 to 17 January 2017. We included studies reporting the uptake of male circumcision among adult men (>18 years). Interventions were coded as communication, structural, compensation or incentive based or mixed. We analyzed data by country and setting, type of intervention, time to seek circumcision and study design.
Results: 12 studies were included. Study methodological quality (randomized and non-randomized trials Cochrane risk of bias) was variable and most studies (n=10/12) were in low or low-middle income countries. Studies were not excluded based on the quality assessment. The reported increase in the uptake of VMMC ranged from 1.9% to 62%, 83% (n=10/12) used mixed interventions. 50% (n=9/18) of reported interventions arms showed a positive effect; all used a mixed intervention (structural and communication or compensation and communication). Limitations of the review included exclusion of abstracts; the authors defined interventions types of which the communication component was inconsistently reported. Due to heterogeneity we did not perform a meta-analysis.
Conclusions: Interventions to increase VMMC uptake among adult men should include a mixed approach and consider local context. Combinations of communication with home-based testing, enhanced provider capacity or fixed compensation were effective. Implementation should occur with systematic monitoring to permit adjustments and improvements.

WEPEC247

Community delivery increases PrEP program retention in SEARCH study in Uganda and Kenya

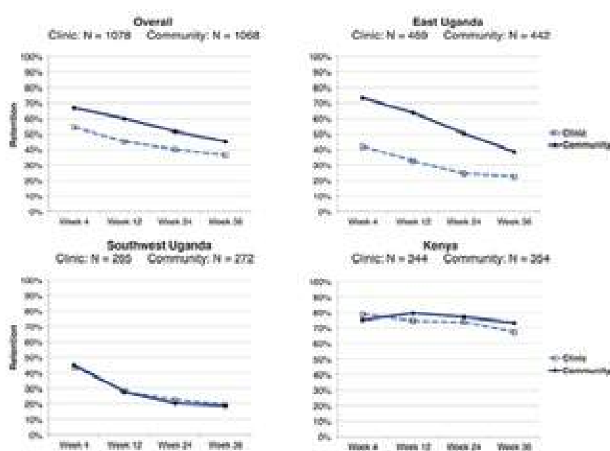
B. Jewell[1,2], J. Ayieko[3], A. Owaraganise[4], F. Mwangwa[4], D. Kwarisiima[5], C.A. Koss[6], A. Plenty[6], D. Black[6], E. Bukusi[3], C.R. Cohen[6], T.D. Clark[6], E.D. Charlebois[6], M.R. Kamya[7], M.L. Petersen[1], D.V. Havlir[6]
[1]University of California, Berkeley, Berkeley, United States, [2]Institute for Disease Modeling, Seattle, United States, [3]Kenya Medical Research Institute, Nairobi, Kenya, [4]Infectious Diseases Research Collaboration, Kampala, Uganda, [5]Makere University, Joint AIDS Program, Kampala, Uganda, [6]University of California, San Francisco, San Francisco, United States, [7]Makere University, College of Health Sciences, Kampala, Uganda

Background: Rollout of pre-exposure prophylaxis (PrEP) in sub-Saharan Africa faces potential barriers to retention in care, including distance to clinic and stigma. Delivery of ART at home or other community sites can improve retention in HIV care; this strategy may also improve PrEP retention. The SEARCH Study (NCT01864603) is investigating a targeted, population-based approach to PrEP in rural East African communities. We conducted a multisite stratified individually-randomized controlled trial of community vs. clinic PrEP visits with medication delivery among PrEP starters in SEARCH intervention communities and assessed the effect on PrEP program retention.

Methods: From August 2016-January 2017, we randomized adult (≥15 years) participants starting PrEP in 11 communities (4 in East Uganda, 4 in Southwest Uganda, and 3 in Kenya) to PrEP visits at either clinic or community site (home or other non-clinic location). Randomization was stratified on age, sex, and community. Participants were followed for ≥36 weeks. PrEP program retention was assessed at 4, 12, 24, and 36 weeks, with a pre-specified primary outcome of 4-week retention. Participants were considered retained if seen for a follow-up visit within -2/+4 weeks of the scheduled visit date, and not retained if they missed the visit or withdrew. In this intention-to-treat analysis, logistic regression was used to test the association between delivery site and PrEP retention, adjusted for stratification variables.

Results: Of 2146 participants in the study, 1116 (52%) were female, 540 (25%) were aged 15-24, and 911 (42%) were in East Uganda, 537 (25%) were in Southwest Uganda, and 698 (33%) were in Kenya. At week 4, 1298 (60%) were retained, 585/1078 (54%) and 713/1068 (67%) in the clinic and community arms, respectively. Retention over time varied by region, somewhat due to non-compliance with randomization in Southwest Uganda and Kenya. Community visits were associated with higher retention at weeks 4 (aOR 1.76 [1.47-2.12]), 12 (aOR 2.03 [1.69-2.45]), 24 (aOR 1.73 [1.44-2.08]), and 36 (aOR 1.52 [1.26-1.84]). Effect sizes were stable across age/sex strata, but larger in East Uganda.

Conclusions: Community PrEP delivery increased retention, but the observed effect differed by region. PrEP retention was sub-optimal and further strategies to improve retention should be investigated.



[PrEP retention over time (weeks 4, 12, 24, and 36) by PrEP visit site (clinic vs. community) in the intention-to-treat analysis.]

WEPEC248

Message framing strategies for PrEP education with men who have sex with men in North America: Results of three randomized trials

K. Underhill[1,2], K.M. Guthrie[3], D. Operario[4], S.K. Calabrese[5], C. Kahler[4], K.H. Mayer[6]
[1]Columbia University, Mailman School of Public Health, New York, United States, [2]Columbia University, Columbia Law School, New York, United States, [3]The Miriam Hospital, Providence, United States, [4]Brown School of Public Health, Providence, United States, [5]George Washington University, Washington DC, United States, [6]The Fenway Institute, Boston, United States

Background: Implementation of pre-exposure prophylaxis (PrEP) requires messaging strategies for describing PrEP's effectiveness, benefits, and use of condoms with PrEP. These trials investigated message framing strategies for communicating about PrEP with men who have sex with men (MSM), focusing on messaging regarding PrEP effectiveness, PrEP benefits, and dual use of PrEP and condoms.

Methods: We recruited North American MSM using a mobile dating app (n=3078) for three factorial randomized trials of six message framing strategies, evaluating effects on PrEP acceptability. Trials randomized participants to several frames to communicate effectiveness:
(1) success-based vs. failure-based vs. two-sided messages;
(2) messages using numerical information vs. verbal paraphrases; and
(3) messages with numerical ranges vs. point estimates for efficacy.
Frames also varied information about PrEP benefits, using the following frames:
(1) benefits for reducing HIV risk vs. HIV-related fear and worry;
(2) loss-based and gain-based messages about PrEP benefits.
Finally, one frame considered condom messaging, using mandatory, flexible, and no messages about dual condom-PrEP use. We evaluated willingness to use PrEP, attitudes about PrEP user behaviors, predicted PrEP efficacy, and anticipated PrEP stigma.

Results: Frames for communicating PrEP effectiveness and dual method use with condoms generally did not affect willingness to use PrEP or attitudes regarding PrEP user behaviors. But framing PrEP's benefits to encompass anxiety reduction as well as risk reduction significantly increased PrEP acceptability and willingness to use PrEP, and increased perceived PrEP effectiveness among men who believed that their HIV risk was low.

Conclusions: Message framing strategies for communicating about PrEP's benefits, including ancillary benefits beyond risk-reduction, can increase acceptability. Messages emphasizing PrEP's secondary benefits (e.g., reduced HIV-related worry) may be particularly useful in outreach with MSM with low perceived risk.

WEPEC249

"For someone whose life is very busy and unpredictable, this service is like a dream." Reaching young men of color who have sex with men through on-line prep services

K. Koester[1], S. Hughes[2], H. Gangeskar[3], E. Engesæth[3], M. Hawkins[3], R. Grant[2]
[1]University of California, San Francisco, Medicine, Mill Valley, United States, [2]University of California, San Francisco, Medicine, San Francisco, United States, [3]Nurx, San Francisco, United States

Background: HIV pre-exposure prophylaxis (PrEP) can limit new HIV infections when used as directed. PrEP uptake is increasing in the United States in communities with lower levels of HIV-related stigma and increased access to primary or sexual health care. Innovative delivery settings such as online access to PrEP services, may reach those who might not otherwise avail themselves to biomedical prevention technologies such as young men of color who have sex with men (YMCSM). Whether online PrEP services are acceptable to this vulnerable population is unknown.

Methods: We utilized an implementation science approach (REAIM) to evaluate online PrEP services offered by Nurx, a telehealth service initially developed to deliver oral birth control. We conducted chart re-

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views and in-depth interviews with persons requesting PrEP through the online platform. We characterize clients presenting for PrEP, describe the acceptability of services and identify service refinement opportunities for current and future Nurx clients including YMCSM.

Results: From April-August 2017 Nurx personnel messaged 272 PrEP requesters (made in CA, FL, IL, NY) with study information; 77 indicated interest and 32 were interviewed including cisgender men (n=26) and women (n=6), active and former Nurx PrEP clients, and those who requested, but did not start PrEP. Median age was 28.5 years, 73% non-White; nearly all insured through employers, public programs, or parents. Online PrEP services were acceptable to participants, including YMCMS for the following reasons: utilization of Nurx due to discomfort with approaching their own primary care provider (PCP) or after approaching a PCP who was unwilling or felt unable to prescribe PrEP; due to convenience and accessibility of PrEP during times of transition between jobs, providers and/or insurance.

Reasons for not pursuing or discontinuing PrEP included low motivation to use PrEP due to lack of sexual activity or misperception of risk (females). Greater assistance when discontinuing, re-starting or using PrEP in the context of monogamous relationships and messaging specific to female PrEP requesters is needed.

Conclusions: Online PrEP services hold strong appeal to patients seeking convenient and non-judgmental healthcare providers and may be an optimal setting to reach vulnerable populations including young men of color who have sex with men.

WEPEC250

Achievements and lessons learned in efforts to achieve optimal site capacity in a voluntary medical male circumcision program In Mozambique

Z. Mwandi[1,2], F. Zita[3,4], M. Tanque[5,6], D. Sarama[3,4], P. Devos[5,6], N. Gaspar[7], V. Kiggundu[8], J. Come[9], E. Gold[10,11], J. Sallet[2,12], E. Njeuhmeli[8]
[1]Jhpiego, Nairobi, Kenya, [2]AIDSFree, Arlington, United States, [3]Jhpiego, Maputo, Mozambique, [4]AIDSFree, Maputo, Mozambique, [5]JHCCP, Maputo, Mozambique, [6]Health Communication Capacity Collaborative, Maputo, Mozambique, [7]USAID/Mozambique, Maputo, Mozambique, [8]USAID, Washington, DC, United States, [9]Mozambique Ministry of Health, Maputo, Mozambique, [10]JHCCP, Baltimore, United States, [11]Health Communication Capacity Collaborative, Baltimore, United States, [12]JSI, Arlington, United States

Background: To control the HIV epidemic among 15-49 year olds, the Mozambique Ministry of Health (MOH) aims to offer voluntary medical male circumcision (VMMC) to 2 million men by 2018. Despite availability of VMMC services in Manica and Tete provinces since 2012, a high site level provision of VMMC to males had not been achieved. In 2015, efforts were made to act on external quality assessment (EQA) recommendations to increase availability and quality of VMMC services.

Description: VMMC sites received MOH and partners' support in using site specific action plans to address the gaps identified. Redistribution of staff (providers, counsellors and mobilizers) within sites and recruitment of additional staff was done to match the defined site-staffing needs based on bed capacity. All staff members were retrained on client-provider interaction, focusing on barriers to service uptake, VMMC follow-up rates and wound care. USAID's VMMC Site Capacity and Productivity Assessment Tool was used to analyse data from 2015 to 2017. The number of males receiving VMMC rose from 21,824 to 100,636. The proportion of 15 to 29 years old males receiving VMMC increased from 45% to 58%. Achievement of targets increased from 34% to 105%. Despite the rise in volumes of clients served, adverse event rates were stable at below 2%.

Lessons learned: Several interventions accounted for the considerable increase in uptake and production of the VMMC services: i) Optimising staff availability at each site to match site capacity, ii) Redistribution and retraining of all VMMC staff on communication with clients, at all stages of the VMMC services, from early mobilization to post-surgery follow-up; iii) Intense supervision, data monitoring and data-based decision making to fine-tune the activities, iv) Opening services on Saturday to extend services for those clients not able to reach services during the week and; v) a spirit of collaboration and cooperation among all players in using analysed data to improve on gaps identified.

Conclusions/Next steps: High site productivity which was observed as increased uptake of services among 10-29 years olds is critical for achieving efficiency within VMMC programs. Lessons from the Manica and Tete VMMC program can assist other programs to improve site performance.

Indicator	FY 2015	FY 2016	FY 2017
VMMC Target	65,054	62,166	95,296
VMMC done	21,824	35,389	100,636
Achievement Vs Target (%)	34	57	105
Proportion of 15-29yrs (%)	48	50	58
Proportion of =>15yrs (%)	48	54	60
Site Utilization (%)	38	50	100
Adverse events rate (%)	0.07	0.14%	0.14%

[AIDSFree Mozambique Project: Changes in VMMC indicators from 2015 to 2017]

WEPEC251

Creating PrEP awareness amongst adolescent girls and young women through peer mobilization in Kenya and Uganda

B. Auma[1], J. Stevenson[2], V.R. Musavi[1], H. Nagadya[3], A. Akoth[1], J. Amoli[3], L. Wangari[1], C. Nyambura[4], K. de Graaf[2]
[1]Personal Initiatives for Positive Empowerment (PIPE), Nairobi, Kenya, [2]ATHENA Initiative, London, United Kingdom, [3]ICWEA, Kampala, Uganda, [4]ATHENA Initiative, Nairobi, Kenya

Background: Young Women Lead, Evidence, Advocate, Research, Network (LEARN) is a young women-led mobilization, advocacy, and research project promoting PrEP awareness among adolescent girls and young women (AGYW) in Uganda and Kenya. LEARN provides evidence to inform effective PrEP rollout for this population. Led by the ATHENA Initiative, in partnership with PIPE in Kenya and ICWEA in Uganda, LEARN is part of the DREAMS Innovation Challenge funded by PEPFAR and managed by JSI Research & Training Institute, Inc.

Description: LEARN combines leadership, participatory research, and peer mobilization. Ten young women were identified, recruited, and trained to act as LEARN Ambassadors, leading project activities. In a week-long residential training, Ambassadors gained or developed skills and knowledge in advocacy, public speaking, leadership, gender and human rights, HIV prevention, PrEP, and research. Each Ambassador then identified 10 AGYW in her community to join LEARN as Peer Mobilizers, providing them with support to share information about PrEP with peers. LEARN Ambassadors and Peer Mobilizers organize mobilization activities and create safe spaces for AGYW to learn about PrEP. They provide a LEARN PrEP factsheet, designed for and by young women, and direct AGYW to additional information or services.

Lessons learned: Between May and December 2017, LEARN reached 2017 AGYW with PrEP and HIV prevention information, in 100 safe spaces. AGYW shared questions, concerns and misconceptions about PrEP and identified the value in having other young women providing information and support. Demand exceeded expectations, demonstrating the huge appetite for targeted and accessible PrEP information among AGYW, and the potential for significant reach of a model that supports and empowers young women to lead.

Conclusions/Next steps: AGYW are disproportionately affected by HIV, and while PrEP, as a discreet, individually-controlled prevention tool has potential to meet the needs of some AGYW, there have been challenges in effective uptake and implementation, as well as providing access for AGYW in both Uganda and Kenya. LEARN provides a model to address myths and misconceptions, and support interest in PrEP, through safe, young-women led learning spaces. The model is replicable in other settings, and is cost-effective.

WEPEC252

Bringing Voluntary Male Medical Circumcision (VMMC) services to the community: VMMC mobile clinic campaigns on the islands of Lake Victoria in Tanzania

J. Zelothe[1], D. Msalilwa[1], S. Zidana-Ndovi[2], G. Mkemwa[1], S. Dane[2], C. Madevu-Matson[2], B. Senyana[2], J. Soares Linn[2]
[1]ICAP at Columbia University in Tanzania, Dar es Salam, Tanzania, United Republic of, [2]ICAP at Columbia University, Mailman School of Public Health, New York, United States

Background: VMMC is an evidence-based, high-impact, biomedical HIV prevention method that can reduce a man's risk of acquiring HIV from a female sex partner by 60%. Tanzania is one of 14 VMMC priority countries, where VMMC services have been scaled-up with a goal of 90% VMMC coverage among males ages 10 to 29. From 2009 to 2015, ICAP at Columbia University, in partnership with the Tanzania's Ministry of Health and Social Welfare, successfully implemented VMMC services in non-traditionally circumcised lake areas of Kagera and Geita regions.

Description: ICAP's package of VMMC services included contribution to national VMMC policies and M&E tools; development of a training package for health care workers; demand generation; provision of supplies and commodities; and completion of VMMC feasibility assessments. To reach fishermen in high HIV prevalence areas on 20 Lake Victoria islands, ICAP organized mobile clinic campaigns using outreach boats and tents to perform VMMC. To generate demand within these communities, ICAP supported innovative drama groups and performances, radio announcements, and sensitization meetings with key community, religious, and political leaders. In order to ensure linkage to HIV services, ICAP also supported mobile HIV care and treatment services.

Lessons learned: From 2009-2015, ICAP supported numerous mobile campaigns and the expansion of VMMC services to nine health facilities in Tanzania's Lake region. A total of 125,046 men received VMMC through ICAP-supported services. Over 80,176 (67%) circumcisions were conducted through mobile campaigns and 1,067 (0.8%) men were diagnosed HIV-positive and referred to care. Of the 786,310 VMMCs conducted in all of Tanzania during this period, one out of seven were supported by ICAP.

Conclusions/Next steps: Innovative, client-centered strategies were critical to reach Tanzania saturation goals in the Great Lakes region. The utilization of mobile clinics can help VMMC programs ensure that they are providing services to communities not in easy reach of healthcare facilities. In particular, combining mobile clinic models with outreach boats allow remote islands to successfully participate in time-limited health campaigns, particularly with mobile populations such as fishermen. Partnerships with health, education, public- and private-sector, community, and religious leaders are key to this strategy.

WEPEC253

Is availability of clinics that prescribe PreP associated with greater willingness to use it? Results from the national survey on HIV in the Black community (NSHBC)

B. Ojikutu[1], Y. Ransome[2], L. Bogart[3], S. Bogan[4], T. Stopka[5], P. Sullivan[6], K. Mayer[7]
[1]Brigham and Women's Hospital, Boston, United States, [2]Yale School of Public Health, New Haven, United States, [3]RAND Corporation, Santa Monica, United States, [4]Harvard University, Boston, United States, [5]Tufts University School of Medicine, Boston, United States, [6]Emory University, Atlanta, United States, [7]Fenway Institute, Boston, United States

Background: Black Americans have the highest rate of HIV diagnoses in the US. However, uptake of pre-exposure prophylaxis (PrEP) to prevent HIV infection among them is low and may be associated with limited availability of clinics where PrEP is prescribed. In this study we investigated the association between availability of PrEP clinics and willingness to use this intervention.

Methods: We obtained locations of clinics where PrEP is prescribed from all cities in AIDSVu.org, geocoded the addresses in ArcMap 10.5, and calculated the density of PrEP clinics per 10,000 (10K) residents per ZIP code. Individual-level data were obtained from the NSHBC, an online survey assessing willingness to use PrEP among a nationally representative sample of Black Americans in 2016. Distances from PrEP clinics to the population-weighted geocentroid of ZIP codes for participants were calculated using ArcGIS. A multilevel, multivariate model to estimate the association between willingness to use PrEP and PrEP clinic density adjusting for individual (age, gender, education, insurance, last doctor visit, HIV risk, and region of residence) and ZIP code-level covariates from the 2010 US Census (% living in poverty, % unemployed, % uninsured, %Black population) was constructed.

Results: 787 participants and 700 distinct ZIP codes were included in the multilevel analysis. Among participants, 45% were male, 23% were high-risk based upon self-reported behavioral characteristics, mean age was 34 years (SD=9), and 54% resided in the South. Among survey participants, 26% were willing to use PrEP. The mean number of PrEP clinics per ZIP code was 1.73 (SD .64), density per 10k population was 0.07 (SD 0.22), and mean walking distance was 26 minutes (SD=20). The mean walking distance was longest in the South versus the Northeast (32 versus 23 minutes, Tukey-t=2.76, p=0.03). Participants living in areas with higher PrEP clinic density were significantly more willing to use PrEP [one standard deviation higher density of PrEP clinics per 10K population was associated with 20% higher willingness (Adjusted Prevalence Ratio =1.20, 95% CI=1.05, 1.37)].

Conclusions: Willingness to use PrEP is associated with the spatial availability of clinics that prescribe PrEP. This finding highlights the importance of widespread scale-up of PrEP access at healthcare facilities.

WEPEC254

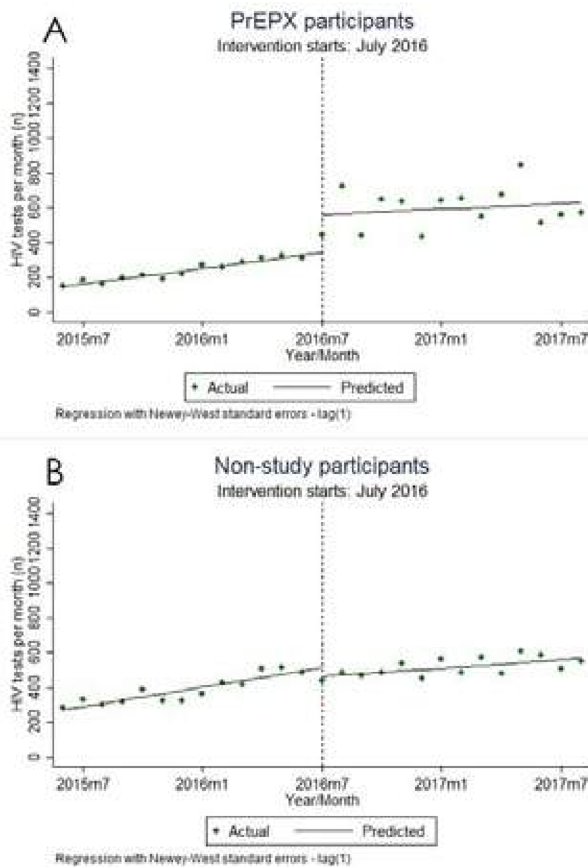
Impact of a population-level PrEP implementation project on clinical capacity and HIV testing among gay and bisexual men in Melbourne, Australia

J. Asselin[1], K. Ryan[2], V. Cornelisse[3,4,5], B. Price[4], N. Roth[4,5], J. Wilcox[6], B. Tee[7], C. Fairley[3,8], C. Chang[4], J. Armishaw[4], O. Vujovic[4], M. Penn[7], P. Cundill[7], G. Forgan-Smith[9], J. Gall[10], C. Pickett[11], L. Lal[2,4], A. Mak[4], T. Spelman[2,12], L. Nguyen[2], D. Murphy[13,14], C. El-Hayek[2,15], S. Ruth[7], C. Batrouney[7], J. Lockwood[4], J. Hoy[4], R. Grant[16,17], E. Wright[2,4,12], M. Stoové[2,15]
[1]Burnet Institute, Centre for Population Health, Melbourne, Australia, [2]Burnet Institute, Melbourne, Australia, [3]Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, [4]Alfred Hospital, Department of Infectious Diseases, Monash University, Melbourne, Australia, [5]Prahran Market Clinic, Melbourne, Australia, [6]Northside Clinic, Melbourne, Australia, [7]Victorian AIDS Council, Melbourne, Australia, [8]Monash University, Central Clinical School, Faculty of Medicine, Nursing and Health Sciences, Melbourne, Australia, [9]Collins Street Medical, Melbourne, Australia, [10]ERA Health, Melbourne, Australia, [11]Ballarat Community Health, Ballarat, Australia, [12]Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [13]University of Sydney, Department of Gender and Cultural Studies, Sydney, Australia, [14]University of New South Wales, Centre for Social Research in Health, Sydney, Australia, [15]Monash University, School of Population Health and Preventive Medicine, Melbourne, Australia, [16]University of California, San Francisco, United States, [17]San Fransisco AIDS Foundation, San Francisco, United States

Background: In July 2016, PrEPX, a population-level, PrEP implementation project in Melbourne, Australia, began rapidly enrolling gay and bisexual men (GBM) in clinics. Using data from the Australian Collaboration for Coordinated Enhanced Surveillance (ACCESS), we assessed changes to number of HIV tests conducted at four of the largest study recruitment sites pre- and post-study enrolment to explore the study's impact on overall clinic capacity to offer HIV testing.

Methods: Test records were extracted from ACCESS for three general practice clinics and one peer-led community HIV testing service enrolling PrEPX participants. HIV tests conducted between June 1, 2015 and August 30, 2017 among GBM were included in this analysis. HIV testing was compared between pre- (June 2015-June 2016) and post-intervention (July 2016-August 2017) periods. Segmented linear regression of monthly aggregate data assessed changes in the number of HIV tests among PrEPX participants and non-participants across pre- and post-intervention periods. We report comparative pre-intervention slope (1), change in intercept at intervention (2), and pre- to post-intervention change in slope (3).

Results: This analysis included 23,695 HIV tests among 8,431 individuals; 11,520 (48.6%) tests were included among 2,353 (27.9%) PrEPX participants. Pre-intervention, we observed on average an extra 15 monthly tests among PrEPX participants (1=15.1, 95%CI:13.1-17.1, p<0.001) and an extra 19 among non-study participants (1=18.6, 95%CI:13.8-24.5, p<0.001). At intervention, there was a significant increase of 219 monthly tests among PrEPX participants (2=218.7, 95%CI:145.0-292.5, p<0.001) and a marginal decrease of 48.8 monthly tests among non-participants (2, 95%CI:-97.1- -0.4, p=0.048). Post-intervention, the trend in monthly tests was stable among PrEPX participants (3=-9.7, 95%CI:-23.2-3.9, p=0.153) and decreased by 11 monthly tests among non-study participants (3= -10.8, 95%CI:-17.5--4.1, p=0.003). Tests per month continued to increase in non-study participants (7.8, 95%CI:3.3-12.3, p=0.002) post-intervention.



[Figure 1: Monthly HIV tests pre- and post-study start July 2016, among PrEPX participants (A) and non-study participants (B)]

Conclusions: In the year pre-intervention, there was already a significant increase in monthly HIV tests conducted among GBM. Study enrolment resulted in a dramatic increase in testing associated with baseline and follow-up visits for PrEPX participants, which initially impacted on non-participants as seen by the initial decline at intervention. Encouragingly, the number of tests among non-participants increased since enrolment suggesting that clinics have adapted to increased demand.

WEPEC255

Willingness to take daily oral HIV pre-exposure prophylaxis (PrEP) among young women and female sex workers in Kenya

R. Karuga[1], W. Mukoma[2], S. Nduta[2], N. Kilonzo[3], R. Eakle[4], M. Kiragu[2], H. Larson[5], H. Musyoki[6], C. Ngunu[7], J. Kyongo[2], L. Otiso[2]
[1]LVCT Health, Research and Strategic Information, Nairobi, Kenya, [2]LVCT Health, Nairobi, Kenya, [3]National AIDS Control Council, Executive Director, Nairobi, Kenya, [4]London School of Hygiene and Tropical Medical, London, United Kingdom, [5]London School of Hygiene and Tropical MEdicine, London, United Kingdom, [6]National AIDS and STI Control Programme, Nairobi, Kenya, [7]Nairobi County, Department of Preventive and Promotive Health, Nairobi, Kenya

Background: Kenya launched an implementation framework for scaling-up pre-exposure prophylaxis (PrEP) for preventing HIV among individuals at continuous ongoing risk in May 2017. Little is known about the willingness to take PrEP for HIV prevention among young women (YW) and female sex workers (FSW). Our research aimed to determine the willingness to take daily oral PrEP and barriers to uptake and adherence among YW and FSW in Kenya.
Methods: This cross-sectional survey collected data on demographics, HIV risk behavior and willingness to take PrEP among 150 YW and 68 FSW. We collected qualitative data from a sub-set of these women on motivators and barriers to uptake and adherence using in-depth interviews and focus group discussions.
Results: 89.7% of FSW and 85.3% YW were willing to take daily oral PrEP to prevent HIV infection. YW involved in transactional sex were significantly more willing to take daily oral PrEP (AOR=4.7 (95% CI: 1.4 to 15.7, p=0.011). YW with high self-perceived risk of HIV were more likely to be willing to take PrEP (OR=3.54 (95% CI: 1.3 to 9.6, p=0.013). HIV risk factors such as having multiple sexual partners, sexual coercion by drunk partners, and consuming alcohol before sex were associated with higher willingness to take PrEP among YW. There was no statistically significant association between willingness to take daily oral PrEP and HIV risk factors (frequency of condom use, duration of sex work and alcohol use) among FSW. Packaging of PrEP, history of low adherence to medication, fear of side effects and HIV stigma were identified as potential barriers to daily oral PrEP adherence among both sub-populations of women.
Conclusions: Self-perception of HIV risk and engagement of risky behavior were associated with willingness to take PrEP among YW. Screening for HIV risk perception and risky behavior of YW and FSW would allow targeted and focused delivery of PrEP for HIV prevention among YW and FSW.
It will be important to evaluate how this high level of willingness translates to actual uptake of PrEP for HIV prevention during scale up. Stigma is a key barrier to willingness and can be addressed by sensitizing the population on PrEP.

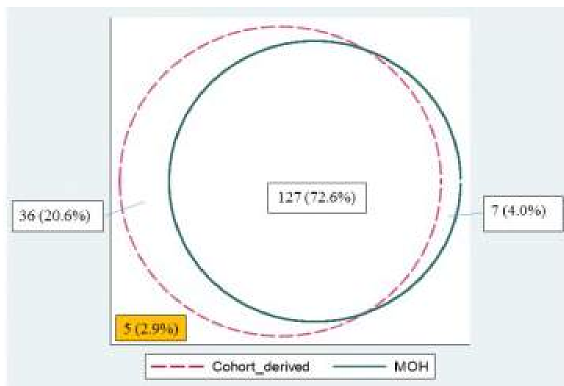
WEPEC256

Assessing PrEP eligibility in a HIV-1 vaccine feasibility MSM cohort using MOH guidelines and a cohort-derived HIV-1 risk score in Kenya

E. Wahome[1], A. Thiong'o[1], O. Chirro[1], K. Mohamed[1], E. Gichuru[1], J. Mwambi[1], M. Price[2,3], S. Graham[1,4], E. Sanders[1,5]
[1]KEMRI-Wellcome Trust Research Programme, International AIDS Vaccine Initiative, Kilifi, Kenya, [2]International AIDS Vaccine Initiative, New York, United States, [3]University of California at San Francisco, Department of Epidemiology and Biostatistics, San Francisco, United States, [4]University of Washington, Seattle, United States, [5]Nuffield Department of Medicine, University of Oxford, Headington, United Kingdom

Background: The Ministry of Health (MOH) recommends pre-exposure prophylaxis (PrEP) for sexually active HIV-negative individuals at risk for HIV-acquisition in Kenya. However, anal intercourse is not assessed prior to PrEP initiation. We set out to determine PrEP eligibility among MSM enrolled in an HIV-1 vaccine feasibility cohort, comparing the number eligible by MOH criteria to those determined eligible by a cohort-derived HIV-1 risk score.

Methods: From June-December 2017, we compared the number of MSM identified as eligible for PrEP by MOH risk criteria with those identified by a published cohort-derived HIV-1 risk score (age 18-24 years and a report of receptive anal intercourse, having male sex partners only, group sex, and any unprotected sex). We then compared performance of the two eligibility criteria to predict HIV-1 acquisition in the vaccine feasibility MSM cohort (HIV-1 incidence of 5.0 per 100 person years) that followed men monthly for HIV-1 testing, risk assessment, and risk reduction counselling.
Results: Out of 175 MSM assessed for PrEP eligibility, 127 (72.6%) were identified by both MOH and cohort-derived HIV-1 risk score criteria. However, the cohort-derived HIV-1 risk score identified 36 (20.6%) more cohort MSM for PrEP eligibility than the MOH criteria, of whom the majority (75.0%) reported receptive anal intercourse. Five (2.9%) men were not identified as at risk for HIV-1 by either method. The area under the operator characteristic curve for prediction of eventual HIV-1 acquisition of the MOH criteria and cohort-derived HIV-1 risk score were 0.49 [95% confidence interval (CI): 0.21-0.77] and 0.73 (95% CI: 0.39-1.00) respectively, P = 0.002.
Conclusions: Assessing PrEP eligibility in an HIV-1 vaccine feasibility cohort study of high-risk MSM using a cohort-derived HIV-1 risk score identified 21% more at-risk MSM for PrEP initiation than when MOH criteria were used. Consideration should be given to incorporating established risk factors for HIV-1 acquisition among MSM, especially receptive anal intercourse, into MOH guidelines, to enhance impact of PrEP programming among MSM in Kenya.



[Figure. Venn diagram of cohort-derived HIV-1 risk score and the MOH criteria for PrEP]

WEPEC257

MSM Prep users in Europe: Who is and is not having regular medical follow-up? Findings from the community-based research study Flash! PrEP in Europe

D. Rojas Castro[1,2,3], R.M. Delabre[1], A. Vilotitch[2,4], A. Bernier[1], V. Schlegel[5], S.B. Duken[6], R. Stranz[5], J. Ghosn[7,8], G. Cairns[9], G.M. Corbelli[10], H. Sweers[11], K. Jonas[12], B. Spire[2,5]
[1]Coalition PLUS, Community-based Research Laboratory, Pantin, France, [2]Aix Marseille Univ, INSERM, IRD, SESSTIM, Sciences Economiques & Sociales de la Santé & Traitement de l'Information Médicale, INSERM U1252, Marseille, France, [3]Univ Lyon 2, Social Psychology Research Group (GRePS), Lyon, France, [4]ORS PACA, Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur, Marseille, France, [5]AIDES, Pantin, France, [6]University of Amsterdam, Amsterdam, Netherlands, [7]University Paris Descartes, EA7327, Paris, France, [8]Hôpital Hôtel Dieu, APHP, UF de Thérapeutique en Immuno-Infectiologie, Paris, France, [9]NAM/ Aidsmap.com, London, United Kingdom, [10]Plus Onlus, Rome, Italy, [11]Deutsche AIDS-Hilfe e.V., Berlin, Germany, [12]Maastricht University, Work and Social Psychology, Maastricht, Netherlands

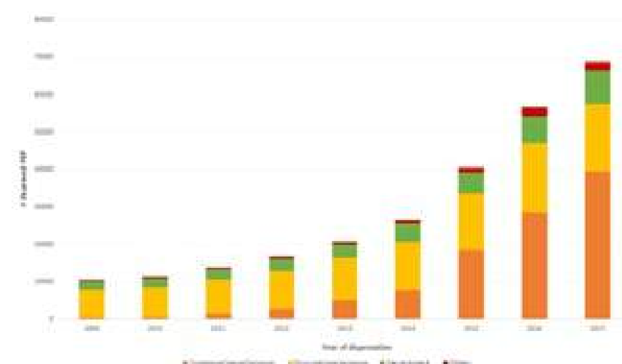
Background: Pre-exposure prophylaxis (PrEP) is a biomedical HIV prevention tool recommended for key populations including men who have sex with men (MSM). Medical follow-up visits are recommended (EACS, CDC) for PrEP users every 3 months for HIV testing, side effects and adherence assessment. In the context of variable PrEP access across Europe, we identified characteristics associated with formal and informal PrEP use among EU MSM participants in the Flash! PrEP in Europe (FPIE) survey.
Methods: FPIE online survey was a community-based research study aiming to assess PrEP interest and prior/current use among respondents from 12 European countries. Data were collected from June-July 2016 while PrEP was officially available and reimbursed in France. Participants were ≥18 years old and self-reported HIV-negative or unaware of their serological status. This analysis was restricted to MSM. Formal PrEP use (FPU) was defined as a PrEP follow-up visit every 3 months; lower frequencies were considered informal use (IPU). Four risk reduction profiles were identified using a prior hierarchical classification. High objective HIV risk (HOR) was based upon certain established criteria (EACS, CDC). Multinomial logistic regression was used to identify factors associated with FPU and IPU, compared with no PrEP use.
Results: Among 10 969 MSM, median age was 37 [IQR: 29; 46], 89 (0.8%) reported FPU and 195 (1.8%) reported IPU. Seventy-four percent (74.2%,n=66) of FPUs followed a continuous regimen compared to 39.8% (n=76) among IPUs (p< 0.001). After adjustment, similar risks factors were associated with higher chance of FPU or IPU: ≥10 occasional sex partners, drug use in a sexual context, recent STI diagnosis and HOR (FPU (AOR: 5.04 [2.10;12.08]); IPU (AOR: 1.77 [1.13;2.75])). Average perceived HIV risk was associated with lower probability of PrEP use (FPU: AOR 0.11 [0.06;0.23]; IPU: AOR 0.58 [0.39;0.88]).
Conclusions: Among MSM respondents, informal and formal PrEP users were at HOR but had, however, lower perceived HIV risk likely due to PrEP use. Informal PrEP users represented 68.7% of PrEP users, showing the necessity to authorize and implement PrEP services that address the needs of populations most at risk of HIV infection.

WEPEC258

Users profile, regimen choices and types of exposure in HIV post-exposure prophylaxis before and after the guidelines implementation in Brazil

I. Ornelas Pereira, G. Mosimann, A.R. Pascom, M. Meireles, F. Perini, A. Benzaken, F. Rick
Ministry of Health of Brazil, Department of Surveillance, Prevention and Control of STIs, HIV / AIDS and Viral Hepatitis, Brasilia, Brazil

Background: Post-exposure prophylaxis (PEP) is one of the tools to prevent HIV infection. PEP is available in health services in Brazil since 1999, in 2010 it was implemented for sexual exposure and in 2015 the first PEP guideline was launched. In September 2017, Dolutegravir containing (DTG-C) regimen was included as preferred regimen for PEP. The objective of this study is to identify the profile of PEP users in Brazil since 2009.
Methods: Programmatic data from PEP dispensation were analyzed for people aged 10+ from 2009-2017. Data were described using proportions to investigate associations. Social Vulnerability Index (SVI) is a combination of indicators related to urban infrastructure, human capital, income and work.



[PEP dispensation according to type of exposure. Brazil, 2009-2017]

Results: A total of 265,996 PEP regimen were dispensed in Brazil between 2009 and 2017, 68,685 (26%) of them, only in 2017. Non-occupational exposure dispensations increased significantly, approximately 274% between 2014 and 2017. 39,541 people (58%) had PEP pre-

scribed because consensual sexual exposure in 2017 (compared to 30% in 2014 - 7,839 dispensations); and 14% of them occurred in municipalities with median, high or very high SVI.
Also in 2017, 8,912 (13% of total) people sought for PEP because of sexual assault, among those 10% were 10-14yo. Furthermore, in the same year, sexual assault represents 76% of the reasons people 10-14yo received PEP. Approximately 23% of PEP dispensations because of sexual assault were in municipalities with median, high or very high SVI. DTG-containing regimen represented 11% of those dispensed in that year.
Conclusions: This study shows a change in the profile for PEP users, initially the main reason was occupational exposure and currently is sexual one. These results determines the importance of implementation of guideline for public health policies improvements. Since September of 2017, the number of dispenses DTG-containing regimens raised, reflecting the changes proposed by the current guidelines. This choice of regimen offers more virological power, greater genetic barrier, greater tolerance and greater security for users. Despite these advances, remains the challenge of making PEP available in the recommended 'window of opportunity' for those presenting higher SVI. SVI is an important tool to identify priority areas for PEP implementation.

WEPEC259

Integrating traditional male circumcision with voluntary medical male circumcision for better HIV prevention outcomes among the Shangani in Zimbabwe

F. Dube[1,2], E. Makoni[3], M. Dube[4]
[1]National AIDS Council, Monitoring and Evaluation, Harare, Zimbabwe, [2]National AIDS Council, Harare, Zimbabwe, [3]National AIDS Council, Masvingo, Zimbabwe, [4]National AIDS Council, Communications, Harare, Zimbabwe

Background: For decades, Government had banned traditional male circumcision camps in Chiredzi Districts following mounting deaths due to poor safety. In 2009, the Shangani community partnered the Ministry of Health in delivering safe voluntary medical male circumcision that satisfies both the needs of tradition and HIV prevention. The chief's interest in the integration centred on appeasing the increasing number of people who feared the traditional approach on safety grounds; and the promise of financial support and food that comes from the medical side. The medical side's drive has been to reach intended targets for HIV prevention, with the circumcision being done in a safe environment. Publicising the Chiredzi VMMC results would also motivate other communities to pursue VMMC for HIV prevention.
Description: To maintain cultural fidelity, chiefs drive the circumcision agenda with the medical side coming in to support. Chiefs mobilize their people and the Ministry of Health mobilizes partners for transport, allowances for health workers, equipment, HIV counseling and testing and food. Chiredzi almost always faces a drought and people struggle with providing food for their children in camp. Non Shangani people including health workers who may participate in HIV counseling and testing are only involved at entry level, with the actual VMMC performed during camp by circumcised Shangani health workers. Partners mobilise non-Shangani people who may be willing to go through the circumcision rite, provide food and payment of mandatory token fees to the chief, which may preclude some participants from joining camp. In camp the men are also equipped with HIV prevention education, including debunking the myth that circumcision is a magic bullet against infection. Since 2009, 117,000 men have been circumcised in over 10 camps, some of which are from traditionally non-circumcising areas with no single death.
Lessons learned: The integration has allowed for win-win outcomes for tradition and HIV prevention. Dialogue on misconceptions about the real intentions of the medical side in targeting the Shanganis for VMMC has helped.
Conclusions/Next steps: Following interest and success, the programme is now being taken to districts where there are traditionally circumcising communities, while also attracting men from non-circumcising families and districts.

WEPEC260

The PrEP life: Female sex workers' perspectives on uptake and use of daily pre-exposure prophylaxis for HIV prevention in South Africa

R. Eakle[1], R. Bothma[1], A. Bourne[2], S. Gumede[1], K. Motsosi[1], H. Rees[1], TAPS Demonstration Project
[1]Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [2]LaTrobe University, Melbourne, Australia

Background: Pre-exposure prophylaxis (PrEP) has the potential to reduce new infections among populations at highest HIV risk, so end-user perspectives in 'real-world' settings are critical to informing scale-up. This paper presents findings from in-depth interviews (IDIs) with FSW participants exploring the lived experiences and perceptions of taking up and using PrEP during the TAPS Demonstration Project.
Methods: Between June 2015 and July 2017, serial IDIs were conducted with randomly selected participants, in Johannesburg and Pretoria, during their 3, 6, and 9 month clinic visits to record evolution of perspectives and experiences of PrEP use over time. IDIs were conducted in English, IsiZulu, or Setswana, then translated and transcribed by research assistants. Transcripts were uploaded and analysed in NVIVO by the senior research team using thematic analysis which focused on elucidating the broader perspectives and positioning of PrEP within women's lives.
Results: In total, 34 interviews with 18 women were conducted, ages 23-40. Participants perceived risks arising from their work, such as personal safety and potential for HIV infection, such as personal safety and potential for HIV infection, as prominent drivers for taking up and using PrEP. Personal responsibility for staying healthy and being able to support families was also a major motivating factor. Those who stayed on PrEP felt empowered to have control over their own, added HIV protection beyond condoms. All women reported devising their own strategies for managing use, especially when trying to maintain logistical and confidential adherence. Overall, distrust in the existence and/or efficacy of PrEP affected the motivation of women to come to the clinic and to maintain use when questioned by others outside the project.
Conclusions: As one of the first reports of PrEP use among FSWs outside clinical trial settings, this research shows that it will be important to ensure community-based, clear and widespread messaging to generate demand and support for PrEP. The larger TAPS study demonstrated certain successes and challenges in a complex population, further contextualized by this research. To achieve its potential, PrEP implementation must take into account influences on women's lives and what motivates them to take up and use PrEP.

WEPEC261

Willingness of Black and Latino adolescents in New York City to use daily oral HIV pre-exposure prophylaxis (PrEP)

T. Taggart[1], T. Albritton[2], P. Pina[3], Y. Liang[4]
[1]Yale University, Center for Interdisciplinary Research on AIDS, New Haven, United States, [2]CUNY School of Medicine, New York, United States, [3]St. Barnabas Hospital, New York, United States, [4]Yale School of Public Health, New Haven, United States

Background: In the United States, Black and Latino adolescents remain disproportionately affected by the HIV epidemic. In 2012, the US Federal Drug Administration approved daily oral pre-exposure prophylaxis (PrEP) for HIV prevention for people ages 18 and older. Results from clinical trials with people under age 18 have provided the safety data needed to expand oral PrEP to adolescents. However, daily drug regimens can be challenging for adolescents, and PrEP is only effective if used as prescribed. Therefore understanding adolescents' preferences for daily oral PrEP, or other PrEP modalities, is important for guiding future research and practice.
Methods: Who's on Board is a community-based mixed-methods study to determine strategies for implementing PrEP among Black and Latino adolescents. 200 HIV-negative or status unknown Black and Latino adolescents who attend an adolescent clinic in New York City completed an online survey assessing sexual health, willingness to use PrEP, PrEP

preferences, and sociodemographic characteristics. Data collection is ongoing and will be complete by May 2018. Correlates of preferring daily oral PrEP to another modality will be identified using multivariable logistic regression.
Results: 56% of the sample identified as male. 29.4% of the sample had ever heard of PrEP. 44% of the sample said they would prefer daily oral PrEP, 17.6% prefer PrEP injections, and 14.7% prefer a PrEP implant. Reasons for preferring daily oral PrEP over other modalities included: "not liking needles", "pills are painless", and "pills are easy to take". Reasons for preferring PrEP injections over other modalities included: "long lasting" and "would not have to take a pill everyday". Reasons for preferring PrEP implant over other modalities included: "easier to hide", and "safer". Adolescent males were more likely than adolescent females to select daily PrEP pills (aOR 1.21).
Conclusions: While the majority of the sample had heard of daily oral PrEP, interests and preferences for other PrEP modalities were present. These preferences vary by sociodemographic characteristics. Findings offer insight into PrEP preferences which may inform implementation efforts for this population.

WEPEC262

A community-based ethnography to inform future PrEP engagement and adherence among transgender women sex workers

K.H.A. Footer[1], J. Glick[1], E. Cooney[2], A. Passaniti[3], M. Howes[3], R. Cook[1], S.G. Sherman[1]
[1]Johns Hopkins Bloomberg School of Public Health, Health Behavior and Society, Baltimore, United States, [2]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [3]Johns Hopkins Bloomberg School of Public Health, International Health, Baltimore, United States

Background: Transgender women sex workers (TSW) face a unique HIV risk context due to intersectional stigma and oppression at interpersonal and structural levels as well as individual and interpersonal risk behaviors. A global meta-analysis of 25 studies estimated HIV prevalence among TSW at 27.3% compared to 14.7% in trans women not engaging in sex work. PrEP represents the next generation of high-impact, biomedical HIV prevention. This study examines the socio-structural context in which TSW conceptualize HIV risk and PrEP acceptability, with the intention of informing PrEP uptake and adherence intervention development.
Methods: The study was conducted in Baltimore City, Maryland, USA between 2017-18 and employed ethnographic and participatory research methods (i.e., observations [n=4], participant photo diaries [n=5], in-depth interviews [n=20] and key informant interview [n=7]) with twenty TSW recruited from an existing cohort (the SAPPHIRE study). Analysis followed an inductive and deductive approach, allowing for the emergence of new themes.
Results: Preliminary analyses indicate multi-level factors influence the PrEP continuum from awareness, interest, access, uptake to adherence. Awareness and uptake were shaped by a sociocultural context in which PrEP is perceived as marketed to MSM and at-risk individuals, with attending stigmas. Though most participants reported accessing a health provider, reports of PrEP street sales within the trans-community point to complexities in healthcare access and utilization. Individual level factors shaping pill adherence include experimental dosing, rectal insertion and concerns around interactions with hormones, highlighting previously unexplored practices around oral PrEP usage and adherence. The complex web of health priorities (e.g., hormone therapy) and structural vulnerabilities including, client violence and drug use provided important insights into barriers and facilitators to a daily PrEP pill.
Conclusions: Ethnographic engagement with TSW lived experiences is key to understanding the complexities of PrEP adherence, as well as barriers and facilitators to uptake. Moving forward, PrEP interventions for TSW need to consider competing priorities and how best to integrate PrEP into trans women's lives. Utilizing existing health regimens (i.e. daily hormones) and existing prescribers, as well as social networks, including peers and community leaders, to promote PrEP uptake and adherence should be considered in future intervention development.

Integrating STI, sexual and reproductive health, HBV and HCV services in HIV prevention programs

WEPEC263

Urgent need to integrate PMTCT service for HIV and hepatitis B: An interim report from a prospective cohort study in rural districts, Zambia

M. Chirwa[1], K. Komada[2], C. Msiska[1]
[1]Chongwe District Health Office, Chongwe, Zambia, [2]National Center for Global Health and Medicine, Bureau of International Medical Cooperation, Tokyo, Japan

Background: HIV, syphilis and hepatitis B virus infection in a pregnant woman poses a serious risk to her infant. While the program for HIV prevention of mother to child transmission (PMTCT) has been expanded in Zambia, the screening for hepatitis B is not conducted enough for clients coming to antenatal clinic and less information is available for current prevalence of hepatitis B especially in rural area.
We launched the prospective cohort study to evaluate operational challenge in option B+ program in rural Zambia but also focused on hepatitis B burden and care for that.
Methods: The prospective cohort study was launched in 11 health facilities in Chongwe district June 2015, where all the HIV positive pregnant women coming to antenatal clinic and diagnosed by HIV rapid test were registered for the study. The screening for Hepatitis B was also conducted by rapid test for HBs antigen. HIV and Hepatitis prevalence among the clients coming to antenatal clinic were estimated using data abstracted from the testing registers in antenatal clinic at each facility. Logistic regression analysis was used to evaluate independent factors associated with HIV-ab and HBs-ag carriers.
Results: Total 2772 pregnant women and 19.2% of their partners were screened for HIV and hepatitis B from June 2015 to May 2016 in the 11 facilities. HIV-ab and HBs-ag prevalence were 9.9% [95%CI:8.7-11.0] and 3.7%[3.0-4.4] in pregnant women and 5.4% [3.5-7.3] and 6.7%[4.5-8.8] in their partners. 4.6% of HIV positive pregnant women were co-infected with hepatitis B.
The elder (>=25) pregnant women were more likely to be infected with HIV (OR:2.30, 95%CI:1.77-3.01) but there was no significant correlation between HIV and HBV status. (OR: 1.14, 95%CI: 0.60-2.20) 87.6 % of pregnant women infected with Hepatitis B were positive only for HBs-ag and not covered by current ART program for HIV.
Conclusions: Hepatitis B burden in rural Zambia including the risk of vertical transmission can't be ignored. To save mothers and children, integrating the PMTCT programs for HIV and Hepatitis B should be enhanced. Further analysis are required to clarify the effective integrated service model as well as feasible options in resource limited settings.

WEPEC264

Are STI testing programmes acceptable and feasible for adolescents in South Africa?

R. Marcus[1,2], K. Gill[1], P. Smith[1], S. Rouhani[1], E. Mendel[1], S. Osman[1], K. Naidoo[1], A. Mendelsohn[1], N. Ngetu[1], M. Tembo[1], N. Ahmed[1], L.-G. Bekker[1]
[1]Desmond Tutu HIV Centre, University of Cape Town, Cape Town, South Africa, [2]Barts Health NHS Trust, London, United Kingdom

Background: Adolescents in South Africa remain at high risk of HIV and sexually transmitted infections (STIs). Despite the epidemiological and biological link between STIs and HIV transmission and acquisition, curable and often asymptomatic *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) infections remain widely undiagnosed and untreated in the context of syndromic management, the current standard of care.
We conducted a prospective study to assess the acceptability and feasibility of a rapid STI test-and-test service for adolescents in Cape Town.
Methods: Adolescents attending a youth centre clinic were offered a rapid STI test-and-treat service between February and August 2017. Urine testing for CT and NG using a molecular point-of-care test (GeneXpert)

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was conducted and treatment provided as appropriate. Data was collated on demographics, sexual behaviour, uptake of same-day treatment, service acceptability and prevalence of infections.

Results: We enrolled 255 participants, 209 female and 46 male. Mean age was 19.9 years for females and 19.7 years for males, with mean age at sexual debut reported as 16 and 14.9 years for females and males respectively. Seventy-eight participants (30%) consented to HIV testing, with four testing positive. Seventy-one (34%) females and 9 males (20%) tested positive for chlamydia. Thirty-six (17%) females and 8 (17%) males tested positive for gonorrhoea. 38% (96/255) had either CT/NG overall. Seventy-four (29%) opted for same day results and treatment, 179 (70%) opted to return the following day. Self-reported STI symptoms had a sensitivity of 50% and specificity of 53% for the diagnosis of CT/NG. The majority of participants (89%) reported the service as being highly acceptable.

Conclusions: Curable STIs are highly prevalent in this adolescent population in South Africa. STI screening using near-patient testing was popular amongst adolescents, and acceptability was high. Clinical symptoms were insensitive in diagnosing infection with CT/NG, suggesting a high prevalence of undiagnosed genital tract infection in this population that may increase the risk of HIV and reproductive complications. There is an urgent need for the implementation of accurate and timely diagnostics and treatment of STIs, and for increased efforts to support adolescent HIV testing uptake in the context of sexual and reproductive health services.

WEPEC266

High HIV PrEP adherence is associated with syphilis incidence

C. Bristow[1], M.P. Dube[2], K. Corado[3], E. Ellorin[1], J. Blumenthal[1], S.R. Morris[1], CCTG Team
[1]University of California San Diego, Medicine, La Jolla, United States, [2]University of Southern California, Keck School of Medicine, Los Angeles, United States, [3]Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center, Los Angeles, United States

Background: High sexually transmitted infection (STI) incidence has been reported among HIV pre-exposure prophylaxis (PrEP) users. We aimed to assess if PrEP adherence was associated with syphilis incidence in a PrEP adherence trial.

Methods: We conducted a randomized clinical trial to assess if text-messaging could be used to increase adherence to PrEP among men who have sex with men. Syphilis testing was conducted every 12 weeks with rapid plasma reagin and confirmed with a treponemal test. A syphilis diagnosis was made by the study clinician. PrEP adherence was measured by intracellular tenofovir diphosphate (TFV-DP) using dried blood spots collected at weeks 12 and 48. "Highly adherent" was considered ≥1246 fmol/punch, consistent with 7 doses per week (near perfect dosing) and "adequate adherence" was ≥719 fmol/punch, consistent with 4 or more doses of TDF in the past week. The incidence-rate ratio (IRR) and 95% confidence intervals (CIs) for syphilis among those adherent as compared with those non-adherent to PrEP by each definition was examined in Poisson regression models.

Results: A total of 381 of 398 participants enrolled in the study were assessed prospectively for syphilis at one or more follow-up visits, with a total of 26 incident syphilis cases occurring over a 2-year study period. The overall incidence rate of syphilis in the study was 5.4 (95% CI: 3.3, 7.5) per 100 person years. The incidence rates stratified by PrEP adherence status are shown in the Table. Among those highly adherent to TFV-DP at week 12 and week 48, the incidence rate of syphilis was over 3 times higher compared to those not highly adherent at week 12 and 48 (IRR week 12: 5.2 (95% CI: 2.0, 13.8); IRR week 48: 3.4 (95% CI: 1.5, 7.9)).

Conclusions: High incidence rates of syphilis among individuals taking PrEP may suggest increased or sustained risk behavior. Highly adherent individuals as measured at week 12 and week 48 were at higher risk for syphilis. Further research is needed to assess change in risk behaviors and risk compensation over time to inform public health efforts and HIV PrEP programs.

TFV-dp Adherence Measure Week	Adherence status	Number of incident cases	Number of people at risk	Number of person years spent at risk	Incidence density per 100 person years (95% CI)	Age adjusted incidence rate ratio
Week 12	Not highly adherent (≤1246 fmol/punch)	5	213	264.6	1.9 (0.2, 3.5)	ref
Week 12	Highly adherent (>1246 fmol/punch)	21	168	216.7	9.7 (5.5, 13.8)	5.2 (2.0, 13.8)
Week 12	Not adequately adherent (≤719 fmol/punch)	1	66	64.0	1.6 (0.0, 4.6)	ref
Week 12	Adequately adherent (>719 fmol/punch)	25	315	417.3	6.0 (3.6, 8.3)	3.9 (0.5, 29.01)
Week 48	Not highly adherent (≤1246 fmol/punch)	8	240	285.7	2.8 (0.9, 4.7)	ref
Week 48	Highly adherent (>1246 fmol/punch)	18	141	195.6	9.2 (5.0, 13.5)	3.4 (1.5, 7.9)
Week 48	Not adequately adherent (≤719 fmol/punch)	3	117	109.7	2.7 (0.0, 5.8)	ref
Week 48	Adequately adherent (>719 fmol/punch)	23	264	371.6	6.2 (3.7, 8.7)	2.3 (0.7, 7.7)

[Syphilis incidence among MSM in a PrEP adherence trial by PrEP adherence level, intracellular TFV-DP, using dried blood spots from week 12 and 48]

WEPEC267

High rate of unplanned pregnancy despite integration of family planning into HIV care

O.V. Adeniyi[1], A. Ajayi[2], D. Goon[2], C. Carty[3], J. Lambert[4], East London Prospective Study Group
[1]Walter Sisulu University, East London, South Africa, [2]University of Fort Hare, East London, South Africa, [3]Relevance Network, Johannesburg, South Africa, [4]University College, Dublin, Ireland

Background: Family planning was integrated into HIV services with the aim to ensure that all pregnancies are planned and to prevent mother to child transmission of HIV. A good measure of the impact of this integration would be the rate of unplanned pregnancy among women infected with HIV who are pregnant. This paper examined the prevalence and correlates of unplanned pregnancy among HIV infected women attending antenatal care service in three largest hospitals in Eastern Cape Province of South Africa.

Methods: A total of 594 women infected with HIV were recruited. Questionnaires probing whether women desire pregnancy at the time they got pregnant, and demographic characteristics were administered using an interviewer guided approach. To examine correlates of unplanned pregnancy, chi-square statistics and binary logistics regression were employed.

Results: The analysis reveals a high rate of unplanned pregnancy (71%) among women infected with HIV. Unplanned pregnancy was significantly associated younger age, single marital status, newly diagnosed at first presentation, high parity, and previous abortion. Women who reported unplanned pregnancy were more likely to book late and have lower CD4 counts. After adjusting for confounding variables (previous abortion, peri-partum and CD4 count), having one child and five to seven children (AOR=2.2; CI=1.3-3.1), age less 21 years (AOR=3.3; CI=1.1-9.8), presenting for antenatal care at more than 27 weeks (AOR=2.7; CI=1.5-5.0), not married (AOR=4.3; CI=2.7-6.8) and negative and unknown HIV status at first visit (AOR=3.0; CI=1.6-5.8) were significant predictors of unplanned pregnancy.

Conclusions: Unplanned pregnancy is high among women infected with HIV despite the integration of family planning services into HIV care and PMTCT. HIV infected women with unplanned pregnancy are more likely to be young, presented late for antenatal care services, not married, negative or with unknown status at first antenatal care visit, and carrying their first pregnancy or with five to seven children. High rate of unplanned pregnancy has huge implication for ending the AIDS epidemic, especially elimination of mother to child transmission of HIV in South Africa. Integration of HIV and reproductive health services needs to intensify in order to maximise the benefits of services' integration.

WEPEC268

Increasing male partner involvement in antenatal services for elimination of mother-to-child transmission of HIV

A. Watsemba[1], C. Derrick Opio[2], R. Kyapa[3], B. Wandera[2], J. Hayuni[1], A. Mitchell Le Few[4], R. M Flueckiger[4], M. Lopez[5], E. Tanga[2]
[1]RTI International, USAID/Uganda HIV and Health Initiatives in Workplaces Activity, Kampala, Uganda, [2]World Vision Uganda, USAID/ Uganda HIV and Health Initiatives in Workplaces Activity, Kampala, Uganda, [3]Uganda Police Health department, Kampala, Uganda, [4]RTI International, Research Triangle Park, North Carolina, United States, [5]World Vision, Inc., Federal Way, WA, United States

Background: Previous studies demonstrate a positive association between attendance by male partners at antenatal care (ANC) visits and improved maternal health outcomes. Hence, the elimination of mother-to-child transmission of HIV program in Uganda emphasizes male partner involvement in ANC. However, male partner attendance in Uganda remains low (10.3%). To increase male partner ANC attendance, a pilot was conducted in Mbale Police Health Center III, where a male-partner-package aimed at engaging men in the ANC process was distributed. This package includes: 1) education about pregnancy and nutrition with messages for both men and women, 2) couples given priority in accessing ANC services, 3) medical check-ups for male partners, and 4) male partner attendance at the examination of the pregnant partner. The objective of this study was to determine if the male-partner-packages increased male partner ANC attendance.
Methods: The male-partner-package was distributed to women who sought ANC services at Mbale Police Health Center III from June to October 2017. Male partner attendance in this intervention group was compared with male partner attendance in this same setting, prior to the implementation, from June to October 2016. A multivariate logistic regression model was fit to male partner participation, including receipt of the male-partner-package and additional covariates. Variables were removed through a backwards stepwise approach until all indicators were significant at the 5% level.
Results: The estimated regression relationship between male partner ANC attendance and receipt of the male-partner-packages was significant. The estimated increase of partner attendance associated with the male-partner-package receipt was 24% (4.9% vs. 29.3%, p=0.000). Further, increased male partner attendance was significantly associated with the fourth and fifth ANC visits (27%), increased gestation age (18%), and woman's HIV positive status (38%).
Conclusions: The study found evidence of association between male partner ANC attendance and receipt of the male-partner-package, along with additional covariates. These results suggest increased awareness of ANC visit attendance benefits among men may contribute to an increase in male partner ANC involvement.

WEPEC269

Innovative prevention using social media

L. Piel, C. Winkelmann
German Federal Centre for Health Education, Prevention of HIV/AIDS and other Sexually Transmitted Infections (STI), Cologne, Germany

Background: »The Infectastic STIs«
In addition to the real world, virtual worlds in the form of social media are increasingly becoming an avenue of communication and a place for discussion of messages about health. LIEBESLEBEN has created a brave and lively element in prevention work with its 'The Infectastic STIs': five humorous characters, each of whom represents a different sexually transmitted infection (STI), conquer the social internet in amusing clips. A recent study has shown that in Germany the general public is well informed about HIV but not to the same extent about other STI, their transmission paths and symptoms (BZgA 2016).
Description: Chlam Chlamydie, Trippo Tripper (gonorrhoea), Feig Feigwarze (genital warts), Hepp Hepatitis and Philis Syphilis - they all convey the LIEBESLEBEN messages with a lot of humour, emotional empathy and striking looks; their primary target group is young people and young adults who are active on social media. Their brief stories about infection and protection, failed dates and selfies connect them to their target group and also make them a helpful companion to prevention work taking place locally. The videos, less than one minute in length, were integrated in a social media ad-campaign on Facebook for 8 weeks in late 2017. The goal was to reach as many people as possible between the ages of 18 and 40, including people with a low level of education, to create a basic awareness about STI in the target group.
Lessons learned: The campaign achieved a total reach of 9 million contacts and a total of nearly 4.5 million clicks, likes, shares and comments (engagement) on Facebook. Many people commented and linked their friends, so a snowball effect took place. The campaign analysis from Facebook shows that those videos were successful that provided clear contents about condom-use and STI-symptoms.
Conclusions/Next steps: For the second series in 2018 the videos will get more detailed in their content and try to reach more specific target groups, like women up to 25, to inform them about the costless chlamydia screening programme in Germany. This will be an additional goal besides getting more noise floor.

[The Infectastic STIs]

WEPEC270

The HIV/AIDS response succeeds when integrated in the reproductive maternal newborn child and adolescent health platform: The Kingdom of Swaziland's Experience

B.R. Dlamini[1], N. Dlamini[2], B. Nhlabatsi[3], M. Thwala-Tembe[1], S. Myeni[4], L. Malaza[5]
[1]UNFPA, SRH, HIV & Youth, Mbabane, Swaziland, [2]Minstry of Health, M & E, Mbabane, Swaziland, [3]Ministry of Health, SRH, Mbabane, Swaziland, [4]MoH, M & E, Mbabane, Swaziland, [5]MoH, SRH, Mbabane, Swaziland

Background: The need to link HIV/AIDS and Sexual Reproductive Health (SRH) response is important due to the interconnectedness of HIV and SRH. Swaziland is implementing the Primary Health Care strategy which involves integration of a number of health services. However,

in the early years of the HIV/AIDS epidemic, its programming and funding was prioritized in a vertical manner due to the scale and scare of the epidemic. Over the years, the country recognized that addressing HIV/AIDS and Sexual Reproductive Health and Rights (SRHR) services as totally separate entities is counterproductive in achieving targets for neither HIV nor SRHR. This assessment was aimed at documenting the extent of SRH and HIV integration.
Methods: A mixed-methods approach was used to document the extent of SRHR and HIV integration. The quantitative approach included secondary data analysis using national data and reports on SRHR and HIV integration indicators between 2009 and 2016. The qualitative approach included key informant interviews. Trend analysis regression of proportions across was used to test for true trends in observed changes over the years of the integration. Different datasets were used as proxies in the estimation of the extent of the integration along the linkages project indicators whenever applicable and data trends were available.
Results: RMNCAH and HIV integration is supported by enabling policy environment across all levels. In 2016, 94% (28978 clients) accessed HIV services and 95% of those testing HIV positive were initiated within the RMNCAH platform, while 92% of clients attending FP services eligible for HIV testing were tested and 75% of those tested HIV positive linked to care and treatment. An observed increasing trend of HIV testing within TB clinics from 66% in 2012 to 92% in 2016. A significant p-value (pr>chi2=< 0.0001) indicating HIV testing in STI clinics.
Conclusions: The bi-directional integration of RMNCAH and HIV provides a concrete ground for reaching the ambitious UNAIDS targets (90-90-90). This integration is not only logic to the health delivery system; it's also beneficial to the clients. Having one strategy, one coordinating structure and one M&E system may significantly lead to attainment of the UN-SDGs.

WEPEC271

Perspective of young people living with HIV in the Federal Capital Territory (FCT) Nigeria on their sexual reproductive health needs

A. Ogunrombi[1], I. Takuma[2]
[1]YouthRISE Nigeria, Policy/Programs, Abuja, Nigeria, [2]APYIN Nigeria, Programs, Abuja, Nigeria

Background: Young people age 15-30 years constitute 60 percent of people living with HIV (PLHIV) in Nigeria. The HIV epidemic constitutes a public health challenge and it has been established that effective response to the epidemic also require meeting the sexual and reproductive health (SRH) needs of PLHIV. However, not much is known about the SRH needs of young PLHIV in Nigeria and whether available HIV services are meeting these needs.
Methods: The study aimed to explore the perception of young PLHIV in the Federal Capital Territory (FCT), Nigeria on their SRH needs and whether these needs are being met by available HIIV services. The study guided by interpretivist epistemology used qualitative approach for data generation and through purposive sampling, 30 young PLHIV who are of ages 18-26 years were recruited from the association of young people living with HIV in the FCT and interviewed individually. Collected data was then analyzed using thematic content analysis.
Results: Five themes emerged and findings show young PLHIV in the FCT has many unmet SRH need which include forming sexual relationships, fertility intentions, preventing unwanted pregnancy, managing sexually transmitted infections and abortion-related issues. Also evident is how economic burden of accessing free ART services contributes to poor treatment adherence. YPHLIV are desirous of youth friendly health services that encourage their participation in program design and delivery, ensure confidentiality and integrate socio-economic support into healthcare.
Conclusions: Addressing HIV epidemic in Nigeria will require meeting the SRH need of YPLHIV which could be done through SRH/HIV service integration. However, meeting the need of YPLHIV is not limited to scaling up of interventions but also how these services are delivered in a way that is acceptable to the recipients.

WEPEC272

Integration of sexual and reproductive health services into HIV testing service: A unique delivery model for optimising the uptake of HTS among female sex workers in Nigeria

G. Ekon[1], E. Godwin[2], P. Umoh[2], A. Kalaiwo[3], T. Jaiyebo[4], A. Yusuf[2], R. Abang[5]
[1]Initiative for Young Women's Health and Development, Monitoring and Evaluation, Calabar Municipal, Nigeria, [2]Heartland Alliance International Nigeria, Abuja, Nigeria, [3]United States Agency for International Development, Abuja, Nigeria, [4]Heartland Alliance International Nigeria, Programs, Abuja, Nigeria, [5]Heartland Alliance International Nigeria, Calabar, Nigeria

Background: Female Sex Workers (FSWs) in Nigeria continue to be exceptionally vulnerable to acquiring HIV infection with a prevalence rate of 19.4% and 8.6% for Brothel Based and Non-Brothel Based FSWs respectively. In Cross River State, HIV Testing Services (HTS) has been advanced as a key prevention strategy for early diagnosis of HIV to reduce the risks of transmission and promote early treatment. However, HTS is not optimised among FSWs.
This study looks at integration of sexual and reproductive health services as a means of optimising HTS uptake.
Description: Initiative for Young Women's Health and Development (IY-WHAD) was sub granted by Heartland Alliance International Nigeria to implement the Integrated MARPs HIV Intervention Prevention Program (IMHIPP) for FSWs in Cross River, Nigeria. In May 2017, IY-WHAD began an innovative idea to integrate Sexual Reproductive Health services (Sexual reproductive health education, menstrual hygiene management, referrals for STIs syndromic management and referrals for Family planning services) into HTS outreaches. Before this, only HIV prevention services including HTS was provided to FSWs during outreaches in Brothels and hotspots. A comparative analysis of data reported in the period before integration and the period after integration of SRH services was done.
Lessons learned: There was an increase in participation of FSWs in HTS outreaches as the number of FSWs who received HTS doubled from an average of 375 monthly before SRH integration to 800 monthly after integration. Over 80% of the Female Sex Workers who came for other Sexual Reproductive Health services accessed HIV testing services and received their test result.
Conclusions/Next steps: Integrating Sexual Reproductive Health services into HIV Testing Services can lead to scale up in the number of Female Sex Workers who take up HIV Testing Services. Female Sex Workers who come for sexual reproductive health education, sanitary pads/tampons, referrals for Sexually Transmitted Infection syndromic management or referrals to access family planning services; present an opportunity for the Counselor Testers to discuss HIV Counseling and Testing as a tool to attain the first 90% of the 90:90:90 hence increasing utilization of HIV Testing Services among Female Sex Workers in Nigeria.

Developing tailored and comprehensive services for specific key and vulnerable populations

WEPEC273

Gender affirmation and healthcare empowerment: Two intervention-amenable targets to enhance viral suppression among transgender women of color living with HIV in the United States

J.M. Sevelius[1], D. Chakravarty[1], T. Neilands[1], J. Keatley[2], G. Rebchook[1], HRSA SPNS Transgender Women of Color Study Group
[1]*University of California, Medicine, San Francisco, United States,* [2]*University of California, Family and Community Medicine, San Francisco, United States*

Background: Globally, transgender women of color are disproportionately impacted by HIV and are less likely than other groups to be virally suppressed. Transgender women of color also experience higher rates of transphobic discrimination (TD) than other transgender subgroups. The association between TD and poor health outcomes, such as unsuppressed viral load (VL), is documented but little is known about potential targets for intervention on this association. We sought evidence for the Gender Affirmation (GA) Model of transgender health in these analyses.

Methods: A demonstration project to evaluate interventions targeting enhanced engagement and retention in HIV care recruited 858 HIV-positive transgender women of color across four US urban centers between December 2013 and August 2016. A self-administered survey measured HIV care engagement, TD (in healthcare, employment, housing), gender affirmation (GA) (transgender-competent care, need for and satisfaction with GA) and healthcare empowerment (HCE). We used structural equation modeling (SEM) to test the direct association between TD (latent) and viral suppression (VS) as well as their indirect association via GA (latent) and HCE in a serial mediation model. Inferences were based on the bias-corrected bootstrap (5000 samples).

Results: Participants' mean age was 37 years (SD=10.8), 49% were Latina, 42% were Black, 57% had at least a grade12 education and 36% were virally suppressed. Global fit statistics demonstrated good model fit (Hu & Bentler, 1999): CFI=0.96, RMSEA=0.06, WRMR=1.26. The SEM provided statistically significant direct pathways between TD and GA (B=-0.18, p< 0.001), GA and HCE (B=1.09, p=0.001), and HCE and VS (B=0.18, p=0.001). The significant indirect pathways were from TD to VS via GA and HCE (B=-0.04, p=0.036, 95% CI:-0.08,-0.01) and GA to VS via HCE (B=0.19, p=0.028, 95% CI:0.08,0.44). The direct effect from TD to VS was not significant (B=-0.04, p=0.58).

Conclusions: GA and HCE significantly and fully mediated the total effect of TD on VS; however, TD and GA did not demonstrate significant direct effects on VS. These data provide empirical evidence for the Gender Affirmation Model of transgender health. Interventions that boost gender affirmation and healthcare empowerment may improve rates of viral suppression among transgender women of color living with HIV.

WEPEC274

Perceptions do matter: The impact of perceived risk of HIV acquisition on HIV testing among gay male couples

D. Chakravarty[1,2], T. Neilands[2], L. Darbes[3], C. Hoff[1]
[1]*San Francisco State University, Center for Research and Education on Gender and Sexuality, San Francisco, United States,* [2]*University of California, Center for AIDS Prevention Studies, Department of Medicine, San Francisco, United States,* [3]*University of Michigan, Department of Health Behavior and Biological Sciences, Center for Sexuality and Health Disparities, School of Nursing, Ann Arbor, United States*

Background: Regular HIV testing is a critical component of a multimodal HIV prevention strategy. In the US, the CDC recommends that sexually active gay men test every 3 to 6 months. However, research shows that HIV-negative men in gay couples do not test regularly even in the presence of sexual risk. We sought to test if perceived risk of HIV acquisition (PRH) plays a role in this.

Methods: We recruited 441 gay couples (336 concordant negative, 105 serodiscordant) from the San Francisco Bay Area between February, 2012 and February, 2015 to complete computerized self-administered surveys every six months (baseline+3 follow-ups) regarding their HIV testing behavior, PRH (using an 8-item pre-validated instrument; sample: 'I feel vulnerable to HIV infection'), sexual behavior and relationship characteristics. We used generalized estimating equations with an exchangeable correlation structure, with individuals clustered within couples, to test the association of testing within past three months (TEST3M) with PRH. The model controlled for couple-serostatus, sexual risk (defined as condomless anal sex with a serodiscordant/unknown serostatus partner in the previous 90 days (CAS-DISC)), sexual agreement type and relationship length. Testing within past six months (TEST6M) and twelve months (TEST12M) were also separately modeled.

Results: The sample consisted of 48.3% interracial and 41.5% White couples. At baseline, the median relationship length was 5 years; median age was 41.7 years. CAS-DISC was reported by 14% to 16% of the HIV-negative men across visits and TEST3M by 24% to 26%. Controlling for other variables, a one standard deviation increase in PRH produced a 1.38 times increase in the odds of TEST3M (Table 1). Results were similar for outcomes TEST6M (aOR=1.39, p< 0.01, 95%CI:1.25,1.55) and TEST12M (aOR=1.42, p< 0.01, 95%CI:1.27,1.59) (not in table).

Explanatory Variable	Adjusted Odds Ratio (aOR)	95% Confidence Limits of aOR	p-value
Perceived Risk of HIV (Standardized Score)	1.38	(1.22, 1.57)	<0.01
CAS-DISC (Sexual Risk)	1.78	(1.32, 2.4)	<0.01
Agreement Type - Monogamous	0.60	(0.45, 0.79)	<0.01
Relationship length (in years)	0.98	(0.956, 0.996)	0.02
Couple Serostatus - HIV-negative	0.99	(0.7, 1.39)	0.95
Time	1.02	(0.94, 1.11)	0.60

[Table 1: Output from Model Predicting Presence of HIV Test in Previous 3 Months]

Conclusions: Among HIV-negative men in gay couples, we found empirical evidence that perception of being at greater risk for HIV is associated with greater odds of testing. Since perceptions are only as accurate as the knowledge they are based upon, it is imperative that gay couples are provided with the skills to accurately assess their risk for HIV and test with appropriate regularity. Prevention programs that equip couples with these skills are greatly needed.

WEPEC275

Project Shikamana: Positive effects of a phase II trial of community empowerment-based combination prevention to respond to HIV among female sex workers in Iringa, Tanzania

D. Kerrigan[1,2], N. Galai[2], S. Beckham[2], A. Mwampashi[3], C. Shembilu[4], D. Gitagno[5], A. Mantsios[2], A. Leddy[6], W. Davis[1], S. Aboud[3], S. Likindikoki[3], J. Mbwambo[3]
[1]*American University, Washington, United States,* [2]*Johns Hopkins Bloomberg School of Public Health, Baltimore, United States,* [3]*Muhimbili University, Dar es Salaam, United Republic of Tanzania,* [4]*Johns Hopkins Bloomberg School of Public Health, Iringa, United Republic of Tanzania,* [5]*Muhimbili University, Iringa, United Republic of Tanzania,* [6]*Johns Hopkins Bloomberg School of Public Health, Baltimore, United Republic of Tanzania*

Background: Community empowerment approaches have been effective in responding to HIV among female sex workers (FSW) in South Asia and Latin America. Few rigorous evaluations of these approaches have been evaluated in sub-Saharan Africa (SSA). We conducted a Phase II randomized controlled trial of a community-based combination HIV prevention model among FSW in two matched communities in Iringa, Tanzania.

Methods: A longitudinal cohort of 496 venue-based FSW (203 HIV+ and 293 HIV-) were surveyed and screened for HIV and viral load at baseline (2015-6) and 18-month follow-up (2017-8). The intervention sought to address structural constraints to optimal HIV outcomes by promoting social cohesion to address stigma, discrimination, violence and financial insecurity through community-led drop-in-center workshops and mo-

bilization activities. Additional intervention elements included: venue-based peer education, condom distribution and HIV testing; peer service navigation and SMS ART adherence reminders, and sensitivity trainings for providers. Intervention effects on HIV incidence and care continuum outcomes, including viral suppression, were estimated with logistic models adjusting for venue clustering and robust Poisson regression.
Results: Baseline HIV prevalence was 40.9%. At follow-up, HIV incidence was 55% lower in the intervention community (6/120 or 5.0%) compared to the control community (10/96 or 10.4%) (OR=0.45; 95% CI: 0.18, 1.14; p-value=0.092). Inconsistent condom use with clients at follow-up was significantly associated with a higher odds of incident HIV infection (AOR=2.92 95% CI: 1.02, 8.34; p-value=0.046). Whereas, gender-based violence at baseline was associated with an increased odds of incident HIV infection (AOR=2.97; 95% CI: 1.24, 7.11; p-value=0.015). There were significant differences across study arms in engagement in HIV care (RR=1.44, p=0.002) and treatment initiation (RR=1.22, p=0.029). A positive trend was observed in viral suppression below 400 copies/ml (50.5% in intervention vs. 47.4% in control, RR=1.07, NS) with 34.3% vs 28.4% respectively having sustained viral suppression (RR=1.21, NS). Binge drinking was associated with lower odds of being virally suppressed (AOR=0.54; 95% CI: 0.30, 0.97; p-value=0.039).
Conclusions: Phase II trial findings indicate positive effects of a tailored community empowerment-based combination prevention on incident HIV prevention and treatment outcomes among FSW in this SSA context, justifying the conduct of a Phase III trial.

WEPEC276

Co-dispensation of low-barrier methadone maintenance therapy (MMT) and antiretroviral therapy (ART) linked to improved ART adherence among people living with HIV who use illicit drugs in a Canadian setting

N.A. Mohd Salleh[1,2], L. Richardson[1,3], J. Shoveller[4], H. Dong[1], N. Fairbairn[1], R. Barrios[5], E. Wood[1], M.-J. Milloy[1,6]
[1]British Columbia Centre on Substance Use, Vancouver, Canada, [2]University of British Columbia, Interdisciplinary Studies Graduate Program, Vancouver, Canada, [3]University of British Columbia, Department of Sociology, Vancouver, Canada, [4]University of British Columbia, School of Population and Public Health, Vancouver, Canada, [5]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada, [6]University of British Columbia, Department of Medicine, Vancouver, Canada

Background: Methadone maintenance therapy (MMT) has been shown to promote adherence to antiretroviral therapy (ART) among HIV-positive individuals who use illicit drugs. While existing integrated models have emphasized the role of primary HIV care providers and addiction specialists, empirical data outlining the relationship between integrated co-dispensation of methadone and ART and clinical outcomes is limited. To fill this gap, this study sought to examine the relationship between MMT-ART co-dispensation and achieving optimal adherence to ART among ART-experienced people living with HIV who use illicit drugs (PWUD) in Vancouver, Canada, a setting with universal no-cost healthcare access, community-based low-barrier methadone delivery and a community-wide seek, test and treat effort.
Methods: We used data from the ACCESS study, a long-running community-recruited cohort of HIV-positive PWUD linked to comprehensive HIV clinical records, including ART dispensation. Dispensing locations for methadone and ART were reported by participants and extracted from HIV clinical records, respectively. The longitudinal relationship between methadone and ART co-dispensation and the odds of ≥95% ART adherence was analyzed using multivariable generalized linear modeling. As a sensitivity analysis, we conducted a marginal structural model with inverse probability of treatment weights, a strategy used to produce estimates of causal effects from observational data.
Results: This study included data from 379 ART-exposed participants who completed ≥ 1 interview between June 2012 to May 2015. At baseline, 222 (58.6%) achieved ≥95% adherence at some point during the follow-up period and 96 (25%) reported MMT-ART co-dispensation. In the final multivariable model, MMT-ART co-dispensation was associated with greater odds of achieving ≥95% adherence (Adjusted Odds Ratio [AOR] = 1.70, 95% Confidence Interval [95% CI]: 1.25 - 2.31). A marginal structural model estimated a 1.66 (95% CI: 1.11 - 2.26) greater odds of ≥95 adherence among participants reported MMT-ART co-dispensation compared to those who reported non-co-dispensation.
Conclusions: We found that the likelihood of achieving optimal adherence was higher among participants whose MMT and ART medications were dispensed at the same facility. Our findings highlight the need to consider the role of integrated treatment delivery in planning and improving services for HIV-positive individuals who use drugs to optimize the benefits of MMT and ART.

WEPEC277

Service delivery barriers to accessing HIV-related services for key populations in Southern Ghana

S. Ayisi Addo[1], M. Abdulai[1], A.N. Baddoo[1], M.G. Chandi[2], F. Frimpong[1], E. Kenu[3]
[1]Ghana Health Service, National AIDS/STI Control Programme Accra, Accra, Ghana, [2]University of Ghana, School of Public Health, Accra, Ghana, [3]University of Ghana,School of Public Health, Department of Epidemiology and Disease Control, Accra, Ghana

Background: Structural factors contribute to disproportionate rates of HIV infection among Men who have sex with men (MSM) and female sex workers (FSW) otherwise known as key populations. However, access to HIV-related services remains a challenge in some settings. To achieve global agenda on reducing the burden of HIV by 2030, these barriers need to be addressed to increase access of KPs to health care. This study assessed the service delivery barrier to HIV service in Kumasi and Accra in Ghana.
Methods: We conducted a cross sectional mixed quantitative and qualitative study. Random sampling technique was used to select 80 Ghana Health Service staff engaged in HIV control services in six health facilities Kumasi and Accra and interviewed using a structured questionnaire. In addition, eight FGD (N=198) and 90 in-depth interviews were conducted among various stakeholder including self-identifying MSM and FSW. STATA 13 an NVivo 11 was used to analyse the quantitative and qualitative data respectively.
Results: Lack of confidentiality and privacy, stigmatization and poor attitude of health workers were identified as important consideration in use of health facility by KPs. About 52 (65%) of the respondents strongly agreed that their facility provided enough confidentiality. Sixty-seven (83.7%) and 61 (76.3%) of the respondents believed their health facilities did not have facilities available to specifically address the needs of FSW and MSM. Training on ways to reduce stigma to FSW and MSM was low as only 25 (31.3%) had received training in this direction. Poor service provider attitudes and poor service delivery such as long waiting times, poor logistics management (shortage of essential drugs and lack of basic equipment) and dispersed or non-available KP services deter KPs from accessing and staying consistently in HIV care.
Conclusions: Service delivery barriers for meeting the specific needs of KPs exist in health facilities in Ghana. One stop service outlets are essential for KPs related HIV services. Health facilities must improve their services to meet the needs of KPs in order to increase the utilization by KPs.

WEPEC278

Risk behavior and low HIV testing awareness among Roma (Gypsy) adolescents and young adult men who have sex with men (MSM) in Sofia, Bulgaria

J. Kelly[1], Y. Amirkhanian[2], S. Vassileva[3], E. Kabakchieva[3], T. Varleva[4]
[1]Medical College of Wisconsin, Psychiatry and Behavioral Medicine, Milwaukee, United States, [2]Medical College of Wisconsin, Department of Psychiatry and Behavioral Medicine, Milwaukee, United States, [3]Health and Social Development Foundation, Sofia, Bulgaria, [4]Bulgaria Ministry of Health, Sofia, Bulgaria

Background: Roma (Gypsies) are the largest and most marginalized ethnic minority group in Europe, and Roma communities in most of Eastern Europe are geographically segregated and characterized by pervasive poverty, widespread social health problems, educational disadvantage,

and poor living conditions. Almost no research has examined the social circumstances, risk, and HIV testing awareness and attitudes of adolescent and young adult Roma MSM. This study employed qualitative methods to identify HIV prevention needs of young Roma MSM.

Methods: Participants were 27 young MSM ages 16 to 24 (mean age=19.6) living in a large urban Roma settlement in Sofia, Bulgaria, purposively selected to maximize diversity in backgrounds. Participants were located by outreach staff familiar with same-sex neighborhood meeting venues and by snowball recruitment. Participants completed in-depth interviews following a topic guide that elicited information on behavior, sexual relationships, and HIV testing and treatment views. Interviews were transcribed verbatim and analyzed for emergent themes in areas of interest.

Results: Although all participants reported sex with other men, most self-identified as heterosexual, had female partners, or were married to females. Approximately half of participants said they had sex with other young men for pleasure, and all reported commercial sex with older men. Transactional sex contacts were made in cruising areas or online, and clients were usually older non-Roma men. Although participants were aware of AIDS, misconceptions were prevalent, most believed the disease cannot be treated, and few felt personal risk because they did not consider themselves as gay. Most participants had never been tested, and stigma was a barrier to disclosing same-sex practices even to health care providers because admissions would create shame and embarrassment.

Conclusions: Few HIV prevention efforts, including HIV VCT with linkage of infected persons to medical care, have been undertaken with adolescent and young adult Roma MSM, even though Roma are Europe's largest ethnic minority population and enabling factors for high HIV transmission are present in many Roma communities. Outreach testing and care linkage programs are needed in Roma communities. Because of high stigma and infrequent gay self-identification, testing efforts should universalize the importance of testing and be tailored to Roma cultural circumstances.

WEPEC279

Barriers and facilitators of adherence to HIV pre-exposure prophylaxis among young men and transgender women of color who have sex with men

S. Wood[1], R. Gross[2], J. Shea[3], J. Franklin[3], D. Petsis[1], L. Lalley-Chareczko[4], H. Koenig[3], N. Dowshen[1]
[1]Children's Hospital of Philadelphia, Division of Adolescent Medicine, Philadelphia, United States, [2]University of Pennsylvania Perelman School of Medicine, Infectious Diseases, Philadelphia, United States, [3]University of Pennsylvania Perelman School of Medicine, Philadelphia, United States, [4]Philadelphia FIGHT, Philadelphia, United States

Background: Young men and transgender women who have sex with men (YMSM), particularly those of color, are disproportionally infected with HIV; however, their adherence to pre-exposure prophylaxis (PrEP) in clinical trials has been suboptimal. Our primary aim was to discover barriers to and facilitators of PrEP adherence in YMSM of color.

Methods: This qualitative study enrolled HIV-negative YMSM of color prescribed daily oral tenofovir-emtricitabine PrEP for ≥ three months. Participants were recruited from Philadelphia-area clinics, social media, and mobile dating applications. Adherence was measured via urine tenofovir (TFV) concentration at the study visit and proportion of days covered (PDC) by pharmacy refills over the prior three months. Protective short-term adherence was urine TFV concentration >1000 ng/ml per prior studies. Protective sustained adherence was PDC≥57% (four doses/week). Participants completed individual, semi-structured interviews regarding barriers and facilitators to PrEP adherence. De-identified transcripts were double-coded and analyzed using grounded theory technique to identify key themes.

Results: Participants (n=25) were 60% African-American, 8% Asian and 28% multiracial; and 8% were Latino/a. Median age was 22 years (range 18-24), and 12% were transgender women. Eighteen (75%) participants had adequate short-term and n=17 (68%) had adequate sustained adherence. Nearly all participants (96%) endorsed at least one barrier to adherence. Reported barriers included perceived and enacted stigma; feared and attributed side effects; low perceived vulnerability to HIV; health systems barriers such as insurance and pharmacy access; and competing life stressors such as school, family and employment-related responsibilities. Facilitators of adherence included social support from partners, friends and healthcare providers; a personal commitment to wellness; heightened perception of HIV risk; health systems factors including supportive clinic environments and low or no-cost PrEP; and reminder systems such as mhealth applications, cell phone alarms, and pill cases.

Conclusions: Participants highlighted a number of themes to target in future PrEP adherence research such as stigma reduction, enhancing social support, and promoting life skills to improve adherence. Next steps should include robust quantitative studies to further explore which components of these themes are most salient, prevalent and modifiable, in order to develop interventions with maximum impact on the population.

WEPEC280

Who are the male sexual partners of adolescent girls and young women? Comparative analysis of population data in three settings prior to DREAMS roll-out

A.M. Doyle[1], S. Floyd[1], K. Baisley[1,2], B. Orindi[3,4], D. Kwaro[5], N. Mthiyane[2], S. Muuo[3], M. Shahmanesh[2,6], A. Ziraba[3], I. Birdthistle[7]
[1]London School of Hygiene & Tropical Medicine, Infectious Disease Epidemiology, London, United Kingdom, [2]African Health Research Institute, uMkhanyakude, South Africa, [3]African Population and Health Research Centre, Nairobi, Kenya, [4]Katholieke Universiteit Leuven, Leuven, Belgium, [5]Kenya Medical Research Institute, Kisumu, Kenya, [6]University College London, London, United Kingdom, [7]London School of Hygiene & Tropical Medicine, Population Health, London, United Kingdom

Background: The DREAMS (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe women) Partnership aims to reduce HIV incidence among adolescent girls and young women (AGYW, 15-24y) with a core package of evidence-based interventions. Some interventions, including voluntary HIV counselling and testing and circumcision, are targeted at the male sexual partners of AGYW. A priority of DREAMS is to characterise male partners of AGYW for effective targeting.

Methods: Using population-based data from three DREAMS impact evaluation settings in Gem, rural Kenya (2014/15); Nairobi, urban slums Kenya (2010); and uMkhanyakude, rural South Africa (2015), we describe the demographic characteristics and sexual behaviour of male partners reported by AGYW, and the characteristics of males who report sexual activity with AGYW.

Results: In all three settings, >90% of male partners in the past year reported by AGYW were aged < 35 years. In uMkhanyakude and Nairobi, median ages of spousal and non-spousal partners reported by AGYW were 29 and 23 years, and 21 and 20 years, respectively. In all settings, most males reporting an AGYW partner had never been married (63%-99%) and many were in school (32%-44%). Most male partners of AGYW reported only 1 AGYW partner in the past year; but in Gem and Nairobi 25%-29% reported ≥2 (AGYW or older female) partners. Concurrent partners were reported by 16% of male partners in Gem and 2-4% of partners in uMkhanyakude (data not available for Nairobi). Two in three male partners of AGYW in Gem reported testing for HIV in the past 6 months and less than half of male partners in uMkhanyakude reported testing for HIV in the past year. Almost all (96%) partners in Nairobi were circumcised medically, compared to 45% in Gem and 43% in uMkhanyakude.

Conclusions: With almost all AGYW's sexual partners aged 15-34 years, this is an appropriate target group for DREAMS interventions. Encouraging men in this age group to adopt safer sexual behaviours, and uptake prevention and treatment services is crucial in the effort to reduce HIV among both AGYW and young men. Interventions in schools and work places may be an efficient way to target some male partners.

WEPEC281

Identifying more HIV positive males through Homebased index case HIV testing as compared to facility based HIV testing: Case of an FHI 360-Zimbabwe Project

T. Tafuma[1], N. Mahachi[1], K. Webb[2], P. Mawora[1], T. Moga[1], A. Muchedzi[1], T. Zulu[1], T. Nyagura[3], D. Harbick[1], V. Chitiyo[2]
[1]FHI 360, Technical, Harare, Zimbabwe, [2]Organization for Public Health Interventions & Development, Technical, Harare, Zimbabwe, [3]United States Agency for International Development, Technical, Harare, Zimbabwe

Background: The recently released Zimbabwe Population Based HIV Impact Assessment, reported 72.9% of people living with HIV aged 15 to 64 years know their HIV status in Zimbabwe (76.1% females and 68.2% males). Testing remains the greatest challenge for Zimbabwe to attain the 90-90-90 UNAIDS targets especially in terms of reaching males. FHI360 Zimbabwe implements a five-year USAID funded mechanism with the main activity being homebased index case HIV testing and counselling (HIHTC). FHI360 collaborates with facility based partners to get the index cases. Reported here are the findings of a targeted assessment on the gender distribution of newly diagnosed HIV positive clients from two testing modalities.
Methods: A retrospective assessment of HIV testing registers for clients who were tested positive between September 2016 - December 2016 in Manicaland province and December 2016 to March 2017 in Midlands province of Zimbabwe, at 13 purposively selected health facilities in 6 Districts was done. Facility registers were reviewed to determine the sex, age and testing modality of newly diagnosed HIV positive clients. Data analysis was conducted using descriptive statistics in Microsoft Excel and STATA. A chi-square test was used to test the difference in the proportion of men reached by each modality at 5% significance level.
Results: Overall, a total of 2 297 were newly diagnosed HIV positive clients over a four-month assessment period through facility and HIHTC. Age disaggregation showed that 101 (4%) were children 0-14 years of age, 2 183 (95%) were adults 15 years and above and the age for 13 (1%) individuals was not recorded. More than half of the newly diagnosed clients were females, 57% (n=1 326), 42% (n=955) were male and 1% (n=16) the gender was not recorded. A further analysis of the data show that HIHTC model diagnosed a significantly greater proportion of men (47%) compared to health facility based testing model (39%); (p=0.003), Table 1.
Conclusions: Facility testing contributes more than half of the new diagnosis; however, HIHTC identified a greater proportion of the males. Strengthening collaboration between homebased index case HIV testing and facility based testing improves the reach to men with HIV testing services.

Place of testing/Testing Modality	Female	Male	Total	% Males Diagnosed
Health Facility	900	578	1,491	39%
Home-based Index Case Testing	426	377	806	47%
Total	1,326	955	2,297	42%

[Table 1: Gender Distribution of the newly diagnosed HIV positive clients by IV testing model]

WEPEC282

Comparing behavioural and health seeking outcomes among young and older female sex workers using the polling booth survey 2017, Kenya

S. Malaba[1,2,3], H. Musyoki[3], P. Bhattacharjee[2], J. Kioko[1,3], S. Kaosa[1,3], J. Musimbi[1,3], S. Isac[4], P. Javalkar[4]
[1]Partners for Health and Development in Africa, Key Populations Technical Support Unit, Nairobi, Kenya, [2]University of Manitoba, Centre for Global Public Health, Winnipeg, Canada, [3]National AIDS and STI Control Program, Nairobi, Kenya, [4]Karnataka Health Promotion Trust, Bangalore, India

Background: The Kenya Key Population Programme conducts annual outcome surveys using a Polling Booth Survey (PBS) methodology. The 2017 PBS included a sample of young key populations (YKP) to generate evidence on their risk and vulnerability and advocate for prioritization of YKP in the HIV response.
Methods: PBS is a group interview method, where individuals give their responses through a ballot box. Individual responses are anonymous and unlinked which improves reporting on sensitive and personal behaviors. Participants were selected using probability sampling and organized into small homogenous groups of 10-12 people. YKP sample was included in 2017 for the first time in three cities, Nairobi, Mombasa and Kisumu.
This abstract analyses data of from 1403 adult female sex workers (AFSW) and 280 young female sex workers (YFSW) who participated in the PBS 2017 from these 3 cities.
Results: Significant differences were noted between YFSW and AFSW in inconsistency of condom use with sex clients, with condom non-use at least once in last month (26% vs 16%, p< 0.002), condom non - use due to unavailability (35% vs 25%, p< 0.002), condom non-use as the sexual partner did not want (35% vs 22%, p< 0.0001), condom non- use due to alcohol consumption (25% vs 13%, p< ???), injected heroin in the last 3 months (25% vs 13%, p< 0.04), enrolment in PrEP (29% vs 19%, p< 0.001), experienced of coercion in sex in last 6 months (24% vs 18%, p< 0.02) and visit to DIC in last 3 months (69% vs78%, p< 0.004). 18% of YFSW reported being HIV positive compared to 25% of AFSW (p< 0.008).
Only 37% of YFSW were enrolled in ART compared to 61% of AFSW (p< 0.002). No significant differences were noted in the behavioural outcomes of the AFSW and the YFSW in aspects such as HIV testing, STIs diagnosis and treatment and peer educator contact.
Conclusions: The PBS results point to the need for tailored programmatic efforts for YFSWs. The findings should be used to prioritise YFSW in the national KP programme and define the appropriate service package and approach to interventions for YFSWs.

WEPEC283

Adapting a multi-level intervention to promote HIV care and wellbeing for transgender women sex workers in the Dominican Republic

C. Barrington[1], M. Perez[2], D.A. Davis[3], H. Gomez[2], Y. Donastorg[2], D. Kerrrigan[4,5]
[1]University of North Carolina at Chapel Hill Gillings School of Global Public Health, Health Behavior, Durham, United States, [2]Instituto Dermatologico y Cirugia de Piel Dr. Huberto Bogaert Diaz, Unidad de Vacuna e Investigacion, Santo Domingo, Dominican Republic, [3]University of North Carolina at Chapel Hill Gillings School of Global Public Health, Health Behavior, Chapel Hill, United States, [4]American University, Department of Sociology, Washington DC, United States, [5]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States

Background: Transgender women are disproportionately affected by HIV across the globe. To address the multi-level factors that affect transgender women's experiences with HIV care, there is a need for holistic, stigma-free services. We adapted the *Abriendo Puertas* (AP) multi-level intervention for transgender sex workers living with HIV in Santo Domingo, Dominican Republic, including a 6-session individual counseling program, peer navigation to provide emotional support, accompaniment and advocacy, and community mobilization to address structural factors such as poverty and to generate more solidarity.

Description: We consulted with transgender women living with HIV about their needs and assets with regard to HIV care and treatment and iteratively adapted the content of the AP individual counseling, navigation, and community mobilization components. We recruited 30 transgender women sex workers in for the pilot implementation of the adapted intervention components in 2016. We conducted surveys and qualitative in-depth interviews (n=20) to assess their experiences and analyzed data using descriptive statistics and narrative and thematic analysis.

Lessons learned: Among the 30 participants, 26 completed the pilot (87%). Participants repeatedly described how being treated with respect and compassion across intervention components allowed them to experience and complete the intervention without fear. Intervention acceptability was highest for individual counseling (95%), followed by community mobilization (85%) and navigation (69%). The sexual health session required substantial revision to address experiences related to participants' biological sex and the consequences of hormone use. Participants requested having navigators who were not transgender as they were perceived to be vulnerable to the same stigma/discrimination faced by participants. The community mobilization activities were concentrated in "open houses" with content tailored to the interests of transgender women. HIV outcomes improved, including: not missing an HIV appointment in the last 6 months (34% to 20%); increased uptake of ART (72% to 81%); and not stopping ART over the past weekend (24% to 6%).

Conclusions/Next steps: Participants were highly satisfied with the content and approach but indicated they needed more extensive support and accompaniment from navigators. There is a need to address lack of trust and cohesion within the transgender community to improve community mobilization, which is critical to sustainability and addressing structural factors.

WEPEC284

Implicit drivers of HIV transmission between adolescent girls and young women (AGYW) and their male sex partners (MSPs): Key findings from South African male sex partners mapping and characterization study

A.O. Adebayo[1], R. Mufute[2], M. Merrigan[3], J. Livingston[4], M. Madibane[4], J. Mthembu[5], M. Mabaso[6], M. Shahmanesh[7], F. Tanser[8], A. Simpson[9], N. Mamabolo[10]

[1]FHI 360, Strategic Information/M&E, Pretoria, South Africa, [2]FHI 360, Program Management, Pretoria, South Africa, [3]FHI 360, SI/M&E, Garborne, Botswana, [4]USAID, HIV Prevention and Youth, Pretoria, South Africa, [5]HSRC, HIV, AIDS, STI and TB Research, Cape Town, South Africa, [6]HSRC, HIV, AIDS, STIs and TB Research, Durban, South Africa, [7]AHRI, Adolescent RH Research Group, Mtubatuba, South Africa, [8]AHRI/UKZN, Epidemiology, Durban, South Africa, [9]USAID, Health/HIV Prevention and Youth, Pretoria, South Africa, [10]FHI360, MER Unit, Pretoria, South Africa

Background: Prevailing perception in Sub-Saharan Africa is that adolescent girls and young women (AGYW) engage in transactional sexual relationships with and are infected with HIV and sexually-transmitted infections (STIs) by much older men. However, recent findings from epidemiological studies now show otherwise in terms of the age-relationships and HIV transmission between AGYW and their male sex partners. To understand the sexual network, risk behaviours, and nature of age-disparity relationships that may contribute to new HIV infections in AGYW in South Africa (SA), an AGYW male sexual partners (MSPs) mapping and characterization study was commissioned by PEPFAR SA under the DREAMS initiative. Information obtained was intended to inform the design of highly impactful interventions targeting MSPs in a bid to reduce HIV risk in AGYW.

Methods: This descriptive study incorporated mixed methods including a literature review, a behavioural monitoring survey (BMS), and focus group discussions (FGDs). A secondary analysis of epidemiological and phylogenetic data which are crucial to comprehending characteristics of MSPs, the age groups of men having sexual relationships with AGYW, and those contributing the most to HIV infections amongst AGYW was also conducted. Data obtained from each method was then triangulated.

Results: Types of men most frequently identified as partners of AGYW were men aged 18-35 years old who: recently migrated into an area and entered into a sexual relationship with local AGYW, reported being engaged in multiple relationships, had never tested for HIV, and had perpetrated intimate partner violence. Critical also were men classified as boyfriends in non-cohabiting relationships with AGYW. Average age difference between AGYW (18-24 years old) and their MSPs was 5-7 years. Most of these men have disposable income, are highly mobile, and report "hooking-up" in neighbourhood pubs, taverns and male-dominated settings.

Conclusions: In order to help reduce the risk and vulnerabilities of AGYW with respect to acquiring HIV infection in South Africa, highly impactful interventions targeting MSPs must focus on upscaling access to HIV testing and retention in care and treatment and also address structural and gender-related issues.

WEPEC285

Efficacy of community intervention in generating demand for ANC and PMTCT services in rural areas of Bayelsa State, Nigeria

S. Ojemuyide[1], O. Shobo[2], K. Oyeniyi[3], A. Ahmad-Shehu[4], E. Kuhlik[5]

[1]Pact West Africa, Result and Measurement, Abuja / FCT, Nigeria, [2]Pact West Africa, Result and Measurement, Abuja, Nigeria, [3]Pact West Africa, Program Advancement and Delivery, Yenagoa, Nigeria, [4]Pact West Africa, Global Health, Abuja, Nigeria, [5]Pact Inc., Washington, United States

Background: Poor uptake of ANC and PMTCT services at health facility level in rural areas of Nigeria remains a major challenge (National PMTCT Scale-Up Plan). To achieve elimination of paediatric HIV infection, interventions should work closely with communities to increase demand and utilization of ANC/PMTCT services among women of reproductive age. This abstract reviews efficacy of community interventions in increasing demand for ANC and PMTCT services in rural communities of Bayelsa State, Nigeria.

Description: Chevron Corporation funded Pact Nigeria to implement community based "PROMOT" project in Bayelsa State, Nigeria. The current phase of "PROMOT II" project is being implemented in 20 target communities in 3LGAs of Bayelsa State. To increase awareness on PMTCT services and influence positive health-seeking behavior, an integrated approach of peer-led women groups to carry out health promotion activities was employed in 20 target communities by the project. Targeting women of reproductive age, particularly pregnant women, Community Health Extension Workers paired up with women groups to support HIV and PMTCT education activities including accompanying pregnant women to nearby health facilities to access ANC/PMTCT services. Community level HIV Testing Services were introduced to complement temporary cessation of healthcare service provision at health centers due to health workers' strike action.

Lessons learned: Over 19 months of Project implementation, a total of 11,528 women were reached with HIV/ANC/PMTCT messages. 3,106 women received counselling and testing for HIV at community outreach events, of which 1,736 (55.9%) were pregnant women. 29 (1.7%) of pregnant women tested HIV positive and have been linked to comprehensive care and treatment services. Number of pregnant women who received HIV counselling and testing for PMTCT at health facilities rose from 1,160 to 2,159(an 86% increase), while percentage of pregnant women who initiated ANC and completed four ANC visits increased by 25% (from 40% to 50 %) across 27 health facilities in 20 target communities.

Conclusions/Next steps: Outcome of this project has reinforced the effectiveness of community based PMTCT interventions in generating demand for increased uptake of ANC and PMTCT services in rural settings. Capacity of women's groups should be strengthened to continue supporting sustainable community-based outreach interventions that generate demand for PMTCT services.

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WEPEC286

Transforming systems of care to address the needs of MSM of color in HIV prevention, care and treatment

M. Shankle, M. Stanley
HealthHIV, Washington, United States

Background: Men who have sex with men (MSM) of color continue to be disproportionately impacted by HIV. If HIV diagnoses rates persist, 1 in 2 black MSM and 1 in 4 Latino MSM in the United States will be diagnosed with HIV during their lifetime. HIV is fueled by interrelated social determinants of health (SDH), often not addressed systematically in traditional care settings. The nexus of stigma, homophobia, and racism further marginalize MSM of colors' engagement, retention, and adherence to HIV prevention, care, behavioral health and social services.
Description: A transformational, first-of-its-kind, competency-based curriculum consisting of 28 hours of interactive content was developed and implemented with multidisciplinary partners to enhance collaboration, understanding, and mitigation of SDH for this marginalized population. MSM of Color Leadership Team informed all aspects of program development. The curriculum moves beyond clinical health care, by routinizing behavioral health service delivery into practice. Health Departments (HD) participate in communities of practice, share resources and tools, and expand networks of care. Engaging nontraditional providers allows for expanded programs and accountable systems of care to work collaboratively addressing the underlying SDH. Program also provides a robust offering of technical assistance to HD.
Lessons learned: It is critical to openly discuss the impact that racism, homophobia and other cultural factors have on individual and community health to address health disparities. Services must be adapted to be accessible and welcoming for MSM of color. Collaborative learning is the most effective method to address stigma and improve cultural competency. To holistically address the needs of the community, programs must increase involvement of MSM of color in the design, development, implementation and evaluation of services.
Conclusions/Next steps: Culturally responsive education and training programs are necessary for systems transformation. Provider networks should address the needs of and reflect the MSM of color community. It cannot be business as usual if the desire is system change with demonstrated, sustainable population health impacts. Health Department have embraced the education and training and are diffusing content to the MSM of color community.

WEPEC287

Attitudes towards PrEP among drug-involved men under community supervision with their female partners in New York City

D. Goddard-Eckrich[1], T. Hunt[1], S. Sardana[2], L. Gilbert[1], M. Chang[1], K. Johnson[1], B. Baholli[1], B.T. Abbas[1], N. El-Bassel[1]
[1]*Columbia University, Social Work, New York, United States,* [2]*Teacher's College, Clinical Psychology, New York, United States*

Background: Drug-involved men under community supervision are at elevated risk for HIV acquisition. There is an urgent call to action to develop, test and implement novel HIV prevention interventions that reduce HIV transmission. The study aims to examine the acceptability for using pre-exposure prophylaxis (PrEP) among drug-involved men under community supervision and their main female sexual partners in New York City.
Methods: Utilizing 12-month data of a couple-based HIV study for drug-involved men under community supervision and their main sexual partners, 460 participants met inclusion criteria of the study (aged 18 or older, in relationship for 3 or more months, reported unprotected sex in the past 90 days, reports drug use or enrolled in a drug treatment program in the past 12 months) and were randomized. 390 participants (85%), completed the 12-month follow-up assessments. We collected data on PrEP pertinent question(s): (1) likelihood to use PrEP as a form of HIV prevention; (2) willingness to use PrEP if made available for daily use; (2) readiness and willingness to disclose use of daily PrEP to their main partner; and (3) using condoms alongside daily PrEP. Responses were rated as "very unlikely", "unlikely", "somewhat likely" and "very likely".
Results: Of the sample, 51% identified as male (N=196) and 49% identified as female (N=194). The average age was 35 (SD12.98). The majority identified as Black/African American (72.4%). Almost sixty percent (59.1%) were single or never married. 68% were unemployed and 40.4% earned less than $400 per month. Nearly one-fourth (25.9%, n=102) of the participants were very likely to use PrEP as an HIV prevention method; at least one-third of the participants reported being very willing to disclose using PrEP to their main sexual partner and were similarly highly likely to use PrEP as a daily medication (38.3% and 38.8%; n= 151; 153 respectively).
Conclusions: Findings suggest that PrEP may be an acceptable and useful form of HIV prevention among drug-involved men under community supervision with their sexual partners. However, there is an urgent need for more PrEP studies to better understand the barriers and attitudes to PrEP and integrated HIV prevention and treatment among this vulnerable population.

WEPEC288

The Intersection of violence, law enforcement, and HIV risk in drug users residing in the U.S.-Mexico border: Implications for intervention development

J. Lechuga[1], S. Beachy[2], K. Melo[2], O. Nevola[2], K. Janousek[2], C. Prieto[2]
[1]*Lehigh University, Education and Human Services, Bethlehem, United States,* [2]*Lehigh University, Bethlehem, United States*

Background: Residents of the sister cities of Ciudad Juarez and El Paso on the U.S.-Mexico border suffer some of the most serious health disparities in the world including infectious diseases such as HIV. In addition, Ciudad Juarez has the second highest drug use prevalence rate in Mexico and a corresponding high infectious disease rate among drug users. Important, research suggests that border cities such as Ciudad Juarez, Mexico are well-known destinations for drug use and sex tourism. Ciudad Juarez, experienced an unprecedented increase in violent crime in 2008 and the unprecedented levels of violence has accentuated structural level precursors of HIV risk including increased police persecution. The purpose of the study is to understand the manner in which violence and police persecution of substance users has accentuated their HIV risk.
Methods: 40 in-depth interviews were conducted with injection and non-injection drug users residing in Ciudad Juarez (N=20) and El Paso (N=20). Participants taking part in the in-depth interviews answered a short demographic survey and open-ended questions about the effect that violence had on interaction with police including increased policing, harassment and arrest and the effect this has had on adoption of preventative behaviors and cross-border mobility to use and buy drugs.
Results: Results of content analysis following a grounded theory approach revealed an increase in substance use as a result of cartel-related violence in the region. Furthermore, increased police persecution of substance users occurred in both cities of the border and corresponded with a spike in violent crime. In Ciudad Juarez, despite the fact that needle exchange programs are legal, increases in violence was associated with substance users' refusal to accept clean syringes and other prevention tools for fear of police arrest if searched. Cartel-related violence affected patterns of drug selling in the region leading substance users residing in El Paso to resort to new and riskier forms of obtaining drugs.
Conclusions: HIV prevention interventionists need to consider the intersection of contextual factors when designing HIV prevention interventions. Implications of our findings for intervention development will be discussed.

WEPEC289

Chemsex and PrEP: Do individuals engaging in "chemsex" have the intention to take PrEP? Results from the community-based survey "Flash! PrEP in Europe"

D. Rojas Castro[1,2,3], R.M. Delabre[1], A. Vilotitch[2,4], M. Meulbroek[5], P. Zantkuijl[6], S. Chanos[7], G.M. Corbelli[8], A. Bernier[1], V. Schlegel[9], S.B. Duken[10], R. Stranz[9], K. Jonas[11], B. Spire[2,9]

[1]Coalition PLUS, Community-based Research Laboratory, Pantin, France, [2]Aix Marseille Univ, INSERM, IRD, SESSTIM, Sciences Economiques & Sociales de la Santé & Traitement de l'Information Médicale, INSERM U1252, Marseille, France, [3]Univ Lyon 2, Social Psychology Research Group (GRePS), Lyon, France, [4]ORS PACA, Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur, Marseille, France, [5]Projecte dels NOMS-Hispanosida, Barcelona, Spain, [6]Soa Aids Nederland, Amsterdam, Netherlands, [7]'Positive Voice', Greek Association of PLWHA, Athens, Greece, [8]Plus Onlus, Rome, Italy, [9]AIDES, Pantin, France, [10]University of Amsterdam, Amsterdam, Netherlands, [11]Maastricht University, Work and Social Psychology, Maastricht, Netherlands

Background: Psychoactive drug use in sexualised contexts ("chemsex") is associated with heightened risk for HIV infection, especially among men who have sex with men (MSM). Pre-exposure prophylaxis (PrEP) may be an important HIV prevention method for individuals engaging in chemsex (IC). However, little is known about the intention to use PrEP among IC in the context of variable PrEP access in Europe. We identified factors associated with intention to use PrEP among MSM respondents to the Flash! PrEP in Europe (FPIE) survey who have engaged in chemsex.

Methods: FPIE was an online, community-based research study (June/July 2016) aiming to assess knowledge and intention to take PrEP among respondents from 12 European countries. Information on drug use in a sexualised context was collected. Respondents were ≥18 years old and self-reported HIV-negative or unaware of their serological status. This analysis was restricted to MSM IC (respondents reporting drug use (injection and/or other) in a sexual context). Multivariate logistic regression identified factors associated with intention ("yes, definitely") to take PrEP.

Results: Among 1812 MSM IC, median age was 37 [IQR: 30-45], 65.4% (n=1185) resided in Germany, 48.4% (n=878) had a "fair" perceived financial status, and 30.8% (n=548) reported systematic condom use for occasional partners. More than one third (37.0%, n=671) "definitely" had the intention to take PrEP. After adjustment, migrant status (born in another Northern country (AOR: 1.41 [1.04; 1.93]) or born in a Southern country but living in the North (AOR: 2.09 [1.23; 3.55]), recent STI diagnosis (AOR: 1.47 [1.13; 1.90]), having ≥10 occasional sex partners (AOR: 1.33 [1.05; 1.67]), high perceived HIV risk (AOR: 3.91 [2.92; 5.22]) and recent PEP use (AOR: 2.47 [1.50; 4.08]) were significantly associated with higher intention to use PrEP. Reporting consistent condom use with occasional sex partners or having no occasional sex partners was associated with lower intention.

Conclusions: MSM FPIE respondents who have engaged in chemsex and have the intention to use PrEP report "high risk" behaviors and have "high" perceived HIV risk. There is an urgent need for a comprehensive prevention package for IC (including PrEP), to reduce HIV and other risks related to chemsex practices.

WEPEC290

Community-based HIV screening tool identifies children at high risk of testing positive to HIV

N. Kamwesigye

World Education, Inc./Bantwana Initiative, Case Management, Kampala, Uganda

Background: Since 2015, the Bantwana Initiative of World Education, Inc. (WEI/B) has implemented the USAID-funded Better Outcomes Project which prevents and responds to HIV while promoting the resiliency of 150,869 OVC across 14 districts of Uganda. As in all high HIV-burden countries, it is challenging to cost effectively deploy HIV test kits to identify HIV+ children as part of an integrated epidemic control strategy. Methods for reaching vulnerable OVC are often expensive, inaccurate, with low HIV yield.

Description: WEI/B developed a community-based assessment tool that identifies children vulnerable to HIV, to be administered by community resource persons. The tool assesses six risk factors: poor health, recurring skin problems, hospital admission, loss of a parent, a chronically ill family member, and school performance. WEI/B applied this tool to 65,661 children age 0-17; the assessment found that children with more risk factors had higher HIV prevalence. The HIV prevalence among all children screened was 2.1%, but was 13.8% among children with any four risk factors, and increased to 25.4% and 39% for children with five and six risk factors, respectively. WEI/B prioritized HIV testing and counseling for children with unknown HIV status and four+ risk factors, linking them to treatment and care.

Lessons learned: A community-based HIV screening tool is a cost effective approach for identifying HIV+ children and linking them into care. OVC programs have traditionally tested large cohorts with low rates of positivity. WEI/B can now test a smaller cohort with increased accuracy of referrals for clinical services. Further, the tool enables community resource persons, who are best positioned to reach the most vulnerable children, to make targeted referrals for HIV testing, care and treatment with confidence. This increased accuracy in turn strengthens the collaboration between clinic and community.

Conclusions/Next steps: The tool is being scaled up to reach all children with four or more risk factors and unknown HIV status; then those with four+ risk factors and self-reported negative status, and then those with three+ risk factors, and so on. The project is continuing to assess the tool's effectiveness; the next step includes scale- up for use with other OVC partners in Uganda.

WEPEC291

Harm reduction for youth in Ukraine: Pioneer intervention results

I. Zharuk, V. Kushakov, M. Varban, I. Sazonova

ICF 'Alliance for Public Health', Kyiv, Ukraine

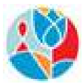
Background: IIn 2015 Alliance for Public Health with support from EJAF launched innovative harm reduction interventions targeting adolescents who use drugs (AUDs) in 6 Ukrainian cities. The project aimed to engage 6000 AUDs and their sexual partners thus proving feasibility of harm reduction for adolescents.

Description: Services were designed and delivered by non-governmental harm reduction organisations in 2015-2017. The offered combination of services was based on participatory assessment and included a number of harm reduction services complemented by additional services designed to attract and retain clients. The core services included client case definition, HIV counselling and testing, distribution of condoms and sterile injecting instruments, counselling on sexual and injecting risks including risk of transition to injecting, and referrals to youth friendly services. Complementary services included a range of recreational activities designed with participation of clients.

The project has extended tailored harm reduction services to 9,400 AUD and their sexual partners. Out of 4,593 clients who accessed services in 2017, 25% were female and 75% male; 96% were aged 14 to 19. 434 were injecting users and 3,442 - non-injecting users. 8 HIV cases were detected (5 men aged 18-19 and 3 women aged 19-20).

Lessons learned: The project found very low HIV prevalence in the project target group (10-18). This is in line with HIV surveillance and other available data. Chain referral outreach techniques based on Peer Driven Intervention model were more effective than traditional outreach activities. Complementary were crucial in attracting and retaining clients. The most popular complementary services included safe space for relaxed communication with peers, free access to Internet and refreshments. Engagement of 30 AUDs as assistant social workers strengthened outreach and attracted new clients.

Conclusions/Next steps: The project demonstrated feasibility of tailored harm reduction services for adolescents and overcame the long-standing scepticism of both service providers and AUDs. The model can be recommended in countries with high prevalence of drug use, neglected adolescents and underage transactional sex. Expansion of the target group to include young people who use drugs aged 19-24 with particular focus on young women is required for the interventions to increase contribution to HIV detection.



WEPEC292

Utilization of HIV prevention services in the East Africa Cross-Border Integrated Health Study, 2016

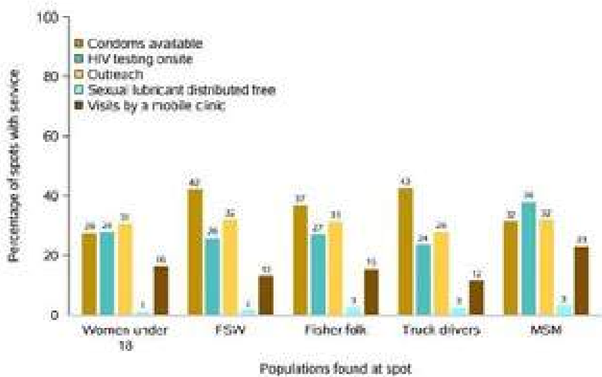
A. Virkud[1], J. Edwards[1], M. Markiewicz[2], G. Mulholland[1], P. Arimi[3]
[1]University of North Carolina in Chapel Hill Gillings School of Public Health, Epidemiology, Chapel Hill, United States, [2]MEASURE Evaluation, Chapel Hill, United States, [3]USAID/East Africa Regional Mission, Nairobi, Kenya

Background: East African cross-border sites are visited by mobile and vulnerable populations, such as female sex workers, men who have sex with men, truck drivers, fisherfolk, and young women who may not benefit from treatment and prevention interventions at their home residence. The goal of this analysis was to use data on cross-border populations in East Africa to explore whether mobile and vulnerable populations were receiving fewer prevention services.

Methods: The USAID- and PEPFAR-funded MEASURE Evaluation project, led by the University of North Carolina at Chapel Hill, collected cross-sectional data using the Priorities for Local AIDS Control Efforts (PLACE) sampling method at 14 cross-border locations near or along the land and lake borders of Kenya, Rwanda, Tanzania, and Uganda from August 2016-January 2017. This bio-behavioral survey captured information from 11,428 individuals at 833 venues (e.g., bars, hotels, guest houses) across all sites. Data were weighted using survey sampling weights and analyzed using methods to account for the complex sampling design.

Results: Across all venues, informants reported offering an average of 2 HIV prevention activities in the six months preceding the survey. The average number of prevention services offered at each venue varied by country, with the highest in Uganda [2.46 (95% CI: 2.14, 2.79)] and lowest in Rwanda [0.95 (95% CI: 2.14, 2.79)]. Only 4.2% (95% CI: 3.2, 5.2) of respondents reported it was easy to access sexual lubricants. Over 40% of venues with sex onsite (48.3% of all sites) or FSWs living at the spot (17.9% of all sites) did not have condoms available. Among respondents reporting vaginal and anal sex, reported use of condom at last sexual encounter were 38.1 (95% CI: 36.3, 39.9) and 62.9 (95% CI: 56.5, 69.2), respectively.

Conclusions: Prevention activities appear to be appropriately targeted towards venues with high prevalence behaviors at the spot (e.g., sex work, sex onsite, or alcohol use). However, gaps remain in access to condoms and sexual lubricants and use of condoms, and there are several opportunities to improve access at sites visited by mobile and vulnerable populations at high risk for HIV.



[Percentage of 833 spots in cross-border sites visited by mobile and vulnerable populations that offered specific HIV prevention services in the past]

WEPEC293

Impact of a community empowerment-based combination HIV prevention model (Project Shikamana) on the HIV continuum of care among female sex workers in Iringa, Tanzania

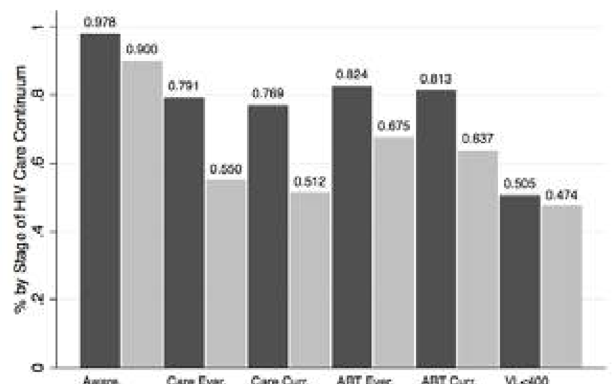
N. Galai[1,2], J. Mbwambo[3], S. Likindikoki[3], S. Beckham[4], C. Shembilu[4], A. Mwampashi[3], A. Mantsios[4], W. Davis[5,6], S. Aboud[7], D. Kerrigan[4,6], Shikamana Study Group
[1]Johns Hopkins University, Epidemiology, Baltimore, United States, [2]University of Haifa, Statistics, Haifa, Israel, [3]Muhimbili University of Health and Allied Sciences, Psychiatry, Dar es Salaam, Tanzania, United Republic of, [4]Johns Hopkins Bloomberg School of Public Health, Health Behavior and Society, Baltimore, United States, [5]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [6]American University, Sociology, Washington, United States, [7]Muhimbili University of Health and Allied Sciences, Department of Microbiology and Immunology, Dar es Salaam, Tanzania, United Republic of

Background: Addressing all steps of the HIV care continuum, particularly among key populations, is critical to reduce the burden of the HIV epidemic in countries with high prevalence and ongoing transmission. A community empowerment-based combination HIV prevention model was implemented among female sex workers (FSW) in Iringa, Tanzania and evaluated in a phase II community randomized trial.

Methods: A cohort of 203 HIV-infected and 293 HIV-uninfected FSW were recruited in two communities randomized into intervention (Ilula) and control (Mafinga) arms. Of HIV-infected women, 171 participated in both baseline (2015-6) and 18-months surveys (2017-8) and provided blood samples for HIV and viral load testing. The community-based, multi-level intervention targeted structural barriers (e.g. stigma and discrimination) to HIV testing and linkage and retention in care via both venue-based and drop-in center services and workshops, support from peer navigators, SMS adherence reminders and sensitivity trainings for clinical providers and police. Robust Poisson and logistic models were used to assess changes over time and the effects on care continuum outcomes.

Results: Among the 171 FSW who were HIV-infected at baseline, only 57 (33.3%) reported being aware of their HIV serostatus and 41 (24.0%) reported being ever linked to care although 74 (43.3%) had laboratory confirmed ART in their blood and 33.3% had viral load < 400 copies/mL. In both communities, there were significant improvement over time along the steps of the care continuum, but women in the intervention community had higher rates of engagement in care and treatment compared to the control community (See graph) including: ever or currently in care (RR=1.44, 95%CI: 1.15-1.81 and RR=1.51, 95%CI: 1.18-1.91, respectively), ART ever or current (RR=1.22, 95%CI: 1.02-1.46 and RR=1.28, 95%CI: 1.05-1.55, respectively), and ART adherence among current users (RR=1.21, 95%CI: 1.00-1.46). However, differences in viral suppression across communities were not statistically significant (RR=1.07, 95%CI: 0.78-1.46).

Conclusions: The community-based model showed a promising impact on all steps of the HIV care continuum among FSW in Iringa, Tanzania. However, improvements did not fully translate into significant changes in viral suppression. Future efforts need to focus more on ART adherence and include assessments of possible HIV resistance to current ART regimens.



[Project Shikamana HIV Care Continuum: Iringa Tanzania, 2015-2018 Ilula - intervention (dark gray) vs. Mafinga - control (light gray) at follow-up]

WEPEC294

Knowledge and Intention to use PrEP among the male-to-female population in Ecuador: Results from a community-based survey (2016)

M. Acosta[1,2], L. Orozco[3], O. Montoya-Herrera[4], M. Cassolato[5], A. Herdoiza[6], C. Acosta[7], L. Riegel[8], R. Delabre[2], D. Rojas Castro[8]
[1]Corporación Kimirina, Investigación, Quito, Ecuador, [2]Coalition PLUS, Community-Based Research Laboratory, Paris, France, [3]Corporación Kimirina, Reserach, Quito, Ecuador, [4]Corporación Kimirina, Community Education-Research, Quito, Ecuador, [5]HIV/AIDS Alliance International, HIV Techinical Treatment, Brighton, United Kingdom, [6]Corporación Kimirina, Executive Direction, Quito, Ecuador, [7]Corporación Kimirina, HIV Program Coordinator, Quito, Ecuador, [8]Coaliton PLUS, Community-Based Research Laboratory, Paris, France

Background: Male-to-Female (MTF) population is particularly affected by HIV in Ecuador, accounting for 32.8% of infections. Participation of Guayaquil in the Iprex study (2007-2011), which showed PrEP efficacy among MSM and MTF, did not lead to PrEP rollout in Ecuador. Information regarding intention to use PrEP among key populations may provide a basis for health policy allowing national access. This study assessed the intention to use PrEP among MTF respondents to a community-based survey in Ecuador.
Methods: A face-to-face survey, conducted by Kimirina in coordination with the Ecuadorian Health Minister, was answered by 335 MTF and 379 MSM in places frequented by key populations in Quito and Guayaquil. Information regarding demographics, sexual behavior, knowledge and intention to use PrEP, and preferred place for PrEP delivery were collected. This analysis was restricted to MTF respondents.
Results: Among 335 MTF, 92.2% (n=309) self-identified as trans women and 98.8% (n=331) as homosexuals. Median age was 27.7 (IQR: 23.5; 32.9), and 39.6% (n=132) reported a good financial situation. Regarding sexual activity, 94.3% (n=316) had occasional partners and 33.6% (n=103) reported unsystematic condom use during anal sex with occasional partners. Transactional sex in the last 12 months was reported by 65.4% (n=212), however one third (36.1%, n=121) were self-declared sex workers. One third (33.4%, n=112) agreed they would likely become HIV-positive in the next 12 months. Prior PrEP knowledge was declared by 9.6% (n=32) of whom 15.6% (n=9) have already used PrEP. Regardless of prior knowledge, 93.1% (n=312) declared the intention to take PrEP when available. Public health units (n=200, 59.7%) were the preferred places for PrEP delivery.
Conclusions: Despite experience with Iprex, PrEP is an unknown prevention tool among MTF. Nevertheless, there is a large proportion of MTF, at high HIV risk, who have the intention to take PrEP if available (mainly in a medical setting). The Ecuadorian public health system and civil society should use these results to provide an adapted response to the HIV.

WEPEC295

Harm reduction for young people in Ukraine: Evaluation results

I. Sazonova[1], V. Kushakov[2], I. Zharuk[2]
[1]Alliance for Public Health, Monitoring and Evaluation, Kyiv, Ukraine, [2]Alliance for Public Health, Kyiv, Ukraine

Background: Despite a large scale and highly developed harm reduction programme serving more than 200,000 PWID each year, Ukraine did not offer harm reduction services tailored to young people. In 2015, Alliance for Public Health with support from EJAF has designed and launched a harm reduction project targeting adolescents who use drugs (AUD) in five cities of the country. The project is based on participatory approach and offers a combination of HIV prevention and care services and complementary activities aimed to attract and retain young people. Here we present the results of evaluation study that accompanied the project implemented in 2015-2017.
Methods: 6,017 AUDs accessed the services over the course of the project. The study employed quasi-experimental design with baseline interviews at service uptake and follow-up interviews at least 6 months after service initiation. Evaluation component was designed to assess changes in AUD behaviour with regards to injection safety and sexual health as well as factors affecting transitions to injecting and increasing the risk of HIV transmission. 74% of all clients were interviewed for the evaluation baseline and 59% of all eligible clients were interviewed during 6 month follow-up (1,188 clients). The data were collected through Syrex cloud, an innovative service monitoring application.
Results: The median age of the clients that participated in evaluation study was 16 years (IQR 15-17). HIV-prevalence in the evaluation group as well as among clients generally was extremely low: 8 HIV cases were detected among all clients and 1 HIV case in the evaluation group over the project lifetime.
Follow-up group reported significantly higher prevalence of condom use (88% vs. 71%, p< 0.001) and low prevalence of casual sexual relationships (0% vs. 26%). 18% of evaluated participants who reported injecting drug use at baseline, has reported only non-injecting use at follow-up, and 27% reported complete cessation of drug use.
Conclusions: The innovative intervention for AUD has shown a significant decrease in high-risk sexual behaviour among regular clients, facilitated transitions from injecting drug use to non-injecting or compete cessation of drug use.

WEPEC296

Access and privacy as barriers to PrEP uptake among young men who have sex with men in two mid-sized U.S. cities

E. Asiago-Reddy[1], A. Braksmajer[2], A. London[3]
[1]SUNY Upstate Medical University, Medicine/Infectious Disease, Syracuse, United States, [2]University of Rochester, School of Nursing, Rochester, United States, [3]Syracuse University, Sociology, Syracuse, United States

Background: PrEP uptake among young men who have sex with men (YMSM) remains low in the U.S. despite disproportionate risk. Understanding barriers to and perceptions of PrEP among non-users is key to engaging at-risk YMSM into PrEP care. We conducted a study that aimed to elicit YMSM´s perceptions of PrEP in their own words, with an eye towards determining optimal means of PrEP delivery among this population.
Methods: YMSM aged 15-30 reporting sex with another man in the last 6 months who had never taken PrEP were recruited in 2 Upstate NY cities. We conducted 2 hour in-depth, semi-structured qualitative interviews. The interview addressed life and sexual histories, PrEP knowledge, and elements of PrEP that would motivate or detract from uptake, including ranking of PrEP characteristics (e.g., cost, access) that participants considered most important. Using both grounded theory and inductive approaches, two researchers independently coded the interviews to identify prominent themes and outlier attitudes.
Results: Of 16 participants, average age was 21 (range 18-26); 6 (37.5%) were black and 5 (31.2%) were Hispanic. Six-month male partners ranged from 1-20 (med. 3.5; mean 4.3). Access, cost and effectiveness were most highly ranked PrEP attributes, and concerns surrounding access were most frequently cited by participants. Four of 7 participants on parental health insurance reported disclosure via insurance as a barrier to PrEP, including 2 who had forgone PrEP due to this factor. YMSM who believed that their health insurance would not cover PrEP tended to report consideration of PrEP as futile, assuming they would not have access.
Conclusions: Among a small sample of at-risk YMSM in Upstate NY, in-depth interviews revealed concerns about access and parental knowledge of PrEP as key barriers to uptake. These results will be used to inform the development of a discrete-choice experiment (DCE) which will specifically address the role of access in the context of decisions surrounding PrEP use. DCEs elicit preferences for specific attributes of a good or service, can evaluate trade-offs in decision making, and may be well-suited to determining PrEP preferences. An adaptive choice based conjoint or two step DCE will be constructed based on these findings.

WEPEC297

Food consumption, food security and coping strategies among PLHIV

M. Josephine Muthoni[1], C. Ouma[2], M. Mumma[3]
[1]UN World Food Programme, VAM, Nairobi, Kenya, [2]UN WFP, Nairobi, Kenya, [3]World Food Program Regional Office, Nutrition, Nairobi, Kenya

Background: With Kenya classified as a UNAIDS fast track country, the HIV response is working towards achieving the global 90-90-90 targets. There remains a paucity of information on the impact of drought-related shocks on HIV response in arid and semi-arid lands which experience cyclical droughts leading to food insecurity and malnutrition both for the general population, but more so for PLHIV and TB clients. During crisis, limited data is available regarding the present status of nutrition as well as food security among PLHIV.
Assessment sought to establish the effects of drought on food consumption, food security and coping strategies among PLHIV and to explore the complex and interacting mechanisms that enhance or impede HIV response in ASAL areas in Kenya.
Methods: A mixed methods research approach was carried out in Kilifi, Kitui and Turkana counties using a composite score of drought severity, poverty index, HIV prevalence and malnutrition. 3 comprehensive care clinics (CCCs) were selected as the entry point. 1272 children aged 2 to 14 years, adult men and women were sampled.
Household Dietary Diversity Score was assessed using one 24-hour recall period. Food insecurity was assessed using the Household Food Insecurity Access Scale. Coping strategies to food insecurity were assessed using the Coping Strategy Index. Descriptive and multivariate analysis was conducted using SPSS v 24.
Results: Mean HDDS and dietary diversity score for Women were both 3.8, and below the minimum recommended threshold. 87% of female participants had low to medium dietary diversity. Prevalence of severe food insecurity was 69.4%. 78.5% of children 2-14 years were from severely food insecure households. 69.2% of adults reported low coping strategies to food insecurity. likelihood of being underweight increased with increasing food insecurity [OR 3.31 (95% CI 1.22-9.02); p=0.019] and low household dietary diversity [OR 2.64 (95% CI 1.48-4.72); p=0.01]. The odds of being underweight were higher in men, substance users, consumers of untreated water and those with high viral load.
Conclusions: PLHIV are exposed to many food security and coping shocks. Family food and livelihoods support in PLHIV households should be planned for and costed as part of HIV programming during drought in ASAL areas.

WEPEC298

"PrEP tourism" in Bangkok and sexual risk behavior of MSM: A three- and six-month follow up study

M. Van Dijk[1], N. Yaemim[1,2], J.E. Martinez[3], S.E. Stutterheim[1], T. Guadamuz[4], J.B.F. De Wit[5], K.J. Jonas[1]
[1]Maastricht University, Department of Work & Social Psychology, Maastricht, Netherlands, [2]Silom Pulse Clinic, Bangkok, Thailand, [3]Princeton University, Department of Psychology, Princeton, United States, [4]Mahidol University, Department of Society and Health, Bangkok, Thailand, [5]Utrecht University, Department of Interdisciplinary Social Science, Utrecht, Netherlands

Background: The formal availability of Pre-Exposure Prophylaxis (PrEP) in many countries is limited. An important option for men who have sex with men (MSM) to obtain PrEP is abroad, at MSM travel destinations where PrEP is easily available and affordable, such as Thailand. With PrEP sourced in Bangkok, our aim was to assess PrEP use and sexual risk-taking behavior among such MSM. Since some of the clients access PrEP for the first time, we investigated PrEP use and sexual behavior during a three- (T2) and six-month (T3) follow up compared to baseline.
Methods: MSM clients (n=126) of the Silom Pulse Clinic completed a survey on-site about PrEP use and sexual behavior in February-April 2017 (T1). Surveys at T2 (n=65) and T3 (n=48) were completed online. Mean age was 38 years (range: 22-70). The sample was internationally diverse: 97 participants (77.0%) did not live in Thailand and four (3.2%) were born in Thailand.
Results: At T1, 91 participants (72.2%) reported using PrEP informally. At T2, one participant stopped using PrEP, while 11 started using PrEP. At T2, 87.7% (T3: 88.1%) followed a daily regimen. Most reported regular HIV (87.7%) and renal function testing (80.4%). At T1, 56.5% used condoms often or always, while at T2, 67.9% (T3: 72.5%) reported lower condom use since starting PrEP. Between T1 and T2, 8 participants (12.3%) were diagnosed with an STI. At T1, recreational drugs were used by 43 participants (34.1%) during sex. At T2, since starting PrEP use, 82.5% felt less anxious when having sex, and the same proportion reported increased quality of sex life. This remained stable between T2 and T3 (repeated measures F< 1).
Conclusions: Despite not having access to formal PrEP care in their home country, the vast majority of participants managed to follow a daily regimen and to obtain necessary medical checks, and reported increased quality of sex life. Despite their relative distance to local health care provision, this specific group of "PrEP tourists" is well aware of how to use PrEP correctly. A limitation is that high dropout between T1-T2 could have led to an overestimation of daily PrEP regimens.

WEPEC299

Male wellness center: An HIV/STI detection and treatment service model for the MSM community

X. Xiu[1], D. Xiao[2], N. Cao[3], X. Jin[1], Y. Zhang[1], Z. Ding[1], Y. Jie[1], Y. Liao[1], H. Wu[4], B. Shepherd[5], J. Vandenhombergh[5], Y. Bao[1]
[1]AIDS Healthcare Foundation (AHF) China Office, Beijing, China, [2]Tongzhi Welfare, Beijing, China, [3]Hospital of Dermatology, Chinese Academy of Medical Sciences & Peking Union Medical College, Nanjing, China, [4]Beijing Youan Hospital, Beijing, China, [5]AIDS Healthcare Foundation (AHF), Los Angeles, United States

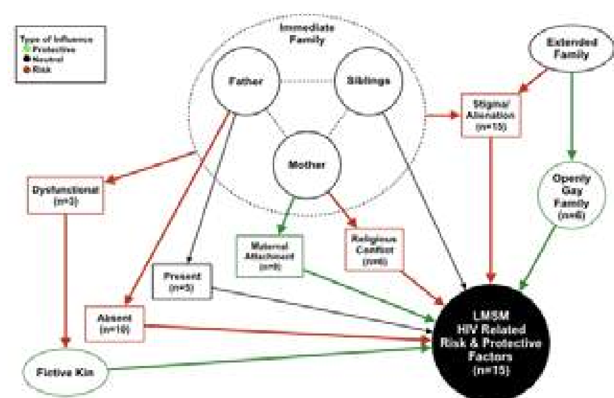
Background: Men who have sex with men (MSM) have elevated risk for contracting HIV and other sexually transmitted infections (STI), thus access to testing and treatment services is vital. MSM often face stigma, discrimination and a general lack of understanding by healthcare providers, which, coupled with inaccurate information sources and gaps in accessible quality healthcare, results in delayed or outright denial of testing and treatment.
Description: The AIDS Healthcare Foundation (AHF)-supported Male Wellness Center was launched in Beijing in December 2016. It links the MSM group into existing hospital services providing integrated counseling, testing, referral and HIV/STI treatment services. Qualified healthcare providers and counselors from the MSM community work closely to deliver services in a private, confidential and discrimination-free setting. Necessary follow-up visits and 24-hour access to specialized professionals for questions and unforeseen difficulties are also available. Instant HIV and syphilis tests are provided free of charge, and HIV positive clients have access to additional counselling, education and referral to free antiretroviral therapy (ART). STI treatment, of which syphilis is free of charge, is provided at wellness center itself.
Lessons learned: From December 1, 2016 to December 31, 2017, 3,513 clients received diagnostic and counseling services. Young, sexually-active MSM showed a greater demand for sexual health services, making up almost three-fourths of those attended; 1,092 (31%) aged 15-24 and 1,519 (43 %) aged 25-49. Of the total, 92 (3%) were newly found HIV positive and all were enrolled into ART. 371(11 %) new and recurrent syphilis cases were diagnosed and treated. Genital warts and urinary tract infection were diagnosed and treated in 241 (7%) and 95 (3%) clients respectively. Notably, 2,207 (63 %) clients accessed and received testing and counseling services twice or more.
Conclusions/Next steps: The Male Wellness Center project effectively addressed current and potential health risks for MSM, as evidenced by rates of first and recurrent utilization of the services provided.
The model should be expanded and replicated, along with promoting services targeting similarly-aged youth through internet and mobile-phone communication methods.

WEPEC300

Family-based HIV risk and protective factors for Latino men who have sex with men in San Juan, PR

M. Garcia[1,2]
[1]Houston Health Department, Houston, United States, [2]Yale University, Center for Interdisciplinary Research on AIDS (CIRA), New Haven, United States

Background: Puerto Rico (PR) is the fifth largest territory throughout the US to have the greatest number of Latinos living with HIV and HIV infection rates for 2016 continue to grow for Latino men who have sex with men (LMSM) ages 25-34. HIV related research among sexual minorities of color has focused on deficiencies and limited research has taken a culturally informed approach regarding identity development and interpersonal family relationships. This study aims to determine if family influences behaviors related to HIV risk and protective factors for LMSM.
Methods: LMSM ages 21 through 30 in San Juan, PR completed semi-structured interviews exploring the influence interpersonal family relationships have on condom use, HIV testing, health seeking behaviors, substance use, and sexual partners. A focus was placed on family as a unit as well as the interpersonal relationships of participants with immediate (e.g., parent, caregiver, sibling) and extended family members (e.g., aunt, uncle, cousin, grandparent). *Fictive kin,* unrelated by birth or marriage, was also explored to understand how LMSM applied family roles to important members within their social network. NVivo was used to conduct a thematic analysis focused on identifying prominent themes based on codes associated with family. All data was analyzed in its original language and direct quotes were translated from Spanish to English.
Results: Fifteen participants (Mean age = 26.2) completed in-depth interviews, 14 in Spanish and 1 in English. Participants reported being HIV negative (80%), gay (93%), household income ≤$19,999 (67%), and some college education or greater (80%). A thematic map illustrates an innovative framework (Figure 1) to conceptualize the influence interpersonal family relationships have on wellbeing for Latino MSM based on the emergent themes:
1) Immediate versus Extended Family;
2) Mother Knows Best;
3) Fractured Paternal Relationships;
4) Siblings Influence; and
5) *Fictive Kin* - Creating My Own Family.
Findings suggest that the mother plays an integral role in enhancing HIV protective factors for LMSM ages 21-30.



[Figure 1. Thematic framework for conceptualizing family-based HIV related risk & protective factors for LMSM (N = 15) in San Juan, PR.]

Conclusions: This study highlights the importance for developing family-based interventions that reinforce cultural beliefs and values through a strengths-based approach towards enhancing HIV protective behaviors for LMSM.

WEPEC301

Serostatus non-disclosure to sexual partners among high-risk drug users living with HIV: Examining the roles of HIV-related stigma and risk behavior

R. Shrestha[1], F. Altice[2], M. Copenhaver[1]
[1]University of Connecticut, Allied Health Sciences, Storrs, United States, [2]Yale University, New Haven, United States

Background: HIV serostatus disclosure among people living with HIV (PLWH) is an important component of preventing HIV transmission to sexual partners. Due to various social, structural, and behavioral challenges, however, many HIV-infected people who use drugs (PWUD) do not disclose their HIV status to all sexual partners. In this analysis, we therefore examined non-disclosure practices and correlates of non-disclosure among high-risk HIV-infected PWUD.
Methods: HIV-infected, methadone-maintained people who reported HIV-risk behaviors were enrolled (n=133). Participants completed an audio-computer assisted self-interview (ACASI) assessing socio-demographic characteristics, HIV disclosure, risk behaviors, health status, ART adherence, HIV stigma, and other characteristics. Multivariable logistic regression was used to identify significant correlates of non-disclosure.
Results: Over 23% of the respondents had sex with someone with whom they had not disclosed their HIV status. HIV risk behaviors were highly prevalent among non-disclosing participants: sharing of injection equipment (70.5%) and inconsistent condom use (93.5%). Non-disclosure of HIV status was significantly associated with not being virally suppressed (aOR=0.189, *p*=0.041), high HIV-related stigma (aOR=2.366, *p*=0.032), and having multiple sex partners (aOR=5.868, *p*=0.040). Furthermore, a significant interaction between HIV-related stigma and living with family/friends suggests that those living with family/friends were more likely to report not disclosing their HIV status when faced with a higher degree of perceived stigma.
Conclusions: Our findings support the need for future interventions to better address the impact of perceived stigma and HIV disclosure as it relates to risk behaviors among PWUD.

Male and female condom use

WEPEC302

Contextualizing condoms: Location, partner type, and substance use as contexts for sexual risk behavior with transactional and non-transactional partners of men who have sex with men in Peru

A. Castañeda-Huaripata[1], R.C. Passaro[2,3], W. Gonzales-Saavedra[1], E.R. Segura[2], S. Chavez-Gomez[1], R. Lama[1], R. Bobadilla[1], M. Reyes[1], R. Cabello[1,2], J.L. Clark[2]
[1]Asociación Civil Via Libre, Lima, Peru, [2]South American Program in HIV Prevention Research, David Geffen School of Medicine, University of California Los Angeles, Los Angeles, United States, [3]College of Medicine, University of Tennessee Health Science Center, Memphis, United States

Background: Men who have sex with men (MSM) in Peru consistently report low frequencies of condom use. To improve understanding of the evolving context of condomless intercourse in same-sex male partnerships, we studied associations between partner type, substance use, and condomless receptive anal intercourse (cRAI) in common MSM sex venues.
Methods: In a 2017 cross-sectional study of rectal STI screening and HIV prevention, MSM reporting recent cRAI completed a survey of demographic characteristics and sexual risk behavior with their three most recent partners. Generalized estimating equations, stratified between transactional sex (TS) and non-TS partners, estimated correlations of cRAI with venue of last sexual contact, participant alcohol use prior to sex, and negotiation of condom use before or during sex.
Results: Among 1,428 sexual encounters of 450 MSM (median age 27 years), 160 were transactional (11.2%) and 1,268 were non-transactional (88.8%). The most commonly reported venue for TS and non-TS en-

counters was a hotel (51.5% of TS & 32.6% of non-TS). Sexual encounters with transactional partners at sauna venues often included alcohol (75.0%) and drug use (75.0%) before sex, and none of these encounters involved condom use negotiations before or during sex. Transactional sex encounters in public venues frequently included discussions about condom use (71.4%), but were also associated with cRAI (aPR, 95% CI: 1.94, 1.11-3.36), likely due to negotiations for higher compensation with condomless sex. In all encounters with transactional partners, cRAI was associated with alcohol use (1.35, 1.03-1.77). Among non-transactional partners, cRAI was associated with encounters that occurred at the participant's home (1.25, 1.05-1.49) and in the context of alcohol use (1.19, 1.09-1.31). Alcohol use before sex occurred most commonly at hotels (31.7%), while drug use occurred most often at public sex venues (13.5%). Encounters with non-transactional partners rarely included discussions of condom use and HIV serostatus before or during sex (< 15% of all encounters), regardless of venue.

Conclusions: We observed different patterns and implications of substance use, condom negotiation, and cRAI with transactional and non-transactional partners of MSM at diverse sex venues. Additional studies are needed to explore how venue, substance use, and partner type differentially structure HIV/STI risk contexts.

WEPEC303

Community condom preferences in Zambia from the HPTN 071 (PopART) trial

M.M. Phiri[1], R. Kumar[1,2], A. Schaap[1,2], K. Shanaube[1], R. Hayes[3], S. Fidler[4], H. Ayles[1,2]

[1]Zambia AIDS-Related Tuberculosis (Zambart), University of Zambia, Lusaka, Zambia, [2]London School of Hygiene and Tropical Medicine, Department of Clinical Research, London, United Kingdom, [3]London School of Hygiene and Tropical Medicine, Department of Infectious Disease Epidemiology, London, United Kingdom, [4]London School of Hygiene and Tropical Medicine, Department of Medicine, London, United Kingdom

Background: Condom use is a very effective HIV/STI prevention strategy, yet usage remains low. In Sub-Saharan Africa, standard condoms are available at health facilities, but uptake is low and community members perceive their quality to be inferior compared to branded condoms. HPTN071(PopART) is a 3-arm community-randomized trial of a combination HIV prevention package in 21 communities in Zambia and South Africa. The intervention includes condom distribution delivered door-to-door by community health workers. Our objective was to understand condom preferences of participants in 8 intervention communities in Zambia.

Methods: Standard government-provided male (Giulin Zizhu Latex Co Ltd) and female (fc2®) condoms were provided to participants from December 2013 - September 2017. Alternative branded condoms (Moods®) and lubricants (Optilube®) were provided from June 2015 - September 2017. Electronic data on numbers of condoms requested and received during household visits, and condom preferences were collected from 8 intervention communities in Zambia from July 2016 - August 2017, and analysed using STATA 13.1. Semi-structured interviews were conducted to find participants' preferred type of condom, and reason for the preference.

Results: Overall, 292,552 people consented to participate in the main PopART intervention, 97.8% had data recorded. Excluding those <15 years, 165,873 participants remained: 37.5% male, 62.5% female (Figure 1). Of the males, 7% requested and received lubricant, 6.7% female condoms, and 32% male condoms (branded and government).

Of men receiving condoms, 65.6% expressed interest in receiving branded condoms compared to 17.2% in those who didn't receive condoms.

For females, 6.5% requested and received lubricant, 7.5% female condoms and 18.6% male condoms (branded and government).

Of women receiving male condoms 63.6% expressed interest in receiving more branded condoms compared to 10.7% who didn't receive condoms.

Overall, flavoured and scented condoms were the most preferred across all age groups because they "felt like skin to skin"; were "light and strong"; and "had a good smell." More women (20.4%) than men (7.4%) self-reported preference in receiving female condoms.

Conclusions: Future programs and governments should consider adding flavoured, scented and female condoms to encourage condom use. Research should be conducted on whether receiving branded male condoms and lubricant has an impact on condom usage among community members.

		Total N(%)	Flavoured N(%)	Scented N(%)	Ribbed N(%)	Studded N(%)	Female N(%)	Other brand-specific type N(%)
Age categories	15-24	67, 239	10,333 (15.4)	6,428 (9.6)	3,080 (4.6)	2,869 (4.3)	1,991 (3.0)	303 (0.5)
	25-34	47, 098	10,052 (21.3)	6,176 (13.1)	3,044 (6.5)	2,820 (6.0)	2,118 (4.5)	294 (0.6)
	35-44	26, 244	5,165 (19.7)	3,220 (12.3)	1,554 (5.9)	1,447 (5.5)	1,176 (4.5)	155 (0.6)
	>45	25, 292	2,245 (8.9)	1,378 (5.5)	671 (2.7)	663 (2.6)	466 (1.8)	76 (0.3)

[Table 1: Community condom preferences disaggregated by age in Zambia]

[Figure 1: Flow chart of community condom preferences disaggregated by gender in Zambia]

WEPEC304

Acceptability and availability of co-packed condom and lubricant among key populations in Nigeria

O. Fajemisin[1], A. Oluwayinka[2], G. Omoregie[3]

[1]Society for Family Health, Research, Measurement and Results, Abuja, Nigeria, [2]Society for Family Health, Research and Evaluation Department, Abuja, Nigeria, [3]Society for Family Health, Global Fund HIV Programme, Abuja, Nigeria

Background: Consistent use of condoms remains effective in preventing HIV transmission amongst key populations (KPs) while the use of water-based lubricants reduces the chances of condom failure. In Nigeria, reduced access to appropriate lubricants has been linked to use of oiled-based types with increased condom failure. To increase use of appropriate, lubricants, the Society for Family Health introduced a Co-packed Condom and Lubricant (CCL) under the Global Fund (GF) grant, which was made available to all key populations (KPs). After six months of its introduction, the program assessed the performance of the CCL for availability, use and desirability.

Methods: The study adopted mixed-method approach of quantitative and qualitative data collection. The quantitative method involved the use of interviewer-administered structured questionnaire to KPs, while focus-group discussions with KPs who had been exposed and used to obtain perceptions. The study population included all KPs from focal states of the GF program.

Results: The respondents (2351) included 787 men who have sex with men (MSM), 789 female sex workers (FSW) and 775 People who inject drugs (PWID), About 87% of respondents were aware of CCL; 77% of these were still using the CCL; and 52% of respondents reported constant use of CCL. The commonest (26%) reason given for using CCL was the fact that CCL is better than using condoms alone. However, about 35% stated that other condoms were more readily available than the CCL The advantages of CCL include that dual-use had sex more pleasurable and CCL were convenient to use. However, FSWs want a lesser volume of lubricants while the MSM preferred increased amount and both preferred an increase in the number of condoms per pack.

Conclusions: The newly introduced CCL was well known, accepted and used among the KPs. CCL should be made more available, accessible to KPs. There is need to develop different packages of CCL to meet the needs of FSW and the MSM. Sustaining its availability will include developing a cost that can be afforded by all groups.

WEPEC305

A functional performance study of the "Wondaleaf" female condom

M.E. Beksinska, N. Mphili, R. Greener
University of The Witwatersrand, MRU- Match Research Unit, Durban, South Africa

Background: New female condoms (FCs) are in development that have innovative designs to introduce the FC into the vagina. One of these new designs is the "Wondaleaf" female condom, which has an adhesive shield replacing the outer ring/frame of a typical FC. As the shield covers both internal and external genitalia, it aims to provide better protection against unintended pregnancies and sexually transmitted infections. The primary objective of this research was to compare the functional performance of two FC types- the Wondaleaf FC and FC2, where the FC2 served as the control device.
Methods: This was a two-period, cross-over randomized controlled trial to determine the functional performance, safety and acceptability of Wondaleaf FC and FC2. This study enrolled 55 women in Durban, South Africa in 2017. Primary analyses centered on total clinical failure and total female condom failure. Rates of clinical breakage, total breakage, slippage, misdirection, and invagination were also calculated.
Results: Fifty three of the 55 women enrolled (96%) completed both study follow-up visits. Participants were of a mean age of 28 years with 10 years or more of schooling. All participants had ever used male condoms, and 45.4% had ever used FCs. Total clinical failure was 5.3% for the Wondaleaf FC and 7.5% for FC2. A small number of women had difficulties applying the Wondaleaf shield however once fitted, the shield of the Wondaleaf FC remained adherent in all uses. In three cases some of the shield material was pushed into the vagina, however this did not present an exposure risk. Acceptability was generally higher for the Wondaleaf compared to the FC2. Two-thirds of women (69.8%), and over a half of men (58.4%) stated a preference for Wondaleaf over FC2.
Conclusions: This new design performed well compared to FC2 with lower condom clinical failure and higher acceptability and preference. The design is more complex than a typical FC and requires good instruction for users to fit the adhesive shield.

Access to harm reduction interventions

WEPEC306

Harm reduction program intervention and behavioral factors correlation with anti-hepatitis C positivity among people who inject drugs in Georgia

N. Shengelia[1], I. Chikovani[2], L. Sulaberidze[1]
[1]*Curatio International Foundation, Research Unit, Tbilisi, Georgia,* [2]*Curatio International Foundation, Tbilisi, Georgia*

Background: Georgia is implementing HCV elimination program and People Who Inject drugs (PWID) represent one of the severely affected population with Hepatitis C virus (HCV) infection. Harm reduction programs (HRP) aim to reduce the risk of HIV and transmission among this key population. We assessed correlation of HRP intervention, behavioral factors and anti-HCV positivity among PWID in Georgia.
Methods: A Cross-sectional bio-behavioral study using respondent-driven sampling (RDS) was conducted among 2,049 PWID in 7 cities of Georgia during 2016-2017. RDS-weighted estimates were used and bivariate and multivariate logistic regression analyses were conducted to identify correlates of anti-HCV positivity and harm reduction program coverage along with behavioral factors.
Results: Prevalence of Hepatitis-C was 63.2% among study population. Awareness about HIV testing possibilities and receiving sterile injecting equipment and condom from HRP during the last 12 months- "Program general coverage" reported 14.2% and "program full coverage "- receiving brochures and qualified educational information in addition to "general coverage" reported 11.5% of PWID. Significant association was found between anti-HCV positivity and HRP service reach. PWID, who were not covered with "general coverage" had lower odds (OR 0.3, $p < 0.05$) while those without "full coverage" had higher odds (OR 5.1 $p< 0.01$) of anti-HCV positivity. Those who were tested on anti-HCV during last 2 years or more than 2 years were more likely to be infected, (OR 2.93 $p< 0.01$) and (OR 1.67 $p=0.01$) respectively. PWID, who used condom at their last intercourse were less likely to be positive, compare to those, who did not have sex last year OR 2.02, $p< 0.01$. A one-year increase of drug use practice increases risk at 8.5% of anti-HCV positivity $p< 0.01$. Use of non-sterile injecting equipment at their last injection was associated with lower risk of anti-HCV positivity (0.65 $p< 0.05$).
Conclusions: HCV positive PWID benefit from HRP mostly due to access to sterile injecting equipment and condoms. On the other hand, HCV positive PWID have lower risky behavior, possibly because of HRP influence. To scale-up access to the HRP will reduce HCV transmission risks on the way to eliminate HCV infection in the country.

WEPEC307

Impact of health behavior campaigns on HIV-risk behaviors in Swaziland

I. Mushamiri[1], Z. Mnisi[2], M. Nkambule[3], G. Bicego[4], J. Justman[5]
[1]*Columbia University Mailman School of Public Health, Epidemiology, New York, United States,* [2]*Swaziland Ministry of Health, Mbabane, Swaziland,* [3]*Swaziland National Emergency Response Council on HIV/AIDS, Mbabane, Swaziland,* [4]*US Centers for Disease Control and Prevention, Atlanta, United States,* [5]*ICAP at Columbia, Mailman School of Public Health, Columbia University, New York, United States*

Background: Several mass media health behavior campaigns (HBCs) were conducted in Swaziland between 2010-2015 to avert new HIV infections. We describe the association between HBCs and specific behaviors among a prospectively followed, nationally representative, HIV-negative cohort from the 2011 Swaziland HIV Incidence Measurement Survey (SHIMS).
Methods: Survey staff conducted household-based HIV testing and collected information from adults, 18-49 y, about risk behaviors and exposure to HBCs in the previous 6 months. HIV-negative participants repeated the questionnaire and HIV testing 6 months later. Survey data were weighted for sampling design and multivariable logistic regression analysis assessed associations between HBC exposure and risk behaviors among those reporting sexual activity at both baseline and follow-up. Assessed behaviors were ever HIV testing (at baseline); number of sexual partners; condom use; and male circumcision (MC) or having a circumcised primary partner.
Results: Among 18,172 adults, 12,368 tested HIV-negative at baseline; of these, 11,232 (91%) completed a 6-month follow-up visit and 121 incident infections were observed. Among women, there was a baseline association between reporting ever HIV testing and exposure to HIV testing HBC messages (adjusted OR [aOR] 3.84, 95% CI [1.18-12.55]); and reporting fewer (i.e., 1 versus 2, or 2 versus ≥3) sexual partners and exposure to partner reduction HBC messages (aOR = 3.02, 95% CI [1.38-6.62]). Among men, there was a baseline association between reporting fewer partners and exposure to partner reduction messages (aOR = 2.26, 95% CI [1.49-3.44]). In the longitudinal assessment, men who reported baseline exposure to partner reduction HBCs were more likely to report fewer sexual partners 6 months later (aOR = 1.95, 95% CI [1.26-3.00]). No significant association was found for men or women between exposure to HBCs about condoms and condom use, nor about MC and the MC outcome [Table]. Exposure to HBCs did not predict incident HIV infections.
Conclusions: These findings suggest a minimal impact of mass media HBCs on promoting low-risk behaviors among adults in Swaziland, the country with the highest global national HIV prevalence. Although both men and women appeared to respond positively to partner reduction HBC messages, averting risky behaviors at a population level appears to require additional interventions.

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	Men				Women			
	*Adjusted Cross-Sectional Analysis		*Adjusted Longitudinal Analysis		*Adjusted Cross-Sectional Analysis		*Adjusted Longitudinal Analysis	
Campaign Topic Exposure (yes vs. no):	OR	95% CI	aOR	95% CI	OR	95% CI	aOR	95% CI
Reducing No. Sexual Partners*	*2.26	(1.49-3.44)	*1.95	(1.26-3.00)	*3.02	(1.38-6.62)	1.90	(0.64-5.62)
Using Condoms	0.73	(0.26-2.07)	1.25	(0.49-3.18)	1.48	(0.45-4.88)	0.86	(0.36-2.05)
Benefits of Male Circumcision	2.36	(0.98-5.69)	1.16	(0.40-3.36)	1.16	(0.61-2.21)	1.51	(0.79-2.88)
HIV Testing	1.13	(0.47-2.73)	-	-	*3.84	(1.18-12.55)	-	-

*Adjusted for age, employment status, marital status, pregnancy status (for women only) and education level
*Significant association
*Ordinal for number of sexual partners, categorized as 1, 2 or > 3 partners
*Low-risk behaviors: ever HIV testing; fewer sexual partners; always using condoms; being circumcised or having a circumcised primary partner

[Weighted Logistic Regression Modeling Low-Risk Behavior for HBC Exposures at Baseline and Risk Behavior Outcomes at Baseline and Follow-Up]

WEPEC308

Factors associated with never accessing North America´s first and largest supervised injection facility among people who inject drugs in Vancouver, Canada

M.C. Kennedy[1,2], K. Hayashi[1,3], M.-J. Milloy[1,4], R. McNeil[1,4], E. Wood[1,4], T. Kerr[1,4]
[1]British Columbia Centre on Substance Use, Vancouver, Canada, [2]University of British Columbia, School of Population and Public Health, Vancouver, Canada, [3]Simon Fraser University, Faculty of Health Sciences, Vancouver, Canada, [4]University of British Columbia, Department of Medicine, Vancouver, Canada

Background: Supervised injection facilities (SIFs) have increasingly been established in various settings worldwide. Previous studies have demonstrated the role of SIFs in reducing potential for HIV infection and other harms stemming from injection drug use. However, little is known about potential barriers to utilization of this form of health service. We therefore sought to characterize factors associated with never using Insite, North America's first and largest SIF, among people who inject drugs (PWID) in Vancouver, Canada.

Methods: Data from two ongoing prospective cohort studies of PWID were collected between June 2006 and December 2012. Multivariable logistic regression was used to identify factors associated with reporting having never used the SIF at baseline and in all subsequent study follow-up visits.

Results: Of 1514 PWID included in the study, 496 (32.8%) were women, 920 (60.8%) were White and the median age was 46 years (interquartile range [IQR] = 39-52). The median follow up duration was 46 months (IQR = 18-71). A total of 267 (17.7%) participants reported having never used the SIF at baseline and in all subsequent study follow-up visits. In multivariable analyses, requiring manual assistance with injections (adjusted odds ratio [AOR] = 1.54; 95% confidence interval [CI]: 1.05-2.27), non-injection crystal methamphetamine use (AOR = 2.07; 95% CI: 1.16-3.70), and HIV seropositivity (AOR] = 1.52; 95% CI: 1.13-2.05) were positively associated with never using the SIF. Variables independently and negatively associated with never using the SIF included unstable housing (AOR = 0.67; 95% CI: 0.45-0.99), residence in the neighbourhood of the SIF (AOR = 0.61; 95% CI: 0.42-0.89), participation in methadone maintenance therapy (AOR = 0.55; 95% CI: 0.41-0.73), daily heroin injection (AOR = 0.32; 95% CI: 0.19-0.54), public injection (AOR = 0.28; 95% CI: 0.18-0.43), and binge injection (AOR = 0.49; 95% CI: 0.31-0.77).

Conclusions: Most PWID reported having ever used the SIF. However, PWID who required manual assistance with injections or used non-injection crystal methamphetamine were more likely to report having never used this service. These findings point to the need to consider amending SIF operational regulations that may create barriers to SIF service engagement for these subpopulations of PWID.

Characteristic	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Age (per year older)*	1.02 (1.00 – 1.03)	
Years injected (per year increase)*	1.00 (0.99 – 1.02)	
Follow-up duration (per month increase)*	0.98 (0.98 – 0.99)	0.98 (0.97 – 0.99)
Gender (men vs. women)*	1.10 (0.83 – 1.46)	
Ancestry (white vs. non-white)*	0.81 (0.62 – 1.06)	
DTES‡ residence (yes vs. no)*	0.41 (0.31 – 0.54)	0.61 (0.42 – 0.89)
Unstable housing (yes vs. no)*	0.43 (0.32 – 0.57)	0.67 (0.45 – 0.99)
HIV seropositvity (yes vs. no)*	2.10 (1.61 – 2.74)	1.52 (1.13 – 2.05)
Hepatitis C seropositivity (yes vs. no)*	0.58 (0.38 – 0.89)	
Heroin injection (≥daily vs. <daily)*	0.22 (0.14 – 0.35)	0.32 (0.19 – 0.54)
Crystal methamphetamine injection (≥daily vs. <daily)*	0.50 (0.18 – 1.41)	0.41 (0.12 – 1.36)
Cocaine injection (≥daily vs. <daily)*	0.49 (0.25 – 0.87)	
Public injection (yes vs. no)*	0.27 (0.19 – 0.40)	0.28 (0.18 – 0.43)
Binge injection (yes vs. no)*	0.50 (0.33 – 0.75)	0.49 (0.31 – 0.77)
Non-injection crack cocaine use (yes vs. no)*	0.45 (0.64 – 1.22)	
Non-injection methamphetamine use (yes vs. no)*	1.99 (1.24 – 3.21)	2.07 (1.16 – 3.70)
Non-fatal overdose (yes vs. no)*	1.26 (0.64 – 2.49)	
Share syringes (yes vs. no)*	1.37 (0.76 – 2.47)	
Require manual assistance with injections (yes vs. no)*	1.45 (1.05 – 2.00)	1.54 (1.05 – 2.27)
Methadone maintenance therapy participation (yes vs. no)*	0.60 (0.46 – 0.78)	0.55 (0.41 – 0.73)
Sex work involvement (yes vs. no)*	0.58 (0.36 – 0.94)	0.68 (0.40 – 1.16)
Ever treated poorly by healthcare professionals (yes vs. no)	0.51 (0.35 – 0.74)	0.74 (0.49 – 1.11)

* Refers to the cumulative proportion of activities or experiences in the previous 6 months during follow up, dichotomized as 50% vs. <50% of the time.
‡ DTES = Downtown Eastside neighbourhood (where the SIF is located).

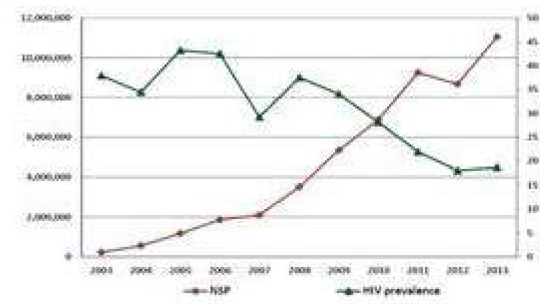
[Table 1: Logistic regression analysis of factors associated with having never used the Insite supervised injection facility (SIF) among people who inject drugs in Vancouver, Canada (n = 1514).]

WEPEC309

No wall in Myanmar: Needle and syringe automatic taking machines (NSATM) are breaking down barriers in HIV prevention for people who inject drugs in remote rural villages

H. Phyo Aye[1], T. Linn[2], W. Toe Wai[3]
[1]Asian Harm Reduction Network-Myanmar, Harm Reduction, Myitkyina, Myanmar, [2]Asian Harm Reduction Network-Myanmar, Harm Reduction, Yangon, Myanmar, [3]Asian Harm Reduction Network-Myanmar, Harm Reduction, Bhamo, Myanmar

Background: Myanmar is confronted with a dual epidemic of drugs and HIV. HIV prevalence is 28.5% (IBBS 2014) among PWID driven by sharing injecting equipment. Needle Syringe Programs (NSP) have proven to reduce HIV incidence and are the vital part of HIV prevention, but are also most sensitive and misunderstood among the community and need strong local advocates. Frequent crack-downs by law enforcement and anti-drug faith-based vigilante forces more PWID 'underground' and exacerbates access difficulties for the traditional way of NSP through outreach. Furthermore, drug use is mainly a rural phenomenon in Myanmar with a wide geographical area to cover. To address some of these issues and increase the access to clean needles and syringes (N/S), AHRN initiated community-based Needle and Syringe Automatic Taking Machine (NSATM) whereby owners of participating shops are also nurtured as community advocates.



[Needle and syringe distribution and HIV prevalence among PWID (2003-2013)]

Description: AHRN started to implement the free distribution of clean needles and syringes through NSATM through grocery-shops, snack shops etc in its project sites in Kachin Shan and Sagaing Regions in the

last quarter of 2015. PWID can access clean injection equipment in the NSATM shops from early morning till night time, in most cases 7 days/week and in some shops even for 24 hours. Participating owners are provided with training, official recognition as HIV prevention service and incentives. Outreach, needle patrolling by peers and NSATM shops are collecting used N/S.

Lessons learned: From 20 NSATM shops in 2016, the number rose to 34 in 2017. The number of N/S distributed through NSATM increased from 1.2 to 2.25 million, a quarter of AHRN total N/S yearly turnover. The return rate remains low, albeit improving. The shop owners, as influential persons in their neighbourhood, are facilitating the advocacy process.

Conclusions/Next steps: NSATM in the community works, is good advocacy, changes positively the perception of NSP and is instrumental in enhancing access to sterile equipment. Moreover, focus group discussions with clients, indicates that easier access decreases sharing of injecting equipment significant. As next steps, AHRN will further expand its NSATM activities and is conduct an in-depth survey how to address low return rate.

Novel research designs for epidemiology and surveillance

WEPEC310

Correcting mortality for loss to follow-up in African ART programmes: Comparison of methods

N. Anderegg[1], F. Chammartin[1], M. Schomaker[2], H. Tweya[3], B.D. Rice[4], J.R. Hargreaves[4], M. Egger[1,2], on behalf of the MeSH Consortium
[1]University of Bern, Institute of Social and Preventive Medicine, Bern, Switzerland, [2]University of Cape Town, Centre for Infectious Disease Epidemiology and Research (CIDER), Cape Town, South Africa, [3]The Lighthouse Trust, Lilongwe, Malawi, [4]London School of Hygiene & Tropical Medicine, Department of Social and Environmental Health Research, Faculty of Public Health and Policy, London, United Kingdom

Background: Loss to follow-up (LTFU) makes mortality estimation in HIV-positive patients on ART challenging. Mortality among patients LTFU is typically higher than among those in care, biasing program-level estimates of mortality downwards if LTFU is ignored. Existing methods to address this problem can be classified as «ad-hoc» methods (if LTFU-outcomes are unknown) or «ascertainment» methods (if some LTFU-outcomes are ascertained). Ascertainment of LTFU-outcomes through tracing of patients or record linkage is not always feasible: «ad-hoc» methods are the only choice in many settings. We compared an «ad-hoc» method with an «ascertainment» method, and examined the influence of the proportion of outcomes ascertained.

Methods: The «ascertainment» method (Schomaker et al, Stat Med 2014) uses multiple imputation to estimate survival times in patients LTFU after a sample of outcomes was ascertained. The «ad-hoc» method (Brinkhof et al, PLoS ONE 2010) uses a pattern-mixture model, assuming a k-fold increase in the hazard of death after being lost. We calculated 3 different estimates of k based on findings from literature. We used simulated data (500 runs) and empirical data from patients starting ART 2001-2010 in Lilongwe, Malawi.

For the simulated data we studied differences between true and predicted median survival times via root-mean-squared-deviation (RMSD).

For empirical data we compared predicted 1-, 2-, and 3-year mortalities.

In addition, we assessed the performance of the naive approach (ignoring LTFU) and the impact of the proportion of outcome ascertainment on RMSD and mortality.

Results: Our simulated datasets included 1000 patients, 29% were LTFU on average. Malawi data included 7084 adult patients; 1864 were LTFU. 72.3% of LTFU-outcomes could be ascertained through tracing. RMSD was largest for the naive approach, smallest for the «ascertainment» method and varied substantially dependent on the choice of k in the «ad-hoc» method (Table). Estimated mortality was lowest with the naive and highest with the «ascertainment» method (Table). The «ascertainment» method consistently outperformed the «ad-hoc» approach, even if the proportion of outcomes ascertained was as low as 1%.

Conclusions: Ad-hoc methods will give more reliable results than naive estimates. Methods based on ascertainment of LTFU-outcomes will, however, be more accurate, even for low proportions of ascertained outcomes.

Method	Simulated data RMSD(pT_{50})†	Malawi data Mortality (95%-CI) 1-year‡	2-year‡	3-year‡
Naive	12.80 years	2.9% (2.5-3.4)	3.3% (2.8-3.8)	3.5% (3.0-4.0)
«Ascertainment»				
1% ascertained	4.13 years	8.0% (7.3-8.6)	13.9% (12.9-14.3)	16.8% (15.7-17.9)
5% ascertained	3.74 years	7.9% (7.2-8.6)	13.7% (12.8-14.7)	16.5% (15.4-17.6)
20% ascertained	3.38 years	8.4% (7.7-9.1)	13.7% (12.8-14.6)	16.2% (15.2-17.3)
50% ascertained	2.31 years	9.3% (8.6-10.1)	13.4% (12.5-14.3)	15.4% (14.4-16.4)
72.3% ascertained	1.56 years	10.1% (9.4-10.9)	13.3% (12.4-14.2)	14.9% (13.9-15.9)
100% ascertained	0.00 years	unknown	unknown	unknown
«Ad-hoc»				
k_1*	8.40 years	5.9% (5.4-6.5)	8.9% (8.1-9.6)	11.5% (10.7-12.4)
k_2*	8.86 years	6.3% (5.7-6.9)	9.4% (8.7-10.2)	12.3% (11.4-13.2)
k_3*	3.46 years	6.7% (6.0-7.3)	10.1% (9.3-10.8)	13.2% (12.2-14.1)

†The lower the better.
‡post ART initiation.
*Simulated data $(\bar{k}_1, \bar{k}_2, \bar{k}_3) = (9.98, 12.16, 12.59)$; Malawi data $(k_1, k_2, k_3) = (12.56, 14.07, 15.98)$.

[Table. Method comparison]

WEPEC311

Mapping and size estimation of hidden key populations in low-income setting

K. Deuba[1], U. Shrestha[1], B. Rawal[2], R. Khanal[1], B.D. Pandey[2], T. Paudel[3], R.K. Bhattarai[4], A.M. Ekstrom[5]
[1]National Centre for AIDS and STD Control/ Global Fund Programs, Kathmandu, Nepal, [2]National Centre for AIDS and STD Control, Ministry of Health, Kathmandu, Nepal, [3]Former Chief Specialist, Ministry of Health, Kathmandu, Nepal, [4]Save the Children, Kathmandu, Nepal, [5]Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden

Background: Most of the low-income countries experiencing concentrated HIV epidemic lack information about key populations (KP), including people who inject drugs (PWID), men who have sex with men (MSM), transgender (TG) and female sex workers (FSW) because they are hidden and marginalised in society and remain undocumented. There are many approaches to size estimation. Among them, mapping or census is particularly useful when local estimates are needed for planning and monitoring of programmes.

Methods: The mapping exercise among MSM, TG, PWID and FSW was carried out in 44 districts of Nepal between July and November 2016. Then mapping exercise was done collecting relevant information directly from hotspots where the key population members congregate. Key informant interviews were carried out among KP members as well as non-key population key informants who were familiar with the local situation in and around the hotspots. The key informants associated with each hotspot were interviewed to obtain the estimated number of KP who visit that hotspot on a weekly basis and to learn about the frequency of their visit to hotspots and patterns of mobility to other hotspots in the same district. The data collection was carried out. Adjustment factors (mobility adjustment, frequency adjustment and invisibility adjustment) were sequentially applied.

The data analysis procedures were based on stratification and extrapolation, to estimate the number of KP in mapped and unmapped districts and the entire country.

Results: The national estimate of FSW is minimum 43,829 and maximum 54,207. The national estimates of MSM/TG are minimum 88,009 and maximum 112,150 of which minimum 18,704 and maximum 24,216 are TG, and minimum 53,373 and maximum 67,292 are MSM. The national estimate of PWID is minimum 27,248 and maximum 34,487. Among them, minimum 24,572 and maximum 30,561 are men, and minimum 2,676 and maximum 3,926 are women.

Conclusions: The size of KP provided through mapping exercise can be utilised for target setting and a measure of program coverage. Major limitation is that mapping may count the majority of KP who visit hotspots on a very regular basis and miss to count another subset who did not visit or less frequently visit the hotspots.

WEPEC312

Maternal HIV does not affect children's resiliency from birth to 5 years: Moving to a rural setting is protective

M.J. Rotheram-Borus[1], J. Christodoulou[1], P. Hayati Rezvan[1], W.S. Comulada[1], E. Almirol[1], M. Tomlinson[2]
[1]*University of California, Department of Psychiatry and Biobehavioral Sciences, Semel Institute, Los Angeles, United States,* [2]*Stellenbosch University, Department of Psychology, Stellenbosch, South Africa*

Background: "Resiliency" is often assessed in high-income countries using cross-sectional samples based solely on children's behavior. Using a multidimensional definition over time, this study follows a population of South African children over the first five years of life to determine the impact of Mothers Living with HIV (MLH) and a home visiting intervention on resiliency.

Methods: Almost all pregnant women (98%; N=1238; n=354 MLH) in 24 matched neighborhoods in Cape Town townships were recruited and randomized by matched neighborhood clusters to:
(1) standard care; or
(2) paraprofessional home-visiting.
Six assessments were conducted during pregnancy, at 2 weeks, 6, 18, 36, and 60 months post-birth with 83%-94% follow-up rates. Over time, 36% of households migrated to rural settings. At each assessment, resilient children were: within 2 SD on each WHO growth measure; within 1 SD on each measure of cognitive functioning; and not deviant on the Achenbach Child Behavior Checklist scales. Sociodemographic, maternal stressors, child protective factors, neighborhood, and intervention condition were examined as predictors of child resiliency over time using t-test for continuous variables and chi-square for categorical variables.

Results: Seventeen percent of children were resilient over time, similar across children of MLH (19% resilient) and non-MLH (16% resilient) and intervention conditions. Food insecurity was associated with reduced resilience. Mothers with higher income, less depression, alcohol use, and intimate partner violence, and without a live-in partner, were significantly more likely to have resilient children. Breastfeeding and attending a preschool crèche were unrelated to resiliency. Three neighborhood clusters (n=6 neighborhoods) had unusually low percentages of resilient children (11%), and one cluster (n=2 neighborhoods) had a higher percentage (27%). Children from resilient neighborhoods were more likely to migrate and be raised by their mothers in the rural Eastern Cape.

Conclusions: The children of MLH were equally likely to be resilient and their predictors similar to their peers without HIV. Moving to the Eastern Cape and being raised by one's mother are protective. Examining children's resiliency over time based on measures from multiple domains is an important methodological advance, especially in lower and middle income countries.

WEPEC313

Estimating the population size of female sex workers in Kampala, Uganda, using three-source capture-recapture

K. Apodaca[1], R. Doshi[1], M. Ogwal[2], R. Bain[1], E. Amene[1], H. Kiyingi[3], A. McIntyre[1], W. Hladik[1]
[1]*Centers for Disease Control and Prevention, Atlanta, United States,* [2]*School of Public Health, Makere University, Kampala, Uganda,* [3]*Centers for Disease Control and Prevention, Kampala, Uganda*

Background: Understanding the HIV epidemic among female sex workers (FSW) is dependent on reliable population size estimates; however, no gold standard size estimation method for 'hidden' populations exists. Two-source capture recapture is a commonly used method, but is subject to stringent assumptions. This method utilizes a capture stage where individuals are sampled, tagged and then resampled. We piloted three-source capture-recapture (3S-CRC), which relaxes the assumption of independence of captures, to estimate the number of FSW in Kampala, Uganda.

Methods: In October 2017, FSW were sampled during three captures and "tagged" by offering them a bracelet for capture 1, and a mirror for capture 2. No items were distributed for the third capture. FSW were defined as women, 15 years or older, and selling sex to men. All captures were completed one week apart to minimize the impact of migration in and out of Kampala. FSW sampled during captures 2 and 3 were asked if they had received the distributed object(s). The proportions of FSW receiving a bracelet, mirror, or both were calculated. Total FSW estimates were produced by fitting different log-linear models to 2^k contingency tables, Statistical analyses were conducted using the package Rcapture in R version 3.4.3 which fits multiple models at the same time.

Results: We sampled 962, 965, and 1417 FSW in captures 1, 2, and 3, respectively. There were 316 recaptures between captures 1 and 2, 214 recaptures between captures 2 and 3, and 235 recaptures between captures 1 and 3. There were 109 FSW captured in all three rounds. Estimates of FSW vary based on model selection shown in Table 1. The base model (M_0), which did not account for time of capture or heterogeneity among FSW, was 5,282 (5000, 5591). Chao, Poisson, and Darroch model estimates were 6063(5644,6532), 9212 (7832, 10941) and 15298 (11448, 20760), respectively.

Conclusions: The most conservative estimate is the M_{th} Chao which provides a lower bound for the FSW population in Kampala. Adding additional captures could improve model stability. We employed 3S-CRC to estimate FSW size in Kampala and provided critical denominator data for planning HIV prevention, care, and treatment programs.

WEPEC314

Probabilistic recorded linkage as a tool to improve TB-HIV coinfection surveillance in Brazil

K. Andrade[1], C.O. Dantas[2], D.M. Pelissari[2], M.S. Rocha[2], L.A. Nascimento Júnior[2], P.O. Bartholomay[2], D. Arakaki[2], R.A. Ribeiro[3], R. Coelho[3], A.R.C.d. Cunha[3], G.F.M. Pereira[3]
[1]*Ministry of Health, National Tuberculosis Programme, Brasilia, Brazil,* [2]*National Tuberculosis Programme / Ministry of Health, Department of Communicable Disease Surveillance, Brasilia, Brazil,* [3]*Ministry of Health, National Aids Department, Brasília, Brazil*

Background: Brazil is in two of the three high burden countries list from WHO - tuberculosis (TB) and TB-HIV coinfection. Underreporting of diseases that are relevant to public health is a major challenge for health surveillance since it compromises the evaluation of the magnitude of these diseases. This study aims to analyze the underreporting of HIV/AIDS cases in the National Information Systems in Brazil, as well as qualify the surveillance of TB-HIV coinfection.

Methods: It is a descriptive cross-sectional study. A probabilistic recorded linkage was performed between the databases of the Notifiable Disease Information System (Sinan) to TB (2011-2014) and the database from the Department of Sexually Transmitted Disease, AIDS and Viral Hepatitis (DIAHV) with all HIV/AIDS cases reported to Sinan-AIDS, Mortality Information System, Laboratory Exams Control System, and Logistic Control System for Medications. It is an operational research conducted using routine data which waives the Ethical Committee review.

Results: 29,490 new cases coinfected with HIV were reported in Sinan-TB. Of These, 19,243 linked to the consolidated database of DIAHV. To qualify information on TB dataset, those patients reported in the Sinan-TB with information about HIV filled as "negative", "being processed" and "not performed" but linked to DIAHV dataset as having a known HIV/AIDS positive status had their information updated. 1,449 TB patients had their information updated. According to Sinan-TB, for the years of 2011, 2012, 2013 and 2014, the coinfection rates were 9.8%, 9.8%, 9.9% and 10.1%, respectively. After the linkage, these percentages increased to 10.3%, 10.4%, 10.5% and 10.6%, respectively. About underreporting, 10,247 TB cases had a positive HIV test, but were not linked to the consolidated database from DIAHV. According to year of TB diagnosis, in 2011, 2012, 2013 and 2014, there was 3,198; 2,413; 2,398; and 2,238 HIV underreported cases.

Conclusions: These expressive numbers of underreported HIV/AIDS cases are people who are constantly in health facilities without being notified in the HIV/AIDS systems, and consequently, without starting their HIV/AIDS care. These findings are being used by the National Tuberculosis Programme and the DIAHV to discuss and delineate joint actions and recommendations to tackle both diseases.

WEPEC315

On estimating the number of people with known HIV positive status for the UNAIDS 90-90-90 targets

G. Nguefack-Tsague[1], S.C. Billong[2], O.W. Tiemtore[3], A. Zeh[2], A. Wade[3], I. Diallo[4], E. Mvilongo[2], R. Fodjo[2], B. Bongwong[1], M.N. Ngoufack[5], Y. Ndowa[6], H. Diallo[6], B. Clary[6], J. Ze Minkande[1], L. Zekeng[7], J.B. Guiard-Schmid[3], J. Zhao[6], J.B. Elat-Nfetam[2]

[1]University of Yaounde 1, Faculty of Medicine and Biomedical Sciences, Department of Public Health, Yaounde, Cameroon, [2]Ministry of Public Health, National AIDS Control Committee, Yaounde, Cameroon, [3]Dispositif d'Appui Technique - Afrique (DAT-Afrique), Initiatives Conseil International-Santé (ICI-Santé), Ouagadougou, Burkina Faso, [4]CHU-Yalgado, Hôpital de Jour, Ouédraogo, Burkina Faso, [5]Centre International de Reference Chantal Biya, Yaounde, Cameroon, [6]The Global Fund to Fight AIDS, Tuberculosis and Malaria, Geneva, Switzerland, [7]UNAIDS, Dar es Salaam, Tanzania, United Republic of

Background: In 2014, the Joint United Nations Program on HIV and AIDS (UNAIDS) and partners set the '90-90-90' targets by 2020. While UNAIDS SPECTRUM Software estimates the number of people living with HIV/AIDS (PLHIV), many countries including sub-Saharan countries are facing the challenge of estimating the 1st 90. Many methods have been proposed for this purpose, some of them using cumulative number of people tested HIV+; with difficulties to account for duplication as a major setback. Our objective was to propose an alternative modelling procedure, and to discuss its appropriateness to account for duplication, especially in the absence of a unique identifier code.

Methods: Starting from a base year, the number of HIV+ tests per year was obtained by summing all positive tests for each entry point. The cumulative crude number of positive tests for a year was obtained by summing up positive tests of current and preceding years. In addition to adjusted parameters such as *the false positive rate*; the *probability of death and the permanent emigration of a tested HIV+*; we proposed two additional parameters: *the probability for an HIV+ person being re-tested positive* and *the average number of HIV+ tests*. The uncertainty of the adjusted estimate was assessed using the plausibility bounds under Poisson distribution. Sensitivity analyses were performed and a representative national survey carried out to estimate model parameters.

Results: Sensitivity analysis showed that the *average number of HIV+ tests* was the most important parameter that accounted for duplication. In Cameroon, SPECTRUM in 2016 estimated 560 000 PLHIV. From the '90-90-90' targets, 90% (504 000) of PLHIV had to know their status. Applying this model from 1987 to 2016, we estimated that the first 90 was 75.5% (380 540/504 000) i.e. 380 540 (95%CI: 379 100-381 517) PLVIH knew their status, thus a gap of 123 460 (95%CI: 122 773-124 150) PLHIV.

Conclusions: Our analysis proved that the model appropriately accounted for duplication and can be applied to countries facing similar challenges. In addition to determining the gap, efforts should be made to understand its associated factors and to implement correct measures to create HIV testing demand.

WEPEC316

Development of a nationally representative HIV patient survey: Experiences from the Positive Voices survey in the United Kingdom

M. Kall, V. Delpech, Positive Voices Study Group

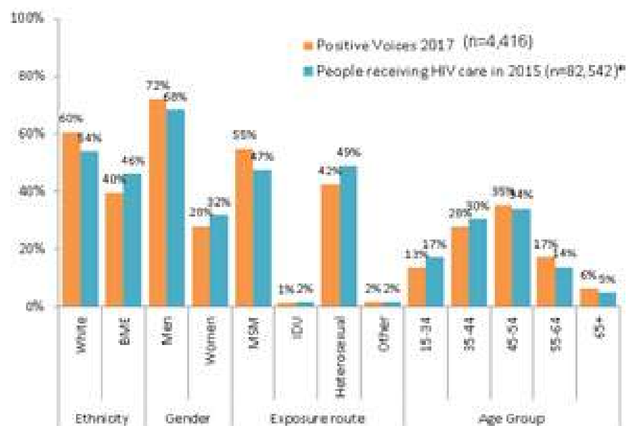
Public Health England, HIV/STI Department, London, United Kingdom

Background: As the paradigm of HIV service models increasingly shifts toward patient-centred care, the continual collection of the patient-reported outcome and experience data required to inform and evaluate these services poses a unique challenge to those responsible for routine HIV surveillance. We present the methods of a new national HIV patient survey designed to be routinely implemented as part of routine national surveillance, yielding good response rates while requiring minimal resources to run.

Description: The concept of using surveillance records as a national sampling frame was tested and proven effective through statistical sampling tests. The survey method and questionnaire was developed through iterative, participatory methods under the guidance of an Advisory Group including patient representatives, clinicians, academics, commissioners and civil society. A phase of formative research of qualitative interviews with HIV patients and HIV clinic staff was used to identify the most feasible and acceptable methods to deliver the survey. Following this, in 2014 a pilot study was run in 30 clinics, whereby a random sample of patients attending for HIV care were recruited in clinic to complete a questionnaire. Findings from the pilot informed the national scale-up of the survey in January - September 2017, which achieved a sample of 4,416 (51% response rate) included the following key methods: - Unconditional £5 high street voucher - Choice of online or paper response formats - Research approvals which gave access to flexible workforce, particularly useful for large clinics - 6 month recruitment period - Email and post options.

Lessons learned: With sufficient investment of time, funding and synergistic working with multiple stakeholders, a good response rate is achievable for clinic-based recruitment of HIV patients to achieve generalisable national estimates of key patient health and outcome data using national surveillance records as a sampling frame. Low denomination, unconditional monetary vouchers are cost-effective to boost response rates particularly in traditionally underrepresented groups.

Conclusions/Next steps: The survey data will be cleaned, weighted and top-line findings reported in Spring 2018. Funding has been secured for a community led analysis which will explore in-depth issues relevant to people living with HIV through a series of workshops, culminating in a Community Report.



[Representativeness of the Positive Voices 2017 survey]

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Novel research designs for HIV prevention in the era of PrEP/PEP

WEPEC317

The use and likelihood of using, PrEP among men who have sex with men (MSM) in Europe and Central Asia: Findings from a large Hornet/ECDC survey

A. Bourne[1], A. Pharris[2], A. Garner[3], G. Spiteri[2], B. Alba[1], T. Noori[2]
[1]Australian Research Centre in Sex, Health & Society, La Trobe University, Melbourne, Australia, [2]European Centre for Disease Prevention and Control, Stockholm, Sweden, [3]Hornet Gay Social Network, California, United States

Background: Currently, seven European countries provide HIV pre-exposure prophylaxis (PrEP) through public health services, although there are numerous reports of off-licence use. The objectives of this study were to examine current use of PrEP, likelihood of future use, and indicators of potential PrEP candidacy in an opportunistic sample of European MSM.

Methods: The European Centre for Disease Prevention and Control and Hornet Gay Social Network sent out a questionnaire in eight languages to users of the Hornet application between 17 June and 16 August 2017. Descriptive statistics present proportions and Chi-square analysis to determine factors associated with PrEP use.

Results: Of the 12,053 responses received from 55 countries in Europe and Central Asia, 10.7% had diagnosed HIV. Among HIV negative/untested men, 10.1% (n=1,071) were currently taking PrEP, or had done so within the previous three months. Current or recent PrEP users were significantly more likely to have taken post-exposure prophylaxis (PEP) (OR=15.66, 95%CI [13.17, 18.62]) or received an STI diagnosis (OR=4.56, 95%CI [3.82, 5.44]) in the previous 12 months, or engaged in chemsex within the previous 3 months (OR=7.27, 95%CI [5.99. 8.82]) than those who had not. Most commonly, men obtained PrEP from a physician (34.0%), the internet (30.3%) or friends (12.1%); 33.8% had not disclosed PrEP use to their doctor. Men reporting happiness with their sex life were more likely to have taken PrEP (OR=1.77, 95%CI [1.63, 1.93]). Nearly a quarter (22.0%) of those not on PrEP said they were likely to use it in the next six months, particularly if they had taken PEP or been diagnosed with an STI in the last 12 months, or engaged in chemsex in the last 3 months

Conclusions: These findings indicate that the majority of men using PrEP are appropriately assessing their sexual risk. Similarly, men expressing a likelihood of using PrEP in the future report sexual behaviours in line with common PrEP prescribing guidance, indicating accurate risk perception. A large proportion of men are accessing PrEP outside of traditional healthcare settings, posing a challenge for routine monitoring. A clear association between PrEP use and sexual happiness suggests a promising route for demand creation interventions.

WEPEC318

Is prevalence of early HIV-infection at baseline correlated with HIV incidence: An analysis of 10 PrEP trials

G. Antoni[1], C. Pintado[2], C. Delaugerre[3,4], L. Meyer[1,5,6], J.-M. Molina[2,7]
[1]INSERM, SC10-US19, Essais thérapeutiques et Maladies Infectieuses, Villejuif, France, [2]Assistance Publique des Hôpitaux de Paris, Hôpital Saint Louis, Maladies Infectieuses, Paris, France, [3]Assistance Publique des Hôpitaux de Paris, Hôpital Saint Louis, Virologie, Paris, France, [4]Université Paris Diderot, INSERM U 941, Paris, France, [5]Assistance Publique des Hôpitaux de Paris, Hôpital Bicêtre, Le Kremin Bicêtre, France, [6]University Paris Sud, INSERM, U 1018, Le Kremin Bicêtre, France, [7]Université Paris Diderot, INSERM U941, Paris, France

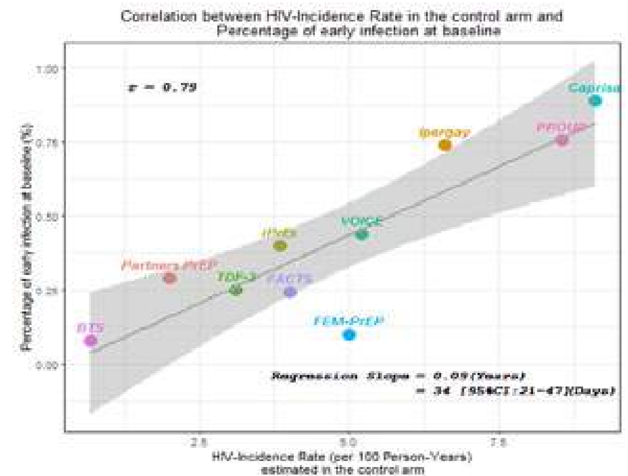
Background: Due to the high efficacy of PrEP with TDF/FTC in high risk individuals, the assessment of new preventive interventions is challenging since a control arm without PrEP would be unethical. Therefore, it would be critical to have a good estimate of HIV incidence in the population. We wished to assess in an exploratory analysis using data from previous PrEP trials, whether the prevalence of early HIV infection at baseline would correlate with HIV incidence in the control arm. The goal would be to establish a surrogate of the "natural" HIV infection risk in a population enrolled in a prevention trial.

Methods: We reviewed data from 10 PrEP trials conducted among high risk MSM, young women, heterosexual men and IVDUs in high and low income countries. We used HIV incidence in each trial estimated in the placebo or the deferred arm. The prevalence of early HIV infection at baseline was measured by the percentage of subjects with both a negative rapid point of care antibody HIV test and a positive plasma HIV-RNA . Data from each trial were plotted to assess the Spearman correlation coefficient (r); the regression slope was used to estimate the mean duration of early HIV infection, according to the relationship:

$Prevalence_{\text{early infection}} \approx Duration_{\text{early infection}} * Incidence\ Rate_{\text{infection.}}$

Results: Data from the following placebo-controlled (Caprisa 004, Iprex, Partners PrEP, TDF-2, FACTS, Fem-PrEP, VOICE, BTS, IPERGAY) and immediate vs deferred (PROUD) PrEP trials were used (Figure 1). Correlation between HIV incidence without PrEP and the prevalence of early HIV-infection at baseline yielded an r coefficient of 0.79 (p=0.01). Mean duration of early HIV infection was estimated at 34 days (95% CI: 21-47).

Conclusions: In this exploratory analysis, a strong quantitative relationship was found between the prevalence of early HIV-infection at baseline and HIV incidence without PrEP during follow-up. In addition, this analysis provided a good estimate of the duration of early HIV-infection. These results could be valuable for future prevention trials to evaluate natural HIV incidence and to better interpret the efficacy of the intervention tested.



[Figure. Correlation between HIV-Incidence Rate in the control arm and Percentage of early infection at baseline]

Capacity building for epidemiological and prevention research

WEPEC319

Religion a structural platform for HIV intervention in Abia State Nigeria

K.N. Igbojionu[1], D.E.O. Igbojionu[1], E. Okey-Uchendu[2]
[1]Zinnok Initiative for Women and Children, Umuahia, Nigeria, [2]National Agency for the Control of Aids, Programme, Abuja, Nigeria

Background: With an estimated 3.4 million people living with HIV/AIDS, Nigeria ranks second in terms of HIV/AIDS disease burden in Africa. Although Nigeria's epidemic is generalised, it experiences concentrated epidemics among key populations. Religious leaders are key gatekeepers in the HIV programming in Nigeria. Most Nigerians are very religious and belief greatly in the pronouncements of their religious leaders. They are either Muslims or Christians and only few Nigerians are neutral about their religions. Zinnok Initiative for women and children therefore saw religion as a structural platform for HIV interventions in Abia State.

Description: Zinnok advocates to religious leaders in the state to include brief messages on HIV during their sermons. HIV testing services are also carried out during big festivities and positive clients are linked to HIV services sites within the state. Abia state is a predominately Christian state but there are few Muslims as well. Zinnok advocacies are carried out to both Muslims and Christian bodies. Zinnok get permission from these religious bodies to have talks on HIV, prevention, treatment and care. Mothers are also educated out PMTCT services and are encouraged to register for anti-natal care. Issues about stigma and discrimination are also addressed during these programme. It also services as an opportunity to reach the Adolescent and Young person (AYP) with effective HIV prevention strategies.
Lessons learned: Most religious leaders misguide the members due to ignorance on HIV/AIDS issues. The engagement of religious leaders by Zinnok Initiative for women and children served as an opportunity to reach the religious leaders with effective HIV awareness messages on HIV prevention, treatment and care. The religious leaders are now able to make informed decisions and guide their members rightly. They also know about the available HIV service centers. They have served as effective stakeholders in Zinnok HIV programming with the state.
Conclusions/Next steps: The religious leaders help in ensuring messages on HIV gets to the individuals, family&community members. Organisations should see them as partners in achieving the 90:90:90 target. There should therefore be opportunities to intentionally carry them along in order to reduce new infections&ensure more people are on treatment.

Community involvement and good participatory practice in epidemiological and prevention research

WEPEC320

Increasing antenatal care utilization among pregnant women through community mobilization in high HIV burden Local Government Areas in Benue State, Nigeria

A.C. Ajibola[1], O. Akagwu[2], F. Ogirima[3], L. Inyama[4], O. Alo[5], P. Christopher Izere[6], E. Udeh[7], J. Ugboji[8], F. Oransaye[9], B. Oyeledun[10]
[1]Center for Integrated Health Programs, Clinical Services Unit, FCT, Nigeria, [2]Center for Integrated Health Programs, Clinical Services Unit, Abuja, Nigeria, [3]Center for Integrated Health Programs, Quality Improvement, Abuja, Nigeria, [4]Center for Integrated Health Programs, CSU, Benue State, Nigeria, [5]Center for Integrated Health Programs, Strategic Information Unit, Abuja, Nigeria, [6]Center for Integrated Health Programs, CSU, Abuja, Nigeria, [7]CIHP, State Coordination, Benue State, Nigeria, [8]Benue State Ministry of Health, PMTCT Unit, Benue State, Nigeria, [9]CIHP, Strategic Information Unit, Abuja, Nigeria, [10]CIHP, Chief Executive Officer, Abuja, Nigeria

Background: Antenatal care represents a vital component of efforts to prevent mother to child transmission of HIV (PMTCT). Unfortunately, only 61% of pregnant women in Nigeria have a first Antenatal Care (ANC) visit and PMTCT coverage is only 30%. Low uptake of ANC negatively impacts on coverage of PMTCT services accessed in the ante natal setting. In response to this challenge, the Centre for Integrated Health Programs (CIHP), Nigeria with funds from CDC implemented a community program aimed at getting HIV positive pregnant women into the PMTCT program through ANC registration.
Description: The program took place in March and April, 2017 in four Local Government Areas of Benue state, Nigeria. A hot spot analysis was done using program data, and 24 communities were identified to have a HIV prevalence of 4.1% and above. Targeted community mobilization was carried out with participation of 51 health facilities which served these communities. Community volunteers were selected using a set criteria and worked with Local government focal persons and health workers to mobilize pregnant women. Pregnant women were informed of the program and attached incentives. Community structures were used to facilitate mobilization with announcements made through town criers and churches. Women interested in participating were directed to participating health facilities where they were registered for ANC.
Lessons learned: At the end of the four week activity, ANC registration in the 51 facilities increased by 46.9% from 2,203 in the four weeks preceding the intervention to 4,151.A total of 267 (6.4%) pregnant women who booked for ANC through the program were found to be HIV positive. Out of the HIV positive pregnant women, 186 (69.6%) were found to be previously known to be HIV positive and accessing antiretroviral therapy (ART). However, they were not accessing antenatal care and by extension, full package of PMTCT services prior to the program.
Conclusions/Next steps: Pregnant women with known HIV positive status accounted for over 50% of identified positive pregnant women not utilizing antenatal services in this setting. Targeted mobilization at community and ART clinics could improve their utilization of antenatal and PMTCT services.

WEPEC321

Perspectives on social media and technology use for HIV research among young adults in the pediatric HIV/AIDS cohort study

C. Berman[1], D. Kacanek[2], M. Nichamin[1], D. Wilson[1], M. Reznick[3], M. Davtyan[4], K. Tassiopoulos[1], K. Patel[1], S. Allison[5], J. Bauermeister[6], S. Lee[7], M. Paul[8], D. Siddiqui[9], T. Aldape[8], G. Seage III[1]
[1]Harvard T.H. Chan School of Public Health, Epidemiology, Boston, United States, [2]Harvard T.H. Chan School of Public Health, Center for Biostatistics in AIDS Research, Boston, United States, [3]Westat, Rockville, United States, [4]University of Southern California Los Angeles, Los Angeles, United States, [5]National Institute of Mental Health, Division of AIDS Research, Bethesda, United States, [6]University of Pennsylvania, Philadelphia, United States, [7]Eunice Kennedy Shriver National Institute of Child Health and Human Development, Maternal and Pediatric Infectious Disease Branch, Bethesda, United States, [8]Baylor College of Medicine, Houston, United States, [9]Tulane University School of Medicine, New Orleans, United States

Background: There has been little research regarding the preferences and willingness to use social media and other digital technologies in HIV-related research among young adults who have perinatally-acquired HIV infection (PHIV) or who were perinatally HIV-exposed but uninfected (PHEU).
We investigated these preferences among PHIV and PHEU young adults at clinical sites participating in the Pediatric HIV/AIDS Cohort Study (PHACS) Adolescent Master Protocol (AMP).
Methods: Between 2013 and 2014, we conducted 6 focus group discussions and 6 in-depth interviews (IDIs) with PHIV young adults (n=37) and 7 IDIs with PHEU young adults at 8 clinical sites across the US. Participants were queried about their perceptions and experiences regarding social media and digital technology, adulthood, and participation in a longitudinal HIV study, and completed a brief self-administered survey about their demographic characteristics and technology use. Thematic analysis of coded transcripts was conducted using Atlas.ti, a qualitative data analysis software.
Results: Study participants (ages 18 - 24, 65% female, 63% Black, 38% Hispanic) reported frequent use of various social media and digital technologies in their personal lives. This use depended on a variety of factors, including norms within their social networks, access to technology and the Internet, concerns about online privacy and confidentiality, and HIV stigma.
Some participants also reported reluctance to use digital technologies for communicating about HIV research (Table 1), citing concerns of inadvertent disclosure due to device sharing and/or faulty privacy settings on social media platforms.
Participant motivation to continue in HIV research was partly based on longstanding, close relationships with their pediatric providers; participants were divided in whether their trust in individual providers would increase willingness to use social media and digital technologies, providing important context for considering effective retention strategies.
Conclusions: Although personal use of social media and digital technologies among our study population was high, the willingness to use these media within the context of HIV research varied widely, and this was due primarily to fear of experiencing HIV stigma via inadvertent disclosure of

their status. A flexible approach offering tailored options for communication and privacy among young adults participating in HIV research is essential when considering retention strategies.

Text	Very often	Somewhat often	Not often	Never	No answer
*Use in personal life**	26 (84%)	4 (13%)	0 (0%)	1 (3%)	13 (N/A)
*Prefer to use w/ study***	9 (38%)	9 (38%)	1 (4%)	5 (21%)	20 (N/A)
Email					
Use in personal life	2 (8%)	9 (38%)	9 (38%)	4 (17%)	20 (N/A)
Prefer to use w/ study	11 (46%)	9 (38%)	1 (4%)	3 (13%)	20 (N/A)
Facebook					
Use in personal life	20 (69%)	9 (31%)	0 (0%)	0 (0%)	15 (N/A)
Prefer to use w/ study	5 (21%)	3 (13%)	3 (13%)	13 (54%)	20 (N/A)
Twitter					
Use in personal life	2 (9%)	2 (9%)	6 (26%)	13 (57%)	21 (N/A)
Prefer to use w/ study	1 (5%)	3 (15%)	0 (0%)	16 (80%)	24 (N/A)
Phone call					
Use in personal life	18 (64%)	6 (21%)	2 (7%)	2 (7%)	16 (N/A)
Prefer to use w/ study	7 (32%)	4 (18%)	4 (18%)	7 (32%)	22 (N/A)

**Survey question: "How often do you and your friends use the following to communicate with each other?"*
***Survey question: "How often would you prefer to get study-related information from PHACS using the following?"*

[Table 1: Communication Preferences of Young Adults in PHACS: In Personal Life vs. in HIV Research (n = 44; percentages calculated using total respondents for each question)]

WEPEC322

Recruiting and retaining high-risk Black/African-American men who have sex with men (MSM) and transgender women (TW) for HIV testing studies in New York City

G. Ortiz[1], D. Lucy[1], V. Frye[2], M.Q. Paige[1], D. Usher[1], L. Wilton[3], H.V. Tieu[1,4], B. Koblin[1]
[1]New York Blood Center, Project ACHIEVE, New York, United States, [2]City University of New York School of Medicine, Community Health and Social Medicine, New York, United States, [3]Binghamton University, Binghamton, United States, [4]Columbia University Medical Center, Infectious Disease, New York, United States

Background: New HIV cases disproportionately affect Black or African-American gay, bisexual, and other men who have sex with men (MSM) and Transgender Women (TW) in New York City (NYC). In 2016, 71% of new HIV diagnoses among men were MSM; 40% were Black or African-American. Increasing consistent HIV testing is crucial to HIV prevention, but the knowledge base is not well-developed.

Description: Project ACHIEVE of the New York Blood Center recently conducted two studies ("TRUST" and "All About Me") designed to test interventions to increase HIV testing and/or consistent testing among young, Black/African-American, at-risk MSM and TW. TRUST required participants to HIV test with a friend. We describe here methods used to recruit successfully the samples (N=613) and retain >85% of the samples over 6- to 12-month follow-up periods.

Lessons learned: The greatest facilitators of recruitment included: consistent presence of key study team members; making strong, personal connections in the House/Ball and KiKi communities face-to-face and on-line (Facebook) and via ball category sponsorship; transforming the clinic site into a safe and resource-rich space where material and support needs were met; adapting study procedures if enrollments decrease; holding a number of "open houses" at the site and local gay spaces where enthusiasm for research was generated; engaging a simple and remunerated referral system; reimbursing staggered enrollment steps; and offering a range of reimbursement options (cash, gift card, etc.). Barriers to recruitment included difficulty finding "trusted" friends and overly-complicated eligibility criteria and enrollment procedures for TRUST. Retention requires intense staff time and effort. Major barriers include: unstable housing; frequent change in contact information. Facilitators include using social media to stay in close contact. In both recruitment and retention, it was crucial that staff reflected the focal population, which built trust and credibility.

Conclusions/Next steps: Recruiting and retaining at-risk samples is challenging and context-specific. The TRUST and All About Me teams met enrollment and, to date, retention targets by being flexible, sensitive and creative. Most important is treating all participants as individuals and with respect, kindness and patience. Consistency in staff contributes to success, as does constant analysis and adjustment of methods used.

WEPEC323

A large-scale study on the sexual health of young people aged 12 to 25 in the Netherlands: The added value of a participatory action research approach

M. van den Borne[1], S. Meijer[1], I. van der Vlugt[2], H. de Graaf[2]
[1]STI Aids Netherlands, Amsterdam, Netherlands, [2]Rutgers, Utrecht, Netherlands

Background: Participatory action research (PAR) is a powerful strategy to advance both science and practice by conducting the whole research process in partnership with stakeholders. Participation of stakeholders creates shared ownership of knowledge and commitment towards action based on the results. Sex under the age of 25 is a large-scale study on the sexual health of youngsters aged 12 to 25 in the Netherlands based on the principles of PAR.

Description: More than hundred stakeholders from research, practice and policy of sexual health promotion were included throughout the entire research process; from sexologists to youth experts. Stakeholders were involved by means of interviews, surveys, mailings and a work conference. Based on their input the questionnaire was adapted whereby stakeholders needs for specific insights into youngsters sexual health were fulfilled. Moreover, fifteen of the twenty-five Municipal Health Services (MHS) invested in expanding the research within their own region for local representative data. The collaboration with the MHS have led to a total number of 20.500 youngsters participating in Sex under the age of 25. In collaboration with stakeholders the most important outcomes were identified and following actions within their field of sexual health promotion were formulated. These actions were integrated in a national widely supported action plan to improve the sexual health of youngsters.

Lessons learned: The participation of multiple stakeholders made it possible to capture more aspects of sexual health promotion and broadened the perspective of the researchers. The collaboration with the MHS have led to a large scope of results; not only serving the national level but creating local insights as well. Results which enables the regions to adjust sexual health promotion to local needs.

Conclusions/Next steps: In contrast to many other studies is, by use of the PAR-approach, a bridge created between science and practice. Enabling professionals to target their action, by including their needs for specific insights, leads to a more tailored strategy of sexual health promotion for youngsters in the Netherlands. The unique participating role of the MHS created the possibility to further increase the effectiveness of these actions based on local data and by local agents.

WEPEC324

What women want: Branding a new HIV prevention vaginal ring using a user-centric design approach

A. Ismail[1], S. Magni[1], S. Chan[1], B. Dube[1], M. Rampedi[1], L. Solai[2], S. Tenn[2], N. Sutton[2,3]
[1]Genesis Analytics, Health, Johannesburg, South Africa, [2]International Partnership for Microbicides, Silver Spring, United States, [3]Johnson & Johnson Global Public Health, New Brunswick, United States

Background: As an increasing number of HIV prevention medicines are developed, the challenge lies not only in their supply, but ensuring uptake. Uptake is often influenced by the branding of medical products, however, end-users are not always consulted. The International Partnership for Microbicides is submitting the Dapivirine Vaginal Ring (DVR) for regulatory approval. To ensure that the branding is culturally appropriate, acceptable and appealing, we tested potential names and packaging designs with end-users.

Methods: We undertook focus group discussions (FGDs) in high HIV burden countries for both the naming (Malawi, South Africa, Uganda and Zimbabwe) and packaging studies (South Africa and Uganda).

FGDs were conducted in rural and urban areas with women aged 18-45 years. In total, 507 end-users were consulted. Eight names and six packaging designs were tested by participants ranking their top preferences and participating in an open discussion. Results were analysed thematically.
Results: There were names that were found to be culturally inappropriate, had negative connotations or could be misinterpreted for another product and were thus disliked by participants across all countries. Names that were liked across the countries were those that referred to the drug or the ring. A difference in packaging preferences was noted between countries. In South Africa, groups attached importance to the colour and size of the logo, and preferred the bright and bold packaging, whereas participants in Uganda preferred the less colourful, subtle, conservative packaging. The Ugandan participants also stated the importance of a design that would be recognisable and accessible to those with less formal education. In both countries, participants emphasised the need for a smaller box that would fit into their purse
Conclusions: Branding preferences vary between countries due to cultural norms, social context and language differences. Prior to introducing new medical products, consultations with end-users are crucial for uptake. Testing the DVR branding has effectively shown how understanding consumer preferences for product branding could influence its use. We suggested a branding option that resonates with a majority of the end-users across countries. Alternatively, product developers can develop country specific branding.

Harnessing big data for epidemiological research/digital epidemiology

WEPEC325

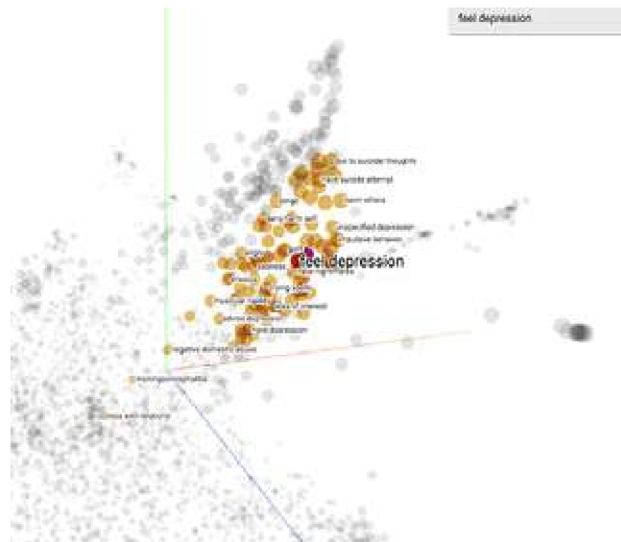
Supervised machine learning to predict HIV outcomes using electronic health record and insurance claims data

J. Semerdjian[1], K. Lykopoulos[2], A. Maas[1], M. Harrell[1], J. Priest[3], P. Eitz-Ferrer[3], C. Wyand[4], A. Zolopa[3]
[1]Roam Analytics, San Francisco, United States, [2]ViiV Healthcare, Global, London, United Kingdom, [3]ViiV Healthcare, US, RTP, United States, [4]Optum Life Sciences, Boston, United States

Background: The HIV care continuum in the US is still short of achieving the UNAIDS target. Learning predictors for HIV outcomes may facilitate interventions that improve patient care. We aimed to learn predictors for viral suppression, retention, linkage to care and antiretroviral therapy (ART) adherence and discuss 1) the application of machine learning methods to predict HIV patient outcomes and 2) opportunities for HIV care improvement derived from HIV outcome predictors.
Methods: We selected HIV patient cohorts from a set of electronic health records (EHR) data and administrative claims data from Optum's de-identified Integrated Claims-EHR dataset (2007-2016). We measured patient viral suppression, retention, linkage to care and adherence and constructed separate models for each. Cohorts for the four outcome measures ranged from 2,062 to 22,649 patients (Table 1).
Outcome measures were determined from medication refills, diagnostic codes, lab results, and patient encounters. We extracted demographic, medical (comorbidity, medications, provider specialty) and encounter features from patient data. We used natural language processing methods to learn clinical text features, which include phrases recorded in provider written patient notes.
To further explore data derived from clinical text, we built a word embedding that visualizes co-occurrence patterns of clinical text (Figure 1). We applied supervised machine learning methods via penalized logistic regression to predict outcome measures.
Results: Our best model predicts HIV suppression with a 0.84 AUC (TABLE-1). We compared model AUC values generated using bootstrapped samples from a held out test set. Models perform best with the complete ensemble of demographic, medical, and encounter features. The most significant features in predicting outcomes are the clinical text features derived with natural language processing of the EHR data. Examples of highly predictive clinical terms for HIV suppression include "migraine", "n/v", "negative anxiety", and "verruca".
Conclusions: This study achieved moderately accurate prediction for HIV outcomes by applying natural language processing and machine learning to EHR and claims data. We suggest that reliable prediction for HIV outcomes may be held in the unstructured patient notes, and can be derived from natural language processing and machine learning. We also demonstrate the validity of using these real world data for secondary use.

Models	Features	AUC	F1 Score	Feature Count	Patient Count
Retained in Care	Demographic-only	0.65	0.66	36	2,062
	Clinical text-only	0.73	0.69	1,230	2,062
	All features	0.75	0.70	1,572	2,062
Engaged in Care	Demographic-only	0.63	0.63	36	22,649
	Clinical text-only	0.73	0.68	1,242	22,649
	All features	0.75	0.69	1,572	22,649
Viral Load Suppression	Demographic-only	0.75	0.78	36	15,552
	Clinical text-only	0.83	0.83	814	15,552
	All features	0.83	0.83	1,126	15,552

[Table 1. Model Results]



[Figure 1. Viral Load Suppression Clinical Text Embedding]

Utilising clinical data systems for epidemiological and behavioural research

WEPEC326

A two-stage approach to quantify time with suppressed viral load in resource-constrained settings

J. Edwards[1], S. Hileman[2], S. Zadrozny[2], M. Seamans[3], Y. Donastorg[4], S. Weir[2]
[1]University of North Carolina, Chapel Hill, Epidemiology, Carrboro, United States, [2]University of North Carolina at Chapel Hill, Carolina Population Center, Chapel Hill, United States, [3]Johns Hopkins University, Epidemiology, Baltimore, United States, [4]Instituto Dermatológico y Cirugía del Piel, Santo Domingo, Dominican Republic

Background: Sustained viral suppression is a goal of HIV care and treatment programs. However, in resource-constrained settings, collection of viral load measurements may be logistically challenging and prohibitively expensive. Accordingly, viral load testing is often limited to patients displaying signs of treatment failure, rather than extended to all patients as part of a routine monitoring strategy, and standard methods to estimate measures related to viral suppression may be misleadingly low.

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Methods: We present a two-stage design to estimate the average time patients in HIV care and treatment programs spend with a suppressed viral load in the Dominican Republic, where viral load is sometimes available through a national HIV patient monitoring system. The proposed approach uses statistical weighting to combine data available through routinely collected clinical records (stage 1) with data from a validation substudy (stage 2) that measured viral loads on a sample of patients. Under the USAID/PEPFAR-supported, FHI360-led LINKAGES Project, we applied this approach to compare the time suppressed between key populations and others in clinical care in the Dominican Republic.
Results: The target population included 12,113 patients who entered HIV care and treatment in the Dominican Republic between 1 June 2013 and 25 January 2017. The validation study included additional viral load information for 1055 of these patients. Over the 42 months after entry into care, patients spent an average of 23 months on treatment. Using the routinely collected viral load data only, we estimated that 65% of this time (15 months) was spent with a suppressed viral load (< 200 copies/mL). Using the proposed two-stage approach, we estimated that 84% of the time on treatment was spent virally suppressed (19 months). On average, female sex workers spent 1.1 (95% CI: -1.4, 3.7) fewer months suppressed than other women, and men who have sex with men spent 1.7 (95% CI: -0.7, 4.2) fewer months suppressed than other men.
Conclusions: In resource constrained settings, routinely collected viral load data are typically not missing at random. The proposed approach offers a principled and cost efficient means to account for missing viral load data when estimating viral suppression in these settings.

Conceptualizing social and structural factors and their impacts

WEPED327

Sexual objectification as a predictor of willingness to engage in sex with HIV-positive partners

H. Drake, T. Chenneville, L. Rodriguez, T. Peless
University of South Florida Saint Petersburg, Psychology, Saint Petersburg, United States

Background: Existing literature suggests that high levels of HIV-related stigma may serve as a protective factor against HIV transmission by lowering a person's risk tolerance when they encounter potential sexual partners who are HIV positive. In the age of post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP) in the United States, HIV stigma levels seem to be lowering while engagement in risky sexual behaviors seem to be on the rise (Hess, Crepaz, Rose, Purcell, & Paz-Bailey, 2017). Experiences of being sexually objectified have been implicated in the rise of risky sexual behavior (Watson & Dispenza, 2014). Yet, there is limited research on objectification theory as it applies to men who have sex with men (MSM) and HIV. The present study examines the role of interpersonal sexual objectification on willingness to engage in sex when controlling for HIV-related stigma.
Methods: Data were collected via M-Turk using online survey software. The sample included 294 MSM aged 18 and older from across the United States. Participants completed the AIDS-Related Stigma Scale (ARSS), the Interpersonal Sexual Objectification Scale (ISOS), and questions about sexual behavioral intentions with a potential sexual partner with HIV. Binary logistic regression was used to analyze responses.
Results: Participants included 294 MSM ranging in age from 18-65 (M = 31.5, SD = 9.21). After controlling for HIV-related stigma, results indicated that for every positive unit change in the experience of being objectified, the willingness to have sex with a person living with HIV increased significantly. Comparative analyses showed that experiences of sexual objectification did not significantly increase the willingness to engage in sex with an HIV-negative partner.
Conclusions: These findings have important implications for both researchers and healthcare providers. Future research is needed to further explore the role of sexual objectification as an HIV risk factor for MSM. Healthcare providers should consider sexual objectification when developing interventions to prevent HIV among this high-risk population.

WEPED328

Geographies of risk: Police violence and neighborhood stress among Black men and women in the San Francisco Bay Area

S. Mackenzie[1], A. Martinez[2], M. Cerritos Rivas[3]
[1]Santa Clara University, Santa Clara, United States, [2]San Francisco State University, Department of Sociology and Sexuality Studies, San Francisco, United States, [3]Santa Clara University, Public Health Program, Santa Clara, United States

Background: Police violence and HIV are health crises that disproportionately affect Black men and women in the United States. Little is known about the impacts of environmental stress on these health problems. This study investigates if and how police violence operates as a neighborhood level stressor that impacts the physical health and well-being of Black men and women, including uptake of harm reduction behaviors.
Methods: Quantitative data were collected between October 2015 and February 2017 as part of an HIV prevention study with a mixed HIV status sample of bisexual Black men and Black women in the San Francisco Bay Area (N=231). We developed a Police Perceptions measure to assess experiences of harassment and physical violence by police officers, perceptions of law enforcement, and decision making in daily life. Harm reduction impact was assessed through two questions about intent to carry safer injection materials or condoms due to fear of police violence. We conducted bivariate analyses to assess the relationship between a modified version of the City Stress Inventory, a measure of perceived neighborhood disorder and violence, police violence, and harm reduction practices.
Results: Two thirds (68%) of the men and 40% of the women reported lifetime experiences of police harassment, and 50% of men and 20% of women report experiencing physical abuse by a police officer. Men reported consistently higher levels of police violence as well as city stress than women. Higher levels of neighborhood stress were correlated with higher rates of witnessed and experienced police violence. There is a statistically significant relationship between city stress and fear of carrying paraphernalia (0.000), and a border significant relationship between city stress and fear of carrying condoms (p=0.058).
Conclusions: Police violence and neighborhood stress impact the health and well-being of Black communities. Both witnessing and experiencing police violence in the past six months were significantly related to reducing injection and condom related harm reduction behaviors among Black men and women. Further work on police violence in relation to - and as a form of - neighborhood stress is critical to understand its impacts on harm reduction and public health.

WEPED329

Identifying social vulnerability profiles and their association with risk behaviors and HIV status among MSM in Mexico City

L. Chavira-Razo[1], S.G. Sosa-Rubi[2], L. Alexander[2,3], M. Romero[4], Z. Andrade-Romo[2], J. Segura-Diaz[5], R. Roman-Vergara[6], S. Bautista-Arredondo[1,5]
[1]Instituto Nacional de Salud Publica, Health Economics, Cuernavaca, Mexico, [2]National Institute of Public Health, Mexico, Health Economics, Cuernavaca, Mexico, [3]University of Washington, Department of Global Health, Seattle, United States, [4]National Institute of Public Health, Mexico, Cuernavaca, Mexico, [5]UC Berkeley, School of Public Health, Berkeley, United States, [6]INSPIRA Cambio A.C., Mexico City, Mexico

Background: Men who have sex with men (MSM) are disproportionately affected by the HIV epidemic in Mexico, with a prevalence of 17%, compared to 0.15% in the general population. Of MSM living with HIV, 68% are unaware of their status and responsible for 78% of new infections in this population. Social vulnerability is one of the main factors that prevents MSM from accessing HIV testing and counseling (HTC) services. This study aims to identify the association between social vulnerability profiles and engaging in risk behaviors, getting tested, and acquiring HIV among Mexican MSM.

Methods: From August 2016 to February 2017, 988 MSM were recruited in Mexico City through three community-based recruitment strategies. They completed an electronic, tablet-based survey and were invited to get tested for HIV. We used latent class analysis to identify social vulnerability profiles of MSM based on a combination of socioeconomic status, social support, and self-acceptance of sexual identity. Then, we used a multivariable model to analyze the effect of belonging to each profile on risk behaviors, time since most recent HIV test, and HIV sero-status, while adjusting for the posterior probabilities of belonging to the other profiles.
Results: We identified three profiles of social vulnerability among our sample, with a high level of inter-class differentiation (entropy=0.82). The "Self-stigmatizers" had low acceptance of their sexual orientation and were less likely to get tested for HIV (Adjusted OR [AOR]=2.64, p< 0.01). The "Poorly connected" had a weak social network and low levels of education, and were more likely to have more sexual partners (AOR=1.52, p< 0.01), and test positive for HIV (AOR=1.76, p< 0.05). The "Not vulnerable" had higher education, stronger social networks, and higher self-acceptance of their sexual orientation.
Conclusions: Social vulnerability is known to be a major impediment to seeking HTC services among MSM. Our results suggest that there are heterogeneous types of social vulnerability among the MSM community in Mexico City, and that each profile is associated with specific risk behaviors. Future HTC programs should address these distinct manifestations of social vulnerability in the community in order to more effectively reduce stigma, risky sexual behaviors, and, ultimately, HIV prevalence.

WEPED330

Paths from food insecurity to HIV treatment outcomes in a cohort of women in the us

S.D. Weiser[1], L.A. Sheira[1], K. Palar[1], M. Kushel[1], D. Merenstein[2], T.E. Wilson[3], A. Adedimeji[4], M.H. Cohen[5], A.A. Adimora[6], I. Ofotokun[7,8], L. Metsch[9], J.M. Turan[10], E.L. Wentz[11], P.C. Tien[12,13], E.A. Frongillo[14]
[1]University of California, Division of HIV, Infectious Diseases and Global Medicine, San Francisco, United States, [2]Georgetown University Medical Center, Department of Family Medicine, Washington, United States, [3]State University of New York Downstate Medical Center, School of Public Health, Department of Community Health Sciences, Brooklyn, United States, [4]Albert Einstein College of Medicine, Department of Epidemiology and Population Health, Bronx, United States, [5]Stroger Hospital, Department of Medicine, Chicago, United States, [6]University of North Carolina at Chapel Hill, School of Medicine and UNC Gillings School of Global Public Health, Chapel Hill, United States, [7]Emory University, Department of Medicine, Atlanta, United States, [8]Grady Healthcare System, Atlanta, United States, [9]Columbia University, Department of Sociomedical Sciences, Mailman School of Public Health, New York, United States, [10]University of Alabama at Birmingham, Department of Health Care Organization and Policy, School of Public Health, Birmingham, United States, [11]Johns Hopkins University, Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States, [12]University of California, Department of Medicine, San Francisco, United States, [13]Department of Veteran Affairs Medical Center, San Francisco, United States, [14]University of South Carolina, Department of Health Promotion, Education and Behavior, Columbia, United States

Background: Food insecurity (FI) contributes to HIV-related morbidity and mortality, but no longitudinal research has formally tested the mechanisms through which FI negatively impacts HIV-related health, particularly among women. This study tested the hypothesis that FI leads to poor HIV clinical outcomes through nutritional, mental health, and behavioral paths following our previously published conceptual model.
Methods: We analyzed longitudinal data from the Women's Interagency HIV Study, a multisite prospective cohort study of women with HIV and demographically similar HIV-negative women. Data on 8,225 observations from 1,803 HIV-positive women on antiretroviral therapy (ART) were collected biannually from 2013-2015. FI was measured with the US Household Food Security Survey Module. Outcomes included: 1) viral non-suppression; 2) CD4 cell counts (cells/mm^3); and 3) physical health status (SF-36 scale). We tested the nutritional (BMI or fruit /vegetable intake), mental health (depressive symptoms by CES-D), and behavioral (self-reported ART adherence) paths for all outcomes controlling for covariates using path analysis. We calculated the indirect effects by taking the products of the regression coefficients from adjusted mediation models that included the strongest mediator from each path, after first confirming the assumption of no interaction between FI and the mediators.
Results: Very low food security was associated with unsuppressed viral load, lower CD4 cell counts, and worse physical health (p< 0.05 for all) (Table 1). For viral non-suppression, the nutritional and behavioral paths accounted for 2.1% and 31.8% of the total effect of FI, respectively, with no significant mediation by mental health. For CD4 cell count, the mental health and behavioral paths accounted for 15.2% and 16.4% of the total effect, respectively, with no effect from the nutritional path. For physical health status, the only significant mediator was depression, accounting for 59.8% of the total effect.
Conclusions: FI influences HIV clinical outcomes via different paths depending on the outcome. ART adherence was the strongest mediator of viral non-suppression, while both adherence and depression mediated the path from FI to CD4 count. Nutritional factors played a small role. These results suggest that FI interventions should target FI and its behavioral and mental health mechanisms as a means to improve HIV clinical outcomes.

	Viral non-suppression, Adjusted Odds Ratio, 95% CI		CD4 Cell Count, β (SE)		Physical Health Status, β (SE)	
Very low FS (High FS ref)	1.66*** (1.27 - 2.18)		-21.27* (8.37)		-0.51*** (0.04)	
	Effect	**% of total effect**	**Effect**	**% of total effect**	**Effect**	**% of total effect**
Total Direct Effects	0.253	66.1	-12.5	68.4	-0.130	40.2
Total Indirect Effects	0.130	33.9	-5.74	31.6	-0.195	59.8
Indirect Path-Nutritional path[1]	0.008	2.1	--	--	--	--
Indirect Path- Mental health path (Depression)	--	--	-2.76	15.2	-0.195	59.8
Indirect Path-Behavioral path (ART adherence)	0.122	31.8	-2.97	16.4	--	--
Total indirect	0.130	33.9	-5.74	31.6	-0.195	59.8

*** p<0.001, ** p<0.01, * p<0.05; [1] BMI was the selected mediator on the nutritional path to viral non-suppression; fruit and vegetable intake was the nutritional mediator for CD4 count and physical health status

[Table 1: Associations between food insecurity (FI) and HIV clinical health outcomes and test of mediating paths from FI to HIV clinical outcomes]

WEPED331

Increasing severity of food insecurity is longitudinally associated with smoking among women with and at risk for HIV in the United States

L.A. Sheira[1], E.A. Frongillo[2], K. Palar[1], J. Hahn[1], D. Merenstein[3], T.E. Wilson[4], A. Adedimeji[5], M.H. Cohen[6], A.A. Adimora[7], I. Ofotokun[8,9], L. Metsch[10], J.M. Turan[11], E.L. Wentz[12], P.C. Tien[13,14], S.D. Weiser[1]
[1]University of California, Division of HIV, ID and Global Medicine, San Francisco, United States, [2]University of South Carolina, Department of Health Promotion, Education and Behavior, Columbia, United States, [3]Georgetown University Medical Center, Department of Family Medicine, Washington, United States, [4]State University of New York Downstate Medical Center, School of Public Health, Department of Community Health Sciences, Brooklyn, United States, [5]Albert Einstein College of Medicine, Department of Epidemiology and Population Health, Bronx, United States, [6]Stroger Hospital, Department of Medicine, Chicago, United States, [7]University of North Carolina at Chapel Hill, School of Medicine and UNC Gillings School of Global Public Health, Chapel Hill, United States, [8]Emory University, School of Medicine, Atlanta, United States, [9]Grady Healthcare System, Atlanta, United States, [10]Columbia University, Department of Sociomedical Sciences, Mailman School of Public Health, New York, United States, [11]University of Alabama at Birmingham, Department of Health Care Organization and Policy, School of Public Health, Birmingham, United States, [12]Johns Hopkins University, Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States, [13]University of California, Department of Medicine, San Francisco, United States, [14]Department of Veteran Affairs Medical Center, San Francisco, United States

Background: People living with HIV (PLHIV) in the United States (US), especially women, experience food insecurity at higher rates than the general US population. Furthermore, cigarette smoking among PLHIV is highly prevalent; PLHIV are 6-13 times more likely to die from lung cancer than from AIDS-related causes. Our study tests the hypothesis that 1) concurrent, past, and persistent food insecurity is associated with current cigarette smoking, and that 2) HIV seropositivity would modify this association.

Methods: Food security (FS), measured with the US Household FS Survey Module, was collected biannually from 2013-2015 among participants enrolled in the Women's Interagency HIV Study, a multisite cohort study of US women with HIV and demographically similar women without HIV. Current smoking status was assessed by self-report (non-smoker vs. smoker) at each visit. Longitudinal logistic multiple regressions with random effects were used to model the association between 1) concurrent and
2) persistent (concurrent and past) FS status and smoking status, adjusting for potential confounders.
The odds ratio for persistent FS was calculated by exponentiating the sum of the regression coefficients at the current and past (i.e. one previous) visit.

	Concurrent (1) Adjusted Odds Ratio	Concurrent (1) 95% Confidence Interval	Concurrent+ lag (1,2) Adjusted Odds Ratio	Concurrent+ lag (1,2) 95% Confidence Interval
Concurrent FS (High ref)	Ref.	Ref.	Ref.	Ref.
Marginal FS	1.76**	(1.22 - 2.56)	2.38***	(1.46 - 3.88)
Low FS	2.33***	(1.55 - 3.51)	2.27**	(1.31 - 3.94)
Very Low FS	2.41***	(1.50 - 3.86)	2.58**	(1.31 - 5.10)
Past/Lagged FS (High ref)	--	--	Ref.	Ref.
Marginal FS	--	--	2.43***	(1.52 - 3.88)
Low FS	--	--	1.66	(0.96 - 2.86)
Very Low FS	--	--	2.68**	(1.39 - 5.17)

*** p<0.001, ** p<0.01, * p<0.05; (1) Models also adjusted for HIV status, age, race, income, employment, marital status, education, and child dependents. (2) Persistent FS = e^(ln(AORcurrent) + ln(AORprior)). Estimates and p-values were obtained through post-estimation commands for linear combinations in Stata.

[Table 1: Longitudinal associations between concurrent and past food security status (FS) and current smoking]

Results: Among the 2,553 women, the average age was 47 and most were African-American (72%), HIV-positive (71%), and with annual incomes ≤$12,000 (52%). Over half (58%) reported current smoking, and food insecurity was highly prevalent (44%). In adjusted analyses, current marginal, low, and very low FS were associated with 1.76, 2.33, and 2.41 (all p< 0.01) greater odds of current smoking, respectively, compared to food secure women (Table 1). Persistent marginal, low, and very low FS over the current and previous visit were associated with 5.77, 3.78, and 6.93 greater odds of current smoking compared to persistently food secure women (all p≤0.01). There was no effect modification by HIV status.

Conclusions: Food insecurity over time is associated with cigarette smoking in this sample of predominantly low-income, minority women. Studies to understand whether and what mechanisms by which food insecurity may drive smoking are warranted to develop effective interventions to reduce the prevalence of smoking and the disproportionate rate of lung cancer mortality among PLHIV and other vulnerable populations.

WEPED332

The intersection of disclosure concerns and poverty contributes to loss to HIV care in India: A qualitative study

I. Colocci[1], J. Perlo[1], T. Betancourt[2], A. Pradeep[3], K. Mayer[4], N. Kumarasamy[3], B. Chan[5,6]
[1]Harvard University, Cambridge, United States, [2]Boston College, School of Social Work, Chestnut Hill, United States, [3]Y. R. Gaitonde Centre for AIDS Research and Education, Chennai, India, [4]Fenway Health, Boston, United States, [5]Brigham and Women's Hospital, Infectious Diseases, Boston, United States, [6]Harvard Medical School, Boston, United States

Background: In India, there is little evidence on reasons for high rates of loss to care, which threaten the goal of an AIDS-free generation. We conducted a clinic-based qualitative study on people living with HIV (PLHIV) in Chennai, Tamil Nadu to explore structural and psychosocial conditions that influence loss to care.

Methods: Semi-structured interviews were conducted in 2017 with patients at the Y.R. Gaitonde Centre for AIDS Research (YRG CARE), one of the largest private organizations providing HIV care in India. Using maximum variation sampling, we purposively sampled participants based on lost to care status
(in care vs. previously lost-to-care), sex, and urban vs. rural residence. Interviews were translated from Tamil or Telugu into English and a thematic analysis was conducted using a multistage qualitative data analysis process supported by Dedoose software.

Results: 16 men and 16 women were interviewed; median age was 42 (IQR, 36-48) and median CD4+ was 448 (IQR, 163-609). Almost all participants endorsed positive effects of treatment and care. However, a majority reported disclosure concerns, avoiding nearby health facilities or hiding medications to reduce "questioning" from family and community members. Participants were aware, but often distrustful, of HIV treatment freely available at government facilities. As a result, many rural dwellers travelled long distances, sometimes taking more than twelve hours, to reach YRG CARE. Financial concerns—the cost of medications at YRG CARE, lost wages, and for rural dwellers, transport cost—negatively influenced willingness to attend appointments. Life circumstances causing lost wages or unexpected expenditures therefore prevented participants from attending appointments, resulting in loss to care.

Conclusions: While government facilities provide free treatment, PLHIV were reluctant to access these services because of anticipated stigma and the perception of poor quality. The decision to access the private sector and in many cases to travel long distances to manage disclosure concerns and to obtain better care leaves PLHIV vulnerable to changes in economic status. Improving perceptions of quality of care in the public sector and reducing stigmatizing attitudes in the general population (thereby indirectly reducing anticipated stigma among PLHIV) may be important in reducing loss to HIV care in India.

WEPED333

Social determinants of health and self-rated health status: A comparison between women with HIV and women without HIV from the general population in Canada

M. Shokoohi[1], G. R. Bauer[1], A. Kaida[2], A. Lacombe-Duncan[3], M. Kazemi[4], B. Gagnier[4], A. de Pokomandy[5,6], M. Loutfy[4,7,8], R. Gormley[9], on behalf of the CHIWOS Research Team
[1]University of Western Ontario, Department of Epidemiology & Biostatistics, London, Canada, [2]Faculty of Health Sciences, Simon Fraser University Burnaby, British Columbia, Canada, [3]Factor-Inwentash Faculty of Social Work, University of Toronto, Toronto,Ontario, Canada, [4]Women's College Research Institute, Women's College Hospital, Toronto, Canada, [5]McGill University, Department of Family Medicine, Montreal, Canada, [6]McGill University Health Centre, Montreal, Canada, [7]University of Toronto, Faculty of Medicine, Toronto, Canada, [8]Dalla Lana School of Public Health, University of Toronto, Toronto, Canada, [9]BC Centre for Excellence in HIV/AIDS, Epidemiology and Population Health, Vancouver, Canada

Background: Women with HIV continue to face socio-structural barriers to consistently engage at every step of the HIV care cascade. These barriers have potential to negatively impact the health and wellbeing of women with HIV and undermine attempts to promote HIV care programs. We compared social-structural determinants of health and self-assessed health status between women with HIV and expected general population values.

Methods: We estimated multiple measures of social-structural determinants of health and self-rated health status using the 2013-2015 cross-sectional data from the Canadian HIV Women's Sexual and Reproductive Health (CHIWOS) that enrolled 1,422 women with HIV aged ≥ 16. The prevalence of these determinants were then compared with expected estimates from 46,831 assumed HIV-negative women of the general population from the 2013-2014 Canadian Community Health Survey (CCHS), standardized to the age/ethnoracial group distribution of the CHIWOS sample. Standardized proportion differences (SPD) and 95% confidence intervals (CI) were reported.

Results: A higher proportion of women with HIV compared with estimates expected based on the age/ethnoracial-standardized assumed HIV-negative women reported annual personal income < $20,000 (70.3% vs. 28.1%; SPD 42.2% [95% CI: 39.1, 45.2]), indicating that 42.2% of women with HIV experienced this low income, in excess of what would be expected of Canadian women of similar ages and ethnoracial backgrounds. Additionally, a higher proportion of women with HIV reported severe food insecurity (54.1% vs. 10.2%; SPD 43.9% [95% CI: 40.2, 47.5]), poor perceived social support (30.3% 2.9%; SPD 27.4% [95% CI: 22.2, 33.0]), and frequent racial (46.4% vs. 9.6%; SPD 36.8% [95% CI: 31.9, 41.8]) and gender (53.2% vs. 8.4%; SPD 44.8% [95% CI: 42.6, 51.6]) discrimination. Finally, women with HIV reported a higher proportion of poor/fair health status than the general population of women (24.8% vs. 12.6%; SPD 12.2% [95% CI: 9.4, 15.0]).

Conclusions: Women with HIV experience greater social-structural inequities than in excess of what would be expected. These findings have implications for the development of targeted social service delivery interventions and programming to address basic needs of women with HIV and reduce the magnitude of inequity they frequently experience in their everyday life.

WEPED334

HIV intervention in dangerous times: Examining the impact of the counter-narcotics campaigns in the Philippines - implications for human rights, harm reduction, and blood-borne virus control

R.L. Bona[1], D. Natividad[2], M. Tan[3]
[1]Office of the Chancellor, University of the Philippines - Diliman, Research, Cainta, Philippines, [2]Center for Asian Studies, University of the Philippines Diliman, Research, Quezon City, Philippines, [3]Office of the Chancellor, University of the Philippines - Diliman, Quezon City, Philippines

Background: Starting 2007, the Integrated HIV Behaviour and Serologic Survey of the Health Department of the Philippines started to include numbers for intravenous drug use. The rise in numbers was consistent until the last survey in 2016. This brought attempts to create harm reduction and other HIV intervention programs in areas with high concentration. However, in 2016, Philippine Pres. Rodrigo Duterte introduced war against drugs as a central policy. This war became a threat to identified drug users in the country.

Methods: This medical anthropological study involved a review of the present policies that serve as the circumstances surrounding HIV intervention in the lens of drug use. Done in 2017 to 2018, with interview participants from Metro Manila, the study's methodology is ethnographic in nature, allowing key informant interviewees and group discussants to illustrate their narratives and nuances in depth and within focus through a thematic analysis. Interviewees include persons who use drugs, HIV interventionists, public official who engages in the execution of a localized war on drugs, and non-government and community-based organizations.

Results: All of the interviewed persons who engage in intravenous drug use inject methamphetamine as their primary choice. Their drug initiation is cannabis. All, however, do not consider cannabis as a drug used for sexual activity.

The recurring theme as reason for drug use is "stress". This is further examined to include stresses from unjust work conditions, from a dysfunctional family, from cyclical poverty, from an abusive relationship, from gender-based stigma and discrimination, from an HIV status, and from other social exclusions. These stresses are brought about by systemic political situations perpetuated by flawed policies of the country.

All of the interviewed persons who use drugs agree that the war against drugs does not stop drug use. It only makes healthcare intervention inaccessible to them.

Conclusions: The war against drugs is not stopping drug use. It only pushes persons who use drugs into hiding, making healthcare interventions, including those HIV-related, disconnected and inaccessible. This also leads distrust among the community, and towards their supposed healthcare providers. The war is a barrier and is an obstacle towards achieving zero-stigma and zero-discrimination.

WEPED335

Multilevel exposures and mediators of the relationship between schooling and risk of incident HSV-2 infection in young women enrolled in HPTN 068

M.C.D. Stoner[1], T.B. Neilands[2], K.B. Rucinski[3], A. Selin[3], J.P. Hughes[4,5], F.X. Gómez-Olivé[6,7], C. MacPhail[6,8,9], K. Kahn[6,7,10], A. Pettifor[3], HPTN 068
[1]University of North Carolina, Carolina Population Center, Chapel Hill, United States, [2]University of California, San Fransisco, United States, [3]University of North Carolina, Chapel Hill, United States, [4]University of Washington, Department of Biostatistics, Seattle, United States, [5]Fred Hutchinson Cancer Research Center, Seattle, United States, [6]MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, [7]INDEPTH Network, Accra, Ghana, [8]School of Health and Society, University of Wollongong, NSW, Australia, [9]Wits Reproductive Health and HIV Research Institute, University of the Witwatersrand, Johannesburg, South Africa, [10]Umeå University, Umeå, Sweden

Background: Our prior research from South Africa found that partner selection mediates the relationships between school attendance and incident HIV and HSV-2 infection, but little is known about other pathways. This study explores whether certain individual-, household-, and community-level factors account for the protective effect of schooling on incident Herpes Simplex Virus Type 2 (HSV-2) infection in young women.

Methods: We use longitudinal data from a randomized controlled trial of young women in rural South Africa (HPTN 068) collected during the main trial. We used discrete time survival models to estimate the three-year hazard ratio for the effect of distinct measures of schooling on incident HSV-2 infection, overall and through different pathways. Exposures of schooling included low attendance in school (≤ 80% of school days), household SES (quintiles of assets), parental education and mean community years of education. The natural indirect effect and natural direct effect were estimated as measures of mediation. Potential mediators included HIV knowledge, hope for the future, sex in the last 12 months,

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unprotected sex in the last 3 months and age-disparate relationship (>=5 years). Additionally, we explored interactions between the individual-, household-, and community-level exposures of schooling.
Results: Low attendance in school (≤ 80% of school days) was associated with incident HSV-2 infection (HR 3.45; 95% CI: 1.93, .18) while other household and community exposures of schooling were not. We did not find interactions between any of the multi-level exposures of schooling. The mediators age-disparate relationship, hope for the future and sex in the past 12 months were associated with HSV-2 infection but HIV knowledge and unprotected sex were not. Indirect effects were significant for sex in the last 12 months and age-disparate relationship.
Conclusions: Low attendance in school was associated with a higher hazard of incident HSV-2 infection and partnership level factors were the most important mediators. The relationship between school attendance and HSV-2 was mediated primarily by having an age-disparate relationship, and sex in the past 12 months. Given the protective effect of individual school attendance, focus should be on interventions to keep girls in school and influence behaviors related to exposure to risky partners.

WEPED336

Rural men who have sex with men (MSM) in the United States: Structural stigma and HIV risk

R. Hubach[1], J. Currin[2], A. Durham[3], K. Kavannaugh[3], D. Wheeler[1], J. Croff[3]
[1]Oklahoma State University-Center for Health Sciences, Rural Health, Tulsa, United States, [2]Texas Tech University, Psychology, Lubbuck, United States, [3]Oklahoma State University, Sexual Health Research Lab, Stillwater, United States

Background: The nature of the HIV epidemic in the United States has changed with a shift toward rural areas; where sexual minority populations are dispersed and health care resources are limited. Concurrent socioeconomic factors, geography, and cultural context are coalescing for sexual minorities living in rural communities resulting in individuals at risk for HIV infection. Rural communities are typically more culturally conservative, and therefore may be less welcoming to openly lesbian, gay, bisexual, and transgender individuals. Moreover, the socioeconomic conditions of rural communities mean that most individuals born into these rural communities are unable to move to areas where they would be accepted.
Methods: We recruited 40 gay and bisexual men, ages 22 to 66, residing in rural Oklahoma for in-depth qualitative sexual health interviews. Through this inductive approach, we explored experiences with individual-level and community-level stigma, patterns of sexual health-seeking behaviors, and determinants of sexual risk.
Results: Participants indicated a lack of desire to discuss their sexual behavior or sexual orientation with peers, family, or medical providers due to rejection concerns. Participants discussed how these factors shaped their attitudes towards HIV/AIDS, status disclosure with sexual partners, and their uptake of HIV/STI screening. Participants described a stigmatizing social environment and less access to quality, LGBT-sensitive medical care within rural communities, and perceived these as substantial barriers to enhancing individual-level and community-level sexual health. Finally, structural issues, including lack of comprehensive sexual health education, institutional practices, and state policies within Oklahoma were noted.
Conclusions: Greater attention is needed to build a more comprehensive understanding of the sexual health of marginalized populations living in rural areas of the United States in order to advance the HIV care continuum. Addressing stigma situated across ecological levels in an effort to improve sexual health remains necessary. The combination of both individual-level and environmental/policy -level interventions provide the greatest opportunity to achieve substantial changes in health behaviors and health outcomes. Without this, social determinants may continue to negatively influence health outcomes among this population which remains underserved and under resourced.

WEPED337

Female sex work venue characteristics and HIV risk behaviors in two Mexico-US border cities: A latent class analysis

B.S. West[1], N. Agah[1], A. Roth[2], E.E. Conners[3], C. Magis-Rodriguez[4], H. Staines-Orozco[5], G. Martinez[6], K. Brouwer[7]
[1]University of California San Diego, Division of Infectious Diseases and Global Public Health, La Jolla, United States, [2]Drexel University, Community Health and Prevention, Philadelphia, United States, [3]New York City Department of Health and Mental Hygiene, New York, United States, [4]Universidad Autónoma de Ciudad Juárez, Departamento de Ciencias Médicas, Cuidad Juárez, Mexico, [5]Secretaría de Salud, Centro Nacional para la Prevención y el Control del VIH/SIDA (CENSIDA), México City, Mexico, [6]Federación Mexicana de Asociaciones, Salud y Desarrollo Comunitario de Ciudad Juárez, Ciudad Juárez, Mexico, [7]University of California San Diego, Department of Family Medicine and Public Health, San Diego, United States

Background: Research increasingly recognizes the role that the social and built environment play in shaping health. For female sex workers (FSW), the context in which women work is an important predictor of HIV/STI risk behaviors and exposure to violence. This study employs Latent Class Analysis (LCA) to identify profiles of risk associated with FSW venues in Tijuana and Ciudad Juarez, Mexico.
Methods: Data come from a longitudinal cohort of 603 FSW (Tijuana=301, Ciudad Juarez=302) selected through modified time-location sampling within venues. LCA identified patterns of venue characteristics (e.g. torn-down buildings, presence of alcohol or drugs, policing) and multinomial logistic regression was used to identify sociodemographic, behavioral and health indicators associated with belonging to a particular venue class, separately for the two cities (controlling for age and education).
Results: The mean age of the sample was 34. Three classes of FSW venues were identified, corresponding to levels of violence (e.g. violence against FSW, street violence), drug activity (e.g. drug use/sales, presence of cartels), and police activity (e.g. police as clients, FSW arrest, police patrols): low disorder (39%), medium disorder (34%), and high disorder (28%). In multivariable regression, relative to low disorder environments, working in high disorder venues was associated with an increased odds of experiencing abuse by a client (Adjusted Odds Ratio (aOR)=4.29, 95% Confidence Interval (CI)=1.47-12.58), injecting heroin in the past 30 days (aOR=9.77, CI=2.09-45.59), having clients under the influence of drugs (aOR=3.06, CI=1.37-6.83) and using drugs with clients (aOR=1.16, CI=0.58-2.34) in Ciudad Juarez. In Tijuana, working in high disorder venues was associated with an increased odds of having US clients (aOR=5.04, CI=1.52, 16.68), having drunk clients (aOR=9.82, CI=2.77-34.79), drinking alcohol 4+ times per week (aOR=5.22, CI=1.4-19.45), experiencing physical/sexual abuse by a client (aOR=4.81, CI=1.35-17.18), and arrest (aOR=3.45, CI=1.24-9.65).
Conclusions: In two border cities, FSW venues were characterized by different levels of disorder in the social and built environment. Working in venues with higher levels of disorder, as indicated by more violence, drug activity, and police activity, was associated with factors driving HIV/STI risk, suggesting a need for interventions that reshape the HIV risk environment by addressing FSW working conditions.

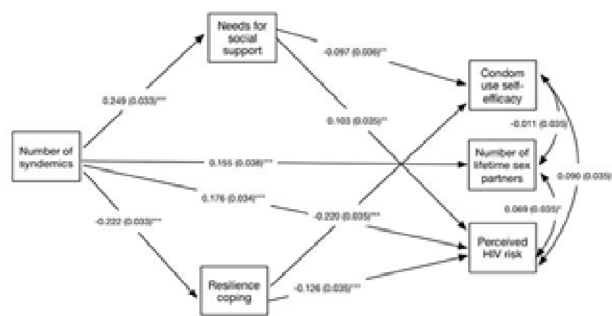
WEPED338

Pathways from multiple syndemic conditions to HIV vulnerabilities and protective factors among transgender, gay, lesbian and bisexual persons in Jamaica

C.H. Logie[1], Y. Wang[1], N. Marcus[1], K. Levermore[2], N. Jones[2], T. Ellis[2]
[1]University of Toronto, Toronto, Canada, [2]Jamaica AIDS Support for Life, Kingston, Jamaica

Background: Transgender, gay, lesbian, and bisexual (TGLB) persons in Jamaica experience pervasive stigma, structurally reinforced by the criminalization of same sex practices and a lack of human rights protections. Syndemics describe the co-occurrence, and potential interaction, of multiple psychosocial and structural factors that may elevate HIV vulnerabilities. We examined pathways from multiple syndemic conditions

to HIV vulnerabilities, and explored social support and resilience as mediators in this relationship, with TGLB persons in Jamaica.
Methods: This community-based study involved a cross-sectional survey with a peer-driven sample of gay and bisexual men (n=569), lesbian and bisexual women (n=205), and transgender women (n=137), in Kingston, Ocho Rios, and Montego Bay, Jamaica. We examined *syndemic conditions* (depressive symptoms, binge drinking, adulthood experiences of violence, childhood sexual abuse), *HIV vulnerabilities* (condom self-efficacy, lifetime sexual partners, perceived HIV risk), and *protective factors* (social support, resilience). We conducted structural equation modelling using maximum likelihood estimation methods to test the direct effects of the number of syndemics on HIV vulnerabilities, and the indirect effects via social support and resilience, adjusting for socio-demographics.
Results: The mean age of participants (n=911) was 26 years (SD=5.42). Most (86.66%, n=786) reported depressive symptoms in the past two weeks. Approximately one-fifth (22.61%; n=205) reported binge drinking in the past three months. One-third (32.45%, n=294) reported childhood sexual abuse and one-fifth (20.77%, n=188) adulthood violence. Most (92.2%) reported at least one syndemic condition; nearly half (47.7%) endorsed two or more. The direct paths from the number of syndemics to lifetime sexual partners (ß=0.155, $p< 0.001$) and perceived HIV risk (ß=0.176, $p< 0.001$) were significant, accounting for the mediation effects of social support and resilience. Social support and resilience mediated the association between the number of syndemics and condom self-efficacy; social support accounted for 28.24% of the total effect of syndemics on condom self-efficacy, and resilience accounted for 57.65% of the total effect.
Conclusions: This research highlights the salience of a syndemics approach to understanding HIV vulnerabilities among TLGB persons in Jamaica. Findings can inform multi-level interventions that address psychosocial (depression, substance use), structural (violence), and protective (resilience, social support) factors, to advance the HIV prevention cascade in Jamaica.



[Figure 1. Final path analysis results for syndemic conditions on HIV vulnerabilities among transgender, gay, lesbian and bisexual persons in Jamaica]

WEPED339

'Yes' to recreational drugs but *'no'* to life-saving medications - unpacking paradoxical attitudes about treatments to improve medication adherence: Key findings

D. Plummer[1], G. Rogers[2], S. Anoopkumar-Dukie[3], M. O'Sullivan[4], A. Mey[3]
[1]*College of Public Health, Medicine and Veterinary Science, James Cook University, Townsville, Australia,* [2]*School of Medicine, Griffith University, Gold Coast, Australia,* [3]*School of Pharmacy and Pharmacology, Griffith University, Gold Coast, Australia,* [4]*Gold Coast Hospital and Health Services, Sexual Health, Gold Coast, Australia*

Background: Despite the well-known life-preserving benefits of antiretroviral therapy (ART), some people living with HIV in Australia are declining treatment while still being prepared to use potentially dangerous recreational drugs (RD). Our research sought to unpack and understand this paradox and to gain insights into the core beliefs regarding HIV, ART, complementary and alternative medicines (CAM) and RD that interplay in people's health management decisions. This knowledge will enable models of care to be developed that recognize and address specific needs, optimise outcomes, and ultimately progress Australia towards eradicating HIV from the domestic landscape.
Methods: In-depth interviews were conducted with adults living with HIV in the Queensland and surrounding regions of Australia between March 2016 and December 2017. Interviews explored knowledge and beliefs about HIV, ART, CAM and RD. Data were audio recorded, transcribed and analysed using a 'grounded theory' approach. Ethical approval: HREC / 15 /QGC / 256.
Results: Forty people aged between 24 and 76 years were recruited to the study. At the time of interview, they had been diagnosed with HIV between 1 month and 31 years. Sixteen reported regular RD use, 16 used CAM regularly, and all 40 reported ART use. Participants' narratives revealed inaccurate knowledge (e.g. transmission of HIV can occur via mosquito bites and sharing razors), alongside stigmatizing and prejudicial beliefs that, for some, became self-directed post-diagnosis. The professed benefits of RD, such as relief from reality, and perceived safety of CAM, were often contrasted by concerns regarding ART toxicity, and financial, emotional and physical burdens believed to be imposed by therapy. The perceived burden of ART appears to be a strong motivator for declining, while positive views towards CAM and RD appear to justify use, particularly to combat health-impairing negative states of mind.
Conclusions: Decisions regarding managing HIV are complex and appear to be influenced by participants' knowledge and beliefs about HIV, ART, CAM, RD and the environment which they live. Optimal models of care for people with HIV must address gaps in knowledge, address stigmatising beliefs and take into account personal circumstances, alongside reservations and desires for managing life with HIV.

WEPED340

"The sky is the limit; I am going there": Exploring hope among young women receiving a conditional cash transfer in rural South Africa

K. Atkins[1], C. MacPhail[2]
[1]*University of North Carolina Gillings School of Global Public Health, Health Behavior, Chapel Hill, United States,* [2]*University of Wollongong School of Health and Society, Faculty of Social Sciences, Wollongong, Australia*

Background: Young women in South Africa face elevated risk of HIV infection compared with male peers. This is exacerbated by structural factors, including poverty, that shape HIV risk behaviours. Conditional cash transfers (CCT) may provide economic strengthening to young women and mitigate their risk for HIV; however, there is limited understanding of the pathways through which this occurs. Hope, which is related to environmental stressors like poverty, motivates future-oriented behaviour and is therefore critical in HIV prevention. This analysis explored hope as a potential pathway through which CCT influences young women's behaviours and HIV risk.
Methods: A qualitative study was embedded in a randomized CCT trial in rural South Africa (HPTN 068). The study enrolled young women aged 13-20 and cash was conditional on school attendance. In-depth interviews were conducted with women every six months. We analysed 53 interview transcripts from participants (n=12) who received CCT and were interviewed three or more times. We used longitudinal qualitative analysis methods to understand how women in the study conceptualized hope over time and how CCT influenced their hope.
Results: This analysis found that CCT instilled in young women a belief that a better life, defined as being educated, independent, and supportive to family, was attainable. Women from financially and emotionally supportive baseline contexts expressed this especially strongly. In addition, CCT influenced women's hope in the present by alleviating daily financial stressors and promoting "good behaviour," including HIV testing, condom use, partner reduction, and, through trial requirements, school attendance. They expressed that, as their hope for a better life increased, their desire to behave well in preparation for that life also increased.
Conclusions: CCT influences hope among young women in rural South Africa by alleviating routine stressors, promoting plans for higher education, and increasing confidence. By increasing women's hope for a better life, CCT also reduces their desire to engage in HIV risk behaviours.

However, these influences are highly reliant on baseline family and financial contexts. This analysis supports the need for additional mixed methods research to better understand hope as a possible mechanism by which CCT influences young women in this and other contexts.

WEPED341

Stigma toward anal sexuality is associated with decreased engagement in HIV services and safer sex practices among MSM in the United States: A mixed-methods study using structural equation modeling

B. Kutner[1], J. Simoni[2], E. Creegan[3], F. Aunon[2], M. Remaiya[2]
[1]New York State Psychiatric Institute and Columbia University, HIV Center for Behavioral and Clinical Studies, New York, United States, [2]University of Washington, Department of Psychology, Seattle, United States, [3]Seattle University, Seattle, United States

Background: HIV incidence remains disproportionately high among men who have sex with men (MSM), and their engagement in efficacious biomedical and behavioral interventions remains low. Social factors, including stigma toward sexual behavior, likely hinder engagement in HIV interventions. After quantifying a specific social factor, *stigma toward anal sexuality,* we tested its effects on both *sexual concerns* and *engagement in HIV interventions* among MSM in the U.S. We hypothesized that elevated *stigma* would be associated with lower *engagement*, mediated by elevated *concerns*.

Methods: We developed two new quantitative measures, an *Anal Sex Stigma Scale* (*ASS-S*) and a measure of *concern*, the *Anal Sex Questions Index* (*ASQx*), from qualitative interviews about cisgender MSM perspectives on anal sexuality (N = 35). We refined these measures in a national online sample (N = 268), then conducted structural equation modeling to test a conceptual model of their effects in another national online sample of sexually active MSM (N = 1263), aged 18 to 72 years (47% men of color, 14% living with HIV, 28% prescribed PrEP, and 36% reporting no consistent prevention strategy during recent penile-anal intercourse).

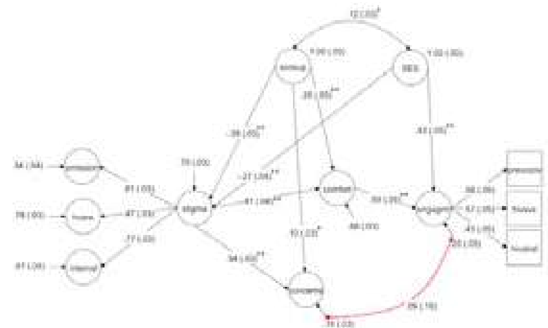
Results: The final model accounted for 75% of the variance in *engagement*, had good fit (X^2/df = 2.7, RMSEA = .037, CFI = .99, TFI = .99), and found evidence for effects of all factors (p < .005). We did not find evidence of mediation by *ASQx*, but did find evidence that *ASS-S* is associated with less *engagement* (= -.28, p < .001), wholly mediated by men's *comfort* talking about sexual orientation and anal sex practices with health workers (= -.41; = .69; p < .001), controlling for *socioeconomic status* and *social support* specific to anal sex.

Conclusions: The ways MSM cope with stigma and concerns specific to anal sex may not be readily known or easy to disclose within healthcare settings, and their reluctance to discuss anal sexuality with health workers may impede engagement in HIV services and safer sex. Interventions that bolster men's comfort discussing anal sexuality may insulate some men against the concealment effects of anal sex stigma, and thereby improve engagement in HIV interventions.

	β (standardized)						
Model Variables	*Stigma (ASS-S)*	*Concerns (ASQx)*	*Comfort*	*Social Support*	*Socioeconomic Status*	*SE*	R^2
Total effects on:							
Stigma	--			-.39**	-.27**	.03	.25**
Concerns	.54**	--		-.11**		.03	.26**
Comfort	-.41**		--	.41**		.03	.32**
Social Support				--		--	--
Socioeconomic Status					--	--	--
Engagement	-.28**		.69**	.28**	.51**	.09	.75**

Structural covariance with standardized beta coefficients of *engagement* in HIV services and safer sex predicted by anal sex *stigma (ASS-S)*, with *concerns* about anal sexuality (*ASQx*), mediated by *comfort* talking about sexual orientation and specific anal sex practices with a health worker, and controlling for informational and emotional *social support* specific to anal sexuality (*MOS-SSS* adapted), and *socioeconomic status* (*age, income, education, medical coverage*, and *Black/African-American identification*).
* p < .005; ** p < .001. Model fit indices: X^2 (932) = 2542.69, p < .0001, X^2/df = 2.7, *RMSEA* = .037, *90% CI*: .035 - .039, probability of *RMSEA* < .05 = 1, *CFI* = .99, *TFI* = .99, *WRMR* = 1.63.

[Table. Structural Equation Modeling predicting engagement in HIV treatment and prevention practices among MSM]



[Figure. Structural equation model of the Anal Health Stigma Model]

WEPED342

Applying syndemic theory to understand HIV-related discrimination and sexual risk behavior among people living with HIV (PLHIV) in Hong Kong

R.C.H. Chan[1], A. Restar[2], D. Operario[2], W. Mak[3]
[1]University of Hong Kong, Department of Social Work and Social Administration, Hong Kong, Hong Kong, [2]Brown University School of Public Health, Providence, United States, [3]Chinese University of Hong Kong, Hong Kong, Hong Kong

Background: In the context of HIV-related stigma and discrimination, people living with HIV (PLHIV) might be vulnerable to a "syndemic" of co-occurring psychosocial challenges (i.e., co-occurrence of depression, anxiety, social isolation, and self-stigma) that can affect sexual behavior. The present study examined how HIV-related discrimination contributes to co-occurring psychosocial syndemic problems and results in sexual risk behavior among PLHIV in Hong Kong.

Methods: Two-hundred and ninety-one PLHIV were recruited to complete a self-report questionnaire on their experiences of HIV-related discrimination, psychosocial problems (including depression, anxiety, social isolation, and self-stigma), and condom use patterns during the past three months.

Results: More than one-quarter of the sample (27.1%, N = 79) experienced two or more psychosocial syndemic problems, and 74.1% (N = 80) of the participants who had sex with steady partners reported inconsistent condom use over the past three months. Results of Poisson regression indicated that HIV-related discrimination was positively predictive of the number of psychosocial problems reported by the PLHIV, as well as with inconsistent condom use. In a logistic regression analysis controlling for demographics, HIV-related discrimination and psychosocial syndemics were significantly associated with increased odds of inconsistent condom use with steady partners. Findings from structural equation models further showed that psychosocial syndemics mediated the negative effect of HIV-related discrimination on condom use consistency with steady partners.

Conclusions: PLHIV in Hong Kong suffered from the syndemic effects of stigma, social isolation, and poor mental health, which rendered them vulnerable to condomless sex. In order to curb the rapidly increasing incidence of HIV, multi-level strategies should be adopted to concurrently address structural inequities and psychosocial syndemics faced by PLHIV.

WEPED343

Action for access! Community-lead study finds stigma and discrimination hinder access to sexual health services among men and transgender women who have sex with men in Vietnam and Kenya

S. Arreola[1], T. Đoàn Thanh[2], J. Walimbwa[3], A. Mokabedi[4]
[1]MSMGF, Research, Oakland, United States, [2]Lighthouse, Hanoi, Vietnam, [3]ISHTAR, Nairobi, Kenya, [4]LeGaBiBo, Gaborone, Botswana

Background: Men and transgender women who have sex with men (MTWSM) carry a disproportionately high HIV burden. Compared to general population prevalence of 0.4% in Vietnam and 5.4 in Kenya, among MSM, HIV prevalence is 8.2 % in Vietnam and 18% in Kenya. Data are lacking for transgender women in Kenya, but in Vietnam, existing studies suggest transgender women HIV prevalence is 18%. Despite an urgent need for sexual health services (SHS), few studies have examined the structural factors that impact access to SHS among MTWSM in Vietnam and Kenya. Action for Access! is a community-lead study that explores the relationships between social-structural factors and access to SHS among MTWSM in Vietnam and Kenya.

Methods: Qualitative individual in-depth interviews were conducted between September 2017 and February 2018. 75 Interviews (Table 1.) were recorded, transcribed and Vietnamese and Swahili interviews were translated into English. The research team developed a coding lexicon and coded interviews after reaching 80% inter-rater reliability. For this study, stigma and discrimination (S&D)-coded and SHS-coded quotes were used to analyze patterns of association between them.

Results: Access to SHS was deficient for MTWSM in both countries. S&D further complicated accessing SHS that did exist. All MTWSM reported pervasive experiences of sexual-S&D (Table 2.), and transgender women related transgender-S&D as well. Narratives reveal that, coupled with punitive laws or practices, this highly stigmatizing environment contributed to an internalized fear of being "found out" resulting in their hesitancy to seek SHS. For example, MTWSM described how S&D on the part of health providers often resulted in abandoning access of SHS in favor of, for example:

1) self-care based on internet information or advice from friends or pharmacists,

2) waiting until there is a crisis to seek professional care, or

3) suffering through the indignities of the health care systems because "it is all that is available".

The principal respite noted was accessing SHS from community-lead organizations.

Conclusions: Stigma and discrimination significantly impair MTWSM's access to SHS that are critical for addressing HIV health disparities in Vietnam and Kenya. Strengthening community-lead SHS is recommended.

	VIETNAM Hanoi	Son La	Nha Trang	KENYA Nairobi	Mombasa	Kisumo
MSM	13	13	12	8	5	6
Transgender Women	3	2	3	2	5	4

[Table 1. MSM and Transgender Women Interviews by Region]

DOMAIN	Viet Nam	Kenya
Stigma		
MSM-Stigma	[illegible]	[illegible]
Transgender-Stigma	[illegible]	[illegible]
Discrimination		
MSM-Discrimination	[illegible]	[illegible]
TGW-Discrimination	[illegible]	[illegible]

[Table 2. Illustrative stigma & discrimination quotas]

WEPED344

How are adverse childhood experiences (ACEs) associated with early sexual debut? A contextual analysis of sexual debut among Black women in Baltimore, MD, USA

K. Tsuyuki[1], N.A. Al-Alusi[1], C.J. Catabay[1], D. Murry[2], J.C. Campbell[3], J.K. Stockman[1]
[1]University of California, Medicine, Division of Infectious Diseases and Global Public Health, San Diego, United States, [2]Philander Smith College, Little Rock, United States, [3]Johns Hopkins University, Baltimore, United States

Background: Emerging research suggests that adverse childhood experiences (ACEs) may contribute to HIV risk behaviors, including early sexual debut - a key indicator of HIV infection among women in Sub-Saharan Africa. The effect of ACEs on early sexual debut is not well understood, especially among women in the U.S. This study examines the association between ACEs (individual and cumulative ACE score) and early sexual debut, identifying contextual characteristics at early sexual debut that explain this association.

Methods: Black women (n=140) were recruited from public STD clinics in Baltimore, MD. ACASI surveys collected retrospective data on ACEs and sexual debut. ACEs measured abuse and household dysfunction experienced up to 18 years. Age at earliest initiation of vaginal or anal sex was categorized as very early sexual debut (age 11-12), early sexual debut (age 13-14), or not early sexual debut (age≥15). Multinomial logistic and linear regression models were conducted to examine associations, and contextual variables were entered individually to examine their mediating effects.

Results: Forty-one percent of our sample experienced early sexual debut (11%-very early sexual debut; 30%-early sexual debut); these women reported more ACEs (mean=3.46;std.dev.=0.71) than women without early sexual debut (mean=1.43;std.dev.=0.19). Women with very early sexual debut reported significantly more emotional, physical, and sexual abuse; witnessing maternal abuse; and household substance misuse, than women without early sexual debut. In terms of ACEs, women who experienced very early sexual debut reported significantly more emotional abuse (relative risk ratio-RRR=5.52;95%CI:1.68,18.13), physical abuse (RRR=11.82;95%CI:3.10,45.13), sexual abuse (RRR=6.00;95%CI:1.69,21.26), witnessing maternal abuse (RRR=6.31;95%CI:1.89,21.08), and household substance misuse (RRR=4.20;95%CI:1.38,12.77), than women without early sexual debut. Total ACE score was significantly associated with very early sexual debut (RRR=1.53;95%CI:1.20,1.95), but not early sexual debut (RRR=1.09;95%CI:0.90,1.33). This association was partially mediated by contextual characteristics, such as sexual debut being forced or pressured (RRR=3.52;95%CI:1.14,10.85), with a male partner ≥3 years older (RRR=6.75;95%CI:1.97,23.09), and with condom use (RRR=0.31;95%CI:0.10,0.99). Contextual characteristics exhibited a greater effect size for women who experienced very early sexual debut than early sexual debut.

Conclusions: This study highlights the importance of addressing ACEs in the context of early sexual debut and HIV/STI prevention among women in the U.S.

WEPED345

Maintaining frontline HIV prevention programs in the era of pre-exposure prophylaxis

A.T. Young[1], T. Howard-Howell[2]
[1]Community Education Group, Washington, United States, [2]Rutgers, The State University of New Jersey, School of Social Work, Center for Prevention Science, Rutgers, United States

Background: Pre-exposure prophylaxis (PrEP) has proved promising for medical HIV prevention; however, only 10% of PrEP users in the United States are Black/African-American despite experiencing HIV disparities. PrEP uptake has resulted in shifts eliminating behavior modification approaches without noted consideration of the implications on grassroots leaders at the frontlines of prevention. As a result, Black men who-have-sex-with men (MSM) and cisgender women often engaged in prevention

and care through community-based advocacy have been disproportionately excluded from PrEP trials and under-prioritized for prescriptions. The objective of this project was to increase the research capacity of HIV community-based leaders and support their assessment of the acceptability of PrEP in addition to behavior modification as a comprehensive approach to HIV prevention.
Description: This project was conducted January-September 2017 within a community setting and involved the collaboration of an interdisciplinary community-university team.
Three phases were included:
Phase I—assisting community leaders to develop a survey to evaluate HIV and PrEP knowledge, attitudes, and beliefs;
Phase II—training community leaders as researchers and developing policy-based manuals for community-engagement sessions, and;
Phase III—engaging in data collection and analysis.
Lessons learned: Survey respondents included 156 participants ages 18-60 years. The majority of participants had knowledge of PrEP (n = 107; 68.6%), knew where to access PrEP (n = 97; 62.2%), and felt risks for acquiring HIV would decrease if PrEP was taken as prescribed (n = 90; 59.7%). The overwhelming majority felt PrEP had side effects (n = 113; 72.4%) and were not interested in receiving additional information to access PrEP (n = 79; 50.6%).
Conclusions/Next steps: This project enabled community leaders to maintain a presence in medical HIV prevention research. Survey participants reflected positive beliefs about HIV testing but preferred traditional HIV prevention strategies. An opportunity for community leaders to connect vulnerable populations with the benefits of medical HIV prevention models may increase the likelihood of its acceptability in addition to traditional behavioral change models. Implications suggest HIV community leaders maintain a critical role in HIV prevention education for vulnerable populations.

WEPED346

Challenging criminalisation globally: New directions for un-policing identity, morality, sexuality and bodily autonomy

B.M. Munyati[1], P. Tucker[2], R. Kgositau[1]
[1]*AIDS Accountability International, Cape Town, South Africa,* [2]*AIDS Accountability International, Bruxelles, Belgium*

Background: Across the globe and perhaps more disproportionately in the Global South, courts, parliaments and law enforcement agencies have become avid proponents of using the coercive power of the law to police, control and punish a variety of behaviours which they considered as contributing to 'moral decay'. The activities that come under this rubric include consensual sexual relations between persons of the opposite sex, sodomy, abortion, sex work, adultery, possession or publication of materials considered obscene, pornography, drug use, among others. This criminalisation and moral policing oppresses individuals, societies and reduces space for civil society, as well as hampering the possibility of achieving 90-90-90 and the SDGs.
Description: This project seeks to use create a critical mass globally amongst various stakeholders to ensure that criminalisation is challenged. It asks: what new stakeholders can we bring into this movement? How is criminalisation a cross-cutting issue that can create global solidarity just as HIV and AIDS did? What role is business playing in this movement? How can the media, technology and data experts be effective allies? How can we re-think these issues, such as parallel justice systems?
The project (amongst other activities) is hosting 40 leaders in the field of HIV, media, business, sexuality, human rights, key populations and other sectors to get them to debate, re-think and innovate to challenge criminalisation globally. The meeting will also map the work being done by over 40 individuals and organisations around the globe.
Lessons learned: Pending the April 2018 CCG Dialogue: This global discourse will encourage all stakeholders to engage innovatively with the underlying causes of expanding criminalisation, and especially in the name of public security; and to investigate new and previously untapped partners; and to rethink and undo existing as well as pending punitive, retributive 'solutions'. including with the input of "unusual suspects."
Conclusions/Next steps: The findings and output of this CCG Re-think and mapping meeting forms part of an important step in changing the way activists call for criminalisation, and creating space for civil society, uniting across movements for a larger, longer term goal. The findings should be shared to inform others, and bring them along.

WEPED347

Healthcare supply-related HIV transmission factors in HIV-positive patients participating in the Cameroonian antiretroviral treatment program (ANRS-12288 EVOLCam survey)

P.-J. Coulaud[1,2], K. Ndiaye[1,2], L. Sagaon-Teyssier[1,2], C. Laurent[3], B. Spire[1,2], L. Vidal[1,2], C. Kuaban[4], S. Boyer[1,2], the EVOLCam Study Group
[1]*Aix Marseille Univ, INSERM, IRD, SESSTIM, Sciences Economiques & Sociales de la Santé & Traitement de l'Information Médicale, Marseille, France,* [2]*ORS PACA, Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur, Marseille, France,* [3]*IRD, INSERM, Univ Montpellier, TransVIHMI, Montpellier, France,* [4]*Faculté de Médecine et de Sciences Biomédicales, Université de Yaoundé, Yaoundé, Cameroon*

Background: Increasing demand for antiretroviral treatment (ART) and reduced international financial support compromise the quality of HIV services in developing countries. We investigated the effects of healthcare supply-related factors on HIV transmission risk (HTR) in patients participating in Cameroon's ART program.
Methods: A cross-sectional survey was conducted among HIV-positive adults attending 19 HIV services in Cameroon (EVOLCam ANRS 12288). Socio-behavioural, psychosocial, medical and facility-related data were collected.
A cluster analysis helped identify HIV-service profiles (HSP) using 22 characteristics, in five domains: (1) General features (2) Number of caregivers, (3) Number of ART-treated patients and services available, (4) Organisation, (5) Technical capacities. HTR was assessed among sexually active patients.
HTR was defined as reporting condomless sexual intercourse in the previous 12 months with HIV-negative partners and having a detectable viral load or non-adherence to ART.
The effect of HSP on HTR after adjustment for individual factors was investigated using a multi-level logistic regression model.
Results: Four HSP were identified. All services in HSP1 (n=4) were district level with a high number of patients. Three provided basic services and specific ART management. HSP2 (n=5) included the largest and best equipped HIV services located at the central level. Three of these had limited CD4 count measurement capabilities due to reagent stock-outs. Facilities in HIV services in HSP3 (n=6) were mainly district level with a lower number of patients. Five reported ART stock-outs. HSP4 (n=4) were all district level, with the lowest capacity in terms of clinical staff. Two reported ART stock-outs.
Among the 1328 sexually active patients studied (women 67%, median age 39 years [Interquartile Range = 33-45]), 24% were at risk of HIV transmission, with large variability according to the specific HIV service profile [min-max: 9%-47%]. After adjustment for individual (age, gender, educational level) and clinical characteristics (CD4 cell count), patients in HSP4 were at greater risk than those in HSP1 (adjusted Odd Ratio (aOR):1.96, 95% Confidence Interval (CI) [1.01-3.80]).
Conclusions: Healthcare supply constraints may affect HIV transmission risk. Strengthening human resources and ART supply chain management is necessary to reach the third target of the 90-90-90 objective.

WEPED348

Preparing community gate keepers to promote the sexual health wellbeing of young people in Uganda

N. Daphynne Olgah[1], T. James[2], N. Priscillah[3], D. Oyom[1]
[1]International Planned Parenthood Federation (IPPF Africa Region), Youth Department, Nairobi, Kenya, [2]Reproductive Health Uganda, Gender and Youth Department, Kampala, Uganda, [3]Sexual and Reproductive Health and Rights Alliance Uganda, Youth Department, Kampala, Uganda

Background: Reproductive Health Uganda is implementing the "*Get up Speak out for Youth Rights*" program, which envisages a world where *Young people realize their SRHR in a society that is positive towards their sexuality. It* is implemented in 4 districts in Eastern Uganda; an area with worst rates of teenage pregnancy in the country.
In March 2017, with support of KIT Institute, a baseline survey for GUSO program was conducted. The survey gave attention to program outcome areas; utilization of SRHR information and education, youth friendly SRHR services, supportive socio-cultural and political environment. Some of the survey findings highlighted in this abstract evaluated the role of community gatekeepers in shaping young people's sexual health.
Methods: The Survey used quantitative and qualitative approaches;1,704 young people(15-24 years) 956 females,748 males were sampled from Iganga, one of four intervention districts.1,500 youth were subjected to a structured questionnaire.qualitative methods employed included,FGDs with 50 young people, 50 Semi-structured interviews and 104 Key informant interviews.Data was analysed using STATA/SPSS and Nvivo.
Results: 70% of the respondents felt able to express their feelings about relationships and their sexuality. They claimed to have adults within their locality with whom they can discuss their feelings and worries. The adults identified were parents, relatives, teachers and religious leaders who can jointly be termed as gate keepers. Still, these gatekeepers leave a lot to be desired in regards to information on young people's sexuality. According to youth, some adults are unapproachable and share information using metaphors making messages unclear. Eventually, youth turn to peers for knowledge and support which compromises the quality of the information shared and received. Additionally, the space for young people to make their own decisions is sometimes not respected.
Conclusions: The community gate keepers of youth have a great role to play in shaping their positive sexual health outcomes through guiding them to make informed reproductive health choices. There is need therefore for programming to target establishing effective youth- adult partnerships as well as building SRHR competency (including basic knowledge, values transformation and communication skills) of gate keepers to work together to address the key challenges Youth face.

WEPED349

Exploring the role of community savings groups in addressing food insecurity and improving healthcare access for HIV-infected and uninfected female sex workers in Iringa, Tanzania

A. Mantsios[1], C. Shembilu[2], J. Mbwambo[2], S. Likindikoki[2], W. Davis[3,4], D. Kerrigan[1,3]
[1]Johns Hopkins Bloomberg School of Public Health, Health, Behavior and Society, Baltimore, United States, [2]Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania, United Republic of, [3]American University, Sociology, Washington, D.C., United States, [4]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States

Background: Financial insecurity and food insecurity can limit the ability of female sex workers (FSW) to access healthcare and medical treatment and receive proper nutrition. Recent studies reveal that savings groups can play a role in promoting better HIV treatment and care outcomes for people living with HIV. This study sought to qualitatively explore the potential role of community savings groups in facilitating improved HIV outcomes and overall health among FSW in Iringa, Tanzania.
Methods: Between April 2015 and February 2016, 27 in-depth interviews (IDIs) with 15 FSW and 4 focus group discussions with 35 FSW participating in community savings groups were conducted in the Iringa region. Content analysis was conducted to identify salient themes including the dynamic nature of participants' sex work and financial realities and the meaning and importance of community savings groups in their lives, work, and on HIV care seeking behaviors and health.
Results: Inability to afford food came up organically among all study participants in the context of interviews and focus groups. Participants cited food insecurity as a critical element in their decisions to agree to unsafe sex. Women described that the money they received from community savings groups they participated in was often used to purchase food for themselves and their families. Community savings groups also helped FSW afford health care costs including clinic visits, hospital stays and medications they could not pay for otherwise. HIV-infected FSW spoke specifically about money from the groups allowing them to afford to eat a healthy diet and providing them with sufficient money for transport to attend regular HIV clinical care visits.
Conclusions: Findings suggest that participating in a savings group may address issues of food insecurity by ensuring women have adequate financial resources to buy food, alleviating this element of economic vulnerability that places FSW at increased risk of unsafe sex with clients. Furthermore, results indicate that community savings groups may have effects on the overall health and well being of FSW, as well as HIV outcomes for HIV-infected FSW, through improved access to and utilization of healthcare services.

WEPED350

Manufacturing consent: How "public health" constructed an association between HIV/AIDS stigma and gay men in China

Z. Sun
Utrecht University, Department of Interdisciplinary Social Science, Utrecht, Netherlands

Background: Chinese public health agencies, as well as political authorities, are playing a dominant role in its HIV/AIDS policies and programs. One of the major concerns for those policies and programs is removing the stigma among people living with HIV. However, the HIV/AIDS stigma associated with gay men, is not addressed. This study aims to explore why the stigmatizing association between HIV/AIDS and gay men persist. This study in particular explores the manufacturing of consent, structural stigma and internalized stigma to understand why gay men are thought to have HIV/AIDS.
Methods: This qualitative research encompassed 1-year fieldwork in Shanghai, China. Qualitative data was collected through participant observation, which yielded extensive notes (~60,000 words) of observations, and 25 in-depth interviews. Interviews were transcribed verbatim, coded and thematically analysed using NVivo. Interviewees were randomly recruited during participant observations and some were referred by key informants. Interview participants were inclusive of people working in the HIV/AIDS sector, gay men and other men who have sex with men who are seeking an HIV test, and gay men living with HIV/AIDS.
Results: The study found that the association of HIV/AIDS stigma with gay men is the result of actions by public health experts (e.g., clinic doctors, policy makers, academic scholars), reflecting their noting that being gay was equivalent to a high risk of HIV. In addition, it was noted that NGOs working on HIV/AIDS in the gay community indirectly engaged in such stigma production because of their resource-dependence on the public health sector. Also, political authorities often assumed that being a gay man would no doubt also mean they would have HIV/AIDS, which some gay men themselves assumed as well.
Conclusions: In the context of sociocultural and political concern regarding HIV/AIDS and structural stigma regarding homosexuality, the public health response played an importing role in associating HIV/AIDS with gay men. Some gay men also assumed that they were at risk of HIV/AIDS as a result of their identity. This manufactured consent building on internalized stigma indicates that any attempts to remove the assumed relationship between gay men and HIV/AIDS is a challenge in China.

WEPED351

High prevalence of social and structural syndemic conditions associated with poor psychological quality of life among a global sample of gay, bisexual and other men who have sex with men

O. Martinez[1], S. Arreola[2], K. Wilson[1]
[1]Temple University, School of Social Work, College of Public Health, Philadelphia, United States, [2]Global Forum on MSM and HIV, Oakland, United States

Background: Multiple co-occurring social and structural conditions, including sexual and physical violence and discrimination, disproportionally impact gay, bisexual and other men who have sex with men (GBMSM). Most syndemics research has focused exclusively on psychosocial conditions associated with HIV sexual risk behaviors. This study examined the role of social and structural conditions - including socioeconomic status, housing instability, sexual and physical violence and discrimination - on overall psychological quality of life among a global sample of GBMSM.

Methods: We analyzed data from a global sample of 2,417 GBMSM collected between 2014 and 2015 from the MSMGF (the Global Forum on MSM & HIV) third Global Men's Health and Rights Study (GMHR) survey. Participants were recruited through online convenience sampling (e.g. via organizational networks, email listservs and websites). Data were analyzed using SPSS. A linear regression was conducted using count of syndemic conditions (inability to meet basic needs, insecure housing, homophobic discrimination, and sexual and physical violence) as the independent variable to assess the additive effect of the syndemic conditions on Psychological Quality of Life as measured by the World Health Organization. Analyses were also repeated with control variables.

Results: Among 2,417 men, prevalence of syndemic conditions was substantial with 1,594 (66%) of respondents experiencing at least one syndemic factor. In multivariable syndemic analyses, participants with one factor (b=-.22, p< .001), two factors (b=-.33, p< .001), or three or more factors (b=-.62, p< .001) each reported significantly lower levels of Psychological Quality of Life than those with zero syndemic factors. These effects persisted after the introduction of controls.

Conclusions: This study provides initial evidence that intertwined social and structural syndemic conditions are positively associated with poor psychological quality of life among a global sample of GBMSM. Future longitudinal research should further assess the impact of these conditions on overall quality of life and assure the inclusion of other marginalized communities, including transgender men and women. Comprehensive structural interventions that simultaneously address co-occurring social and structural syndemic conditions should be developed and tested.

WEPED352

Structural racism matters: An exploratory study on the gendered-racialized experiences and HIV vulnerabilities of heterosexual young Black men

K. Bryce[1], J.P. Wong[1,2], M. Vahabi[1], A. Bailey[1], D. Miller[1], W. Husbands[3], D.-M. Chuang[1]
[1]Ryerson University, Toronto, Canada, [2]University of Toronto, Toronto, Canada, [3]Ontario HIV Treatment Network, Toronto, Canada

Background: Black communities in Canada are disproportionately affected by HIV. Black people accounted for over 10% of all HIV-related deaths in Ontario, even though they make up only 3.9% of Ontario's population. Existing literature on HIV vulnerabilities tends to focus on individual risky behaviour, without acknowledging how structural conditions, such as racism, gendered expectations and socioeconomic status, contribute to HIV vulnerabilities. This paper reports on the sub-study of a larger study, weSpeak, which examines the social determinants of HIV and collective resilience of self-identified heterosexual Black men in Ontario, Canada. This sub-study focused on the gendered and racialized experiences of heterosexual young Black men (HYBM) in Toronto, their HIV vulnerabilities, and conditions that promote their collective resilience.

Methods: We used purposive sampling to recruit self-identified HYBM. Outreach and recruitment strategies included e-flyers, information sessions and community referrals. Fifteen HYBM, between the ages of 16 to 25, took part in focus groups and individual interviews. Data were analyzed using a narrative approach and guided by analytical lenses of Critical Race Theory and intersectionality.

Results: The study results showed that HIV vulnerabilities and social vulnerabilities are intertwined. Dominant racist stereotypes of Black 'hypersexuality' and 'hyper-masculinity' function in multiple ways to increase HYBM's vulnerabilities to HIV by: (a) imposing psychological pressure for some HYBM to enact these stereotypes; (b) creating obstacles for open dialogue about sex and sexuality between HYBM and their sexual partners; and (3) producing distrust that impedes the negotiation of safer sex practices between HYBM and their sexual partners. Participants identified social support, mentorship, access to equitable opportunities and having a safe space for critical dialogue, as conditions that reduce their HIV vulnerabilities and promote their collective resilience.

Conclusions: The findings of the study suggest that effective HIV prevention responses for HYBM must be underpinned by social justice and address their social vulnerabilities. These responses must incorporate anti-oppression and race-gender-class analyses to engage heterosexual young Black men and women in critical dialogue to challenge racist stereotypes and harmful masculinist expectations that increase young Black people's vulnerability to HIV.

WEPED353

Food insecurity is associated with postpartum stress in Kenyan women of mixed HIV status

P. Murnane[1], J. Miller[2], S. Collins[2], T. Neilands[1], M. Onono[3], C. Cohen[3], S. Weiser[3], M. Laudenslager[4], S. Young[2]
[1]University of California San Francisco, Center for AIDS Prevention Studies, San Francisco, United States, [2]Northwestern University, Department of Anthropology, Evanston, United States, [3]University of California San Francisco, San Francisco, United States, [4]University of Colorado Denver, Aurora, United States

Background: Chronic stress in postpartum women is associated with depression, breastmilk quality, and infant health. Among persons living with HIV, stress is associated with poor drug adherence and disease progression. We hypothesized that food insecurity (FI) increases the risk of stress in postpartum Kenyan women.

Methods: From 08/2014-04/2016, 371 pregnant women were enrolled into a cohort study in western Kenya and followed through 9 months postpartum. Women were purposively sampled to include half HIV-positive, half HIV-negative, and comparable FI levels across HIV strata. Individual FI (range 0-27) in the prior month was assessed at all visits. Hair was collected at 9 months postpartum to measure hair cortisol concentrations (HCC), reflecting adrenal activation during the prior 3 months. We characterized FI in 2 ways: 1) FI at 9 months only, and 2) patterns of FI from pregnancy-6 months postpartum, using group-based trajectory modeling. We used linear regression to predict HCC, adjusting for socio-economic factors, and evaluated HIV status as a potential effect modifier.

Results: Women with HCC results (n=203) were included in the analysis. Mean age was 25.1 years (standard deviation [SD] 4.9) and mean log HCC was 2.0 pg/mg (SD 1.0). The association between 9-month FI and log transformed HCC suggested an inverse-U shape; therefore, we included a linear and quadratic term for FI in the model. Moderate FI (scale=10) compared to low FI (5) was associated with 32% higher HCC (95% CI: 10%-72%, p=0.006); this relationship tapered with when comparing FI scores of 15 vs. 10 and 20 vs. 15 (1% lower HCC [p=0.91] and 29% lower HCC [p=0.08], respectively). We identified 2 FI trajectories from pregnancy-6 months postpartum: 1) chronic FI (moderate-severe at most visits; 58% of women); and 2) mild/no FI (at most visits). Those with chronic FI had marginally elevated HCC (28% higher, 95% CI: -5%-73%, p=0.10) compared to those with mild/no FI. These associations did not differ by HIV-serostatus.

Conclusions: Chronic FI was marginally associated with elevated HCC, while at 9 months, those with moderate FI had the highest HCC. Interventions to mitigate perinatal FI in HIV-positive and negative women could prevent stress-associated poor maternal and infant health outcomes.

WEPED354

Understanding barriers and facilitators to antenatal care services in Cameroon

G. Loni Ekali[1], E. Kiawi[2], A. Abutu[3], J. Sobngwi[4], J. Mosoko[2], P. Ngalame[3], O. Bolu[2], J.B. Elat[1]
[1]National AIDS Control Committee, Yaounde, Cameroon, [2]Centers for Disease Control and Prevention, Yaounde, Cameroon, [3]Centers for Disease Control and Prevention, Atlanta, United States, [4]Catholic University of Central Africa, Yaounde, Cameroon

Background: In Cameroon, HIV prevalence among pregnant women is estimated at 5.7%. Prevention of Mother-to-Child Transmission (PMTCT) services are delivered mainly through the Antenatal Care (ANC) platform. In 2012, ≤ 40% of pregnant women in Cameroon accessed ANC services, implying that only a small proportion had the opportunity to receive HIV testing and PMTCT services if needed. This study was conducted to better understand the factors that affect uptake and retention in ANC and related health services.
Methods: A mixed-method qualitative study was performed between December 2012 and September 2013. Participants were purposively recruited across eight regions of Cameroon. Individual key informant interviews were completed with 40 health providers and community leaders, and 16 focus group discussions were conducted with groups of six to eight people aged 18-60 years in the community. All interviews were audiotaped, transcribed and coded thematically for analysis. Interpretive analyses were performed using ATLAS-ti.
Results: Knowledge of existence of ANC services in the community was universally high. However, rural community participants were less likely to know their HIV status and could not cite specific means by which HIV can be transmitted from mother-to-child. Fear of stigma and discrimination was reported by many participants as leading clients to seek care outside of their community, while high service fees was reported as an obstacle to women's ability to attend ANC. Men's participation in ANC and the need for women to get their spouse's permission to attend ANC were additional concerns. Long distances to and waiting times in ANC, shortage of staff and poor quality of ANC and postnatal care (PNC) services were cited as significant barriers. Pregnant women were attracted to attend community health common initiative groups instead of ANC due to poverty, proximity or misinformation.
Conclusions: Many barriers impact women's ability to access ANC/PMTCT services in Cameroon. Remedial action should focus on health promotion initiatives for women and their partners, provision of ANC supplies, training of nurses and other health facility staff to increase their number and improve service delivery quality, reducing MCH service-associated fees.

WEPED355

The role of HIV-expert clients in extending house-to-house nutrition services for PLHIV in Karamoja region Uganda

M. Mumma[1], E. Twinomujuni[2], C. Ouma[3]
[1]United Nations World Food Programme Regional Bureau Nairobi, Nutrition and HIV, Nairobi, Kenya, [2]UN World Food Programme, Nutrition and HIV, Kampala, Uganda, [3]UN World Food Programme Regional Bureau Nairobi, Nairobi, Kenya

Background: Karamoja region has grappled with high levels of food insecurity and this affects PLHIV more prone to malnutrition because of opportunistic infections. The objective of the Expert Clients (ECs) training was to create a peer-to-peer intervention to offer a viable, creative solutions to areas grappling with human resource challenges that often act as barriers to universally accessible, high quality HIV and Nutrition care and treatment in resource limited settings.
Description: Expert Clients were recruited basing on HIV-status, record of ART adherence, education level, ability to be trained and willingness to volunteer. The HIV expert clients were enrolled through the district health offices in all the seven districts of Karamoja. 75 HIV Expert Clients were selected from the seven districts in this training. These were then trained through a week-long course on nutrition assessment counselling and support for PLHIV. To assist in conducting their work, the ECs were also supported with job aids for nutrition in HIV and basic HIV treatment information. District health focal persons for nutrition and HIV were involved at all levels to enable them to understand the model for easy supervision. The HIV expert clients were voluntarily attached to health facilities near their communities and tasked to follow-up PLHIV on issues of Antiretroviral utilization and nutrition.
Lessons learned: There was improvement in awareness on food and nutrition requirements for PLHIV who are breastfeeding. responsiveness and demand for specific nutrition services for PLHIV increased. health facilities with ECs reported improvement in nutrition education and counselling for PLHIV, 75% of the health facilities reported improvement in patient referrals from the community, 92% indicated continued household reporting by ECs on ART and nutrition for PLHIV follow-up, 72% of the health facilities indicated improvement in appointment keeping.
Conclusions/Next steps: The utilization of expert clients in extending household nutrition services is a promising model .Future evidence building studies will be necessary to inform crucial human resource management and task shifting decision in the provision of health and nutrition services in Karamoja.

Socio-economic differences: poverty, wealth, and income inequalities

WEPED356

Poverty and racial and gender disparities among people living with HIV in Miami-Dade County

C. Bhatt, C. Beck-Sague, J. Devieux, W. Al Khoury
Florida International University, Health Promotion & Disease Prevention, Miami, United States

Background: For over 30 years, Miami-Dade County (MDC), Florida has had among the most challenging epidemics in the country. In 2015, there were over 25,000 people living with HIV/AIDS (PLHIV) in MDC, disproportionately affecting the Black community. Socioeconomic issues associated with poverty may directly or indirectly increase HIV risk factors. We examined association between poverty and HIV prevalence stratifying with gender and race/ethnicity.
Methods: To assess racial trends in HIV infection in MDC, we analyzed 2015 prevalence data from CDC and AIDSVu, and US Census data in the 75 major MDC zip codes. Data were stratified and analyzed by sex and race (Black, White and Hispanic of any race) of PLHIV and socioeconomic status (SES) comparing high (>20% of population living in poverty) to low-poverty zip codes (< 20% of population living in poverty).
Results: In 2015, MDC, FL had the highest HIV prevalence and incidence in the United States (965 and 87 per 100,000, respectively); 43% of PLHIV in 2015 were black, 44% Hispanic/Latino, and 11%. HIV rate in Hispanic/Latino men and women was essentially the same as that of white men and women respectively. Black men were 2.6 times and Black women, 13 times more likely to be HIV-infected than their White counterparts. In 2015, 226 HIV new infections and 143 AIDS cases were reported among adult women. Blacks were overrepresented, accounting for 74% of AIDS and 67% of HIV infection cases reported among women. In 2015, in the MDC zip codes analyzed, median HIV prevalence in Whites was 0.39% compared to 2.71% in blacks. Median HIV prevalence did not differ significantly by residence in poor (vs non-poor) zip codes in whites (0.54% vs. 0.35%; p= 0.308). However, median HIV prevalence in Blacks living in high-poverty zip codes (4.02%) was higher than in Blacks living in low-poverty zip codes (1.85%; p= 0.01). Median number of women with HIV was higher (N=199) in high-poverty zip codes than in low-poverty zip codes (p=0.0001).
Conclusions: These findings suggest that HIV varies by both races, gender, and poverty in Miami, with poverty playing a greater role in Blacks and among women.

WEPED357

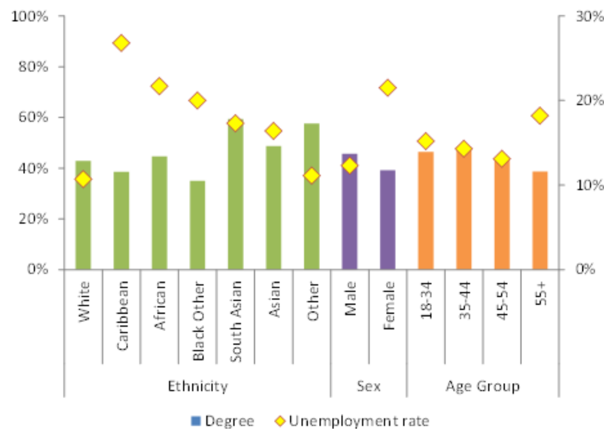
Social and welfare inequities in people living with HIV in England and Wales: Results from Positive Voices 2017

M. Kall[1], M. Auzenbergs[2], V. Delpech[1]
[1]*Public Health England, HIV/STI Department, London, United Kingdom,* [2]*Watipa, London, United Kingdom*

Background: Socioeconomic status is an important predictor of health. In the UK, HIV disproportionately affects socially vulnerable populations such as migrants, gay men and drug users, which may compound social inequity. We describe the social and welfare needs of people living with HIV (PLHIV) in the UK.

Methods: Positive Voices is a cross-sectional, probability survey of PLHIV, conducted between January and September 2017 in 73 HIV clinics in England & Wales. Respondents answered questions on socio-economic status and financial hardship. Participants were also asked about met and unmet social and welfare service needs in the previous 12 months.

Results: Of the 4,416 respondents (51% response rate), 44% were educated to at least undergraduate degree level, compared to 28% in the UK general population. High educational attainment was observed across all age, ethnicity and gender groups. Despite this, 15% of respondents were unemployed, compared to a 4.3% unemployment rate in the UK general population during the same period. The unemployment rate was highest among black Caribbean PLHIV (27%), black African PLHIV (21%) and PLHIV of other black ethnicities (20%) compared to 11% in white British PLHIV. 29% were in receipt of welfare benefits, compared to 8% in the UK general population. Most commonly claimed benefits were Disability Living Allowance (DLA) or Personal Independence Payment (PIP) (15%), Employment and Support Allowance (ESA) or Incapacity benefit (13%), and housing benefits (13%). A quarter (26%) had fallen behind with at least one household bill and 39% did not have enough money to meet their basic needs. The greatest social and welfare service needs were: housing support (22%), financial advice (15%), career skills/training (14%), and employment advice (14%); two-thirds reported these needs had not been met. Reasons for unmet need included not knowing how to access services, not knowing that services existed, or feeling too overwhelmed to seek services.



[Disparity in university degree attainment and unemployment rates by age, sex, and ethnicity among people living with HIV in the UK:]

Conclusions: PLHIV in the UK experience disproportionately high levels of unemployment, financial hardship, and social and welfare service needs despite high education attainment. Access to social and welfare services are an integral part of long-term care and support and should be considered in planning future programming.

WEPED358

Positive finance: Access to insurance for people living with HIV in the UK

K. Smithson, R. Hayes, Y. Azad, D. Gold
NAT (National AIDS Trust), London, United Kingdom

Background: People living with HIV (PLWH) across Europe face barriers to accessing private insurance that requires medical information, with implications for their financial resilience. The research aimed to describe the recent experiences of PLWH in the UK of accessing financial products, and identify how HIV status specifically impacts access to financial products.

Methods: Between February and April 2017, NAT conducted research using a mixed methods approach involving an online survey and focus groups. 215 people responded to the survey, of whom 202 were eligible to take part. Of these 202, 16 participants participated in a focus group in London or Manchester. The only criteria for participating in the survey and focus groups was that the individual must be living with HIV in the UK.

Results:
- 49% thought that life insurance is not available to PLWH, despite it being available in the UK since 2009.
- 60% had avoided applying for a financial product because of their HIV status due to fears of high cost, refusal and stigma.
- Only 28% knew where to look for HIV-inclusive financial products. Mainstream comparison sites often don't work for PLWH and specialist insurers can be difficult to find.
- 25% said they knew or suspected they had been refused a financial product in the last five years because of their HIV status.
- Qualitative data indicated that PLWH are often charged higher premiums, but it is not always clear whether the price fairly reflects the risk of a claim. When they are purchased, insurance products don't always meet the needs of PLWH.

Conclusions: The barriers to access identified from this research can be broadly categorised as follows:
- Self-exclusion from the market
- Difficulty navigating the market
- Ineligibility
- Unsuitable products
- Higher premiums

Some of the causes of these barriers are easily identifiable, such as fear of disclosure due to stigma or the lack of tailored products provided by insurers. Others need further investigation, particularly whether higher premiums fairly reflect the likelihood of PLWH making a claim. Each barrier requires a different response from a range of stakeholders, including the financial services regulator and Government.

WEPED359

Area-level poverty and low willingness to use PrEP among Black individuals in the US South

B. Ojikutu[1], L. Bogart[2], I. Kawachi[3], K. Mayer[4], Y. Ransome[5]
[1]*Brigham and Women's Hospital, Boston, United States,* [2]*RAND Corporation, Santa Monica, United States,* [3]*Harvard School of Public Health, Boston, United States,* [4]*Fenway Institute, Boston, United States,* [5]*Yale School of Public Health, New Haven, United States*

Background: The Southern US, where more than 50% of Black Americans reside, has the highest burden of HIV nationally. Poverty is also highest, and access to health care is lowest. Uptake of pre-exposure prophylaxis (PrEP) has been slow among Black individuals, particularly in the South. We sought to investigate the relationship between geographic factors (area-level HIV diagnoses, socioeconomic status, and access to care) on willingness to use PrEP among Black individuals living in the South.

Methods: We estimated the association between ZIP code-level change in rates of new HIV diagnoses (2014-2015; from AIDSVu.org), sociodemographic factors (percent living below the federal poverty line, percent black population, percent unemployment), percent uninsured (from the 2008-2012 American Community Survey) and willingness to use PrEP among Black adults in the South, drawn from the National Survey on HIV in the Black Community (NSHBC, 2016).

Results: 50.5% (437/865) participants were from the South, and 383 ZIP codes were represented. The mean age was 34 (SD=9) years. 46% were male, 24% had a household income < $25,000, 14% were uninsured and 23% were high risk based upon self-reported behavioral criteria. Only 25% of the high risk individuals reported willingness to use PrEP. Restricting the analysis to ZIP codes with HIV diagnoses data, 142 ZIP codes were included. The median increase in HIV diagnoses was 25 persons per 100,000 population from 2014 to 2015 (Interquartile range [IQR] 14-49). 37% of ZIP codes were in the upper 25th percentile (highest increase in new HIV diagnoses). Examining area-level factors in multivariable regression models, individuals living in ZIP codes within the upper 25th percentile were more willing to use PrEP (Prevalence Ratio (PR)=2.03, 95%CI =1.03-4.00, p=0.041) compared to individuals living in the lower 75th percentile. Higher area-level poverty was associated with lower (PR 0.48, 95%CI 0.25-0.92, p=0.028) willingness to use PrEP. Percent black population, percent unemployment and percent uninsured were not significant in multivariate analysis.
Conclusions: Overall, low numbers of Black individuals in the South are willing to use PrEP. However, individuals in areas with higher numbers of new HIV diagnoses were more willing to use PrEP. To improve uptake, area-level poverty must be addressed.

WEPED360

HIV and poverty vulnerability among women and girls in Abuja Municipal Area Council, Abuja, Nigeria

M. Egemba[1], Y. Falola-Anoemuah[1], O. Onosode[2], O. Onoh[3]
[1]*National Agency for the Control of AIDS, Programme Coordination Department, Abuja, Nigeria,* [2]*International Labour Organization, Abuja, Nigeria,* [3]*Measure Evaluation, Abuja, Nigeria*

Background: Nigerian women bear a disproportionate burden of the HIV epidemic and constitute 59% of HIV positive individuals. Evidence have shown that one of the major drivers of HIV especially amongst females is poverty and financial dependency; thus, contributing to the feminization of poverty and the epidemic. This study interrogates HIV and poverty susceptibility among women and girls in Abuja Municipal Area Council (AMAC), Nigeria.
Methods: In November, 2017, a descriptive study involving 52 females from AMAC was conducted. Respondents who were selected though multistage sampling comprised of female sex workers (FSWs), women and girls among internally displaced persons (IDPs), women living with disabilities (WWD), women from support groups of people infected with and affected by HIV (WSG) and other indigent women. Quantitative data collected with a scaled economic strengthening selection tool were analyzed with descriptive statistics (frequencies and crosstabs).
Results: Median age of respondents was 35years (range:16-54years). 61.54% (number=32) were HIV positive. Fifty percent of the respondents had no source of income, conversely, all of the FSWs interviewed considered themselves employed and 43.75% of them earned above N25,000 monthly. Majority of the respondents (69.23%,n=36) lived in dilapidated and overcrowded shelters with insufficient and irregular food (76.92%,n=40). On a scale of 9-32marks, with 32marks representing the highest score on the poverty vulnerability scale, majority of respondents were "most vulnerable" (55.77%,scores:21-32) and 40.38% were "more vulnerable" (scores:14-20). Amongst categories of women assessed, WSG were "most vulnerable" (37.93%), followed by IDPs (31.03%), FSWs (20.69%), WWD (6.90%) and others (3.45%). Across all groups, HIV positive women(50%) were more indigent than HIV negative women(38.46%) and people of unknown status(11.54%).
Conclusions: There is a strong relationship between positive HIV status and vulnerability to poverty, thus, poverty can be both a cause and effect of HIV infection. Socio-economic data from the respondents revealed the need for economic empowerment initiatives among these categories of women. Building livelihoods through microenterprises for HIV vulnerable women and girls is one of the remarkable ideas for developing financial and economic sustainability, improving household income and creating jobs for increased HIV prevention, care & support and access to treatment for women and their households.

WEPED361

A bridge to employment; AIDS free society

B. Onyango[1], C. Obuya[1], R. Mwende[2]
[1]*African Centre for Women Information Communication and Technology (ACWICT), Programs, Nairobi, Kenya,* [2]*African Centre for Women Information Communication and Technology (ACWICT), Monitoring and Evaluation, Nairobi, Kenya*

Background: Extreme household poverty and lack of economic livelihoods, deprivation of material resources such as housing, food and healthcare coupled with lack of knowledge on HIV transmission and associated risk factors are the main causes to the high HIV prevalence rate among young women in urban slums of Kisumu and Nairobi counties in Kenya.
Description: The *Vusha Girls Employability program,* an innovation of the ACWICT funded by PEPFAR through DREAMS Innovation Challenge and managed by JSI, is a demand-driven workforce development program that aims to improve the employment prospects and income-generating capacities of 1,000 high potential but disadvantaged young women from low-income households. Increasing economic opportunities decreases the likelihood that adolescent girls and young women will engage in transactional sex work. The intervention targets girls at the transition points from high school, vocational education, and tertiary education with the goal of improving employment opportunities, increasing income-generating opportunities, and providing a bridge to employment. The intervention equips the young women with Vocational skills, Life skills, HIV education and Online Work skills.
Lessons learned: To effectively realize the young women transit to employment, the program focused on demand driven skills. In the first 9 months of implementation, 567 young women benefited from the program with 285 getting placement to income generating jobs. Employers have reported positive feedback on the beneficiaries because they possess digital literacy skills and life skills which are important assets in a work environment.
Conclusions/Next steps: The outcome of *Vusha Girls Employability Program* will be useful in national response to reduce new HIV infection amongst adolescents between the ages of 18-24 years old. It recognizes that mitigating on economic and behavioural challenges can significantly reduce new HIV infection associated with transactional sex due to lack of economic empowerment.

Dynamics of social status and power: sex, gender, age, race/ethnicity, sexual orientation, disability

WEPED362

Comparing MSM and transgender women (TW) on socio-demographics and psychosocial constructs relating to the HIV continuum of care and prevention in Lima, Peru

K.A. Konda[1,2], A. Maiorana[3], G.M. Calvo[2], A. Motta[2], E. Lugo[2], A. N[2], A. Silva-Santisteban[2], X. Salazar[2], C.F. Caceres[2], S. Kegeles[3]
[1]*University of California, Division of Infectious Diseases, Department of Medicine, Los Angeles, United States,* [2]*Center for Interdisciplinary Studies in Sexuality, AIDS and Society, Universidad Peruana Cayetano Heredia, Lima, Peru,* [3]*University of California, Medicine, San Francisco, United States*

Background: As we approach the 4th decade of HIV prevention and treatment, there is a need for differentiated and nuanced understanding of key populations who are vulnerable to HIV. MSM and transgender women (TW) remain the primary key populations in Peru, and we use information from the baseline of an HIV prevention and engagement in care trial to compare them and provide insight into their needs.
Methods: MSM/TW recruiters and long chain peer recruitment were used to enroll participants in two large, understudied Lima districts. The survey was interviewer-administered to participants using computer-assisted methods.

Results: We enrolled 277 MSM and 136 TW, whose average age was 31. TW reported significantly less formal employment and education than MSM, but similar abilities to cover basic needs. TW were more open about their gender identity than MSM were open about their sexual identity. There was no difference in alcohol abuse, while TW reported more recreational drug use. TW reported more experiences of stigma due to sexual or gender identity and more HIV stigma. There were no significant differences between MSM and TW in depression, experiences of stigma in health care settings, sexual risk, or social support (all p-values >0.05). Although MSM reported more condomless insertive anal sex, there was no difference in condomless receptive sex. But while TW had nearly twice the HIV prevalence of MSM, among those living with HIV there was no difference in linkage-to-care, ART use, or self-reported undetectable viral loads (all p-values >0.05).

	MSM	TW	p-value	Example item (scales only)
Living with HIV	20%	35%	**0.001**	NA
Undetectable viral load (among HIV positives)	46%	49%	0.725	NA
Condomless receptive anal sex, last 3 months	36%	41%	0.348	NA
Condomless insertive anal sex, last 3 months	22%	7%	**<0.001**	NA
Recreational drug use, last 2 months	16%	25%	**0.032**	NA
General self-efficacy	24.3	23.1	0.058	It's easy for me to stick to my aims and accomplish my goals.
Open with almost everyone about sexual/gender identity	35%	60%	**<0.001**	
Experiences of stigma due to: a)Sexual or gender identity	a) 5.9	a) 9.1	a) **<0.001**	a) Have you felt excluded from family gatherings because you are gay/trans?
b) Normative HIV stigma	b) 25.8	b) 9.8	b)**0.014**	b) People with HIV lose jobs when their employers learn they have it.
c) Stigma in health care	c) 1.6	c) 27.6	c) 0.636	c) Have you ever felt that you were not treated well in a health center because someone knew that you are gay or trans?
*All scales use t-tests to compare means. All categorical variables are compared using chi-square tests.				

[Characteristics Comparing MSM and TW Vulnerabilities in Large Districts in Lima, Peru]

Conclusions: MSM and TW have both similar and different experiences, influencing their risk profile for HIV and care engagement. TW had more socioeconomic vulnerabilities. The more frequent experiences of stigma among TW is explicable given more societal rejection of TW and the inability to hide their gender identity. MSM were more able to hide their sexual identity and, perhaps consequently, reported less stigma. That health care related stigma was similar may be related to self-selection into facilities accustomed to working with these populations. HIV prevalence reflects those found in similar populations elsewhere, but viral suppression remains low for both groups.

WEPED363

Influences of gender norms and gender roles on HIV treatment engagement in Vietnam

M. Do[1], H. Le H.[2], H. Ho T.[2], H. Dinh T.[2], T. Truong Q.[2], T. Dang V.[3], D. Nguyen D.[3], K. Andrinopoulos[4]
[1]Tulane University School of Public Health and TM, Global Community Health and Behavioral Sciences, New Orleans, United States, [2]Hanoi University of Public Health, Hanoi, Vietnam, [3]USAID/Vietnam, Hanoi, Vietnam, [4]Tulane University School of Public Health and TM, New Orleans, United States

Background: HIV-positive people who use injection drugs (PWID) face significant challenges that influence their engagement in HIV treatment, particularly in meeting normative expectations related to gender and drug use behavior. In contexts, like Vietnam, where heterosexual transmission of HIV is substantial, PWIDs' female sexual partners (FSPs) are at risk of drug use and HIV infection. Understanding more about the relationship between gender expectations for PWID and FSPs with drug use and HIV treatment would help inform retention programs.

Methods: We describe how expected gender roles may contribute to HIV treatment engagement among HIV-positive male PWIDs and FSPs. In-depth interviews were conducted with 30 male PWIDs and 21 FSPs in September 2017. The interviews were in Vietnamese, translated into English, and analyzed using NVivo 11 software.

Results: Male PWIDs often presented later to treatment and were less likely to consistently stay in treatment than FSPs for several reasons. The perceived criminalization of drug use led to a higher level of discrimination reported by male PWIDs, compared to FSPs who were often perceived as victims of their partner's behavior. FSPs who also inject drugs were also highly stigmatized. Perceived norms around the roles of men as the head of the household economically, in maintaining the family lineage and ancestor worship practices may negatively influence PWIDs' retention, either because they had to travel for work, or had to hide their HIV status and treatment due to family's expectations. FSPs, on the other hand, were more likely to stay in treatment because of their expected roles in taking care of their family and in-laws, although it could also be challenging as FSPs reported reluctance to seek support from their in-laws or their own family.

Conclusions: While the couple approach is important for HIV treatment retention, specific interventions need to be tailored to assist male PWIDs and FSPs overcome the challenges. The sharp differential treatment of male PWIDs vs. FSPs by families and communities imply that:
1) more focused support for FSPs is needed for their long-term treatment, and;
2) an increasing number of FSPs who inject drugs could remain hidden, posing an additional challenge to HIV programs.

WEPED364

Understanding HIV medication adherence amid multi-level, intersecting, and shifting challenges: Listening to the needs of the most vulnerable PLWH in the U.S.

M. Teti[1], E. Koegler[1], M. Enriquez[2], L. Bowleg[3]
[1]University of Missouri, Health Sciences, Columbia, United States, [2]University of Missouri, Nursing, Columbia, United States, [3]George Washington University, Washington DC, United States

Background: One-third of PLWH in the U.S. are insufficiently adherent for viral load suppression. PLWH who experience health inequities report worse viral load outcomes and less support from adherence interventions. The purpose of this study is to explore the nexus of daily challenges and adherence among PLWH without viral load suppression, who face multiple and intersecting inequities, such as those that stem from racial/ethnic minority status and/or poverty and/or HIV stigma and/or sexual or gender minority status.

Methods: Participants included 50 PLWH without viral suppression who took part in two peer-led HIV medication adherence intervention studies. Participants experienced multiple inequities: most were individuals of color; all were low-income; many were sexual minorities. HIV positive peer interventionists documented 6 weekly meetings describing participants' adherence experiences using detailed field notes. Participants chose notes for data collection, versus recordings, to promote open peer-to-peer dialogue. Content and narrative analyses of 300 field notes were used to identify adherence challenges.

Results: Challenges to adherence were characterized by four descriptive themes - severe, multileveled, intersecting, and variable. Participants experienced an average of 27.8 (range 8-52) major stressors over the course of six weeks. Average stressors reported in a single week were 4.6 (range 1.6-6.5). Common stressors were physical illness, mental health, isolation, poverty, homelessness, substance abuse, and hunger. Most participants reported barriers at the individual (e.g., depression) relational (e.g., isolation) and community/social (e.g., homelessness) levels. All participants described how barriers intersected and escalated (e.g., homelessness worsened drug use and hunger). PLWH experienced barriers that shifted over time and affected adherence (e.g., depression in control one week, poor the next due to an unexpected event).

Conclusions: Peer conversations allowed honest documentation of dialogue from vulnerable patients with compounding challenges and health inequities. Gathering insights from this subgroup of PLWH can

inform flexible solutions that respond to patient priorities. Interventions (medical and behavioral) need to be ongoing and sustainable, addressing multi-level challenges in the context of patient's lives, also accounting for instability. Improving adherence among PLWH without a suppressed viral load who face multiple health inequities is essential to meeting national adherence goals, protecting the health of PLH, and curbing HIV transmission.

WEPED365

Sociocultural contexts of HIV risk behaviors among Mak Nyah (Transwomen) in Kuala Lumpur, Malaysia

T. Nemoto[1], M. Iwamoto[1], V. Stanislaus[1], Y.K. Teh[2]
[1]Public Health Institute, Oakland, United States, [2]National Defense University of Malaysia, Defence and Management Studies, Sungai Besi Camp, Malaysia

Background: Very limited data on HIV/AIDS among mak nyah are available because civil and religious (Syariah) laws criminalize mak nayh in Malaysia where the national religion is Islam. Few studies reported the substantial increase in HIV prevalence, gender-based discrimination, violence, and human rights abuses against mak nayh. This study aimed to describe sociocultural contexts of HIV-related risk behaviors among mak nayh in Kuala Lumpur.
Methods: After completing qualitative interviews, a total of 150 mak nyah were recruited for survey interviews. Participants were recruited based on purposive sampling through direct outreach and referrals from local ASOs that provided services for mak nayh.
Results: Mak nyah study participants (N=150) were: mean age=38.0 years (SD=10.1); 72.0% Malay, 14.0 % Indian, 8.7% Chinese, and 5.3% other; 62.0% single and 33.3 % having a partner; 58.0% identified as mak nyah and 35.3 % female; 8.7 % had sex reassignment surgery; 82.0% heterosexual, 13.4% homosexual, and 4.0% bisexual. Most of the participants (88%) had tested for HIV and 12.7% reported living with HIV. About 2/3 reported currently engaging in sex work and 56.7% reported having engaged in oral sex with customers and 35.3% had not used a condom all the time; 48.0% engaged in anal sex with customers and 16.7% had not used a condom all the time. Only 1/3 correctly answered all HIV knowledge questions and 27.9% had engaged in condom-less sex when customers offered extra money. More than one third (37.6%) reported ever being physically assaulted; 28.2% and 18.7% being raped or sexually assaulted when under 18 years old and 18 years and over, respectively; 51.8% were depressed (CES-D).
Conclusions: The study provided important descriptions of risk behaviors and sociocultural factors among mak nayh that confirmed qualitative results from previous studies. It is alarming that a high prevalence of sexual and physical violence and depression among mak nayh. System level changes to eliminate discrimination and human rights abuses against mak nyah could take time, but direct health and social services and social media campaigns from CBOs could be implemented not only to address HIV prevention, but also health and human rights for mak nayh in Malaysia.

WEPED366

Ashamed, afraid and proud: Masculinities as key barriers to the attainment of the 90-90-90 targets in two rural districts in Zimbabwe

T.B. Masvawure[1,2], J.E. Mantell[1,3], M. Mapingure[4], T. Apollo[5], C. Gwanzura[6], L. Block[1], E. Bennett[3], P. Preko[7], G. Musuka[4], M. Rabkin[1]
[1]ICAP, Mailman School of Public Health, Columbia University, New York, United States, [2]College of the Holy Cross, Sociology and Anthropology, Worcester, MA, United States, [3]New York State Psychiatric Institute and Columbia University, Division of Gender, Sexuality and Health, New York, United States, [4]ICAP, Mailman School of Public Health, Columbia University, Harare, Zimbabwe, [5]Ministry of Health and Child Care, HIV/AIDS and STIs Unit, Harare, Zimbabwe, [6]Ministry of Health and Child Care, AIDS and TB Unit, Harare, Zimbabwe, [7]ICAP, Mailman School of Public Health, Columbia University, Mbabane, Swaziland

Background: Despite dramatic improvements in access to antiretroviral treatment (ART) in sub-Saharan Africa, men are less likely than women to test for HIV and to link to ART when they test positive. This poses an important challenge to the attainment of the 90-90-90 targets.
Methods: We explored HIV+ men's challenges to HIV testing and care at three purposively-selected high-volume ART clinics in rural Zimbabwe. We conducted twenty focus group discussions with 57 HIV+ men in Community Antiretroviral Refill Groups (CARGs), 61 HIV+ men not in CARGs and 29 HIV+ women in CARGs, and 46 in-depth interviews with policy makers, implementers, community members and health care workers. Data were analyzed using deductive and inductive approaches.
Results: Masculinities and concerns about social status—expressed through the idioms of "shame", "fear" and "pride"—were prominent themes for why few men get tested for HIV or initiate ART. Men were "ashamed" to be seen testing for HIV by community and family members because it implied "promiscuity", whereas collecting medications at health facilities (HF) publicly revealed one´s HIV status. HIV testing and HIV care were thus seen as potentially damaging to men´s reputations. "Fear" of marital conflict was another barrier as wives accused husbands who tested HIV+ of infidelity. Consequently, many men preferred to wait for wives to get tested first or for wives to suggest testing together. The last idiom—men´s "pride" - is deeply tied to notions of masculinities. Men believed they were invincible, and thus downplayed the importance of getting tested, denied an HIV+ result, refused to initiate ART, or stopped taking medications when their health improved or they started new relationships. Other men avoided HIV testing because they did not want to use condoms with wives if found positive, while others did not want an HIV+ diagnosis to affect their ability to attract new sexual partners. Some men considered HF to be "female spaces" and did not want to be seen there. Finally, only economically unproductive men were believed to spend hours at HF.
Conclusions: Men's needs and lived realities continue to be a "blind spot" in HIV programming (UNAIDS 2017). Innovative men-focused strategies are urgently needed.

WEPED367

Disability predicts violence against women over 12 months: A prospective cohort analysis amongst young women in urban informal settlements in South Africa

A. Gibbs[1,2], K. Dunkle[3], I. van der Heijden[3], L. Washington[4], N. Shai[3], S. Willan[1], R. Jewkes[3,5]
[1]South African Medical Research Council, Gender and Health Research Unit, Durban, South Africa, [2]University of KwaZulu-Natal, Health Economics and HIV/AIDS Research Division, Durban, South Africa, [3]South African Medical Research Council, Gender and Health Research Unit, Pretoria, South Africa, [4]Project Empower, Durban, South Africa, [5]University of Witwatersrand, School of Public Health, Johannesburg, South Africa

Background: Women living with disabilities are more vulnerable to intimate partner violence (IPV), and women who experience IPV more likely to acquire HIV. Yet, the majority of studies on the associations between disability and IPV are cross-sectional and cannot therefore account for the temporality of associations. Here we assess whether disability sta-

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tus at baseline predicted IPV incidence over 12months of follow-up in a cohort sample, in urban informal settlements in eThekwini Municipality, South Africa.

Methods: We analyzed preliminary data from young South African women participating in the Stepping Stones and Creating Futures randomized control trial. Disability at baseline was assessed using a modified version of the Washington Group Short Set of Questions on Disability, categorized into three levels of disability, none, moderate and severe, and used to model physical, sexual, economic, and emotional IPV, and non-partner sexual violence at one year follow-up. For each outcome, we built separate Gaussian random effects models, reporting adjusted odds ratios, controlling for socio-demographics at baseline, time, baseline IPV, and study arm.

Results: At baseline 50.2% reported no disability, 30.4% moderate disability, and 19.4% severe disability. 417/680 women were followed up, with no differences by baseline disability status. Past year IPV incidence at follow up was highly prevalent: physical IPV 47.9%, sexual IPV 32.3%, emotional IPV 67.7%, and economic IPV 54.4%. 30.0% of participants also reported non-partner sexual violence. Women reporting moderate disability at baseline were more likely to report emotional IPV aOR1.64(1.00-2.68), and women reporting severe disability at baseline were more likely to experience physical IPV aOR2.94(1.66-5.22), sexual IPV aOR2.04(1.16-3.59), emotional IPV aOR2.71(1.42-5.18), and non-partner sexual violence aOR2.58(1.41-4.74) at follow-up, than women not reporting a disability at baseline (table 1).

Conclusions: Severity of disability predicted women's incident experience of physical, sexual, and emotional IPV, and non-partner violence. Interventions working to prevent HIV-acquisition through preventing violence need to ensure that women and girls with disabilities are included, and that intervention materials and activities are accessible. Effectiveness of programs for participants with disabilities should be explicitly assessed.

Disability status	Physical IPV past 12m: aOR (95%CI)	Sexual IPV past 12m: aOR (95%CI)	Emotional IPV past 12m: aOR (95%CI)	Economic IPV past 12m: aOR (95%CI)	Non-partner sexual violence past 12m: aOR(95%CI)
No reported disability	base	base	base	base	base
Moderate reported disability	1.48 (0.92-2.38)	1.06 (0.64-1.76)	1.64 (1.00-2.68)	1.07 (0.68-1.70)	1.52 (0.89-2.59)
Severe reported disability	2.94 (1.66-5.22)	2.04 (1.16-3.59)	2.71 (1.42-5.18)	1.67 (0.95-2.90)	2.58 (1.41-4.74)

[Adjusted odds ratios for disability status at baseline and violence experience at follow up]

WEPED368

Women´s decision-making and agency in the context of Option B+ in Malawi: An in-depth longitudinal qualitative study

F. Cataldo[1,2], F. Kasende[1], P.M. Nkhoma[1], M. van Lettow[1,2], R. Nyirenda[3], J.J. van Oosterhout[1,4], E. Schouten[5], M. Nyangulu[6], B.A. Tippett Barr[6]
[1]Dignitas International, Medical and Research Department, Zomba, Malawi, [2]University of Toronto, Dalla Lana School of Public Health, Toronto, Canada, [3]Ministry of Health, Department of HIV and AIDS, Lilongwe, Malawi, [4]College of Medicine - University of Malawi, Department of Medicine, Blantyre, Malawi, [5]Management Sciences for Health, Lilongwe, Malawi, [6]Centers for Disease Control and Prevention, Lilongwe, Malawi

Background: Although lifelong antiretroviral therapy (ART) for HIV-positive pregnant and breastfeeding women ('Option B+') has dramatically expanded in Malawi since 2011, challenges with rapid ART initiation and sub-optimal retention in care have been reported. We explored women´s individual decision-making and agency in relation to treatment uptake, long-term retention in care, breast-feeding practices, and reproductive intentions.

Methods: We report on a longitudinal multi-site ethnographic study (July 2016-September 2017), nested in a broader PMTCT impact evaluation, conducted in 13 sites (Southern/Central regions). In-depth interviews, focus group discussions and observations were conducted with women retained in cared in Option B+ (n=53) and their male partners (n=19), adolescents (n=13), lost-to-follow-up women (n=23), community and PMTCT leaders (n=23), and healthcare workers (n=154). Data were analyzed through interpretive open-ended coding (Nvivo11) and a comparative thematic framework approach.

Results: Median age of women retained in care was 32 years; they had 3 children on average. Although most women reported that starting ART was the ´healthy´ option, male partner disclosure and participation treatment uptake/continuation was central to decision-making processes. Women who felt unable to discuss test results and treatment uptake with male partners reported delaying ART initiation and having challenges continuing ART due to difficulties hiding treatment. Similar opinions were presented across other groups of research participants: complex decision-making dynamics between women newly identified as HIV-positive and male partners of unknown HIV status hindered long-term retention in care. Fears about possible breach of confidentiality while visiting health facilities led some women to decide to stop ART. Breastfeeding decisions and reproductive intentions were perceived by community leaders as ´the responsibility of the man´. Living with HIV and perceptions of risk for themselves and their infants were central to women´s reproductive intentions.

Conclusions: Despite an increased optimism around Option B+, decisions around starting and remaining on lifelong treatment, breastfeeding, and reproductive intentions remain deeply entrenched within gender and cultural norms that affect women´s care trajectories. Additional efforts at balancing joint decision-making between women and their partners, and involving male partners at every step of the testing and care continuum are essential to improving long-term retention in Option B+ and other Test-and-Treat programs.

Economic transitions and social and cultural changes affecting HIV and the HIV response

WEPED369

Traditional leaders play a key role in the roll out of early ART at community level

M. Zwane-Machakata[1], J. Manana[1], L. Chingandu[2], R. Eghtessadi[2]
[1]SAfAIDS, Swaziland Country Office, Manzini, Swaziland, [2]SAfAIDS, Regional Office, Harare, Zimbabwe

Background: The MaxART consortium, led by the Swaziland Ministry of Health conducted the MaxART Early Access to ART for All (EAAA) study in Swaziland from 2014 - 2017. The study sought to answer questions on clinical outcomes, acceptability, feasibility, affordability and scalability of an Early ART programme in Swaziland. The study also included a component of engaging existing traditional structures to inform communities about the EAAA study and mobilize HIV positive individuals to access early ART.

Methods: To promote better understanding of the role and contribution of traditional leaders in the roll out of early ART study in study communities, data was collected through 96 semi-structured interviews and 9 focus group discussions with key community actors including support group members, community-based volunteers, traditional healers, religious leaders and traditional leaders.

Results: The active role of traditional leaders in informing communities about the Early ART programme and mobilizing communities take up HIV testing and early treatment was recognized across all the key actors. Two main mechanisms used by traditional leaders for community mobilization emerged from the interviews namely: using community meetings, either individually or in collaboration with community-based volunteers and being role models, which constituted taking public HIV tests and thus reducing stigma around HIV testing. 90% of respondents agreed that traditional leaders play a key role in mobilisation of communities for uptake of services. 80% of TL interviewed reported they took public HIV tests to set a good example to their communities. 34% of

TLs who were tested have publicly shared their HIV status. 92% of CBVs interviewed testified that they worked with TLs Leaders through community meetings to share information on HIV and EAAA. **87%** of Support Group members confirmed that TLs help them in discharging their duties under EAAA programme.
Conclusions: Traditional authorities play a major role in implementing HIV programmes at community level. With appropriate and accurate engagement they can meaningfully support health programmes to access communities. They can further model good health seeking behaviour thus encouraging uptake of services. They can improve acceptability of HIV programmes and support stigma reduction efforts as well as support treatment retention and adherence.

WEPED370

ART adherence among patients cared in the community client-led ART delivery (CCLAD) - TASO, Uganda experience

A. Okiror
The Aids Support Organisation (TASO), Finance, Kampala, Uganda

Background: TASO Uganda is one of the largest organizations implementing HIV care and treatment institutions in Sub Saharan Africa, caring for over 100,000 people living with HIV. TASO introduced Community drug distribution points model (CDDP) and recently the, Community client led ART delivery model (CCLAD) for stable patients on ART. The main aim of this study is determine adherence outcome among patients on CCLAD.
Description: TASO developed eligibility and exclusion criteria. The CCLAD eligibility criteria were: adherence, poor response to ART (CD4 count consistently below 350 for more than six months), TB co-infection or presence of any malignancies. A data tool tracking client indicators was developed with the help of Peer Leaders. data is captured in one main system to the national data reporting tool. Pre-packaging of drugs, labeled and packed separately, makes distribution of refills to individual clients easier for each client in preparation for delivery. Transport costs: a group of seven to ten clients contributed a nominal user fee to cover the cost of transportation for the leader to collect the drugs each time.
Lessons learned: A total of 62,129 patients were on ART were enrolled in 2015 for this study, 23,113 (37%) were in facility arm, 36,777 (59%) were in CDDP arm, 2799 (14%) were on CLAD arm. The adherence outcome for facility above 95% was 88%, 89% for CCLAD and 89% for CDDP. We learnt that a simple data collection tool facilitated the peers to collect information which is then transcribed to national ART registers. Pre packing of drugs with clear labeling by pharmacy staff enable accurate distribution of ART refills, patients were empowered to take care of the challenging transport cost by jointly contributing to costs for peer leaders to pick group medications
Conclusions/Next steps: CCLAD models achieved similar adherence outcomes compared to facility-based models and community-based drug delivery by facility staff. Peer leaders, as lay ART providers facilitated the smooth implementation of the CCLAD model. CCLAD model should be scaled up for stable patients on ART

Intergenerational and/or transactional sex

WEPED371

Understanding HIV risk in the postpartum period: Being in an age-disparate relationship increases postpartum inconsistent condom use for socially isolated South African women

A.K. Groves[1], L. McNaughton Reyes[2], S. Maman[2], L.T. Gebrekristos[1], D. Moodley[3]
[1]Drexel, Community Health and Prevention, Philadelphia, United States, [2]UNC Chapel Hill, Health Behavior, Chapel Hill, United States, [3]Nelson Mandela Medical School University of KwaZulu Natal, Obstetrics and Gynaecology, Durban, South Africa

Background: Age-disparate relationships are considered a key driver of the HIV epidemic; however, the evidence supporting the association has been mixed. This heterogeneity may be explained by the fact that other social-contextual factors, such as social isolation, work synergistically with age-disparate relationships to increase women's vulnerability to HIV infection. In this longitudinal study, we hypothesize that the association between being in an age-disparate relationship and inconsistent condom use postpartum will be stronger for women who are socially isolated compared to those who are not.
Methods: Data come from 605 HIV-negative participants who completed a baseline antenatal visit and 14-week postpartum follow up as part of a larger longitudinal RCT. We used logistic regression to test our hypothesis. Specifically, we examined whether the relationship between baseline age disparity and postpartum inconsistent condom use varied as a function of baseline social isolation, controlling for relevant covariates.
Results: Nearly 25% of women were in an age-disparate relationship with a partner who was 5 years or older; significantly more women in age-disparate relationships reported inconsistent condom use postpartum (26.61% vs. 17.30%, p=.02). Just over 10% reported social isolation during pregnancy such that they saw no people in their network in the past week; socially isolated women also reported significantly more inconsistent condom use postpartum (30.00% vs. 17.54%, p=.01). As hypothesized, there was a significant interaction between being in an age-disparate relationship and reported social isolation after adjustment for covariates. Specifically, women in an age-disparate relationship were 9.21 times more likely to report inconsistent condom use postpartum if they were also socially isolated (95% CI: 2.41, 35.22); there was no effect for those who were not socially isolated.
Conclusions: The findings suggest that being in an age-disparate relationship affects HIV risk, particularly for women who are socially isolated from their friends and family in the early postpartum period. Further research is needed to determine if there are other ways in which one's existing social networks affect power differentials in age-disparate relationships. Interventions that reduce women's social isolation during the postpartum period, particularly for those with older sexual partners, may reduce South African women's vulnerability to HIV during this time.

WEPED372

Measuring gender norms associated with transactional sex for adolescent girls and young women in Central Uganda - implications for structural interventions

K. Stoebenau[1], J.B. Bingenheimer[2], I.N. Ddumba[3], N. Kyegombe[4], S. Namakula[5], J. Mulindwa[5]
[1]University of Maryland, College Park, United States, [2]George Washington University, Prevention and Community Health, Washington, DC, United States, [3]Makerere University, Kampala, Uganda, [4]London School of Hygiene and Tropical Medicine, London, United Kingdom, [5]Independent Consultant, Kampala, Uganda

Background: Transactional sex, or informal sexual exchange relationships, are an important determinant of adolescent girls' and young women's (AGYWs) disproportionate HIV risk in sub-Saharan Africa. Transactional sex relationships are structured by both social and economic gender inequalities, suggesting economic intervention strategies

alone may not be adequate. In this study we explored the less examined social norm influences on transactional sex. We describe findings from a pilot study that developed innovative experimental vignettes to identify and assess gender norms stemming from the shared expectation that men should provide financial support to their partners.

Methods: We developed vignettes in the Kampala and Masaka districts of Uganda with 15 to 24 year old women between February, 2017 and January, 2018. The three phases of primary data collection included
1) 10 focus-group discussions (FGDs) to identify gender norms,
2) two rounds of 16 cognitive interviews to refine vignettes, and
3) the administration of a pilot survey experiment to 108 sexually-active unmarried AGYW (general population (n=78) and high-risk venues (n=30)).
Respondents were randomly assigned to one of two versions of each of three vignettes (short stories) which presented different levels of male provision.

Results: The vignettes examined whether the amount a man provided changed perceived approval of men's authority in relationships, men's sexual decision-making power, and women having multiple partners. We find an increase in the value a man provides significantly raises perceived levels of community approval for his sexual decision-making power (p< .001), and significantly lowers perceived peer approval of AGYW's seeking a second partner (p< .05). Finally, we find women who practiced transactional sex in the last 12 months (51%) were more likely to approve of women who sought multiple partners when their primary partner did not provide.

Conclusions: Our findings suggest that approval of men's sexual decision-making power increases when they provide more and that women are less socially sanctioned, or more approved of by their friends, when they seek a second partner in the event their first cannot provide. These findings highlight normative drivers of HIV risk associated with transactional sex that should be addressed by HIV intervention efforts working with AGYW.

WEPED373

Gender disparities in lifetime and recent transactional sex among high-risk youth

A.E. Fehrenbacher[1], D. Swendeman[1], S.-J. Lee[1], L. Kozina[2], M. Koussa[1], C. Reback[3], Adolescent Medicine Trials (ATN): Project CARES
[1]University of California, Center for HIV Identification, Prevention, and Treatment Services (CHIPTS), Los Angeles, United States, [2]Tulane University, New Orleans, United States, [3]Friends Research Institute, Los Angeles, United States

Background: Transgender and gender non-conforming (T/GNC) sex workers are severely marginalized and understudied despite having the highest HIV prevalence of all key populations globally, estimated at 27-40%. HIV prevalence among T/GNC sex workers is nine times higher than cisgender women sex workers and four times higher than cisgender men sex workers. T/GNC refers to gender identity that differs from assigned sex at birth. Cisgender refers to gender identity that corresponds with assigned sex at birth.

Methods: This analysis examined gender disparities in transactional sex among a cohort of high-risk 12-24 year olds (n=546) in Los Angeles and New Orleans in the Adolescent Medicine Trials (ATN): Project CARES from 2017-2018. Participants were recruited from homeless youth shelters, LGBT centers, clinics, and social media. Logistic regression was used to test the relationship between gender and prevalence of transactional sex (lifetime and last 12 months). Zero-inflated negative binomial regression was used to test the relationship between gender and frequency of transactional sex (last four months). The sample was 58% cisgender men, 35% cisgender women, and 7% T/GNC. Among T/GNC respondents, 71% were transgender women, 10% transgender men, and 19% non-binary.

Results: Lifetime prevalence of transactional sex was nearly three times higher among T/GNC respondents than cisgender respondents (63% T/GNC, 25% cisgender men, 23% cisgender women) and twice as high in the last 12 months (51% T/GNC, 24% cisgender men, 22% cisgender women). In addition to gender, lifetime transactional sex was significantly associated with being lesbian/gay, bisexual, or queer; lifetime history of homelessness, incarceration, mental health hospitalization, and substance abuse treatment; and recent (last 12 months) illicit drug use, testing positive for a sexually transmitted infection, sex with an HIV-positive partner, and condomless anal sex. There were no significant gender differences in frequency of transactional sex in the last four months.

Conclusions: T/GNC youth are significantly more likely to report transactional sex than cisgender youth. Structural risks of incarceration and homelessness contribute to substance use and mental health conditions, which cumulatively exacerbate HIV risk for T/GNC youth. Interventions for T/GNC youth must address multiple, intersecting forms of marginalization that limit their access to supportive risk reduction environments.

WEPED374

Self-esteem as an indicator of transactional sex among young women in rural South Africa (HPTN 068)

D. Giovenco[1], A. Pettifor[1], J. Hughes[2], C. MacPhail[3], R. Wagner[4], K. Kahn[4]
[1]University of North Carolina, Chapel Hill, Epidemiology, Chapel Hill, United States, [2]University of Washington, Biostatistics, Seattle, United States, [3]University of Wollongong, School of Health and Society, Wollongong, Australia, [4]MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), Parktown, South Africa

Background: Transactional sex (TS), or the exchange of sex for financial or material gain, has been well documented as a contributor to the HIV epidemic in sub-Saharan Africa. Studies conducted among young women in South Africa have found that approximately 20% of participants reported engaging in TS. Previous research has yet to identify psychosocial factors that make young women vulnerable to TS. Self-esteem has been associated with the adoption of risk behaviors among young people. The objective of this analysis was to determine if self-esteem is associated with TS among young women in South Africa.

Methods: HPTN-068 was a 3-year randomized controlled trial to assess the impact of a conditional cash transfer on HIV incidence among young women in rural South Africa that enrolled 2,533 participants from 2011-2012. In 2015-2017, a cross-sectional survey was offered to all participants from the main trial who had not died or been withdrawn. The current analysis utilized this post-intervention visit survey. Self-esteem was derived from the Rosenberg self-esteem scale and dichotomized at the median. TS was derived from 8-yes/no items that inquired if a participant had exchanged sex for food, money, material goods, or social status since their last visit in the main trial. Participants who responded "yes" to one or more items were categorized as having TS. Log-binomial regression was used to compute a prevalence ratio (PR). Additional covariates were specified to minimize confounding bias.

Results: 1,942 young women ages 17-26 years (M=20 years) were included. Approximately half (49%) were categorized as having high self-esteem and 15% reported having engaged in TS since their last visit. The prevalence of TS among those with low self-esteem (23.79%) was 5.05 times the prevalence of TS among those with high self-esteem (4.71%), 95% CI: 3.61-7.08, *p*< 0.001. The effect remained significant after adjusting for age, education, financial security, intimate partner violence, gender attitudes, and adverse childhood experiences (PR=4.10, 95% CI: 2.91-5.78, *p*< 0.001).

Conclusions: Findings provide support for the association between low self-esteem and TS in this context. Future research should examine self-esteem and incident TS to establish causality. Psychosocial factors, including self-esteem, should be considered when designing intervention programs.

WEPED375

Beyond money and gifts: Identifying the strategies men use to establish and maintain relationships with adolescent girls and young women in Uganda

G. Siu[1], A. Gottert[2], P. Keilig[2], A. Katahoire[1], F. Ayebare[1], N. Jani[2], S. Mathur[2], J. Pulerwitz[2]
[1]*Makerere University, Child Health and Development Centre, Kampala, Uganda,* [2]*Population Council, HIV and AIDS Program, Washington, United States*

Background: While much research has focused on men's use of money/gifts as a strategy for establishing relationships with adolescent girls and young women (AGYW), including implications for HIV risk, little is known about other tactics employed. We explored men's perspectives on these issues in Uganda.
Methods: We conducted in-depth interviews with 94 male partners of AGYW (ages 19-45) in three districts of Uganda, from March-May 2017. Respondents were recruited at community 'hot spot' venues (n=54) and via AGYW participating in DREAMS interventions (n=40).
Results: Most respondents (80%) were married (with mean age 28). Half reported recent multiple concurrent partnerships, mainly with AGYW. Nearly all men described using money/gifts as a strategy for starting and/or maintaining these relationships-from a meal to school fees or luxury items. However, participants reported other strategies as well. Some men used the nature of their occupation to engage girls, such as ready access to transport from a boda-boda motorcycle-taxi driver, or a man's bar or shop as a social hang-out space. Many men described using 'go-betweens', his own or the girl's friends or relatives, to establish familiarity before approaching her himself - often in return for bribes. Finally, men used regular phone contact to emphasize their interest in a young woman, with some men buying her a phone to make sure he can "keep her close." Men saw these strategies as necessary to "get the girl," grounded in the belief that he is only valuable based on the material wealth and lifestyle he can provide.
Conclusions: Men in Uganda use a range of strategies to establish relationships with AGYW, including money/gifts, the nature of their occupation, go-betweens, and regular phone contact. Such strategies generally demonstrate controlling behaviors and may heighten AGYW's vulnerability to HIV (and violence). Community-based interventions are needed to engage both men and women in critical reflection about the risks and emotional impacts of such strategies on both genders.

Migration and HIV

WEPED376

Sexual partnership patterns and HIV risks among male migrant market workers from Central Asian countries in Kazakhstan

G. Mergenova[1], A. Terlikbayeva[1], L. Gilbert[1,2], S. Shaw[3], S. Primbetova[1], N. El-Bassel[1,2]
[1]*Columbia University, Global Health Research Center of Central Asia, Almaty, Kazakhstan,* [2]*Columbia University, School of Social Work, New York, United States,* [3]*Brigham Young University, Social Work, Provo, United States*

Background: Globally, risky sexual behavior found to be associated with migration and mobility and contributes to HIV/STIs transmission.
We hypothesized that sexual partnership patterns, including:
1) monogamous partnership (MP) - both partners report only one partner;
2) indirect multiple partnerships (IMP) - a person reports one partner, while his partner has many partners;
3) simple multiple partnership (SMP) - a person reports many partners, the later reports one partner;
4) complex multiple partnerships (CMP) - a person reports many partners, who also have multiple partners, would be associated with mobility and HIV/STIs sexual risk (unprotected sex, sex under influence of alcohol, sex with a sex worker) among male migrant workers from the biggest market in Central Asia (CA), Almaty, Kazakhstan.
Methods: We used data of sub-sample (n=830) of sexually active men from a cross-sectional survey with biological data on HIV/STIs (syphilis, chlamydia, gonorrhea) from the Silk Road Health study among 1,342 male market workers. We used regression analysis (adjusting for age, marital status, income, migration status) to examine the association between sexual partnership patterns, mobility, HIV/STIs sexual risk and prevalence of STIs.
Results: Of the sample, 44.9 % reported being in MP, 1.2% - IMP, 26 % - SMP, 7.11 % - CMP. Mobility was associated with higher likelihood of being in CMP (RR=1.68, 95%CI: 1.04, 2.72, p< 0.05) and with lower probability of being in MP (RR=0.70, 95%CI: 0.59, 0.83, p< 0.001). Being in CMP was associated with higher likelihood of having unprotected sex with a female partner (RR=1.43, 95%CI: 1.17, 1.74, p< 0.001). Commercial sex was associated with higher likelihood of being in CMP (RR=2.25, 95%CI: 1.46, 3.45, p< 0.001) and in SMP (RR=1.88, 95%CI: 1.32, 2.69, p< 0.001). Likelihood of having sex under influence of alcohol was higher among men in CMP (RR=2.19, 95%CI: 1.45, 3.29, p< 0.001) and in SMP (RR=1.88, 95%CI: 1.32, 2.69, p< 0.001), whereas for men in MP, it was lower (RR=0.28, 95%CI: 0.18, 0.43, p< 0.001).
Conclusions: Sexual partnership patterns are characteristics of mobile population that may increase heterosexual transmission of HIV/STIs and must be considered in HIV/STIs prevention approaches among mobile populations in CA.

WEPED377

Antiretroviral treatment outcome in migrant workers living with HIV in Northern Thailand

L. Aurpibul[1], A. Tangmunkongvorakul[1], P.M. Musumari[2,3], A. Jirattikorn[4], A. Ayuttacorn[4], K. Srithanaviboonchai[1,5]
[1]*Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand,* [2]*Kyoto University School of Public Health, Department of Global Health and Socio-Epidemiology, Kyoto, Japan,* [3]*Japan Foundation for AIDS Prevention, Tokyo, Japan,* [4]*Faculty of Social Sciences, Chiang Mai University, Chiang Mai, Thailand,* [5]*Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand*

Background: Migrant workers living with HIV in Thailand have access to ART through various publicly supported health care programs. However, there has been concern that being minorities plus potential socioeconomic barriers would impact the effectiveness of treatment in this population. We determined HIV treatment outcomes among migrant workers in northern Thailand.
Methods: A cross-sectional study was conducted at 12 community hospitals in Chiang Mai, Northern Thailand. Inclusion criteria were:
1) working in Thailand with history of birth outside Thailand; and
2) having HIV infection and on ART for ≥ 1 year.
The study complied with local IRB; all eligible patients were invited to join, written inform consent was obtained prior to a face-to-face interview. Laboratory results and ART regimens were reviewed from hospital record. HIV treatment outcomes were determined from immunologic and virologic measurement.
Results: Two hundred and fifty-seven patients were enrolled; 65% were female. The mean age was 39.8 ±8.8 years. Seventy-eight percent identified themselves as Shan ethnicity, and 99% of all were from Myanmar. Half (54%) never attended formal education. Ninety-one percent were employed; 23% in construction, 21% in agricultural/farm, and 21% were general laborers. Their median monthly income was 6,000 baht (185 USD) (IQR 3,500-8,000). Sixty-two percent were living with husband/wife or partner.
The median duration on ART was five years (IQR 3-7) with a majority (91%) on the first-line NNRTI-based (49% efavirenz, 42% nevirapine), and 9% receiving PI-based regimens. Eighty-eight percent self-reported >95% adherence. Their mean current CD4+ lymphocyte count was 450 ± 279 cells/mm^3; 178 (69%) had CD4+ lymphocyte count ≥ 350 cells/mm^3, and 94% were virologic-suppressed (having HIV RNA level < 400 copies/mL). No difference was seen in characteristics between those virologically suppressed or not. In multivariate logistic regression analysis, factors associated with CD4+ lymphocyte count ≥ 350 cells/mm^3 included female sex, received HIV testing due to reasons other than illnesses, and duration on ART ≥ 5 years.

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Conclusions: Favorable ART outcomes were seen among migrant workers in northern Thailand. Screening for HIV prior to other illnesses and subsequent linkage to HIV care should be continuously encouraged to preserve immune function and minimize time for HIV transmission.

Variables	Total	Female	Male	p-value
Number of participants	257	166 (65)	91 (35)	
Age (years)	39.8 ± 8.8	39.7 ± 9.0	40.1 ± 8.6	0.73
18-<25 years	9 (4)	8 (5)	1 (1)	0.30
25-< 50 years	214 (83)	135 (81)	79 (87)	
≥ 50 years	34 (13)	23 (14)	11 (12)	
Duration form HIV diagnosis	6 (2-10)	6 (3-11)	5 (2-10)	0.34
Duration from ART initiation	5 (3-7)	5 (3-8)	4 (2-7)	0.09
Current ART regimens				
PI-based regimens	22 (9)	16 (10)	6 97)	0.40
NNRTI-based regimens				
nevirapine-based	109 (42)	72 (43)	37 (41)	
efavirenz-based	126 (49)	78 (47)	48 (53)	
Adherence to ART ≥ 95% by self-report	226 (88)	148 (89)	78 (86)	0.56
Current CD4 lymphocyte count	450 ± 279	495 ± 315	371 ± 172	< 0.01
< 200 cells/mm^3	26 (10)	12 (7)	14 (15)	< 0.01
200-499 cells/mm^3	137 (53)	79 (48)	58 (64)	
≥ 500 cells/mm^3	92 (36)	73 (44)	19 (21)	
data missing	2 (1)	2 (1)	0	
Number of cases with virologic suppression	234/248 (94)	152/160 (95)	82/88 (93)	0.57

Data in mean ± standard deviation, median (interquartile range), or number (%) as appropriate
Virologic suppression is defined as having HIV RNA level < 400 copies/mL

[Table 1 Comparison of HIV treatment outcome among female and male migrant workers living with HIV (n=257)]

WEPED378

Internal migration, changes in household composition and engagement in HIV care and treatment in rural South Africa

M.-S. Kang Dufour[1], S. Lippman[2], A. Pettifor[3], C. Kabudula[4], R.G. Wagner[4], A. Leddy[2], A. Julian[4], N. Masilela[4], S. Tollman[4], M. Collinson[4], C. Ginsburg[4], K. Kahn[4]
[1]University of California, San Francisco, San Francisco, United States, [2]University of California San Francisco, Division of Prevention Science, San Francisco, United States, [3]University of North Carolina, Raleigh, United States, [4]MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), Agincourt, South Africa

Background: Within South Africa, where national HIV prevalence is 12.2%, evidence suggests that rural areas characterized by high levels of temporary and internal migration and changes to household composition are most impacted by the epidemic. Understanding and tracking engagement in care in communities with highly mobile populations is complicated as individuals access care at more than one location. We utilized data from a health and socio-demographic surveillance site (HDSS) in Agincourt, Mpumalanga to assess the impact of population movement on HIV care engagement.
Methods: We merged data for all adults aged 18 to 49 captured within the annual HDSS census with electronic medical record data captured between 1 August 2015 and 31 December 2016 at the ten clinics serving the HDSS catchment area. Linking clinical data to the census records allowed us to track HIV care and treatment for individuals who accessed care at multiple sites, as well as to assess both migration (within and away from the region) and changes in household composition for each individual.
Results: Overall 32,481 women and 30,278 men aged 18 to 49 were resident in the HDSS between August 2015 and December 2016. Among residents, 50% had experienced some type of migration and 40.5% experienced a change in the number of adults living in the household. Being identified as HIV-positive on clinic records was associated with recent birth (OR 1.5 ;95% CI 1.4-1.7) or death in the household (OR 1.6 ;95% CI 1.2-2.2). Those who had migrated within the HDSS or experienced temporary migration were less likely to be identified as HIV-positive (OR 0.72; 95% CI 0.62-0.83 and OR 0.36 ;95% CI 0.34-0.39, respectively). Internal migration (OR 0.71; 95% CI 0.53-0.94) and having given birth (OR 0.67; 95% CI 0.56 - 0.81) were associated with defaulting from care.
Conclusions: In a high prevalence area with both a high degree of temporary and permanent migration, migration was associated with both lower probability of being identified as HIV-positive and increased probability of default from care. Our findings highlight the need for innovative care strategies to improve HIV diagnosis and engagement in care and treatment for migrant populations.

WEPED379

Qualitative study on the providers' perspectives regarding access to HIV care and treatment of migrants between Lesotho and South Africa

I.O. Faturiyele[1], K. Ntene-Sealiete[2], D. Karletsos[3], A. Musekiwa[4], M. Khabo[3], N. Sigwebela[4], S. Mndaweni[4], B.M. Mpila[4], P.T. Pisa[5], K. Maile[6]
[1]EQUIP Innovation for Health, Country Director, Maseru, Lesotho, [2]Ministry of Health, Maseru, Lesotho, [3]EQUIP Innovation for Health, Maseru, Lesotho, [4]EQUIP Innovation for Health, Centurion, South Africa, [5]EQUIP Innovation for Health, Centurion, Lesotho, [6]EQUIP-Innovation for Health, Maseru, Lesotho

Background: The HIV treatment and care cascade aims to diagnose and provide treatment and care to HIV infected individuals. However, HIV treatment and care for migrants is affected by their mobility and interaction with HIV treatment programs and the health care systems in different countries.
Objective: To assess service providers' knowledge around healthcare services provision to migrant HIV patient populations and continuity of care in both rural and urban facilities situated in high HIV burden districts of Lesotho.
Methods: The study setting included three borderland districts of Lesotho where migration flows are known to be high. A total of 15 health facilities accessed by high patient volumes were selected in Maseru, Leribe and Mafeteng. Purposive sampling was used to recruit health care providers for qualitative in-depth interviews across facilities. Two service providers at each facility were identified among those with highest interaction with HIV-infected patients on ART (clinicians, physicians, nurses, pharmacists, or counsellors). Data were analysed using the grouping of themes approach.
Results: Service providers indicated that the current referral system for HIV-positive patients on ART lacks flexibility: most migrants do not know their precise destination before leaving their country; yet, a transfer letter is accepted in South Africa only if addressed to a specific health facility. They also identified discrimination based on nationality or language as another barrier to access. Service providers indicated that most migrant patients preferred all HIV treatment services to be rendered in Lesotho, as they perceive the treatment provided in South Africa to be less effective and having more serious side effects. A need for mHealth systems or telephone tracking to track patients outside the country was suggested in combination with multi-month dispensing of antiretroviral treatment (ART) and harmonizing documentation among neighbouring states thus making referral processes easier.
Conclusions: Service providers' perspectives indicate the need to modify and re-structure HIV care among migrants. Specifically, in relation to differentiated care model that will support multi-month supply of treatment, tracing and mHealth platforms to improve various HIV outcomes including retention, adherence, virologic suppression and mortality.

WEPED380

Access to HIV care and treatment for migrants between Lesotho and South Africa

I.O. Faturiyele[1], K. Ntene-Sealiete[2], D. Karletsos[1], A. Musekiwa[3], M. Khabo[1], N. Sigwebela[3], S. Mndaweni[3], B.M. Mpila[3], P. Mahasha[3], P.T. Pisa[3], K. Maile[1]
[1]EQUIP Innovation for Health, Maseru, Lesotho, [2]Ministry of Health, Maseru, Lesotho, [3]EQUIP Innovation for Health, Centurion, South Africa

Background: The HIV treatment and care cascade aims to diagnose and provide treatment and care to HIV infected individuals. However, HIV treatment and care for migrants is affected by their mobility and interaction with HIV treatment programs and health care systems in different countries.
Objective: To assess healthcare needs, preferences and accessibility barriers of HIV-infected migrant populations in high HIV burden, borderland districts of Lesotho.

Methods: We selected 15 health facilities accessed by high patient volumes in Maseru, Leribe and Mafeteng. We then administered a survey questionnaire to consenting HIV infected individuals on anti-retroviral therapy (ART).
We defined a migrant as a Lesotho national who is currently living or has been living in South Africa for at least three consecutive weeks in the past six months.
Results: We enrolled a total of 2,784 HIV-infected migrants: 57.0% from urban sites and the remainder from rural sites; majority were aged between 36-45 years (37.6%); and almost half (49.7%) were domestic workers followed by construction workers (18.0%).
More than 95.0% preferred and collected their medications primarily in Lesotho. In terms of preferred dispensing intervals, less than 7.0% opted for a 1-2 month anti-retroviral (ARV) refills whereas 30.2% and 63.0% indicated a preference for 3-4 month and 5-6 month refills respectively. More than 65.0% encountered barriers to receiving their antiretroviral treatment (ART) and about 25.0% defaulted while in South Africa.
Treatment default rate for domestic workers and textile industry workers was significantly higher than that of other professional categories ($p<0.02$); however, we did not observe significant differences in defaulting with respect to gender ($p=0.11$). The primary reason for defaulting was failure to afford travelling costs to collect medication.
Conclusions: Existing healthcare systems in both South Africa and Lesotho experience challenges in providing proper care and treatment for HIV infected migrants. There is need for targeted interventions and a differentiated care model specific to HIV infected migrants such as a multi-month supply of treatment.

WEPED381

The intersections of transnationalism, sexuality and HIV risk: The case of Chinese immigrants to Canada

Y.R. Zhou[1], W.D. Coleman[2], Y. Huang[3], C. Sinding[4], W. Wei[5], R. Cain[6], J. Gahagan[7], E. Micollier[8]
[1]McMaster University, School of Social Work, Hamilton, Canada, [2]University of Waterloo, Waterloo, Canada, [3]Remin University of China, Beijing, China, [4]McMaster University, Hamilton, Canada, [5]East China Normal Univserity, Shanghai, China, [6]McMaster Univserity, Hamilton, Canada, [7]Dalhousie University, Halifax, Canada, [8]The French Research Institute for Development, Paris, France

Background: Immigrants studies in recent decades widely document international migrants' dual, simultaneous engagement in sending and receiving countries. The notion of transnationalism - in such forms as cross-country mobility and connections - and its implications for research into HIV risk have been largely overlooked, however. Based on a study of the new wave of Chinese immigrants to Canada, this paper explores the effects of transnationalism on those individuals' risk perceptions, risk exposure and risk responses.
Methods: Informed by multi-sited ethnography, the data were collected through individual, semi-structured, in-depth interviews carried out from 2012 to 2015 with 66 Chinese adult immigrants - 31 women and 35 men - in Canada and China. Guided by the coding scheme that was collectively developed by the research team, the transcribed interviews were coded by using NVivo (9.2).
Results: First, the settlement processes and subsequent challenges in Canada - such as economic downward mobility, geographic separation of marries spouses, and social marginalization and isolation - have made Chinese immigrants under study vulnerable to sexual health (including HIV) risks that they may not face back home.
Second, despite the changing dynamics of HIV risk in a in a post-immigration context., their risk perceptions and attitudes toward HIV are largely influenced by the values and beliefs they developed in China.
Third, although living in Canada means a bigger space for individual freedom, their simultaneous awareness of the desired gender roles and relations in the two, quite different, societies in turn generates various contradictions and conflicts that compromise their capacity to respond to the risk.
Conclusions: In a globalizing world, risks to international migrants' health involve complex, multi-faceted interactions between host and home country values, practices and norms. Taking into account Chinese immigrants' sustained linkages with their home country, we argue that researchers should go beyond a nation-bound concept of society (i.e., the host society), and take into account the simultaneous influence of both Canada and China on their HIV vulnerability.

Violence and conflict: political, social, structural, interpersonal, and family-based

WEPED382

Quantifying the levels of violence towards men who have sex with men (MSM) in three cities of Honduras

N. Gallardo[1], J. Wheeler[2], P. Letona[1], F. Alvarenga[1], S. Lungo[1]
[1]Pan American Social Marketing Organization (PASMO), Guatemala, Guatemala, [2]Population Services International (PSI), Washington, DC., United States

Background: High rates of drug and gang violence, makes Honduras a violent country. A social context of traditional values, homophobia and machismo create an environment that makes MSM vulnerable. There has been no recent quantification of violence towards them. The Pan American Social Marketing Organization conducted a population-based study to assess the USAID Combination Prevention Program for HIV and quantify the proportion of this population experiencing violence.
Methods: Between May-August 2017, a respondent driven sampling (RDS) cross-sectional survey was conducted in three Honduran cities with 1922 MSM (47% from Tegucigalpa, 31% from San Pedro Sula, 22% from La Ceiba), aged 18-40 years old. Four types of violence were measured (psychological, verbal, physical and sexual), by asking participants if they have felt threatened, insulted, punched of forced to have sex during the last 12 months, and if they perceived it was due to their sexual preference.
Results: Overall, 19% of the participants self-identified as heterosexual, 39% as bisexual, 33% as gay, and 9% as transgender. In addition, 50% was of low socioeconomic status (SES), 30% of middle SES, and 20% of high SES. In Tegucigalpa, 29% of the participants suffered some type of violence, 21% suffered psychological violence, 34% verbal violence, 11% physical violence; and 7% sexual violence perceived to be related to their sexual orientation. In San Pedro Sula, 18% suffered some type of violence, 17% suffered psychological violence; 26% verbal violence; 10% physical violence; and 5% sexual violence. Finally, in La Ceiba, 29% suffered some type of violence, 25% suffered psychological violence; 34% suffered verbal violence; 15% physical violence; and 5% sexual violence. Results show that suffering some type of violence may reduce the chances of using condom at last sex (OR 0.694 [0.511-0.943], $p < 0.05$), and increase the probability of conducting an HIV test (OR 1.536 [1.214-1.942], $p < 0.001$).
Conclusions: The study shows considerable levels of violence towards MSM due to their sexual preferences, and how it can influence healthy behaviors. Therefore, it is important for HIV prevention programs to promote violence prevention activities and offer psychological support at clinic level.

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Prevalence of intimate partner violence among HIV positive depressed perinatal PMTCT-plus clinic attendees in urban Tanzania: A baseline study

Z. Aloyce[1], E. Larson[2], A. Komba[1], A. Mwimba[1], A. Kaale[1], A. Minja[1], H. Siril[3], J. Kamala[1], M. Somba[1], S.F. Kaaya[4], M.C. Smith Fawzi[5]

[1]Africa Academy for Public Health, Program, Dar es Salaam, Tanzania, United Republic of, [2]Harvard T.H Chan School of Public Health, Department of Global Health and Population, Boston, United States, [3]Management and Developments for Health, Program, Dar es Salaam, Tanzania, United Republic of, [4]Muhimbili University of Health and Allied Sciences, Psychiatry and Mental Health, Dar es Salaam, Tanzania, United Republic of, [5]Harvard Medical School, Global Health and Social Medicine, Boston, United States

Background: Intimate partner violence (IPV) among women with HIV and depression in Tanzania is a social problem that may occur following partner disclosure of a woman's positive HIV status. The main objectives of this study were: to estimate the prevalence and types of IPV among HIV positive and depressed perinatal women attending antenatal clinics in 16 health facilities in Dar es salaam, Tanzania; and to examine associations between IPV and disclosure of HIV status in this sub-population.

Methods: The baseline survey of a cluster randomized controlled trial that enrolled 742 attendees of antenatal clinics in Dar es Salaam contributed data for this analysis. Participants attending clinics for prevention of mother-to-child transmission of HIV and on antiretroviral therapy (ART) were enrolled if they provided informed consent to participate and screened at or above the threshold of 9 on the PHQ-9, a depression screening tool. Data were collected using interviewer administered questionnaires to obtain sociodemographic measures, experience with physical or sexual IPV in the past six months, self-disclosure of their HIV status, and experience of emotional violence from their partner after disclosure of status.

Results: The mean age of participants was 29.6 years old (SD=5.4; range of 18-43). Among 725 women who responded to the question, 659 (90.9%) had been in an intimate relationship over the last six months, among whom 67 (10.2%) had experienced physical violence and 76 (11.6%) sexual violence. Nearly 75% disclosed their HIV status to anyone outside health facility staff of whom 63.5% had disclosed their HIV positive status to their partners. The risk of experiencing any physical or sexual violence was not different between women who disclosed their HIV status to their partners and women who did not disclose (RR: 0.98, 95% CI: 0.75, 1.28). After disclosing their HIV status to partners, 60 (17.3%) women experienced emotional violence.

Conclusions: Reports of both physical and sexual IPV were high in this population of HIV-infected, depressed pregnant women. Although there was no association between physical and sexual IPV and disclosure, increased programmatic efforts need to be made regarding the risk of emotional abuse following disclosure of HIV status.

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Coerced first sex among adolescents living with HIV in the Copperbelt, Zambia: Cross-sectional analyses of prevalence and associations with ART adherence, depression and alcohol use

K. Merrill[1], D. McCarraher[2], C. Packer[2], N. Nyambe[3], S. Mercer[2], J. Mwansa[4], J. Denison[1]

[1]Johns Hopkins Bloomberg School of Public Health, Department of International Health, Baltimore, United States, [2]FHI 360, Social and Behavioral Health Sciences, Durham, United States, [3]FHI 360, Lusaka, Zambia, [4]Arthur Davison Children's Hospital, Ndola, Zambia

Background: Experience of sexual violence is linked with poor antiretroviral therapy (ART) adherence, poor mental health, and alcohol abuse among HIV-positive adults. However, we lack data on sexual violence and associated outcomes among adolescents living with HIV (ALHIV) in sub-Saharan Africa (SSA). This secondary analysis aimed to estimate prevalence of one form of sexual violence—coerced first sex—and its associations with ART adherence, depression, and alcohol use among ALHIV ages 15-19 in Zambia.

Methods: A cross-sectional study was conducted (December 2012-May 2013) in three HIV clinics in urban areas of the Copperbelt Province to examine ART adherence and sexual behaviors. We interviewed 309 of the estimated 365 ALHIV receiving care at these clinics. Prevalence and descriptors of coerced first sex, a binary measure, were tabulated. Exact logistic regression was used to estimate crude and adjusted associations between experience of coerced first sex and: a ≥48-hour consecutive treatment gap in ART in the past three months, a positive screen for depression based on the Hopkins Symptoms Checklist depression subscale (HSCL-15), and past-month alcohol use.

Results: 64 ALHIV (21% of the sample, 55% female, 65% perinatally infected) who reported having ever had sex were included. Over one-third of males (9/29, 31%) and two-thirds of females (22/35, 63%) reported their first sexual experience was forced. Of these, 16% (n=5) reported they acquired HIV through rape or forced sex. In analyses adjusted for age and sex, adolescents who experienced coerced first sex showed higher odds of having a ≥48-hour treatment gap in ART adherence in the past three months (OR: 1.53, 95%CI: 0.35-6.89), but this association did not reach significance. No evidence was found on associations between coerced first sex and depression or alcohol use.

Conclusions: The high prevalence of forced sexual debut in our study, particularly among females, highlights the need for clinicians to ask about experiences of sexual violence on enrollment in ART and to tailor services appropriately. Our study was not powered for these analyses, and additional research is needed on experience of sexual violence and its effects with HIV-related outcomes, including ART adherence, among ALHIV in SSA.

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The relationship between intimate partner violence and HIV risk behaviors in Black and White young men who have sex with men

D. Gerke[1], W. Auslander[1], W. Sewell[2]

[1]Washington University in St. Louis, George Warren Brown School of Social Work, Saint Louis, United States, [2]Washington University in St Louis, Social Work, Saint Louis, United States

Background: Young men who have sex with men (YMSM) are the group at highest risk for HIV infection in the US. Previous research demonstrated that experiencing intimate partner violence victimization (IPV) was associated with increased risk for HIV in minority women. Although data indicates that men are also victims of IPV, few studies have examined IPV experiences of YMSM, and the relationship between IPV and HIV risk in this high-risk population. Accordingly, the following research questions were asked:

1) What is the extent of IPV experienced by YMSM;

2) Is IPV significantly associated with HIV-risk behaviors, accounting for demographics?

Methods: Participants were 168 YMSM ages 18-34 (M=25.01, SD=3.58) recruited from AIDS service organizations (ASOs) in two mid-sized midwestern cities, who were 57.7% Black and 42.3% White. Data were collected through computer-assisted personal interviews assessing HIV risk behaviors in last 12 months: number of unprotected anal intercourse (UAI) occasions; number of male sexual partners (MSEXP); PrEP use. Independent variables were: types of IPV: physical, controlling, monitoring, HIV-related, emotional. Demographic variables were: ethnicity, education, income. Data analyses included descriptive statistics, nonparametric correlations, logistic and negative binomial regressions.

Results: More than half (57.7%) reported experiencing at least one type of IPV in the last year. Logistic regression results showed that those who experienced higher levels of HIV-related IPV (OR=1.44, p< .01) and higher income levels (OR=1.30, p< .05) were more likely to use PrEP than their counterparts. Bivariate analyses indicated that monitoring IPV was significantly associated with more UAI, and controlling and HIV-related IPV were significantly associated with more MSEXP. However, results of negative binomial regressions showed these relationships were not significant with demographics in the models. Analyses examining demographic differences in HIV-risk behaviors indicated that White and more highly educated YMSM reported significantly more MSEXP than their counterparts.

Conclusions: Findings suggest that HIV-related IPV (e.g. partner lying about or not disclosing HIV status) may act as a motivator to using PrEP for YMSM because of their increased perceptions of susceptibility. Other forms of IPV may not be directly associated with increased UAI or MSEXP. Results may be specific to YMSM using ASO services in midsized cities.

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"Neither safe nor secure": Systematically addressing safety and security in HIV programs for key populations to protect implementers and facilitate effective programming

R. Chawla[1], R. Dayton[2], S. Middleton-Lee[3], S. Mellors[1]
[1]The International HIV/AIDS Alliance, Brighton, United Kingdom, [2]FHI 360, Durham, United States, [3]Independent Consultant, Brighton, United Kingdom

Background: Community-based organizations (CBOs) are the heart of HIV programs for and with key populations (KPs) - men who have sex with men, sex workers, transgender women, and people who inject drugs. Implementers of KP programs working in hostile environments—for example, where KP members are criminalized—face safety and security challenges ranging from eviction and blackmail to torture and death. These human rights violations also limit the impact of HIV programs. More needs to be done to protect implementers and limit programming interruptions.
Description: To address this gap, in 2017 the International HIV/AIDS Alliance and FHI 360 - through the USAID- and PEPFAR-supported LINKAGES project - conducted a desk review and convened a workshop in East Africa of 48 CBOs, nongovernmental organizations (NGOs), UN agencies, donors, and security experts working in hostile environments to develop a safety and security toolkit. The toolkit includes: 1) a review of safety and security challenges, their impacts on HIV programming, and promising practices to address them; 2) practical checklists to help program implementers systematically identify safety and security gaps affecting organizations, individuals, and implementation sites; and 3) an annotated bibliography of safety and security resources. Workshop attendees used and added to the toolkit, making observations about its utility in their contexts.
Lessons learned: Workshop participants confirmed that very few organizations implementing programs for and with KPs feel that they are adequately equipped to keep their implementers safe. At the same time, many CBOs have developed strategies and resources to address safety and security challenges that they believe could also help others. Helping CBOs identify their gaps and linking them to existing resources, through the toolkit, is an effective way to increase awareness of both safety and security gaps and resources.
Conclusions/Next steps: Integration of this toolkit, including completing the checklists and developing a safety and security plan to address any identified gaps, should be a resourced part of HIV programs for KPs. Donors and NGO partners must work together to ensure that local organizations taking on risks as part of implementing HIV programs also receive support to mitigate and respond to those risks.

WEPED387

Preventive strategies for sex workers to reduce risk of violence and HIV

S. Hendriks[1,2], L. Woensdregt[2], I. van Beekum[3], Sex Work Study Group Consisting of Research Assistants and Coordinators from the Sex Worker-Led Organisations
[1]Aids Fonds, Sex Work Programme, Amsterdam, Netherlands, [2]VU University Amsterdam, Social Sciences, Amsterdam, Netherlands, [3]Aidsfonds, Amsterdam, Netherlands

Background: Violence is one of the most important factors affecting the vulnerability of sex workers to HIV/AIDS. Sex workers experience physical, sexual, economical and emotional violence from clients, police and the community. This often causes inconsistent condom use and prevents sex workers from accessing necessary support and health care. To avoid and mitigate the risk of violence and HIV they adhere to a variety of strategies and techniques. This study describes prevention and mitigating strategies used by sex workers in Southern Africa to reduce risk of violence and HIV.
Methods: Participatory mixed methods were used. In total 2227 sex workers participated in the study (N= 1895 for survey, N= 79 for in-depth interviews, N= 253 for FGDs) in Botswana, Mozambique, Namibia, South Africa and Zimbabwe. Sex workers were part of the design and roll-out of the study. Additionally they were trained as research assistants and distributed the survey among peers. The survey and in-depth interviews focused on violence; social capital; law enforcement; and risk and mitigation factors.
Results: Sex workers who experience violence adhere to a variety of strategies and techniques to avoid and mitigate risks. Most used strategies are negotiating and receiving payment before having sex (97%), avoiding known dangerous places (96%) and adapting their behavior (92%). Sex workers who use preventative measures see no significant decrease in the amount of violence they face. Regression analysis shows that the only effective strategy is giving money to another sex worker to protect earnings, which decreases the amount of economical violence. Furthermore, sex workers who refuse clients more frequently, experience more violence.
Conclusions: Preventative measures used by sex workers are not sufficient to reduce violence and increase their safety and security. To prevent violence and HIV sex workers' human rights need to be respected by society and protected by law enforcement and the judicial system. Furthermore, decriminalization of sex work is necessary, since it promotes safe working conditions for sex workers, reduced police violence and abuse, and better client negotiation capacity.

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Effects of a community empowerment intervention on physical violence among female sex workers in Tanzania

A.M. Leddy[1], N. Galai[2,3], S. Beckham[2], C. Shembilu[4], A. Mwampashi[4], A. Mantsios[2], W. Davis[5], S. Likindikoki[4], J. Mbwambo[4], D. Kerrigan[2,5]
[1]University of California, San Francisco, United States, [2]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States, [3]University of Haifa, Haifa, Israel, [4]Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania, United Republic of, [5]American University, Washington, United States

Background: Female sex workers (FSWs) in Tanzania experience high rates of gender-based violence (GBV), which is associated with increased risk for HIV. We assessed whether a community empowerment-based approach for combination HIV and violence prevention was associated with reduced physical violence among FSWs in Iringa, Tanzania. We also sought to determine the predictors of physical violence among this population.
Methods: A phase II community randomized controlled trial of a community empowerment-based combination HIV prevention approach, Project Shikamana, was conducted in Iringa, Tanzania. Intervention components included workshops to raise awareness about violence and sex worker rights, and provide opportunities for FSWs to strategize ways to prevent and address violence perpetrated against FSWs. We used logistic regression models for repeated measurements at baseline and 18 months follow-up to explore changes in physical violence in the past 6 months by intervention community, and assess the determinants of physical violence among FSWs.
Results: A total of 387 FSWs were enrolled in the Project Shikamana cohort at baseline and completed the follow-up survey. Baseline prevalence of HIV was 41% and 35% reported physical violence in the past 6 months. Stratified analysis by study community revealed that FSWs in the intervention community had significantly decreased odds of physical violence at follow up (OR: 0.51, 95% CI: 0.29-0.88).
There were no significant differences in the control arm. In unadjusted analyses, intoxication during sex work, work mobility, clients expecting FSWs to use substances during sex work, having four or more clients per week, and denial payment for sex work were associated with increased odds of physical violence. Clients' expectations of FSW substance use

and denial of payment for sex work remained significantly associated with increased odds of physical violence, after adjusting for age, income, marital status, HIV status, and significant variables in the bivariate analysis.

Conclusions: Project Shikamana was associated with reductions in physical violence among FSWs in the intervention community. Findings suggest the potential role community-empowerment interventions can play in violence prevention among FSWs and highlight the need for future interventions among this population to address client expectations of substance use during sex work and denial of payment for sex work.

	Mafinga (control) N=176		Illula (intervention) N=211	
Characteristics	Unadjusted OR (95% CI)	Adjusted aOR (95% CI)	Unadjusted OR (95% CI)	Adjusted aOR (95% CI)
HIV positive	1.41 (0.78, 2.57)	1.47 (0.74, 2.94)	0.89 (0.50, 2.60)	1.10 (0.57, 2.14)
Follow-up visit	0.55 (0.33, 0.93)*	0.75 (0.42, 1.32)	0.42 (0.25, 0.69)**	0.51 (0.29, 0.88)*
Travel outside of Iringa for sex work, past 6 months	1.64 (0.87, 3.09)	1.18 (0.59, 2.38)	2.99 (1.52, 5.89)**	1.79 (0.88, 3.69)
Almost always/always intoxicated from drugs or alcohol during sex work, past 30 days	1.13 (0.58, 2.22)	0.87 (0.39, 1.91)	2.81 (1.37, 5.76)**	1.83 (0.79, 4.26)
Clients almost always/ always expect you to drink alcohol/do drugs with them, past 30 days	1.61 (0.94, 2.76)	1.72 (0.91, 3.27)	3.18 (1.72, 5.89)***	2.10 (1.05, 4.20)*
Average number of clients per week is ≥ 4	1.29 (0.68, 2.44)	0.93 (0.46, 1.89)	2.61 (1.32, 5.14)**	1.43 (0.65, 3.13)
Ever been denied payment for sex work completed	3.18 (1.71, 5.93)***	2.61 (1.32, 5.17)**	1.97 (1.13, 3.44)*	1.45 (0.78, 2.69)
*p<0.05, **p<0.01, ***p<0.001				

[Predictors of physical violence in the past 6 months among the Shikamana cohort, stratified by intervention community]

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Community collective efficacy is associated with reduced intimate partner violence (IPV) incidence in the HPTN 068 cohort

A.M. Leddy[1,2], T.B. Neilands[1], J. Ahern[3], S.M. Delong[4], F.X. Gómez-Olivé[5], C. MacPhail[5,6], K. Kahn[5,7], A. Pettifor[4,5], S.A. Lippman[1]
[1]University of California, Division of Prevention Sciences, Department of Medicine, Center for AIDS Prevention Studies, San Francisco, United States, [2]University of California, Division of HIV, ID and Global Medicine, San Francisco, United States, [3]School of Public Health, University of California, Department of Epidemiology, Berkeley, United States, [4]Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Department of Epidemiology, Chapel Hill, United States, [5]University of the Witwatersrand, MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), Johannesburg, South Africa, [6]School of Health and Society, University of Wollongong, Wollongong, Australia, [7]Umeå Centre for Global Health Research, Umeå University, Division of Epidemiology and Global Health, Department of Public Health and Clinical Medicine, Umeå, Sweden

Background: Intimate partner violence (IPV) is associated with increased risk for HIV and reduced engagement along the HIV care continuum. Collective efficacy (CE), defined as mutual trust among community members and willingness to intervene on the behalf of the common good, has been found to be associated with reduced neighborhood violence. Limited research has explored whether CE is associated with reduced incidence of IPV. This is of particular interest among adolescent girls and young women (AGYW) in sub-Saharan Africa, where the burden of HIV is greatest and IPV is common.

Methods: We conducted longitudinal analysis among 2,533 AGYW (ages 13-20) enrolled in the HPTN 068 cohort in the Agincourt Health and Demographic Surveillance System. We included participants from the 28 villages where community surveys and annual census data were collected during the 068 study. HPTN 068 participants completed up to five annual survey visits (2011-2016). Household-level data were collected from the parent/guardian of each participant at all visits. CE was measured at the village-level in 28 communities in Agincourt via two population-based cross-sectional surveys among 18-35 year old residents in 2012 and 2014. The CE score represents a summary village score created by combining validated measures of community social cohesion and social control. We used Agincourt census data to adjust for village-level covariates. Multivariable Poisson generalized estimating equation regression models assessed the relative risk (RR) between village mean CE scores and subsequent physical IPV 12-month incidence, adjusting for age at baseline, HIV status, education, baseline reports of physical IPV, household assets, and community characteristics.

Results: Thirty-eight percent of the cohort (N=950) reported at least one episode of physical IPV after baseline. For every standard deviation increase in village-level CE, there was a 6% reduction in physical IPV incidence in the past 12 months (RR: 0.94; 95% CI: 0.90, 0.98; p< 0.01) among AGYW after adjusting for covariates.

Conclusions: Increased community-level CE was associated with reduced physical IPV incidence among AGYW in South Africa. These results support interventions that foster the development of CE at the community level to prevent IPV among AGYW and potentially improve HIV outcomes among this priority population.

WEPED390

Experiences of traumatic events increases men's HIV-risk behaviours: A cross-sectional study and structural equation model (SEM) amongst young (18-30) men in urban informal settlements in South Africa

A. Gibbs[1,2], A. Hatcher[3,4], R. Jewkes[3,5], L. Washington[6], Y. Sikweyiya[5], D. Peacock[7], M. Khumalo[7], T. Ngoma[7], N. Christofides[3]
[1]South African Medical Research Council, Gender and Health Research Unit, Durban, South Africa, [2]University of KwaZulu-Natal, Health Economics and HIV/AIDS Research Division, Durban, South Africa, [3]University of Witwatersrand, School of Public Health, Johannesburg, South Africa, [4]University of California, San Francisco, United States, [5]South African Medical Research Council, Gender and Health Research Unit, Pretoria, South Africa, [6]Project Empower, Durban, South Africa, [7]Sonke Gender Justice, Cape Town, South Africa

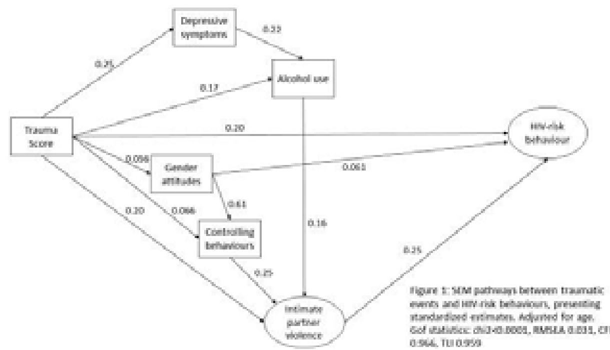
Background: Qualitative research on men's HIV-risk behaviours has emphasized how men's experiences of traumatic events, such as witnessing violence, being attacked, and so forth may lead to increased HIV-risk behaviours. Little quantitative research has sought to operationalize these ideas. We seek to understand the associations between experience of traumatic events and HIV-risk behaviours amongst heterosexual men in urban informal settlements in South Africa.

Methods: We conducted a cross-sectional survey among 2517 men living in urban informal settlements in Johannesburg and Durban, South Africa, enrolled in two intervention trials. We modelled associations in two ways, first through adjusted regression models, and secondly structural equation modelling (SEM) to assess whether men's experiences of traumatic events were independently associated with increased HIV-risk behaviours, and whether there were mediated pathways via mental health, gender attitudes, and intimate partner violence (IPV).

Results: Of 2517 men, 87.7% reported any past year risky sexual behaviour and 63.8% reported any traumatic event in their life. In adjusted regressions witnessing of a murder of a family member, witnessing a murder of a stranger, witnessing an armed attack, experiencing excessive harm, being kidnapped, being or feeling close to death or witnessing a rape were all significantly (p< 0.05) and independently associated with an increase in risky HIV-behaviours. The SEM indicated a direct pathway between increasing traumatic experiences and HIV-risk behaviours (Figure 1). Three other sets of paths provided mediated relationships. First, trauma increased gender inequitable attitudes and then HIV-risk. A second pathway was mediated by IPV, in turn increasing HIV-risk. Third, trauma increased depression and alcohol use, which increased IPV. SEM had satisfactory goodness of fit statistics.

Conclusions: Traumatic experiences were independently associated with HIV-risk behaviors in the regression and SEM. Traumatic experiences also increased HIV-risk through worsening mental health, creat-

ing more gender inequitable attitudes, and through increasing men's use of IPV. Reducing men's experiences of traumatic events may reduce risky sexual behaviour, but these need to be accompanied by working on men's mental health, transforming gender attitudes, and reducing IPV perpetration.



[Figure 1: SEM showing associations between trauma and HIV-risk]

WEPED391

Hidden and covered - underreporting of violence in transgender project even after empowerment processes

S. Kandaswamy[1], S. Shaikh[2], E. Restoy[3], A. Aher[2], V. Arumugam[1], H. Singh[4], U. Chawla[2], S. Mehta[5]
[1]India HIV/AIDS Alliance, Strategic Information, New Delhi, India, [2]India HIV/AIDS Alliance, Program & Policy, New Delhi, India, [3]International HIV/AIDS Alliance, Head: Knowledge, Brighton, United Kingdom, [4]India HIV/AIDS Alliance, Grants Management, New Delhi, India, [5]India HIV/AIDS Alliance, Chief Executive, New Delhi, India

Background: Gender inequality, stigma and discrimination, punitive laws, lack of sensitized government testing centres, service accessibility, providers' attitude, and violence, remains some of the barriers faced by the TGH population in India. India HIV/AIDS Alliance implemented Wajood programme for empowering the TGH to increase their access the health services by creating an enabling environment. Under this, one of the major objective is documenting the human rights violence faced by TGH.

Methods: A cohort of 385 client's crisis cases were documented in two years under the programme intervention. Client data were collected using structured software called ReACT excel tool. Descriptive analysis were carried out using the SPSS 20.0. As an intervention, individuals facing any kind of crisis will be intimated to the Wajood programnme. Community mobilisers, advocacy officers and crisis response team will support the individuals to overcome the crisis within 48 hours.

Results: Among 2,925 TGH only 385 (13%) TGH self-reported the crisis. 53% of crisis reported was of physical violence, 26% on harassment,19% on discrimination and remaining on trauma. Under the self-reporting population, 61% of crisis were faced by transwoman, 29% by Hijra (subgroup of TGs with strict community norms) and 10% by Jogappa (subgroup of TGs with strict community and religious norms, exclusively in Bijapur, so far not reached by any national programme).

Among these individuals, 42% of crisis were faced by people belonging to the age group of 26-30 years and 31% were from 18-25 years. 51% of population were engaged in sex work and 22% begs for livelihood.

88% of crisis were triggered by non-state authorities (family members, local goons, auto drivers, education institutes etc.) and 12% of crisis were triggered by state authority (police, health care providers and other government officials).

Conclusions: The crisis which is self-reported here, many TGH were facing issues and struggling with barriers and has not reported yet, in the programme itself only 13% of TGH reported about the crisis, in this scenario enhanced awareness and empowerment is required for the TGH community and sustained interventions to solve their crisis by themselves, otherwise HIV programme will never be able to fully attain its goals.

Perpetrator	Age group							%
	18-25	26-30	31-35	36-40	41-45	46-50	50 above	
Family members	42	38	13	10	3	0	3	29%
Local Gundas	25	45	19	6	1	0	0	26%
Others	15	16	7	2	0	0	0	11%
Police and law enforcement	7	13	4	4	0	0	0	8%
Work place	9	10	5	2	1	0	1	8%
Bar resturant owners	3	13	8	0	1	0	0	7%
Taxi Drivers/Auto Drivers	3	7	5	2	2	0	0	5%
Health Facilities	5	7	0	0	1	0	0	4%
Service Delivery points	2	2	2	1	0	0	0	2%
Education Institutes	2	1	0	0	0	0	0	1%
Social gathering	1	0	0	0	0	0	0	0%
Co-passengers in public transport	0	1	0	0	0	0	0	0%
Force sex	15%	7%	10%	4%	0%	0%	0%	
Physical Injury	25%	38%	27%	19%	11%	0%	25%	

[Table 1: Perpetrator who caused crisis to TGH]

WEPED392

Effects of intimate partner violence on engagement in HIV care among women living with HIV in Rakai, Uganda

A. Wirtz[1], N. Nakyanjo[2], J. Wagman[3], R. Gray[1], J. Ssekasanvu[1], D. Serwada[2], J. Kagaayi[2], M. Wawer[1]
[1]Johns Hopkins School of Public Health, Epidemiology, Baltimore, United States, [2]Rakai Health Science Program, Rakai, Uganda, [3]University of California, San Diego, United States

Background: There is an association between intimate partner violence (IPV) and HIV acquisition, but less is known about the effect of IPV on engagement in HIV care. We estimated the effects of IPV on engagement in HIV care among women in Rakai, Uganda.

Methods: This mixed-methods study employed quantitative analysis of women living with HIV (N=2,016) in the Rakai Community Cohort Study from 2008-2013, during which the Conflicts Tactics Scale was included in the survey. Measures included recent (last 12 months) forms of psychological, sexual, and physical IPV. Generalized estimation equations estimated population-averaged association of recent IPV and engagement in HIV care. Interaction terms assessed effect modification by age. Qualitative research included in-depth interviews with women who had reported IPV (N=25) and with service providers who provide HIV care and/or services for IPV (N=15). Interviews/discussions explored the behavioral mechanisms by which IPV impacts engagement in HIV care.

Results: 53% of participants were engaged in care and 29% reported recent IPV. The odds of engagement in care were 55% lower for women who reported any IPV in the same survey interval compared to those without recent IPV (Table 1, Model 1). Among participants with a recent HIV diagnosis, IPV reduced the odds of engagement in care by 69%, which was marginally significant (Model 2). Recent IPV was marginally associated with a 59% reduced odds of engagement in care in the subsequent survey interval (Model 3). Models 1-3 demonstrated significant modification by age, in which the youngest age group (15-30 years) who experienced IPV have the lowest odds of engagement in care in the same and subsequent survey intervals. Qualitative research recounted direct effects of IPV on care and ART use, including partner destruction of medication. Multiple indirect effects of IPV on engagement in care were reported; these were often related to psychological violence that reduced women's HIV service use to avoid IPV victimization.

	Model 1	Model 2	Model 3	Model 4
	Association between IPV & HIV care in same survey interval (N=2,016)	Model 1 restricted to all recent diagnoses in the same survey interval (N=968)	Effect of IPV on HIV care in the next survey interval (N=1,048)	Model 3 restricted to all recent diagnoses in the next survey interval (N=304)
	aOR (95%CI, p-value)	aOR (95%CI, p-value)	aOR (95%CI, p-value)	OR (95%CI, p-value)
Any IPV (ref: No)	0.45 (0.24-0.82; 0.01)	0.31 (0.09-1.09; 0.07)	0.41 (0.14-1.12; 0.08)	0.29 (0.03-2.84; 0.29)
Age (ref: 41yrs +)				
15-30 years	0.27 (0.21-0.35; <0.01)	0.45 (0.28-0.70; <0.01)	0.30 (0.20-0.46; <0.01)	0.27 (0.10-0.72; 0.01)
31-40 years	0.88 (0.69-1.12; 0.30)	0.77 (0.48-1.23; 0.28)	0.88 (0.59-1.33; 0.55)	0.47 (0.17-1.29; 0.14)
IPV x Age interaction	1.32 (1.04-1.68; 0.02)	1.58 (0.99-2.50; 0.05)	1.48 (0.99-2.2; 0.06)	1.69 (0.74-3.86; 0.22)

Note: aOR: adjusted odds ratio; ; IPV: intimate partner violence (includes any psychological, sexual or physical violence in the last 12 months); ref: reference category; models also control for education and community

[Table 1. Relationship between IPV and engagement in HIV care among women living with HIV in Rakai, Uganda (2008-2013)]

Conclusions: IPV negatively impacts engagement in HIV care. As treatment is expanded globally, combination approaches in HIV care that include identification and response to IPV, including psychological IPV, may improve individual health and support national care continuum targets for population health.

WEPED393

Why suffer in silence? The violence within!

S.A. Thompson[1], Y.A. Abdul Rahman[1], E.K. Bruce[1], M. Levy[2], H. Adrian[3], H. Nagai[1], D. Nartey[4]
[1]*JSI Research & Training Inst., Inc., Accra, Ghana,* [2]*JSI Research & Training Inst., Inc., Washington, United States,* [3]*JSI Research & Training Inst., Inc., Boston, United States,* [4]*JSI Research & Training Institute, Inc. (JSI), Monitoring and Evaluation, Accra, Ghana*

Background: The USAID Strengthening the Care Continuum project, implemented by JSI, improves civil society and the Government of Ghana's capacity to provide quality and comprehensive HIV services for key populations and people living with HIV.
Intimate partner violence (IPV) among men who have sex with men (MSM) in Ghana, specifically Takoradi, has brought to the fore disturbing concerns to practitioners in the public health community due to its devastating health effect on victims. Anecdotal evidence suggests that KPs suffer IPV, most of which go unreported largely because potential victims perceive their sexual behavior as criminal, against heterosexual norms of sexual practice and the economic power dynamics within the MSMs sexual relationship.
In 2015, we found out that 41 MSMs out of 1163 MSMs screened for SGBV suffered intimate partner violence within their relationships but did not officially report to the police for action due to fear of being arrested. All the 1163 MSMs were provided SGBV services. This informed the study which sought to:
"Reduce the effect of intimate partner violence within MSM relationships in the Western region of Ghana".
Description: To address the challenge of IPV within MSM community, the project conducted advocacy against intimate partner violence among MSMs and in the process, key IPV messages were disseminated in the KP communities. Programs to educate MSMs on the safety and healthy living was done. Meetings with key partners such as Commission for Human Rights and Administrative Justice (CHRAJ) and Police, to advocate against SGBV to ensure access to SGBV services by KPs. A help desk was set up to provide emotional support, counseling and information to empower MSMs who have suffered violence.
Lessons learned: Reported cases of IPV has started showing a downward trend; 41 in 2015, 13 in 2016 and 9 in 2017 after the intervention. This data suggests that when programming for MSM exists to inform against IPV, violence and abuse among this population could be reduced.
Conclusions/Next steps: The findings suggest the usefulness of this approach and the potential for expansion. Intimate Violence among MSMs also reduced indicating that advocacy among KPs needs to be increased.

WEPED394

Men's vulnerabilities are compromising their own health and well-being, and are strongly linked to HIV risk in Durban, South Africa

A. Gottert[1], S. Mathur[1], C. Cawood[2], J. Pulerwitz[1]
[1]*Population Council, HIV and AIDS Program, Washington, United States,* [2]*Epicentre AIDS Risk Management, Paarl, South Africa*

Background: There is often limited focus on the vulnerabilities men face in their lives - either as key public health issues or as they link to HIV transmission. We examined such vulnerabilities and their association with HIV risk behaviors among men in Durban, South Africa.
Methods: We surveyed 962 men ages 20-40 recruited at community 'hot spot' venues (n=649) and at HIV service sites (n=313) in two informal settlements in Durban, from May-September 2017. Adult experiences of violence and of deprivation, and childhood experiences of abuse and of parental absence, were each measured with sets of 2-4 items. Alcohol abuse was measured by the AUDIT-C; depression by the PHQ4 scale (alpha=0.81).
Results: Respondents' average age was 28; 15% were married/cohabiting. On average respondents had 3.7 sexual partners in the last year, and 14% used condoms consistently with their last three non-marital partners. About 40% had ever witnessed an armed attack, been robbed at knifepoint/gunpoint, and had felt close to death. Before age 18, 77% had been beaten physically at home (14% 'very often'), 21% had seen/heard their mother being beaten by her husband/boyfriend, 42% were not raised by at least one biological parent, and 37% had lost a parent. Half (52%) abuse alcohol, and 30% were moderately or severely depressed. In multivariate analyses, adult experiences of violence ($p=0.001$) and of deprivation ($p=0.001$), and childhood experiences of abuse ($p< 0.05$), were each associated with having multiple sexual partners in the last year. Childhood experiences of abuse and of parental absence were associated with less consistent condom use ($p< 0.05$ and $p< 0.01$, respectively). Parental absence was also associated with having more age-disparate partners ($p< 0.05$). Men who abused alcohol had more partners in the last year ($p< 0.001$) and more highly age-disparate partners ($p< 0.01$). Depression was also associated with having more partners ($p< 0.05$).
Conclusions: Men in Durban are experiencing serious vulnerabilities including depression, alcohol abuse, and childhood and adult experiences of deprivation and violence. Each of these factors had direct effects on key HIV risk behaviors. Interventions should focus on reducing such vulnerabilities, to promote wellbeing and to curtail the HIV epidemic.

Humanitarian crises and HIV

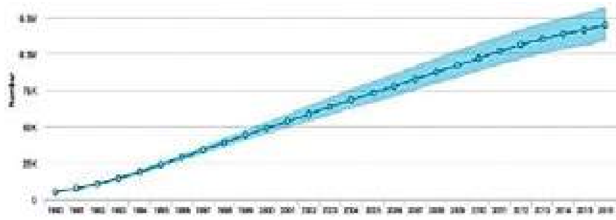
WEPED395

Triple threat: Resurging epidemics, a broken health system, and global indifference to Venezuela's crisis

M.A. Torres[1], A. Nieves[2,3]
[1]*ICASO, Toronto, Canada,* [2]*Accion Ciudadana contra el SIDA, Caracas, Venezuela,* [3]*Red Venezolana de Gente Positiva (RVG+), Caracas, Venezuela*

Background: There is an unprecedented humanitarian emergency in Venezuela. In 2017, gross domestic product plum-meted by 12% and inflation rates soared to 1,600%. Economic collapse has made accessing food and life-saving medicines difficult or impossible for most. The global response has been stunning indifference. The political nature of the crisis means that information is also limited, hindering efforts for effective relief. Greater transparency is needed to compel urgent global action.
Methods: To document the health emergency in Venezuela, ICASO and Acción Ciudadana contra el SIDA (ACCSI) performed a rapid assessment during September 2017. A desk review was performed along with a series of targeted key informant interviews with people living with HIV, doctors, advocates, academics and United Nations representatives. The approach also included synthesis of information from an emergency consultation, convened by affected communities in Caracas, Venezuela.
Results: Venezuela is undoubtedly experiencing an acute public health emergency: There has been a 205% increase in new malaria cases after the country declared elimination; there is almost a complete lack of access to tuberculosis screening for vulnerable populations such as prisoners and indigenous communities; the number of AIDS-related deaths in the country has risen by nearly three quarters since 2011. Food is scarce and malnutrition and starvation are spreading. People on the ground describe frequent stock-outs of medicines, including antirretrovirals, and fear of imminent death.
Conclusions: Venezuela is a case study of the many ways in which international policies, based on numerical indicators and data, have failed to address a burgeoning crisis for the country and the region. Venezuela's crisis is the result of a long process of political unrest and bad economic decisions. While it is in many ways unique, the case also is an indication of things to come. Many current high-income countries

are more vulnerable than they appear, and could experience shocks - whether due to conflict or natural disasters - that rapidly move them from one spot on the development spectrum to another.



[Figure. People living with HIV (all ages) in Venezuela (UNAIDS)]

WEPED396

Comprehensive services for Internally Displaced Persons (IDPs) and IDPs with chronic diseases affected by the war in Eastern Ukraine

M. Volovod[1], O. Bryzhovata[2], E. Sokolyuk[3], L. Sydorenko[3], N. Moskovchenko[1]

[1]All-Ukrainian Network of People Living with HIV, Innovation Programmes, Kyiv, Ukraine, [2]All-Ukrainian Network of PLWH, Kyiv, Ukraine, [3]Regional Branch of the All-Ukrainian Netwrok of PLWH, Kryvyi Rih, Ukraine

Background: The Humanitarian Needs Overview[1] estimates that 3.1 million people are in need of humanitarian assistance in Ukraine. Many IDPs stated that continuous stress and numerous obstacles interfere with seeking humanitarian assistance therefore they are reluctant to do so. It can make a direct threat to health and life for IDPs with chronic diseases like HIV infection, hepatitis, etc. [1] Ukraine: Humanitarian Crises Analysis, 2016. SIDA

Methods: In January 2016, the All-Ukrainian Network of PLWH has launched the 2-year project aimed at improving access to comprehensive services for IDPs (including the HIV-services) and adopting of the regional programme for IDPs which is to be financed from the budgets of the Donetsk and Dnipropetrovsk regions of Ukraine. The project envisages outreach activities and the work of the Centers for Comprehensive Services; legal component ensures collecting violations and protecting human rights. At the regional level, the project has taken over coordinating efforts between humanitarian actors, NGOs, and public institutions involved in IDP support.

Results: The feedback from project clients is approbatory but also stimulates project to remain flexible as lots of external factors have been constantly affecting it. Overly strict regulation hinders adopting of the regional programme for IDPs. Numerous cases of mental health issues among IDPs (which reportedly lead to cessation of treatment by people with chronic diseases) require remedial actions to be done by either project itself or its partners.

Conclusions: Although the project is still in progress, the following conclusions can be already made:

- While majority of the international humanitarian missions work mainly in the 'grey zone', it remains vital to keep supporting those IDPs who seek asylum at the government-controlled areas.
- The natural migration makes the continued client retention in the project almost impossible. Scaling up the initiative to other regions can contribute to this.
- Legal amendments should be advocated to ensure that all the required civil procedures and services are accessible and non-discriminatory toward IDPs.

WEPED397

Model of gender-sensitive services for internally displaced HIV positive women in Donetsk and Lugansk oblasts

N. Lukyanova[1], O. Stryzhak[2], V. Variga[2], I. Yeleneva[3]

[1]UNDP Ukraine, Kyiv, Ukraine, [2]NGO 'Positive Women', Kyiv, Ukraine, [3]UNDP Ukraine, Kramatorsk, Ukraine

Background: Ukraine continues to have a concentrated HIV epidemic among key populations at higher risk of HIV. The armed conflict in the East of Ukraine affected Donetsk and Lugansk oblast and caused numerous internal displacement. Recent study showed that there are more internally displaced women than men, and they are more vulnerable to rights violation (as a cause and result of HIV and other sexually transmitted diseases) as well as to violence, requiring special legal support and services at the host communities.

Description: UNDP's two years initiatives aimed to assess the ability of local public and civil society sector institutions to effectively respond to the growing HIV epidemic and ensure equal access to various local services for HIV positive women and girls affected by the conflict in the Eastern Ukraine.

In 2017 the mapping of gender-sensitive services for HIV positive was conducted followed by piloting Crisis Response Points for women and girls living with or affected by HIV at Donetsk and Lugansk oblasts.

Lessons learned: Absence of gender-sensitive services for internally displaced HIV positive women or women affected by the epidemic in the conflict areas. The piloted model of crisis response helped 30 women at risk of HIV or living with HIV applied to crisis response points for assistance, out of them almost 1/3 discovered rough violation of their rights;

The developed awareness raising campaign "Be aware=be protected" targeting key populations has to support local level initiatives to motivate women and girls victims of sexual violence to refer for help and test for HIV.

Piloted crisis response models have to be presented at round tables or stakeholders meetings where all collected practices and challenges should be discussed

Conclusions/Next steps:

· Local stakeholders have to be mobilized to pay more attention to address GBV and HIV/AIDS in the conflict regions;

· The New National HIV/AIDS Program and local HIV-related policies have to plan a specific gender-sensitive services for IDPs and HIV-positive women and girls faced GBV;

· Advocacy efforts and community mobilization should be taken over by local HIV services NGOs and local activists.

WEPED398

HIV response in the midst of natural disasters and a humanitarian crisis: The case of Puerto Rico

M. Marzán-Rodríguez, E.I. Santiago-Rodríguez, S.M. Malavé-Rivera, R.L. Vargas-Molina, C.E. Rodríguez-Díaz

University of Puerto Rico, School of Public Health, San Juan, Puerto Rico

Background: Hurricanes Irma & Maria made landfall in Puerto Rico (PR) on September 2017. The aftermath of both Hurricanes has been devastating, with detrimental impact on public health issues. PR has been in a state of political-economic emergency for years. The colonial relationship with the United States serves as a main constraint for local authorities and communities, due to an existing cap on congressional spending for health services. Social conditions prior to the natural disaster heightened the vulnerability of specific populations, particularly people living with HIV (PLWH).

Description: With a collapsing economy and a weakened infrastructure, the impact of the hurricanes, 2 weeks apart from each other, created a deeper humanitarian crisis. Basic goods including water, power, food and gas, were scarce if not absent for a long period of time. Communication networks were severely affected. Roads and transportation systems were paralyzed, making it impossible for PLWH to get to the clinics. Some HIV clinics suffered damages to their infrastructure, limiting service provision leaving PLWH without access to treatment and care.

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Lessons learned: To address future emergency situations we recommend: 1) establishing an emergency plan for HIV providers & healthcare settings at the private, public and community levels, to guarantee access to clinical services; 2) designing an HIV medication distribution plan by regions to ensure access to medication; 3) maintaining a local emergency stock of HIV medication for at least one month per patient; 4) enhancing HIV surveillance to identify location and track migration patterns of patients and; 5) developing and implementing public health policies to mitigate vulnerabilization of HIV patients.
Conclusions/Next steps: The impact of natural disasters on the HIV epidemic depends on the capacity of the government, agencies and communities to respond. Lack of economic and political autonomy in decision-making processes, governmental bureaucracy of public agencies at federal, state and local levels, and an inadequate response further unmask inequalities and disparities for the HIV population in PR.

Sexuality- and/or gender-based violence and exploitation, including in conflict settings

WEPED399
Experiences of gender-based violence among FSWs, MSM, and transgender women in Latin America and the Caribbean: A mixed methods analysis to inform HIV programming

E. Evens[1], M. Lanham[2], K. Santi[3], J. Cooke[3], K. Ridgeway[1], G. Morales[2], C. Parker[4], C. Brennan[1], D. Davis[5], R. McLean[6], M. de Bruin[7], Y. Paul[7], R. Dayton[2]
[1]FHI 360, Health Services Research, Durham, United States, [2]FHI 360, Research Utilization, Durham, United States, [3]UNDP, HIV, Health and Development, Panama City, Panama, [4]FHI 360, Behavioral, Epidemiological and Clincal Research, Durham, United States, [5]FHI 360, Health Services Research +, Durham, United States, [6]University of the West Indies, Department of Economics, St. Augustine, Trinidad and Tobago, [7]University of the West Indies, HIV/AIDS Response Program, Kingston, Jamaica

Background: Female sex workers, men who have sex with men, and transgender women are disproportionately affected by gender-based violence (GBV) and HIV, yet little is known about the impact of GBV and the services key population (KP) members want after experiencing violence. This study explored the nature and consequences of GBV and the needs of victims to inform HIV programming.
Methods: Using a participatory approach, FSWs, MSM, and transgender women in Barbados, El Salvador, Trinidad and Tobago, and Haiti worked with the PEPFAR-supported LINKAGES project, UNDP, and The University of the West Indies to conduct a mixed-methods study. KPs trained in qualitative methods conducted 278 structured interviews with peers to understand GBV experiences and linkages between violence and HIV risk. Responses to open-ended questions were coded in NVivo and analyzed using applied thematic analysis; responses to closed-ended questions were entered into EpiData and analyzed descriptively.
Results: Nearly all participants (98 percent) experienced some form of GBV. Emotional and economic violence were most common (99 percent and 80 percent, respectively). More than 70 percent also reported sexual and physical violence and other human rights violations. Over 70 percent reported violence under age 18, during sex work, from intimate partners, in public places, health care, and from police. Impacts included trauma; lack of legal and health services; and loss of employment, housing, and education. Only 23 percent believed GBV put them at risk for HIV. While many disclosed violence to friends and family, few sought services for fear of further abuse. Participants wanted KP-friendly mental and physical health care and improved support from law enforcement.
Conclusions: GBV was pervasive, but victims had limited access to services and lacked recognition of the link between HIV and GBV. We recommend that HIV programs: educate KPs on connections between HIV and GBV; implement GBV detection and care; sensitize and expand GBV programs traditionally targeting cisgender women and work with law enforcement to limit violence and create an environment where HIV programs can effectively operate. Integrated interventions addressing both HIV and GBV could help reduce KPs' burden of HIV, increase service utilization, and respect, promote and fulfill their human rights.

WEPED400
Increasing access to HIV prevention and treatment prevalence gender-based violence screening in Lubombo region of Swaziland

S.M. Haumba[1], B. Simelane-Vilane[2]
[1]University Research Co., LLC, Senior Management, Mbabane, Swaziland, [2]University Research Co., LLC, Mbabane, Swaziland

Background: Despite linkage between HIV/STI and gender based violence (GBV), services for GBV survivors are limited. In 2016, the PEPFAR funded project in Lubombo region started developing regional capacity for provision of medical and therapeutic counselling care to survivors GBV. The objective is to share lessons learned from establishing a GBV screening program in Lubombo for HIV care and treatment programs.
Description: Between September 2016 and September 2017, GBV services were established in 9 health facilities in Lubombo, and later expanded to 29 health facilities. A reporting network established for social, health, legal, police and community linkages and tools were developed. GBV Peer navigators routinely screened for GBV, provided health education, medical, therapeutic counselling and referral services. Data were de-identified and analysis done for routine patient care, quality improvement and program purposes.
Lessons learned: (1) the burden of HIV among GBV cases was high,
(2) as GBV screening program identifies links HIV positive cases to HIV care and treatment,
(3) referral network for GBV screening, and services increases GBV reporting, and
(4) GBV survivor's empowerment is critical for post GBV HIV prevention services. From inception, GBV case reporting increased from 1 GBV case per health facility per month to 12 cases. A total of 584 cases with mean age of 25 years were reported: 478 (75%) females; < 10 years (63), 10-14 (24), 15-24 (79), 20-24 (91), and 25+ (321). Emotional and psychological constituted (42%) neglect and economic abuse (29%), physical abuse (19%) and sexual abuse (10%). 100% of cases received psychosocial package. 67% Sexual abuse cases who reported within 72 hours were eligible and received post HIV/ FP post exposure prophylaxis (PEP). 66 GBV cases came with HIV known status, 139 tested on site were HIV positive. All HIV positive cases were linked to treatment and care. 70% of GBV cases reported to health care facility/peer navigator and 30% to police then referred to health facility.
Conclusions/Next steps: National scale of GBV screening in health facilities, the network for GBV referrals and empowerment of GBV survivors should strengthened as an entry into care and for HIV prevention services.

	Physical abuse violence	Sexual abuse violence	Emotional/ Psychological abuse violence	Neglect and Economic abuse	Total
Sex(N=584)	109	61	243	171	584
Female	85	57	201	135	478
Male	24	4	42	38	106
Age Group (N=584)					584
<10	7	10	17	29	63
10-14	14	6	4	0	24
15-19	16	17	28	18	79
20-24	17	6	41	33	97
>25	60	10	153	98	321

[Characteristics of presentations, by type of violence, for presentations October 2016 to December 2017.]

WEPED401

Child labour in Tanzanian small-scale gold mines: High HIV and violence risk

R. Abdul[1], E. Metta[1], J. Charles[2], L. Kikoyo[2], A. Koler[2], N. Toroka[2], J. Tarimo[3], E. Geubbels[1]
[1]Ifakara Health Institute, Health Systems, Impact Evaluation and Policy Department, Dar es Salaam, Tanzania, United Republic of, [2]Pact Tanzania, Dar es Salaam, Tanzania, United Republic of, [3]Ministry of Health, Community Development, Gender, Elderly and Children, Department of Social Welfare, Dar es Salaam, Tanzania, United Republic of

Background: Tanzania is among the world's leading gold producers, partly through artisanal and small-scale mining (ASM). Though illegal, child labour in ASM is common and is considered one of the worst forms of child labour. Formative research in Tanzania suggests ASM communities are a high HIV-risk environment. Under the USAID Kizazi Kipya (K2) program, we assessed the association of child labour in ASM with experience of violence, sexual risk behavior and HIV in three councils with ASM activities in Tanzania.

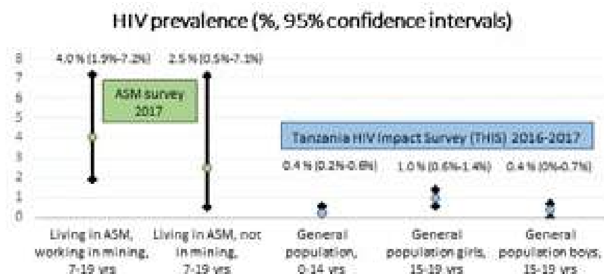
Methods: In 2017, we conducted a baseline survey in ASM communities among 786 children (0-19 years) and their caregivers who had been identified to enroll in the K2 program. We also offered children voluntary HIV testing and counseling. K2 aims to reduce social and health (including HIV) risks of vulnerable children. K2-ASM beneficiaries were divided into children 'working in mining' (i.e. digging, crushing, washing ore, amalgamation and/or food preparation, bar work and sex work catering to miners) and children 'not in mining' living in the ASM communities but not working in mining. Respondents age 6 and older who answered the violence questions themselves were included in this descriptive and multivariable logistic regression analysis (n=371).

Results: Sexual, physical and emotional violence had been experienced by 12.6% of boys and 11.2% of girls (p=0.68), 76.1% of girls and 80.3% of boys (p=.32), 47.0% of boys and 33.0% of girls ($p < .05$) respectively. Working in mining was associated with increased experience of sexual or physical abuse (table). Children working in mining were slightly more likely to have ever had sex, used alcohol, have had transactional sex, have had more than one sexual partner and have used a condom ($p > .05$). HIV prevalence was statistically significantly higher among children working in mining than among those in the general population (graph).

Conclusions: ASM communities are a structurally high HIV-risk environment for children. Direct involvement in mining work puts both girls and boys at higher risk of experiencing sexual and physical violence. Child protection and HIV programs need to target children in ASM communities. These findings will inform service delivery to these beneficiaries through the K2 program.

		Odds ratio (95% confidence interval)		
	n	Sexual violence	Physical violence	Emotional violence
Not in mining	121	1	1	1
Working in mining	250	**2.6 (1.1-6.0)**	**2.4 (1.4-4.1)**	1.2 (0.7-1.8)
Aged 7-14 years	300	1	1	1
Aged 15-19 years	71	**2.3 (1.2-4.7)**	**0.4 (0.2-0.8)**	0.9 (0.5-1.6)
Male	188	1	1	1
Female	183	0.9 (0.5-1.7)	0.9 (0.6-1.5)	**0.6 (0.4-0.9)**

[Description of study population and association of working in mining, age and gender with 3 types of experienced violence]



[HIV prevalence among children working and/or living in mining communities, compared to children in general population]

WEPED402

Intimate partner violence and associated factors in HPTN 071 (PopART) study communities - a comparison by HIV status

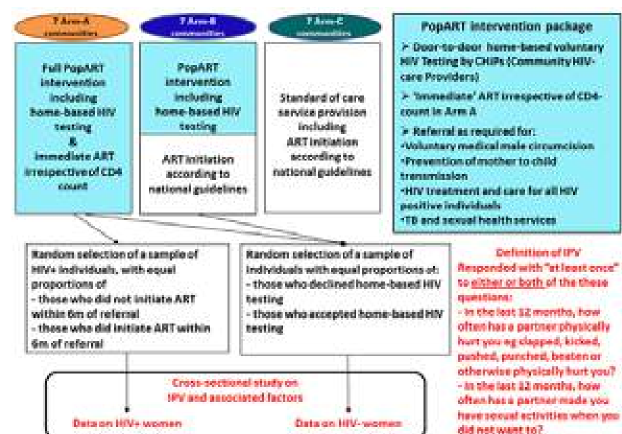
K. Sabapathy[1], C. Mulubwa[2], C. Mubekapi-Musadaidzwa[3], V. Bond[1,2], G. Hoddinott[3], H. Stockl[1], S. Floyd[1], P. Bock[3], J. Seeley[1], H. Ayles[1,2], S. Fidler[4], R. Hayes[1], HPTN 071 (PopART) Study Group
[1]London School of Hygiene and Tropical Medicine, London, United Kingdom, [2]Zambart, Lusaka, Zambia, [3]Stellenbosch University, Cape Town, South Africa, [4]Imperial College, London, United Kingdom

Background: The HPTN 071(PopART) study is a community-randomised trial in Zambia and South Africa, examining the impact of combination-prevention including universal test and treat (UTT), on HIV-incidence (Figure-1). Intimate partner violence (IPV) is known to adversely affect women's health. We evaluated factors associated with IPV (physical and/or sexual) in PopART intervention communities.

Methods: During 2015-16, a random subset of adults who participated in the first year of the PopART intervention were recruited. Data on 300 HIV-negative women from Arm-A and Arm-B communities being offered HB-HTC, and 422 HIV-positive women from Arm-A communities who had been referred for ART were included (Figure-1). Demographic, socio-economic, behavioural factors and perceptions/opinions about HIV/HIV service factors were surveyed using standardised questionnaires and associations with IPV were examined. Logistic regression was performed to estimate odds ratios.

	HIV- [N=300, median age:31y(IQR:23-40)]			HIV+ [N=422, median age 34y(IQR:28-42)]		
	IPV n/N (%)	aOR*	95% CI	IPV n/N (%)	aOR*	95% CI
IPV (sexual &/or physical)	64/300 (21)	-	-	98/422 (23)	-	-
Sexual violence	42/300 (14)	-	-	60/422 (14)	-	-
Physical violence	33/300 (11)	-	-	68/422 (16)	-	-
Both	11/300 (4)	-	-	30/422 (7)	-	-
Accepted HB-HTC	34/165 (21)	1	p=0.30	-	-	-
Declined HB-HTC	30/135 (22)	1.47	0.71-3.06	-	-	-
Started ART within 6m	-	-	-	53/221 (24)	1	p=0.78
Did not start ART within 6m	-	-	-	45/201 (23)	0.92	0.53-1.62

[Table 1. IPV and selected associated factors, stratified by HIV-status]



[Figure. Overview of PopART trial during the first year of the intervention and sampling frame of current study]

Results: Among >700 women studied, ~20% of both HIV-negative and HIV-positive women reported experiencing physical and/or sexual violence in the last 12-months (Table 1). The proportion of women reporting sexual violence was similar by HIV status, but HIV-positive women were more likely to report physical violence and both sexual

and physical violence. Among HIV-negative women, transactional sex (aOR:4.30, 95%CI:1.20-15.44, p=0.03) and not knowing partner's HIV status (aOR:3.01, 95%CI:1.24-7.29, p=0.02) were associated with increased odds of IPV. Having control of household finances was associated with reduced odds, and women with AUDIT scores ≥8 (increased risk of alcohol dependence) were at increased odds of IPV in both groups in crude analyses, but statistical evidence of association only remained in the multivariable model for HIV-positive women (aOR:0.39, 95%CI:0.21-0.74, p=0.004 and aOR:1.96, 95%CI:1.02-3.77, p=0.02, respectively). For HIV-positive women, IPV was associated with disclosure of HIV status to their sexual partner in the crude analysis but not after adjusting for confounding factors (aOR:1.54, 95%CI:0.87-2.72, p=0.14). IPV was not associated with declining HB-HTC or failure to initiate ART within 6-months of referral (aOR:1.47, 95%CI:0.71-3.06, p=0.30 and aOR:0.92, 95%CI:0.53-1.62, p=0.78, respectively).
Conclusions: We identified factors associated with IPV which differed by HIV status. Our findings could help the development of interventions against IPV. Promisingly, our evidence suggests that acceptance of PopART UTT interventions was not affected by IPV.

WEPED403

Spreading WINGS (Women Initiating New Goals of Safety): Cross-cultural adaptation, feasibility and preliminary effects of an intervention to address gender-based violence among women who use drugs in India

P. Bhutia[1], M. Pantelic[2], L. Gilbert[3], S. Mehta[4]
[1]India HIV/AIDS Alliance, Technical Support, Drug Use and Harm Reduction, New Delhi, India, [2]International HIV/AIDS Alliance, Research and Evaluation, Hove, United Kingdom, [3]Columbia University School of Social Work, Social Intervention Group, New York City, United States, [4]India HIV/AIDS Alliance, Program and Policy, New Delhi, India

Background: Rates of gender-based violence (GBV) against women who use drugs (WUDs) are 3-5 times higher than among other women, elevating their HIV risks. Asia is home to the largest population of WUDs but has no well-established programs to address GBV in this population. We aimed to address this gap by implementing and testing an intervention to address GBV among WUDs in India.
Methods: We cross-culturally adapted WINGS, a Columbia University-licensed evidence-based GBV screening, brief Intervention and referral to treatment model for WUDs. 48 WUDs were recruited from Sahara Aalhad, an NGO in Pune and 36 completed a 3-month post-intervention follow-up. Between baseline and follow-up, WUDs received two one-on-one psycho-educational sessions on safety planning skills to reduce their risks for GBV. WUDs were also linked to HIV testing and treatment and GBV-related services as needed. Generalised linear models estimated changes in study outcomes between baseline and 3-month post-intervention assessment. Random-effect Poisson and logistic regressions were used for continuous and dichotomous measures, respectively.
Results: At baseline, the mean age of WUDs was 30, 45.8% were married and 75% had children. 25% had an education higher than primary school. 22.9% had been employed in the past year and 20.8% had experienced homelessness in the past 3 months. 54.2% had engaged in sex work, 20.1% had been arrested and 31.3% used heroin in the past 90 days. Prevalence of any GBV was 97.7%, of which 85.4% was verbal, 83.3% was injurious physical violence and 79.2% was sexual violence. Effects of WINGS on incidents of GBV are presented in Table 1. WUDs reported significantly fewer incidents of verbal and physical GBV post intervention, both from intimate partners and others. There were also significant increases in linkages to GBV services over the 3-month follow-up period. No significant differences were observed on sexual violence. 39.5% were provided referrals for HIV testing. 10% registered for ART at Government health cares.

Conclusions:

	Sample No.(%) or mean, SD		Relative Risk ratio or odds ratio- change from baseline to 3-months follow-up	
	Baseline	3 months	Unadjusted	Adjusted
Intimate Partner Violence				
No. of verbal incidents: IRR	43.4, 39.5	40.1, 40.8	0.93 [0.86-0.99] p = 0.032 *	0.93 [0.86-0.99] p = 0.032 *
No. of physical incidents: IRR	81.6, 74.0	54.75, 61.7	0.67 [0.63-0.71] p < 0.001 ***	0.67 [0.63-0.71] p < 0.001 ***
No. of sexual incidents: IRR	98.5, 100.1	96.6, 94.5	0.98 [0.94-1.03] p = 0.423	0.98 [0.94-1.03] p = 0.423
Non intimate partner gender-based violence				
No. of verbal incidents: IRR	22.3, 32.9	14.8, 25.4	0.66 [0.59-0.74] p < 0.001***	0.66 [0.59-0.74] p < 0.001 ***
No. of physical incidents: IRR	28.1, 45.8	14.0, 28.1	0.50 [0.45-0.56] p < 0.001 ***	0.50 [0.45-0.56] p < 0.001 ***
No. of sexual incidents: IRR	11.6, 25.2	11.5, 35.1	0.99 [0.86-1.13] p = 0.203	0.99 [0.86-1.13] p = 0.203

[Effects of WINGS on incidents of IPV, GBV, substance use and linkage to services in the past 90 days (n = 36 women who completed 3-month follow-up)]

Study findings suggest the feasibility and promise for community-based implementation of a peer-delivered intervention for addressing GBV among WUDs in resource-constrained settings. Evidence on larger samples and across cultural contexts is urgently needed to meet needs of WUDs in Asia.

WEPED404

Assessing the safety of Zambian female sex workers amidst violence from their male clients

K. Malama[1], B. Spire[1], A. Gosset[1], M. Nishimwe[1], P.-J. Coulaud[1], L. Sagaon-Teyssler[1], R. Parker[2], A. Tichacek[2], M. Inambao[3], W. Kilembe[4], S. Allen[2]
[1]Aix-Marseille University, Marseille, France, [2]Rwanda Zambia HIV Research Group, Atlanta, United States, [3]Zambia-Emory HIV Research Project, Ndola, Zambia, [4]Zambia-Emory HIV Research Project, Lusaka, Zambia

Background: Zambian female sex workers (FSW) are vulnerable to violence from their male clients, which places them at risk for HIV. FSW experiencing violence may find themselves isolated as the police represent the major violence response service and sex work remains illegal. Community-based support programmes can mediate between FSW and violence response services in addition to providing risk reduction education and HIV testing services. We investigated FSW response to violence from male clients and their knowledge of support programmes.
Methods: Between September 2012 and March 2015, the Zambia-Emory HIV Research Project (ZEHRP) recruited 555 HIV-negative FSW aged 18-45 from Lusaka and Ndola into a cohort study. FSW completed a face-to-face baseline questionnaire, in which they were asked if they had ever experienced violence from their male clients (y/n). FSW were also posed multiple response questions on what they did in the event of such violence, measures they generally took to ensure their safety around clients and if they knew of any programs to support FSW.
Results: Of 498 respondents, 37% (n=185) reported having experienced violence from their male clients. When faced with violence, the majority of women reported running away (72%), while 30% attempted to negotiate with clients, some called their friends (32%) and only a minority of 13% chose to call the police. To ensure their safety with clients, FSW (n=425) mostly reported staying calm during negotiations (63%), asking for money before sex (62%), being honest during interactions (51%) and avoiding alcohol and drugs (40%). Out of 425 respondents, a mere 3% of women (n=13) stated that they were aware of any support programmes for FSW other than ZEHRP, with the vast majority (97%, n=412) indicating no such knowledge.
Conclusions: FSW were reluctant to report violence to the police, despite being highly susceptible to it, suggesting a lack of trust in the authorities for fear of prosecution. Support programmes, which FSW were largely unaware of, could help tackle HIV prevention, gender based

violence and FSW empowerment. HIV prevention efforts should look to raise awareness of existing support programmes in order to better meet the health and safety needs of FSW.

WEPED405

Young Jamaican men who have sex with men experiences with childhood sexual abuse and sexual assault

O. Harris[1], L. Dunn[2]
[1]University California, Center for AIDS Prevention Studies, Alameda, United States, [2]University of the West Indies, Mona Campus, Gender Development Studies, Kingston, Jamaica

Background: The prevalence of HIV is exceptionally high among Jamaican men who have sex with men (MSM). Researchers have theorized that the high prevalence of HIV among Jamaican MSM may be due to social vulnerabilities, such as high unemployment, homelessness, limited education, coupled with the criminalization of same-sex sexual behaviors. A noticeable gap in the literature is the impact of childhood sexual abuse (CSA) and sexual assault on the state of the epidemic among this population. This study focuses on Jamaican MSM's experiences with CSA and sexual assault and how these domains relate to HIV risk and prevention.
Methods: In this qualitative descriptive study, we used semi-structured in-depth interviews with 20 MSM and a focus group discussion with 10 MSM as the primary data sources. Participants were recruited from five urban and peri-urban parishes in Jamaica. Data were recorded, transcribed verbatim, and analyzed using thematic content analysis.
Results: Participants were aged 18-29 years and self-identified as gay or bisexual. More than one third of the sample disclosed a history of childhood sexual abuse or sexual assault. Participants who manifested a feminine presentation as a child reported experiencing significant sexual violence, which often starts with unwanted touching, exposure of genitalia, and end with nonconsensual sexual acts. The predominant characteristics of the perpetrators include male family member (i.e., cousin, uncle), pastor, or family friend. Agency and resiliency was achieved through reporting the abuse to family and friends; however, the decision to disclose the abuse was weighed against whether or not they would be believed. Participants have also described how these experiences have led to continued psychosexual trauma extending into adulthood and acted as triggers and barriers to engaging in HIV prevention and care.
Conclusions: Our findings serve as a catalyst for understanding how CSA and sexual assault affect young Jamaican MSM and how such experiences may in turn affect attitudes and behaviors regarding HIV testing and engagement in care. Findings also highlight the need for incorporating CSA and sexual assault questions into health and sexual history screening materials for Jamaican MSM and call for the strengthening of mental health services for survivors of abuse.

Prisons and other closed settings

WEPED406

Myanmar prison health: Opening closed doors for the prevention, care and treatment of inmates living with HIV, TB and other infections - lessons learned

W. Zaw[1], H. Piang[2], T. Lin[3]
[1]Asian Harm Reduction Network-Myanmar, Program, Kale, Myanmar, [2]Asian Harm Reduction Network-Myanmar, Treatment Unit, Kale, Myanmar, [3]Asian Harm Reduction Network-Myanmar, Program, Yangon, Myanmar

Background: The Myanmar prison population is estimated at 60,000 in 45 prisons, anecdotal reports indicate that overcrowding of prisons in Myanmar creates an environment which heightens the risk of vulnerability to HIV, TB, hepatitis and other infectious diseases. The Prison authorities took the leadership allowing AHRN as NGO to enter the prison and in two labour camps in Kalay, to pilot the implementation of health care service for inmates and staff.
Description: Kalay is located along the remote transport route to Myanmar's border with Northeast India, which runs through the Chin Mountains and connects to the border town of Tamu, 80 km north. There are more than 1800 inmates in Kalay Prison and more than 200 prisoners in each labour camp. The health care service for the inmates is limited due to lack of (human) resources and infrastructure.
AHRN staff was trained on prison contexts, occupational health, security regulations and social peculates. In July 2017 the prison health intervention commenced in Kalay prison and two labour camps, including HIV testing, counseling and care, Hepatitis B screening and vaccination, Health Education, TB screening and Treatment, Basic Health Care in order to assist the prison health department in addressing pressing health concerns.
Lessons learned: Within six months, 1006 inmates and staff were vaccinated for HBV, 180 inmates received HIV testing and counseling, 140 PLHIV received HIV care, 233 inmates have been screened for TB and 6 are under TB treatment, and 1137 received BHC. Training of AHRN staff on specifics of working in prison proved important for mutual appreciation and understanding and increased access. A through-care has been drafted to ensure patient follow-up after release.
Conclusions/Next steps: Regular briefing with prison authorities to stem expectations were important to build trust and confidence that AHRN as 'outside' group respect the security considerations. Resource constrains limit full ART coverage, infection control measures can expand, through-care and referral of inmates has not been formalized yet. There is the opportunity to implement further health standard operation procedures, training of staff, increase and systemize voluntary HTC and screening on TB coverage.

WEPED407

HIV risk perceptions and risk reduction strategies among prisoners in Kyrgyzstan: A qualitative study

J. Rozanova[1], L. Azbel[2], A. Kurmanalieva[3], N. Shumskaya[3], R. Marcus[1], K. Lamonaca[1], T. Rhodes[2], G. Culbert[4], F.L. Altice[1], J.P. Meyer[1]
[1]Yale University School of Medicine, Internal Medicine, New Haven, United States, [2]London School of Hygiene & Tropical Medicine, London, United Kingdom, [3]AIDS Foundation East - West in the Kyrgyz Republic, Bishkek, Kyrgyzstan, [4]University of Illinois at Chicago, Chicago, United States

Background: In Kyrgyzstan, both methadone maintenance therapy (MMT) and needle-syringe programs (NSP) have been introduced in prisons as measures to reduce HIV transmission. To investigate their delivery and effects, we undertook qualitative research to explore how prisoners with a history of drug injection conceptualize and reduce their HIV risk during incarceration.
Methods: Prisoners were purposively sampled ensuring addiction treatment experience diversity from one male and one female prison near Bishkek, Kyrgyzstan from 2016-2017. We conducted in depth qualitative interviews in Russian or Kyrgyz with 15 male and 10 female prisoners with a history of drug injection to examine HIV risk perceptions. Using an inductive analytic approach, 3 researchers independently coded translated interview transcripts using Dedoose qualitative research software with 85% inter-coder agreement; discrepancies were resolved through discussion. We assessed five codes related to HIV risk, which encompassed perspectives on drug use, addiction, personal health, harm reduction including MMT and NSP, and the prison risk environment.
Results: From participants' interview accounts on managing their HIV risk during incarceration, three overarching themes emerged:
1) rationality of safety, whereby avoiding HIV infection was perceived as both an individual and collective responsibility;
2) peer HIV risk governance that included tactics for ensuring safety, whereby prisoners encouraged one another into curbing risky injection practices to avoid harming themselves and others and disciplined prisoners who failed to disclose their HIV status; and
3) relationships with prison healthcare providers, whereby prisoners' ongoing patient-clinician relationships supported their efforts to reduce their HIV risk during incarceration. Women prisoners tended to discuss HIV risk reduction strategies in terms of compassion and male prisoners in terms of coercion.

Conclusions: Among prisoners in Kyrgyzstan with a history of drug injection, we found that peers influence HIV risk perception and reduction strategies. As prisons across EECA are characterized by a paucity of government resources for healthcare, making way for informal governance by prisoners themselves, within-prison peer-driven HIV prevention interventions can potentially harness these peer influences to reduce HIV risk.

WEPED408

A systematic review of HIV outcomes and engagement in care across incarceration trajectories among women living with HIV

M. Erickson[1], A. Sernick[1], N. Pick[2,3], F. Ranville[1], R. Elwood Martin[4], K. Shannon[1,3], A. Krusi[1,4]

[1]BC Centre for Excellence in HIV/AIDS, Gender and Sexual Health Initiative, Vancouver, Canada, [2]BC Women's Hospital and Health Centre, Oak Tree Clinic, Vancouver, Canada, [3]University of British Columbia, Department of Medicine, Vancouver, Canada, [4]University of British Columbia, School of Population and Public Health, Vancouver, Canada

Background: Despite increased rates of incarceration among Women living with HIV (WLWH) globally, and the over-representation of WLWH in correctional settings, there is limited data concerning the gender-specific impacts of incarceration on HIV outcomes and engagement in care for WLWH.

Methods: We systematically searched OVID Medline, Web Of Science, PsycINFO, CINAHL, Sociological abstracts, Cochrane Library, and EMBASE, for peer-reviewed English-language studies, published between January 2007 and February 2017, reflecting: Incarceration, Women (trans inclusive), and HIV. Articles were included for evaluation if they presented sex/gender specific outcomes for WLWH, prior-to, during or following incarceration including at least one of three endpoints of interest: Viral Load (VL), ART adherence, or engagement in care. Studies were identified, screened and selected using systematic methods.

Results: Of 1119 studies matching the search criteria, 24 (2%) met the final inclusion criteria. Of the included studies, 19 contained samples of women and men, 6 of which were trans inclusive. Five studies were conducted exclusively among women, including one study focused solely on trans women. The majority (n=23) were conducted in the United States. For periods prior-to and during incarceration, our review did not reveal clear gender differences with regards to VL suppression, medication adherence or engagement in care for WLWH. However, studies reporting post-incarceration outcomes demonstrated significant gender disparities in all three of outcomes of interest. The majority (86%) of studies that reported on post-incarceration periods, conducted among both women and men, demonstrated that women were less likely to be engaged in care, less likely to be virally suppressed, and less likely to achieve optimal ART adherence in the months following release from correctional facilities.

Conclusions: Our literature review shows significant gender disparities in HIV outcomes for WLWH following release from correctional settings. Despite growing numbers of incarcerated WLWH globally, there remains a substantial gap in research examining the impact of incarceration on HIV health outcomes for WLWH. This review highlights the critical need for further studies examining the experiences of WLWH throughout incarceration trajectories, and the need to develop specific gender-informed interventions aimed at improving post release engagement in care for WLWH, alongside efforts to prevent the incarceration/re-incarceration of WLWH.

WEPED409

The role of civil society organizations (CSOs) in improving early HIV detection and continuity of ART in Tajikistan prisons

Z. Davlyatova

AFEW-Tajikistan, Dushanbe, Tajikistan

Background: In 2014, the prevalence of HIV in the Tajikistan penitentiary system was 7 times higher than the prevalence level in general society. Prisons authorities report that the penal system faces difficulties in organizing regular HIV testing among prisoners and that inmates lack basic knowledge about HIV, are ashamed to apply for assistance and are afraid disclose their health status. This discourages timely detection of HIV, and leads to interruption of ART and HIV transmission among inmates.

Description: In accordance with the START Plus model (officially approved and introduced by the penitentiary system) and in cooperation with prison administrations and civilian AIDS centers, AFEW-Tajikistan delivered voluntary HIV testing and counseling (HTC) and regularly organized HIV prevention mini-trainings for prisoners. Each HIV-positive prisoner received the necessary counseling, as well as social and adherence support to ensure continuity of ART during the transitional period before and after release.

Lessons learned: In 2017, 1586 (72%) prisoners of three colonies situated in Norak, Yovon and Khujand were reached by the HTC campaign. As result, 14 new cases of HIV were detected, equivalent to 21% of all 67 new cases detected in all Tajikistan prisons in 2017. 100% of inmates with newly-detected HIV initiated ART and received counseling and adherence support from AFEW-Tajikistan and partner CSOs social workers. 100% of HIV-positive prisoners released from these prisons were also assisted in health specialist appointments, timely registration at an AIDS center in their hometown, continuation of ART, and TB testing. To support continued adherence to ART, CSO social workers regularly visited ex-prisoners and assisted them in resolving social problems, acquiring the necessary vocational education and seeking employment. As result, there were 0 cases of ART interruption among the HIV-positive START Plus participants.

Conclusions/Next steps: With the official support of the prison authorities and based on evidence of its effectiveness, the START Plus model provides CSOs with opportunities to deliver services for prisoners and ex-prisoners in the transitional period before and after release, and initiate dialogue with donors to attract funds for supporting community-driven initiatives on HIV prevention and health promotion in prisons.

WEPED410

Peer Navigation System in Central Asian prisons as the most effective approach for HTS, ARV treatment initiation and adherence support

R. Dudnik

AIDS Foundation East-West in Kazakhstan, Almaty, Kazakhstan

Background: The majority of inmates (over 60%) in Central Asia inject drugs or was imprisoned for drug-related crimes. Due to unsafe practices inmates are at high risk of becoming infected with HIV and transmitting it to others. Historically, in post-Soviet countries, prison staff and doctors of governmental health system are perceived by inmates as "enemies" that cannot be trusted. Inmates PWID and PLHIV perceive all initiatives coming from them as a means of controlling or conducting experiments on people. That's why most of them refuse testing and treatment, and the ART coverage, adherence to treatment are still on the very low level.

Description: USAID HIV React Project (2014-2019) implemented by „AIDS Foundation East-West in Kazakhstan" in 18 prisons of Central Asia (Kazakhstan, Kyrgyz Republic, Tajikistan) consisting 16600 inmates including more than 700 PLHIV (data for October 2016). There are 56 peer navigators among current inmates in all project prisons are involved in the project implementation by actively promoting HTS among prisoners who inject drugs, putting their efforts into motivating and escorting PWID prisoners into testing points inside the prisons and motivate PLHIV to start ART and adhere to treatment.

Lessons learned: Inmates trust Peer Navigators because they are also inmates with drug use experience and/or positive HIV status. This significantly increases the effectiveness of the work aimed to achieve the 90-90-90 goals among inmates. Peer Navigators are motivated to work by incentives (additional food and hygienic packages) and by opportunity to increase its authority in their community. The main factors for the success of the approach is the proper initial selection and regular trainings for peer navigators. Personal experience is the key, therefore they should be well trained and free from any prejudice, myths and misconseptions.
Conclusions/Next steps: During the recent Project year (October 2016 - September 2017) 4690 PWID and 1049 PLHIV inmates (including recently released covered by Peer ex-inmates) were covered by the trained Peer Navigators. 3690 PWID received HTS, 574 PLHIV on ART received support in adherence to treatment, 121 newly identified PLHIV started ART. Peer Navigation System is the most effective approach to achieve 90-90-90 goals among inmates in Central Asia.

WEPED411

Harm reduction friend or foe? Correctional officers and prison-based needle and syringe programs

E. van der Meulen[1], S.K.H. Chu[2], R. Reece[3], R. Elliott[2]
[1]Ryerson University, Department of Criminology, Toronto, Canada, [2]Canadian HIV/AIDS Legal Network, Toronto, Canada, [3]Humber College, Toronto, Canada

Background: In Canada, federal prisoners comprise a marginalized population, many of whom are dependent on drugs. 80% of federally incarcerated men were identified as having a substance use problem upon admission and one-quarter of federally incarcerated women are serving time for a drug offence. Yet the past decade of tough-on-crime legislation has further eroded prisoners' health and safety and contributed to overcrowding, violence and exceedingly high rates of HIV and HCV, especially among Indigenous prisoners.
Description: Although injection drug use is a major factor contributing to HIV and HCV transmission behind bars, the Canadian government has refused to implement prison-based needle and syringe programs (PNSPs), citing unfounded threats to prison security, among other reasons. In a qualitative study with former prisoners and medical and community professionals who provide support to incarcerated populations, we sought to elucidate the main barriers to PNSPs and in particular, those posed by correctional officers.
Lessons learned: As the primary frontline workers in prisons, correctional officers play a significant role in PNSP success or failure. However, respondents overwhelmingly saw correctional officers as a key obstacle to PNSP implementation and perceived many officers as having little compassion for prisoners' health and wellbeing. A narrow focus on prison security has led many officers to believe that the provision of sterile injection equipment undermines their responsibility to maintain security or could be seen as condoning drug use, while overlooking the fact that PNSPs improve workplace safety by reducing accidental needle-stick incidents.
Conclusions/Next steps: As respondents emphasized, it is essential for correctional officers to be educated on drug use and drug dependence if PNSPs are to be effective. A peer knowledge exchange between correctional officers in Canada and those working in international PNSP settings would be immensely helpful. The challenges to PNSP implementation are considerable, but they are not insurmountable. Where PNSPs exist, there is a high level of staff support for the programs. With education about the manifold benefits of PNSPs, including for workplace health and safety, misconceptions about PNSPs can be addressed, concerns can be eased, and a seemingly intransigent workforce could emerge as PNSP champions.

WEPED412

Organization of medical care for HIV-infected inmates in institutions of the State penitentiary service of Ukraine

O. Klymova[1], L. Getman[1], S. Vasyliev[2], T. Gaborets[2], S. Klymov[2]
[1]Public Health Center of the Ministry of Health of Ukraine, Kyiv, Ukraine, [2]Ministry of Justice of Ukraine, Kyiv, Ukraine

Background: HIV and AIDS prevalence among prison inmates and pre-trial detainees is about 15 and 14 times respectively higher than among adults of general population in Ukraine. The delivery of medical care should be closely cooperated with civil health. We aimed to analyze the providing of the timely access of HIV-infected prisoners and detainees to antiretroviral therapy (ART) in accordance with international standards).
Methods: We analyzed the ART coverage of HIV-infected convicts and detainees in the institutions of the State Penitentiary Service of Ukraine (SPSU) over the period of 2016-2017, according to the reporting form No. 56 „Report on the antiretroviral therapy delivery for HIV-infected persons in the ___ month of the 20__ year", approved by Order of the Ministry of Health of Ukraine dated March 23, 2012 Nº 182.
Results: Based on the results of the analysis of official statistics data, 4,129 HIV-infected inmates were identified and 1995 patients among them were treated with ART by the beginning of 2016. As of January 1, 2018 there were identified 3,830 HIV-infected inmates and 2543 patients among them were treated with ART. Thus, the rate of coverage of ART among prisoners and detainees has been increased from 48.3% to 66.4% during 2016-2017 years. However, taking into account the goals of the Fast Track "90-90-90" strategy, the rate of ART coverage of HIV-infected prisoners and detainees remains low caused by the lack of medical staff in SPSU and insufficient social work with the HIV-infected inmates.
Conclusions: Increased but low ART coverage of HIV-infected prisoners and detainees does not meet the requirements of international standards. In order to improve the quality of medical services in the SPSU there was established the state institution „Center of Health of SPSU". One of the expected results is to provide continuous medical care to the prison inmates with HIV-infection, tuberculosis, drug addiction in accordance with current legislation and international recommendations.

WEPED413

Law and practice that inhibit HIV treatment adherence for pre-trial detainees in Malawi

A. Raw[1], V. Mhango[2], I. Maluza[2]
[1]Southern Africa Litigation Centre, Health Rights Programme, Johannesburg, South Africa, [2]Centre for Human Rights Education, Advice and Assistance, Blantyre, Malawi

Background: In Malawi, people living with HIV in police custody and remand detention in prisons face barriers to adhering to antiretroviral treatment (ART). This paper analyses the legal and regulatory framework governing access to healthcare for pre-trial detainees in order to determine barriers to treatment adherence.
Description: It is a common for arrested persons to spend unlawfully prolonged periods in police and remand detention. People living with HIV in police custody are often refused requests to facilitate access to medications, including ART. Once transferred to remand sections in prisons, detainees may face further delays before consulting a healthcare worker to re-establish access to treatment. These treatment disruptions have direct effects on prisoners' health and rights.
Lessons learned: While having a broadly supportive consitutional and common-law framework on the rights of all persons in detention, nothing in legislation governing arrest and powers of police specify rights or duties on access to healthcare or medicines when a person is held in police custody. Furthermore, there is no domestic regulatory guidance to ensure that detainees' access to treatment is sustained in transfer periods between police custody and remand sections in prisons. Finally, despite that the Prisons Act does not distinguish between convicted offenders and remand detainees in relevent sections, in practice, prisoners on remand are considered the responsibility of the Police, which has limited capacity to facilitate access to care.

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Conclusions/Next steps: In the absence of an adequate legislative or regulatory framework, police officers do not assume responsibility for ensuring access to treatment for persons in police custody, nor are they enabled to do so with appropriate budgetary allocations. In addition, these legal and policy gaps, result in violations of privacy and confidentiality of HIV status for people in police custody who are forced to disclose their status to arresting officers in the presence of other detainees in order to request to access treatment. Once in prison facilities, the distinction between the law and practice creates disputes over mandate and constrains access to emergency medical care in particular. Legal and policy development is critical to enable treatment adherence in pre-trial detention.

WEPED414

Training family physicians to care for HIV infected men in very a short-term jail setting

J. Gates, J. Ryu, S. Livermore
University of Southern California School of Medicine, Family Medicine, Alhambra, United States

Background: HIV screening, treatment, and linkage to care upon release is extremely difficult in jails given that some are incarcerated for as short as 24/48 hours. Even with an average length of incarceration of 30 to 40 days infected patients often don´t see an HIV specialist provider before they are release.

Description: The Los Angeles County Jail (LACJ) is the largest in the world averaging 18,000 to 20,000 incarcerated persons any given day. The LACJ averages about 500 known persons with HIV daily. Before intervention, most HIV infected men were not seen by an HIV specialist before release. The result was many were off their medications or put on a different regimen. To meet the challenge of the lack of HIV care while incarcerated in in the jail we began a HIV fellowship to train family physicians to provide care in the LCJ with the idea that these physicians would become experts in HIV treatment, learn how to provide care within a jail setting, and serve as agents to implement system changes to improve the overall HV care. To learn HIV medicine these family physicians trained for a year at the major HIV clinic at the Los County+USC Medical Center and at selected community based HIV clinics (where incarcerated seek care). To learn to provide care in the jail, fellows spent 20-30% time working under the supervision of the fellowship director who provided HIV care both within the jail and at the medical center.

Lessons learned: All 7 of the family physicians have successfully completed this corrections HIV fellowship with 3 taking potions at various jails and the other work in HIV setting where formally incarcerated are receiving HIV care. Beyond increasing the HIV workforce in jails this program has fundamentally improved the HIV care with the LACJ. HIV patients are now routinely screened upon booking, see an HIV expert before release, are maintained on current ARTs (when known).

Conclusions/Next steps: Increase the number of family medicine physicians to provide HIV treatment, develop a system that links patients to care in the community upon release. Co-locate HIV providers both in the jails and the community.

Media, cultural and religious representations of HIV and of key populations

WEPED415

The advertisers activists collective: #EqualityChallenge guidelines to improve accountability to LGBT in South African advertising

C. Patel[1], L. van den Heever[2], P.D. Tucker[3]
[1]AIDS Accountability International, Cape Town, South Africa, [2]AIDS Accountability International, Research, Cape Town, South Africa, [3]AIDS Accountability International, Research, Bruxelles, Belgium

Background: Advertisements (and those who create them and commission them) have the power to change norms and either reinforce or reverse stigma and discrimination. Whether advertisements feature women, mentally ill people, the disabled, LGBTIQ (Lesbian, Gay Bisexual, Transgender, Intersex or Queer people), or certain race groups, they can perpetuate harmful stereotypes or break them down. But the problem is that many advertisers, marketers and business do not know these commitments nor care to be leaders in human rights.

Description: The #EqualityChallenge advertisers' guidelines are meant as a framework to help advertisers, marketers, businesses and SOGIE (sexual orientation and gender identity and expression) activists work together to make equality, dignity, freedom and security a reality for the millions of LGBT people living in South Africa and the rest of Africa. AAI offers trainings on the guidelines and they are being well received by staff at ad firms.

Lessons learned: The advertising industry has been very welcoming of our message and keen to use their influence for human rights.
Marketers are more hesitant and less accessible due to fear of damaging their brand by association with stigmatised groups.
The peer influence effect and competitive spirit to be the leader is a powerful on in this industry.
In 18 months we have 3 adverts with trans people in them that are ethically setting a new standard.
Other media, such as print and radio have shown great interest in supporting this work.
If civil society can create positive feedback on inclusive adverts and drown out any phobic response, we have permanent allies in the advertisers and marketers.

Conclusions/Next steps: The project wants every advertising agency in Africa to take the #EqualityChallenge pledge, to embrace and endorse these guidelines, and to work to further LGBTIQ equality. With the support of inspirational, committed, justice-oriented and talented creatives like our current ambassadors and the agencies they represent, this ambitious goal is reachable.

WEPED416

Ambitious goals, restrictive environments: Accelerating HIV testing uptake among men who have sex with men in Jakarta's Fast-Track response

R. Ningsih[1], C. Francis[2], J. Macom[3], A. Human[2], M. Setyawan[2]
[1]Pact Inc., Jakarta, Indonesia, [2]FHI 360, Jakarta, Indonesia, [3]FHI 360, Bangkok, Thailand

Background: Jakarta's Provincial Health Office (PHO) articulated 2017 testing targets to reach an annual epidemic control goal of diagnosing 9,292 people living with HIV. Focus was placed on testing key populations (KPs), particularly men who have sex with men (MSM), for whom epidemiological and programmatic data indicated low testing coverage and rising HIV prevalence. Enhanced outreach approaches, amplified mobile and static testing services, and new HIV testing campaigns targeting MSM were among interventions introduced to accelerate HIV testing uptake. However, 2017 was also characterized by a deteriorating environment for MSM human rights, with attempts made to ban online gay social network applications and high-profile raids and arrests of gay and bisexual men taking place under the auspices of enforcing pornography laws.

Description: The USAID- and PEPFAR-supported LINKAGES Indonesia project reviewed 2017 HIV testing data among 88 HIV testing services in Jakarta. Testing uptake among MSM was charted across 12 months. Initiation dates for three important Fast-Track programmatic interventions — USAID/LINKAGES' key population mobile testing initiative (DOKLING); PHO's sub-district testing target guidance; and APCOM's TestJKT campaign — were plotted against monthly MSM testing uptake data. Dates of two high-profile sauna raids and mass arrests of MSM were also incorporated into the 12-month analysis.
Lessons learned: While MSM testing uptake has increased by 35 percent over 2017, erratic monthly totals suggest that uptake is affected by both enabling and restrictive measures. An 18 percent increase in testing followed the intensification of mobile testing services between April and May, although testing figures dropped by 12 percent from May to July, corresponding with the raid of Atlantis Spa when 141 persons were detained and mobile testing services were disrupted. Testing rates subsequently rose by 28 percent in July, as the PHO announced sub-district testing targets that increased testing frequency. Thereafter, testing rates declined by 16 percent. An October 6 raid and detention of 58 men did not appear to immediately affect MSM testing uptake, which increased by 19 percent in November as the TestJKT campaign intensified.
Conclusions/Next steps: Close monitoring of enabling environment measures and HIV service uptake among highest-risk KPs is critical in Fast-Track programming environments.

WEPED417

HIV/AIDS as a latent discourse. Practices of fragmentation, historicization and othernisation in Switzerland

D. Knuchel
University of Zurich, Zurich, Switzerland

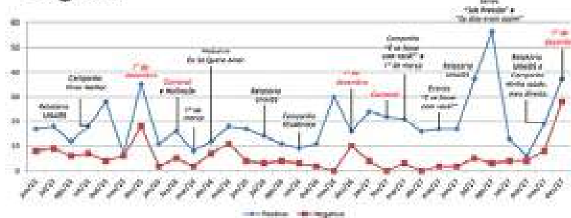
Background: In Switzerland HIV/AIDS is rather a chronic than a fatal infection nowadays due to effective treatment possibilities. This so-called ´normalisation´ has an impact on media discourse and it appears as if HIV/AIDS is no longer of public interest. The same can be said for cultural studies dealing with HIV/AIDS in Switzerland, with the literature focusing in particular on the 80es and 90es. This paper aims to fill this gap and sheds light on developments in media discourse among HIV/AIDS in Switzerland between 2006 and 2016.
Methods: The study is situated in the broader field of cultural language studies and is drawing on tools from (German) discourse linguistics and corpus pragmatics (e.g. text mining). The analysis is based on a thematic digital corpus consisting of 6000 texts published in the German-speaking part of Switzerland between 2006 and 2016. All texts containing the character strings *HIV* or *AIDS* from eight different press products (newspapers and magazines) have been included and processed accordingly to corpus linguistic standards (metadata, lemmatisation, part of speech tagging). The analysis has been carried out in three steps. Firstly, text distribution accordingly to different metadata such as year, source, topic have been computed and compared. Secondly, a combination of a keyword and collocation analysis has been conducted and thirdly concordance lines have been examined.
Results: The quantitative distribution analysis shows a steady decline in media attention. Furthermore, only 20 percent of all articles deal with HIV/AIDS as a maintopic. The keyword and collocation analyses show six different topical framings: science, Africa, development cooperation, 80es/90es, minorities ,events. In addition, a more detailed breakdown of the results shows that conceptualisations of HIV/AIDS such as *>HIV/AIDS as infectious disease<* , *>HIV/AIDS as historic phenomenon<* , *>HIV/AIDS as African disease<* and *>HIV/AIDS as a consequence of immoral conduct<* are unconnected and can be understood as different phenomena with the same term.
Conclusions: The corpus linguistic analysis shows that HIV/AIDS in media is a latent discourse which is defined through practices of fragmentation, historicization and othernisation. This findings emphasize that collective knowledge about HIV/AIDS is blurring and sterotypes and prejudice are still part of public representations.

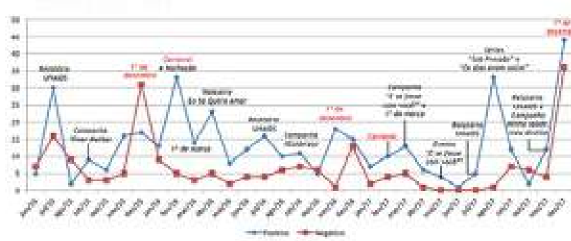
WEPED418

Signs of hope on ending stigma and discrimination in Brazil: Analyzing the impact of HIV outreach campaigns and initiatives on the news coverage of Brazilian media

D. De Castro[1], G. Braga-Orillard[2]
[1]UNAIDS, Communications, Brasilia, Brazil, [2]UNAIDS, Brasilia, Brazil

Background: Brazilian press has only recently started to recover from its almost decade-long silence on AIDS. Studies show that from 2007 to 2013, major media outlets have very rarely dedicated headlines and front pages to this subject, including on World AIDS Day. Stories on HIV and AIDS were almost always shoved in the middle of generic news desks, and stories had mostly scientific and medical approaches, focusing, at times, on tabloid-like stories, fuelling stigma and discrimination. In 2015, UNAIDS office in Brazil started a daily monitoring of the national news on HIV and AIDS in Portuguese as part of its internal communications strategy to build messages and campaigns on prevention, treatment and zero discrimination.
Methods: Stories were systematically collected every morning from an average of 30 different credible news providers (TV/radio, digital and traditional print). Content analysis classified news either as negative (when discriminatory, pejorative, or disruptive) or as positive (when they contributed directly or indirectly to the HIV response, providing important service, information and/or adequate terminology, or provided they were neutral and impartial). UNAIDS main outreach activities and campaigns were cross-checked with the Excel line graphics generated for the June 2015-December 2017 period to better understand its impacts on the media coverage of HIV in Brazil. Graphics for TV/radio, digital and traditional print results were compiled separately.





[Media Monitoring UNAIDS Brazil - June 2015 to December 2017]

Results: Out of 1,939 pieces analyzed from June 2015 to December 2017, 1,442 were classified as positive and 497 as negative, with negative peaks occurring mostly around key local dates for HIV awareness, December 1 and Carnival.
Conclusions: i) Digital and traditional print media respond better to campaigns and key messages, producing more positive content on HIV and AIDS, even during key dates, such as WAD and Carnival, whereas TV/

radio outlets deliver peaks of negative news on key dates; ii) overall improvement of coverage, especially on digital and print, with a positive-negative ratio of 3.7 to 1 in print; 3.4 to 1 in digital; and 1.3 to 1 in TV/radio; iii) targeted media training for TV/radio before key dates could mitigate negative coverage.

WEPED419

Capacity building of media personnel for positive and unbiased portrayal of communities at-risk for HIV: Towards creation of an enabling social environment through media

S. Ramasamy Kandasamy[1,2], G. Kumar[3], V. A[3], P. Krishnasamy[3], B. Veeraragavan[4]
[1]Voluntary Health Services, Projects, Chennai, India, [2]APCOM, MSA DIVA Project, Bangkok, Thailand, [3]Voluntary Health Services, MSA DIVA Project, Chennai, India, [4]The Voluntary Health Services - VHS, MSA DIVA Project, chennai, India

Background: Media plays an important role in addressing stigma and discrimination faced by marginalized communities in India. Although there has been an increase in the media coverage of HIV over the years, due to lack of understanding on issues faced by hijras/transgender women, adequate and good coverage are sub optimal. Enhancing/building the capacities of media/media personnel on issues faced by hijras/transgender women will not only correct misconceptions but also result in unbiased portrayal, stigma reduction and creation of supportive policies and programmes.
Description: Voluntary Health Services (VHS), with support from the Global Fund, is implementing a four-year project (2014-18) titled *'Diversity in Action'* in India to reduce the impact of HIV on hijras/transgender women. One of the focus areas of the project is to sensitize and capacitate various stakeholders including media personnel on issues faced by hijras/transgender women. Through the project, one national and 4 sub regional level media sensitization workshops were organized for media personnel. More than 300 print and electronic media personnel were sensitized through these workshops. Some major outcomes from these workshops are increased knowledge and understanding among the media personnel on trans issues, which resulted in producing unbiased, clear, accurate and respectful materials. These workshops have also paved way for further strengthening partnerships between media professionals and trans community. Face-to-face interactions with trans people greatly helped media personnel in better understanding about trans communities and their issues.
Lessons learned: Sensitizing media on issues of hijras/transgender women will not only help in producing unbiased, non judgmental and respectful materials about communities but also help in promoting acceptance, and contributing to supportive policies and programmes. Involvement of trans communities in media sensitisation programs is of great importance as face-to-face interactions provide better understanding and human touch.
Conclusions/Next steps: The trainings for media personnel need to be scaled up in different states of India, especially where stigma and discrimination against hijras/transgender women are still rampant. Advocacy with the associations of media personnel is also a potentially high impactful activity that could be pursued.

Gay, bisexual, and other men who have sex with men

WEPED420

Sexual sensation seeking and transmission risk in the era of HIV treatment as prevention

W. Gómez[1], C. Grov[2], A. Batchelder[3], P. Chai[3], E. Boyer[3], S. Dilworth[4], A. Carrico[5]
[1]University of California, School of Social Welfare, Berkeley, United States, [2]City University of New York, New York, United States, [3]Harvard University, Boston, United States, [4]University of California, San Francisco, United States, [5]University of Miami, Miami, United States

Background: Sexual sensation seeking is associated with multiple, co-occurring syndemic conditions such as methamphetamine use that could synergistically increase risk of onward HIV transmission. However, relatively little is known about how sexual sensation seeking may contribute to transmission risk in the era of HIV treatment as prevention.
Methods: HIV-positive, methamphetamine-using sexual minority men completed the baseline visit for a trial that included self-report measures and a blood draw for HIV viral load. We examined sexual sensation seeking as a correlate of:
1) serodiscordant condomless anal intercourse (SCAI) on methamphetamine (insertive and receptive) in the past three months; and
2) a composite index of difficulties with the HIV care continuum (i.e., any missed HIV primary care appointments, indices of anti-retroviral medication non-adherence, and HIV viral load > 200 copies/mL). Logistic and linear regression analyses adjusted for age, ethnicity, and addiction severity.
Results: The sample of 123 HIV-positive, methamphetamine-using sexual minority men was predominantly Caucasian (43%), middle-aged (Median = 45.1), and 16% had a potentially transmittable HIV viral load (> 200 copies/mL). Seven percent of participants with a potentially transmittable HIV viral load reported engaging in SCAI. Greater sexual sensation seeking was independently associated with receptive SCAI (Adjusted Odd Ratio [AOR] = 1.97; 95% CI = 1.09 - 3.55; p = 0.03) but not insertive SCAI (AOR = 1.72; 95% CI = 0.87 - 3.39; p = 0.12). Greater sexual sensation seeking was also independently associated with fewer HIV care continuum difficulties (standardized Beta = -0.23, p = 0.03).
Conclusions: Sexual sensation seeking was associated with greater odds of receptive SCAI on methamphetamine, but also fewer HIV care continuum difficulties. Further research with HIV-positive sexual minority men should examine if those with higher levels of sexual sensation seeking are more motivated to engage in the HIV care continuum to mitigate risk of onward HIV transmission.

WEPED421

Innovative HIV prevention and testing campaigns for maximized regional reach in conservative settings

E. Ballan
M-Coalition, Beirut, Lebanon

Background: HIV testing and Prevention awareness campaigns through social media are the new age method to reaching larger key populations to motivate MSM around sexual health. Yet in contexts such as the MENA region where homosexuality is criminalized by law, the challenge remains in reaching large number and familiarizing populations around HIV, testing, prevention and communication.
Description: In 2017, M-Coalition took on a new scope towards HIV related messages to achieve increased HIV testing rates, reduce fear and stigma around HIV screening, educate around safer sex practices and debunk myths around HIV. The campaign consisted of 5 short videos each targeting only one message at a time to make learning easier, the themes were: Fear, Confidentiality, Safer Sex, Living with HIV and encouraging communication among peers. In a bold move the videos featured MSM in different settings, involved different physical features of gay and bisexual men and used humor as a way to encourage individuals to share social media content.

Lessons learned: In our findings more MSM related to the videos than previous video campaigns which have occurred in the region. Humor meant a broader audience watching the videos until the end, it also gave more way to individuals sharing the videos on their personal profiles and pages as humor content is shared more frequently than other types of content. Interaction with viewers also increased as more people were reaching out to ask questions. A call to action at the end of each video linked viewers to the official website where they were able to locate MSM friendly HIV services in their countries. The use of single and simple messages made sure that viewers would watch the video only once and understand the content easily. The campaign also allowed MSM in conservative settings to view the videos through social media and receive information where outreach programs failed.

Conclusions/Next steps: The challenge represented itself in follow up on the scale of testing rates post campaign. Humor and simple messages seemed more effective which encourages national NGOs in adapting similar methods. Simplicity of HIV messages helped reduce stigma around HIV within MSM communities identified through success stories.

WEPED422

My disclosure, our test: An egocentric network analysis examining disclosure of MSM behavior networks and their relationship to HIV testing in China

B. Cao[1,2,3], A.J. Saffer[4], C. Yang[5], H. Chen[6], K. Peng[6], S.W. Pan[2,3,7], M. Durvasula[8], C. Liu[2,3,9], H. Fu[10], J. Ong[3,11], W. Tang[2,3,12], J.D. Tucker[2,3,4]
[1]Shenzhen University, Shenzhen, China, [2]University of North Carolina Project - China, Guangzhou, China, [3]SESH (Social Entrepreneurship to Spur Health), Guangzhou, China, [4]University of North Carolina at Chapel Hill, Chapel Hill, United States, [5]Johns Hopkins University, Baltimore, United States, [6]City University of Hong Kong, Hong Kong, Hong Kong, [7]Xi'an Jiaotong-Liverpool University, Suzhou, China, [8]Duke University, North Carolina, United States, [9]University of California, San Diego, United States, [10]Eastern Virginia Medical University, Virginia, United States, [11]London School of Hygiene and Tropical Medicine, London, United Kingdom, [12]Guangdong Provincial Centre for Skin Diseases and STI Control, Guangzhou, China

Background: As men who have sex with men (MSM) disclose their same-sex behaviors, they create disclosure networks. Disclosure networks can provide peer support, promote care seeking, and spur HIV testing. However, some environments have greater homophobia and stigma, contributing to less disclosure and HIV testing. This study examined the characteristics of disclosure networks that are associated with HIV testing among MSM in China.

Methods: An online nationwide survey was conducted in January 2017 among Chinese MSM. We collected information on participants' sociodemographic characteristics, MSM behavior disclosure to anyone, and HIV testing behavior. Name-generator questions were used to ask each participant ("ego") to nominate up to five social network members ("alters") with whom the ego had disclosed his MSM behaviors. We also asked the ego to report his relationship with the alters and the alters' HIV testing behaviors.

Egocentric network analysis was used to examine the association between disclosure network characteristics and the ego's HIV testing behaviors. Dyadic network analysis was used to examine the relationship between the ego and each alter's HIV testing behaviors controlling for clustering of observations within an individual.

Results: Overall, 836 men completed the survey, and 806 (96.4%) who reported at least one alter were included in this analysis. Among these 806 men, 72.2%(582) had been tested for HIV. The average disclosure network size was 4.05 (SD=1.47), and 66.6% (537) named five alters to whom they disclosed their MSM behavior. Friends represented 45.1% of all alters in participants' disclosure networks, 18.7% were sex partners and 2.5% of alters in the disclosure network were healthcare professionals. MSM who reported larger disclosure networks were more likely to have been tested for HIV (aOR =1.21, 95%CI: 1.08-1.34). The dyadic analysis showed that men with alters who tested for HIV were more likely to have tested for HIV (aOR = 6.07, 95% CI: 4.28-8.59). Disclosure to healthcare professionals was associated with HIV testing (aOR =5.43, 95%CI: 2.11-14.04).

Conclusions: The composition of MSM disclosure networks suggests that a larger disclosure network size may improve HIV testing among MSM. Our findings may help inform disclosure network-based interventions to promote MSM HIV testing.

WEPED423

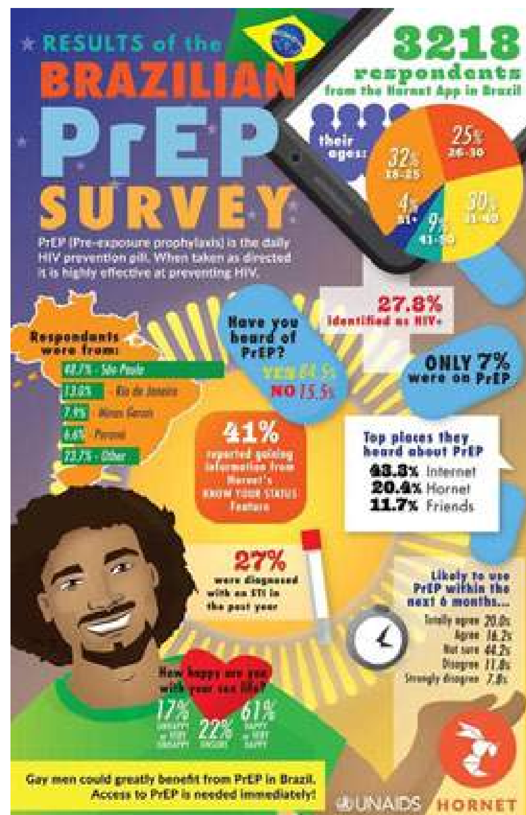
Brazil, PrEP, & gay dating apps. A survey about knowledge, access and future use of PrEP among users of dating app Hornet

C. Euzebio de Lima[1], A. Garner[2], G. Braga-Orillard[1]
[1]UNAIDS, Brazil Country Office, Brasilia, Brazil, [2]Hornet, Los Angeles, United States

Background: The objective of the survey was to examine PrEP knowledge, access and likelihood of future use, to provide evidence for advocacy and for the implementation of PrEP in Brazil. HIV epidemic has increased substantially during the last decade among MSM, especially young men - prevalence is estimated 19.8% among MSM 25 years and older, and 9.4% among those aged 18-24. In January 2018, Ministry of Health started offering PrEP free of charge through the public health system.

Methods: A questionnaire, adapted from the one implemented by Hornet in 2016 in partnership with ECDC, was distributed through the gay social networking app platform. Over three weeks (Sept/Oct 2017) app users were asked to participate in an anonymous survey about HIV prevention — 3,218 responses were collected.

Results: Previous knowledge about PrEP was high in general (85%). Meanwhile, 90% of respondents in the 31-40 age group said they had heard about PrEP, 24% in the 18-25 age group had never heard about it. 27.8% reported being HIV positive. Only 7% of HIV negative respondents were currently taking PrEP (through clinical trials/ordering online). 40% of respondents learned about PrEP via the internet, 20.4% from Hornet app, and 11.7% from friends. 20% reported not having tested for an STI in the last twelve months, and among those tested, 27% reported being diagnosed with an STI. 36.2% were likely to use PrEP in the following six months. 60% of respondents said they were happy with their sex lives, 22% were unsure, and 17% were unhappy.



[Results of the survey about knowledge, access and future use of PrEP among users of dating app Hornet in Brazil.]

Conclusions: MSM in Brazil are highly vulnerable to HIV and STI. Young MSM have less knowledge about PrEP than adults. A tailored communication strategy should be designed for them. Internet, including especially gay dating apps are an important source of health information for MSM and should be included in HIV prevention strategies. Willingness to use PrEP is high, so government and community should work together to ensure that MSM have the information they need to access PrEP.
Gay dating apps can represent a fruitful space for the implementation of strategies of positive prevention for MSM living with HIV.

WEPED424

Social media intervention exposure and its association with HIV testing: Secondary analyses from a randomized controlled trial in China

B. Cao[1,2,3], W. Tang[2,3,4], H. Lu[4], S. Leuba[4], D. Wu[2,3], J. Ong[3,5], C. Liu[6], R. Fu[7], P.T. Saha[4], C. Wei[8], J.D. Tucker[2,3,4]
[1]Shenzhen University, Shenzhen, China, [2]University of North Carolina Project - China, Guangzhou, China, [3]SESH(Social Entrepreneurship to Spur Health), Guangzhou, China, [4]University of North Carolina at Chapel Hill, Chapel Hill, United States, [5]London School of Hygiene and Tropical Medicine, London, United Kingdom, [6]University of California, San Diego, United States, [7]Guangzhou Center of Disease Control and Prevention, Guangzhou, China, [8]Rutgers University, Piscataway, United States

Background: Social media interventions are known to be effective in promoting HIV testing among key populations. However, it is unclear how intervention materials distributed through social media are recognized and acknowledged by men who have sex with men (MSM).
This study examined the effect of exposure to different social media intervention components on HIV testing.
Methods: We conducted a stepped-wedge cluster randomized controlled trial from July 2016 to July 2017 in eight Chinese cities. Participants were recruited from a popular gay app (Blued). The social media interventions were implemented biweekly for three months, and included six different images or texts, information on local HIV testing sites, and information on a community contest to promote testing.
We collected data on socio-demographics, facility-based HIV testing behaviors, exposure to different intervention components (i.e., recalled different messages), and further propagation of intervention components (e.g., shared with others, forwarded to others) or engagement (e.g., participated in local community contest).
Multilevel logistic regression was conducted to examine the relationship between social media intervention exposure and HIV testing behaviors.
Results: Of the 1381 men who participated, 1069 men completed the entire survey and were included in this study. Among the six images or texts sent during the intervention, study participants recalled an average of 2.7 (SD = 1.6) images/texts and forwarded 1.2 (SD = 1.4) images/texts. 85.3% (n = 912) of men remembered receiving information on HIV testing sites and 46.9% (n = 428) of them forwarded HIV testing site information. 34.2% (n = 366) of men recalled information on the community contest and engaged in an average of 1.2 (SD = 1.5) contest-related activities.
Recalling images or texts (aOR = 1.13, 95%CI: 1.02-1.25) and community contest information (aOR = 1.59, 95%CI: 1.13-1.24) were associated with HIV testing uptake.
Conclusions: This secondary analysis suggests that cognitive response to social media intervention messages can facilitate HIV testing. Our study disentangles different intervention components and may help specify effective social media intervention contents to promote HIV testing.

	Descriptive data		Multilevel analysis	
	N	%	Adjust odds ratio (95% CI)	p-value
Number of images/texts recalled	M = 2.7,	SD = 1.6	**1.13 (1.02, 1.25)**	**0.02**
0	92	8.6		
1	173	16.2		
2	251	23.5		
3	208	19.5		
4	201	18.8		
5	82	7.7		
6	62	5.8		
Number of images/texts forwarded	M = 1.2, SD = 1.4		1.09 (0.97, 1.22)	0.41
0	319	32.7		
1	285	29.2		
2	242	24.8		
3	72	7.4		
4	18	1.8		
5	9	0.9		
6	32	3.3		
HIV testing sites information recalled				
Yes	912	85.3	0.98 (0.62, 1.56)	0.93
No	157	14.7		
HIV testing sites information forwarded				
Yes	428	46.9	1.18 (0.83, 1.67)	0.36
No	484	53.1		
Community contest information recalled				
Yes	366	34.2	**1.59 (1.13, 1.24)**	**0.01**
No	703	65.8		
Number of community contest-related activities engaged	M = 1.2, SD = 1.5		1.07 (0.90, 1.28)	0.43
0	132	36.1		
1	133	36.3		
2	51	13.9		
3	26	7.1		
4	2	0.5		
5	5	1.4		
6	17	4.6		

Note: Multilevel logistic regression controlled the cluster of cities.
Models were adjusted for age (continuous), education (categorical), income (categorical), and marital status (categorical), and previous HIV facility testing experience (categorical).

[Table 1. Descriptive data on social media interventions recalled by MSM in China and multilevel logistic regression of social media interventions on facility-based HIV testing (n = 1069)]

WEPED425

Marijuana use predicts newly diagnosed HIV among Black men and transgender women who have male sex partners

L. Eaton[1], R. Baldwin[1], L. Zohren[1], J. Maksut[1], A. Carrico[2]
[1]University of Connecticut, Storrs, United States, [2]University of Miami, Miami, United States

Background: Black men and transgender women who have male sex partners (BMTW) experience alarmingly high rates of HIV. In Atlanta, GA, USA, approximately one-third of BMTW are living with HIV and current estimates project that 60% of BMTW will be living with HIV by age 40 if incidence remains unchanged. Use of sex-drugs such as stimulants, amyl nitrites, and erectile dysfunction medications (EDM) predicts 3-6 fold faster rates of HIV seroconversion in predominantly White cohorts of sexual minority men. However, it is unclear whether and how substance use fuels the HIV epidemic in BMTW.
Methods: We enrolled 449 BMTW who tested HIV-negative into a cohort that included HIV testing at the 12-month follow-up. Multivariable logistic regression analyses examined if any use of marijuana, stimulants (*i.e.,* powder cocaine, crack-cocaine, or methamphetamine), EDM, and amyl nitrites at baseline predicted greater odds of being newly diagnosed for HIV at 12 months.
Analyses adjusted for depressive symptoms, alcohol use, and sexual risk taking as possible confounders at baseline.
Results: At 12 months, 5.3% (*N*=24) of BMTW were newly diagnosed with HIV. Marijuana use independently predicted 2.5-fold greater odds of newly diagnosed HIV (OR=2.49, 95%CI=1.01-6.18), but other sex-drugs and alcohol use were not significantly associated with newly diagnosed HIV. Compared to marijuana non-users, marijuana users reported equal numbers of male sex partners and condomless sex acts, but had substantially higher odds of reporting any substance use during sex (OR=7.49, 95%CI=5.99-9.37), any alcohol use during sex (OR=2.23, 95%CI=1.85-2.80), and any sex in exchange for goods (OR=1.65, 95%CI=1.16-2.34).

Conclusions: Among our community-based sample, HIV annual incidence is alarmingly high. Further, in contrast to prior clinical research, marijuana use independently predicts greater odds of undiagnosed HIV and concomitant sexual risk taking in BMTW. Expanded efforts to promote HIV testing in BMTW who use marijuana could support the timely identification of new HIV infections to optimize the benefits of HIV treatment as prevention. Further research is warranted to determine the underlying mechanisms linking marijuana use and HIV seroconversion.

WEPED426

Structures of sexuality: Bisexual stigma and HIV risk with primary female partners among behaviorally bisexual Black men

S. Mackenzie[1], C. Michels[2], J. Chang[3]
[1]Santa Clara University, Public Health Program, Berkeley, United States, [2]San Francisco State University, Center for Research and Education on Gender and Sexuality, San Francisco, United States, [3]San Francisco State University, Health Equity Institute, San Francisco, United States

Background: Behaviorally bisexual Black men have been cast as the cause of HIV's disproportionate presence among Blacks, yet their relationships remain understudied. This analysis explores the relationship between bisexual stigma and HIV risk among a sample of behaviorally bisexual Black men of mixed HIV status in the San Francisco Bay Area in the United States.

Methods: Quantitative data were collected between October 2015 and June 2017 as part of a mixed methods HIV prevention study with bisexual Black men their female partners in the San Francisco Bay Area (N=231). Three separate multivariate analyses of men's data (N=121) assessed the indirect effects of stigma on unprotected sex, utilizing discrete stigma measures of bisexual stigma, internalized homophobia, and bisexual identity. The controlling measures were education, age, participant's HIV status, and partner's HIV status. The mediator was difficulty of disclosure of sexual activity with men to their female partner, and the outcome was condom use when having vaginal sex with a primary female partner in the past six months.

Results: Men with higher levels of stigma had a higher level of difficulty with disclosure (, *p*: 0.279, 0.003; 0.234, 0.011; 0.311, 0.001; respectively). When controlling for effects of each stigma measure along with the four covariates, higher levels of difficulty of disclosure had a negative effect on condom use (, *p*:-0.223, 0.027; -0.283, 0.004;-0.227, 0.023; respectively). More importantly, bisexual stigma, internalized homophobia and difficulty with bisexual identity also had a negative impact on condom use when mediated by disclosure (Indirect Effect, 95% CI:-0.073, -0.191 to -0.012; -0.094, -0.245 to -0.022; -0.081, -0.193 to -0,006; respectively).

Conclusions: These findings indicate that bisexual stigma and internalized homophobia experienced by behaviorally bisexual Black men presents a barrier to condom use through constraining disclosure to female partners. Men who reported higher levels of bisexual stigma and internalized homophobia reported that it was harder to disclose having sex with men with their primary female partner, which was significantly related to lower levels of condom use. Structural barriers to HIV prevention must be addressed through developing anti-stigma prevention campaigns targeting both men and women to reduce bisexual stigma.

WEPED427

Digital media and sexual health promotion among MSM and transgender women in India: Exploring the contours of online interventions

P. Dhall[1], R.K. Dasgupta[2], J. Harrison-Quintana[3]
[1]Varta Trust, Leadership and Management of the Organization, Kolkata, India, [2]Loughborough University, Institute of Media and Creative Industries, Loughborough, United Kingdom, [3]Grindr for Equality, Washington, United States

Background: The digital sphere now plays a major role in sexual networking, norms and practices among queer people in India. Digital media have become a significant means of information dissemination and community mobilization around queer health and rights concerns in the last two decades. But systematic and sustained sexual health interventions are largely absent from the digital sphere in India.

Description: Varta participated in a qualitative study to understand what digital sexual health interventions for MSM and transgender women could look like. The study was conducted in Kolkata with support from Wellcome Trust. Guided by digital ethnography and HIV intervention experience of the researchers, and learning from sexual health related content and interaction on Varta's website, the study included literature review, participant observations, four focus groups (n = 10) and 10 semi-structured interviews with outreach workers, counsellors, activists and media persons. Preliminary findings were fine-tuned through discussions in a symposium on digital media and health at Jadavpur University.

Lessons learned: The study was published as "Social Media, Sexuality and Sexual Health Advocacy in Kolkata, India - A Working Report". It explained how digital media had transformed and speeded up sexual networking (including sex work operations) among MSM and transgender women in Kolkata, often eliminating need for physical cruising or soliciting. Respondents recommended digital interventions that addressed hitherto neglected mental health, social exclusion and violence related drivers of HIV vulnerability. The study inspired two pilot interventions around respondent felt needs on Varta website with hyperlinks on Grindr app. A guide to tackle both online and offline gay blackmail, and a searchable database on queer-friendly sexual health, mental health and legal aid services were developed.

Conclusions/Next steps: Comprehensive digital interventions to match changes in sexual networking among MSM and transgender women are urgently need. Additionally, digital interventions may help reach population sub-sections otherwise inaccessible through traditional physical outreach for sexual health promotion. Immediate reader responses to online pilots with diverse queries on tackling sexual abuse, blackmail and health concerns further underlined the potential for digital interventions. But these interventions may have their own set of challenges around digital literacy, smart phone ownership and trust in online information sources.

WEPED428

Latent classes of sexual positioning practices and sexual risk among men who have sex with men in Paris, France

D. Dangerfield II[1], C. Carmack[2], T. Gilreath[3], D. Duncan[4]
[1]Johns Hopkins School of Nursing, Baltimore, United States, [2]University of Houston, Houston, United States, [3]Texas A & M University, College Station, United States, [4]New York University, New York, United States

Background: In France, HIV incidence has declined among all groups except men who have sex with men (MSM). HIV/STI risk varies by sexual positioning practices; however, limited data have characterized the sexual risk profiles of this population. To fill this gap, this study utilized latent class analysis (LCA) to explore profiles regarding condomless sexual positioning and seroadaptive behaviors.

Methods: MSM were recruited on a geosocial networking smartphone application in Paris, France in October 2016 (n=566). LCA was used to classify sexual positioning, seropositioning, and serosorting profiles. Age, HIV status, relationship status, substance use, group sex, and PrEP history were used in a multinomial regression model predicting the likelihood of class membership.

Results: Three latent classes were identified: Majority Top Serosorters, Versatile Low Partners, and Majority Bottom Some Serosorters. Majority Top Serosorters had the highest mean number of partners for condomless insertive anal intercourse and the highest probability of serosorting; Majority Bottom Some Serosorters had the highest mean number of partners for condomless receptive anal intercourse (~13 partners). MSM classified as Majority Bottom Some Serosorters were 7% more likely to be classified as such than Class 2 with each year increase in age (AOR 1.07; 95% CI=1.02, 1.21). Compared to HIV-negative/status unknown MSM, HIV-positive MSM were more likely to be classified as Majority Bottom Some Serosorters than Versatile Low Partners (AOR 7.04; 95% CI= 2.38, 20.8). MSM who reported substance use before or during sex were more likely to be classified as Majority Bottom Some Serosorters than Versatile

Low Partners (AOR 3.00; 95% CI=1.04, 8.67). MSM who reported PrEP history had 6.21 times the odds of being classified as Majority Bottom Some Serosorters than Versatile Low Partners.
Conclusions: Highlighting sexual risk profiles among MSM in France supports tailored and targeted interventions for highest risk individuals. Future research should incorporate qualitative methods to understand motivations for behaviors among high-risk MSM.

WEPED429

Suicidal ideation and suicidal behaviour among men who have sex with men in Malaysia

M.A. Ab Halim[1], J.A. Wickersham[2], A. Kamarulzaman[3], L. Sin How[4]
[1]Centre of Excellence for Research in AIDS, Faculty of Medicine, University Malaya, Kuala Lumpur, Malaysia, [2]Section of Infectious Diseases, Department of Internal Medicine, Yale School of Medicine, New Haven, United States, [3]University Malaya, Faculty of Medicine, Kuala Lumpur, Malaysia, [4]University Malaya, Kuala Lumpur, Malaysia

Background: Previous studies have shown that MSM tend to have higher suicidal ideation and attempt rates compared to the general population. The reported prevalence of suicidal ideation among MSM ranges from 13.18% to 55.80%. The prevalence of suicidal behaviour and ideation in Malaysia where MSM is highly stigmatised is unknown. We sought to estimate the prevalence of suicide ideation and attempt rates in a cohort of MSM in Malaysia setting.
Methods: Men who had anal sex in the past 12 months were invited to an online survey which was advertised on social media and Grindr. The 4-item, suicidal behaviours questionnaire-revised (SBQ-R) was used to examine suicidality, including suicidal thoughts, disclosure of such thoughts, and suicide attempt. Univariable and multivariable logistic regressions were conducted to determine demographic and psychosocial factors associated with suicidal behaviours.
Results: Of 539 participants who completed the survey, 32.1% reported suicidal behaviours. Specifically, 41% reported lifetime suicidal ideation and 8.2% 'will attempt suicide in the future'. The sample also reported rates of depression (CESD-20 > 16), intimate partner violence (IPV), and childhood sexual abuse (CSA) at 60.9%, 23.7%, and 21.9%, respectively. About 40% of self-reported HIV-positive MSM endorsed suicidal behaviours while the prevalence of suicidal behaviours was 30.3% among HIV-negative and 30.9% among who never tested for HIV. Chinese ethnicity (unadjusted odds ratio (UOR)=1.78 95% CI=1.17-2.72, *p*=0.007), Malay ethnicity (UOR=0.62 95% CI=0.43-0.89, *p*=0.010), unemployment (UOR=1.57 95% CI=1.04-2.37, *p*=0.032), and involved in commercial sex (UOR=1.58 95% CI=1.04-2.39, *p*=0.03) were associated with suicidal behaviours. Consistent condom use was not associated with suicidal behaviours (UOR-0.97, 95%CI=0.66-1.43, *p*=0.36). In the multivariable analysis, MSM who were depressed (adjusted odds ratio (AOR)=5.17, 95% CI=3.17-8.42, *p*=< 0.001), victims of IPV (AOR=2.07, 95% CI=1.32-3.23, *p*=0.001) and, who experienced CSA (AOR=1.80, 95% CI=1.12-2.91, *p*=0.015) were more likely to report suicidal behaviours.

Variables	Regression coefficient (b)	Adjusted Odd Ratio (95% CI)	Wald Statistic	p-value
Depressive symptoms	1.642	5.17 (3.17, 8.42)	43.375	<0.001
Victim of Intimate Partner Violence	0.725	2.07 (1.32, 3.23)	10.081	0.001
Experienced Childhood Sexual Abuse	0.590	1.80 (1.12, 2.91)	5.869	0.015

[Associated factors of men who have sex with men who have suicidal behaviour]

Conclusions: This was the first study to document high level of suicidal behaviours among MSM in Malaysia. A specific intervention and prevention program focusing on mental health in the MSM community should be integrated into the comprehensive HIV prevention programme and National Suicide Prevention Strategic Action Plan. Further qualitative studies are needed to understand the causes of suicidal behaviours.

WEPED430

Eliminating homophobia among healthcare providers to increase access to HIV-related services targeting men who have sex with men (MSM) and women who have sex with women (WSW) in Zimbabwe

J. Chirunga
GALZ, Project, Harare, Zimbabwe

Background: Men who have Sex with Men (MSM) have always had a key role in the global HIV epidemic. Recent studies from Zimbabwe indicate disproportionately high HIV prevalence rates among MSM (23.5%) and WSW (32.6%) when compared to adults in the general population. Despite these high rates, MSM and WSW have been consistently excluded from national AIDS programming. They further report stigma, discrimination and denial of services as common experiences while accessing HIV-related services from health settings. In order to address this barrier and to increase healthcare access for MSM and WSW.
Description: GALZ implemented a two prong approach: One targeting Healthcare Professionals, Service Providers, and Workers (HCW), and one targeting MSM & WSW. HCWs were mobilised through forming strategic partnerships with HCW associations e.g. Doctors for Human Rights (Zimbabwe). HCWs were trained by GALZ and Anova Health staff using the John Hopkins and MSMGF curriculum.
MSM and WSW were mobilised to make use of these services through direct service provision by GALZ, as well as through peer and referral programming. GALZ provided a minimum service package targeting HIV-SRH health needs, as developed through community level research. The peer programming provided for peer-to-peer basic counselling and referral services around SRH using a voucher-based referral system.
Lessons learned: Through these two approaches, GALZ established a pool of 182 HCWs (Doctors, RGNS, Pharmacists, Radiologists, Midwives etc) competent to provide MSM- and WSW- friendly services. The intervention also reached 2400 MSM and 160 WSW in uptake of HIV-SRH related services through the network of competent HCWs.
The peer programme precipitated the formation of a peer-support group around treatment/ ART Adherance
Affiliated processes under the peer programme such as SMS and social media messaging, and group discussions have further served to promote prevention and treatment adherence and behaviours within the target MSM and WSW population.
Conclusions/Next steps: Continuous engagement with government to increase buy-in of HCW trainings and sensitization on Key Populations. Continuous monitoring and intensifying linkages of MSM and WSW needs. Demand creation and accessibility to be increased through public awareness within media and amongst the target group. Need to increase research and reach in WSW HIV-SRH service mobilisation.

WEPED431

How do gay serodiscordant couples in Sydney, Australia apply treatment as prevention to their relationships?

S. Philpot, G. Prestage, J. Ellard, A.E. Grulich, B.R. Bavinton, The Opposites Attract Study Group
Kirby Institute, UNSW, Kensington, Australia

Background: Treatment as Prevention (TasP) as safe sex holds considerable appeal for gay Australian serodiscordant couples, providing the enjoyment of condomless sex without the fear of HIV-transmission. Most Australian gay serodiscordant couples currently practise condomless sex, and often adopt a relational approach towards managing HIV, thus signifying the importance of 'the couple' in HIV prevention. However, they lack a formal strategy that helps them navigate TasP. We explored the importance of 'the couple' within such relationships with the aim of developing a serodiscordant-specific HIV prevention strategy based on TasP.
Methods: Semi-structured interviews were conducted in 2015 and 2016 with 10 HIV-positive and 11 HIV-negative gay men representing 15 serodiscordant couples in Sydney, Australia. Participants were recruited through the Opposites Attract study. Using thematic analysis, key themes were identified and a coding schedule was developed.

Results: Most couples relied on TasP as their primary prevention strategy, a few used condoms, and a few rarely practised anal sex. When relationships were new, couples often used condoms and were cautious during sex. As time passed, they decided to forego condoms and trial TasP, though they did this with trepidation initially. Most apprehensions about TasP faded as it was increasingly practised. Confidence in TasP was facilitated by repeated condomless sex, consistent test results, and being in a couple framed by trust, commitment, and familiarity. HIV-negative participants who preferred condoms referred to their partner's HIV as infectious and thought of condoms as the right way to protect their own sexual health.
Conclusions: 'The couple' is a crucial component of gay serodiscordant HIV prevention. We recommend that 'Viral Load Agreements' (VLAs) be endorsed for serodiscordant couples who want to rely on TasP. Such agreements would include discussions about monogamy or otherwise, dispensing with condoms, regular viral load and HIV testing, excellent adherence to medication over time, and ongoing communication about these conditions. VLAs offer couples who have never used TasP a formal strategy to follow, and provide effective strategies for the maintenance of TasP for couples who already use it. However, condoms continue to play an important role for some couples and should continue to be promoted.

WEPED432

Sexual practices of men who have sex with men (MSM) in Madagascar

B.N. Rahaivondrafahitra[1], F.J. Park[2], P.-L. Lesage[3], N. Taruberekera[2], T.M. Raoelison[4], E. Enkurunziza[3]
[1]Population Services International, Research, Antananarivo, Madagascar, [2]Population Services International, Research Monitoring and Evaluation, Johannesburg, South Africa, [3]Population Services International, Representation, Antananarivo, Madagascar, [4]Population Services International, VIH, Antananarivo, Madagascar

Background: MSM are a vulnerable population with a high prevalence of HIV (14.8%) and low HIV testing coverage (16.5%) in Madagascar. This study aims to examine barriers and motivation to HIV prevention, specifically on HIV testing, and condom and lubricant use among MSM in order to refine behavior change communication and programmatic strategies.
Methods: We conducted semi-structured in-depth interviews with 81 MSM ages 15-57 in July, 2017 in 6 urban areas with the largest populations of MSM. Study participants were purposely sampled with the assistance of MSM association leaders, who were asked to target individuals meeting the eligibility criteria. Respondents were eligible to participate if they self-identified as MSM, or were MSM who hide their sexual identity, and were between the ages of 15-23 or 24-57. All participants provided written consent. Discussions were audio-recorded, transcribed in Malagasy, and analyzed using thematic content analysis method.
Results: We interviewed 27 men who self-identify as MSM and 54 men who do not openly disclose their sexual identity (27 young people and 27 adults). The study found that there were no notable differences in their barriers and motivation to HIV prevention. Some participants did not use condoms because they had confidence in their partners' health, or because their partners refused (typically due to lack of pleasure), or they used lubricant as a condom substitute. Although some participants indicated using condoms with lubricants for protection and easy penetration, others had no knowledge of lubricants. Some did not use lubricants because some condoms were already lubricated, or they used saliva as an alternative. Although the majority of participants have been tested previously, many dealt with a variety of barriers to HIV testing including fear of doctors, injections, positive results, or stigmatization, and lack of time.
Conclusions: Our findings reveal that adopting healthy behaviors for HIV prevention still presents challenges. HIV prevention efforts for MSM should focus on providing MSM friendly services that provide privacy for MSM such as home and mobile testing and testing during MSM events. These can promote increased perception of risk, regular testing, and safer sex practices of condom and lubricant use.

WEPED433

Exploring alcohol and other drug use among men who have sex with men (MSM) in Nairobi, Kenya: Implications for HIV and health promotion interventions

A. Tukai[1], H. Babu[1], A. Mugambi[1], C. Nyamweya[1], M. Kung'U[1], P. Ngurukiri[1], R. Kabuti[1], J. Liku[1], W. Nutland[2], P. Weatherburn[2], E. Fearon[2], A. Smith[3], J. Kimani[1,4], A. Bourne[5], The TRANSFORM Group
[1]Partners for Health & Development in Africa, Nairobi, Kenya, [2]London School of Hygiene & Tropical Medicine, Department of Social & Environmental Health Research, London, United Kingdom, [3]University of Oxford, Nuffield Department of Population Health, Oxford, United Kingdom, [4]University of Manitoba, Nairobi, Kenya, [5]La Trobe University, Australian Research Centre in Sex, Health & Society, Melbourne, Australia

Background: High levels of risky behavior and HIV prevalence have been reported among MSM in Kenya. Research in other contexts has documented an association between alcohol and other substance use and sexual risk behavior among MSM, however there is extremely limited data relating to this population anywhere in Africa. With a view to informing HIV prevention/care and harm reduction programs, this paper examines the social and sexual contexts of alcohol and drug use among (MSM) from Nairobi, Kenya.
Methods: Between April and July 2017, in-depth interviews were carried out with 30 MSM (aged 19-56) recruited via purposive sampling. Semi-structured interviews examined the contexts and motivations for alcohol and other drug use generally, as well as the role and impact of substance use during sex. Data were subject to thematic analysis.
Results: Five men were living with diagnosed HIV and 13 had not tested within the previous 6 months. All but two participants reported use of alcohol or other drugs during sex with other men. A common narrative of alcohol facilitating social and sexual confidence was perpetuated, all the more significant in this context given significant societal pressures and internalized homophobia that they often had to overcome to engage with other MSM.
However, at the same time, many men expressed fear that when drunk they may be less attentive to their surroundings and risk exposing themselves as MSM to other community members.
Around a third of men engaged in sex work and alcohol helped them mitigate fears of meeting clients, but this also presented challenges in the negotiation of safe sex. Consuming alcohol or other substances also enabled more adventurous sexual activity, such as group sex or attempting different sex roles with other men.
Conclusions: Consuming alcohol or other substances is often considered necessary to have sufficient courage to meet other men for sex, particularly in the context of sex work. Excessive alcohol use can inhibit sexual negotiation and put men at risk for HIV/STIs and expose MSM to abuse or assault. Substance use harm reduction interventions operating in tandem with HIV prevention and care activities are required to mitigate such risks.

WEPED434

Quality of life among HIV-infected and HIV-uninfected men who have sex with men in Nigeria: A cross-sectional study

B.O. Kayode[1], H. Ramadhani[2], U. Ononaku[1], T.A. Crowell[3,4], R. Nowak[2], H. Liu[5], S. Baral[6], N. Ndembi[1], M. Charurat[2]
[1]Institute of Human Virology, FCT, Nigeria, [2]Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, [3]U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, [4]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [5]University of Maryland School of Public Health, Department of Epidemiology, College Park, United States, [6]Johns Hopkins Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States

Background: Being gay/bisexual and HIV positive in a culture where these are highly stigmatized may impact quality of life (QOL). This study assessed QOL measures among HIV positive and negative men who have Sex with Men (MSM) in Abuja, Nigeria.

Methods: Between June 2017 and January 2018, a cross-sectional study of 300 MSM recruited from the ongoing TRUST cohort in Abuja was conducted. Face-to-face interviews were done using the validated WHOQOL-BREF tool to assess QOL at four domains: physical, psychological, social relationship, environmental, and 2 stand-alone questions of respondent rated QOL and health satisfaction. Raw scores from each domain were transformed to 0 and 100 accordingly. A t-test was used to compare mean QOL scores between HIV negative and positive participants and, among HIV positive participants, to compare those on treatment ≥1 year to those on treatment < 1 year.
Results: A total of 300 MSM enrolled with median age 25 [interquartile range 22-29] years and 164 (54.7%) were HIV positive. Compared to HIV positive participants, QOL was significantly higher among HIV negative participants in physical, psychological, and social relationship domains as well as respondent-rated QOL and health satisfaction (Table). There was no statistically significant difference between HIV positive and negative participants in relation to the environmental domain. Among HIV positive participants, QOL was significantly higher among those on treatment for ≥1 year compared to those on treatment for < 1 year for physical and psychological domains (p< 0.01).

	HIV Positive		HIV Negative		p-value
	Mean (SD)	CI	Mean (SD)	CI	
Physical Domain	72.9 (12.9)	(71.0 -74.9)	78.0 (11.3)	(76.1 -79.9)	< 0.01
Psychological Domain	67.4 (15.1)	(65.1 -69.7)	72.3 (12.1)	(70.2 -74.3)	< 0.01
Social relationship Domain	59.5 (19.4)	(56.5 -62.5)	66.0 (18.6)	(62.8 -69.1)	< 0.01
Environmental Domain	58.9 (12.8)	(56.9 -60.9)	57.3 (13.3)	(55.0 -59.5)	0.28
General QOL	57.9 (19.7)	(54.9-65.3)	67.4(23.6)	(63.6-71.5)	< 0.01
Health Satisfaction	60.9(26.7)	(56.9-65.3)	72.7(22.0)	69.2-76.6)	< 0.01

[Mean Quality of Life Scores Among HIV Positive and HIV Negative MSM in Nigeria]

Conclusions: These findings show that provision of HIV care within short term improves QOL of infected persons and other interventions should be emphasized in the assessment and management of HIV.

WEPED435

Unreached group / risk of HIV and STI / spouse and partners of MSM/MSW/TG community / Far-western Region, Nepal

R. Lama
Sudur Paschim Samaj, Adminstration, Dhangadhi, Nepal

Background: Nepal has concentrated epidemic. First-time IBBS study on HIV prevalence for MSM/TGs in Farwestern region. Nepal also accepted the 90-90-90 goal. In the Far-western Region, 5.7% HIV prevalence and 13% STI prevalence has been revealed during IBBS study in 2016. Most of the program is focused on prevention for MSM/TG only. But there is lacking program for Spouse, partners, and children of MSM/Tgs. But in a scenario of spouse and Children, we are unknown about the infection on their spouses, partners, and children. Our programs are focused for MSM/MSW/TGs only. and we had difficult to reached there spouses and partner. So it is very difficult to engage their partners, wives, and children in our program. Nepal is a male-dominated society so many of the MSM/TG were didn't show there female partners and spouses and they never expose their behavior. Because of Self stigma and Social stigma and discrimination.
Methods: A cross-sectional research design and Respondent Driven Sampling (RDS) method was applied for sample selection. The total sample size was 100. Respondents were interviewed after obtaining witnessed oral consent followed by pre-test counseling and blood, urine and anal swab sample collection. A structured questionnaire was used to collect background characteristics, knowledge on HIV and AIDS and STIs, sexual behavior, exposure and access to HIV services and stigma and discrimination. During the questioner with 100 respondents 71 MSM/TG was accepted they were married with women.
Results: As we have no program for Spouse, partners, and children, infection rate might be high. National Guideline also not to accept the spouse of MSM/MSW and TG in High-risk population. But we are unaware of these problems as we do not have any study till date. So infection is spreading unknowingly.
Conclusions: We should have focus prevention program for partners, spouses and children in our regular program. As we do not have any baseline for prevalence rate for them we should conduct research for HIV prevalence for partners and spouses, of MSM/TGs. If we didn't focus on programme spouse of MSM/ TG, 90-90-90 goal will be not reached

WEPED436

Substance use and psychosocial problems among Nigerian men who have sex with men (MSM): A qualitative study of motivation and consequences

A. Ogunbajo[1], S. Iwuagwu[2], W. Rashidi[3], N. Nwosu[2], T. Eyohwo[2], T. Oke[4], G. Harper[5]
[1]Brown School of Public Health, Behavioral & Social Sciences, Providence, United States, [2]Centre for Right to Health, Lagos, Nigeria, [3]Queer Alliance Nigeria, Lagos, Nigeria, [4]University of Buffalo School of Social Work, Buffalo, United States, [5]University of Michigan School of Public Health, Ann Arbor, United States

Background: Nigerian men who have sex with men (MSM) are disproportionately affected by the HIV epidemic. Various studies have found that substance use and psychosocial problems interact synergistically to potentiate sexual risk behavior and HIV psychosocial problems in Nigerian MSM remains unknown. Consequently, we carried out a qualitative study to explore the context of substance use and consequences of psychosocial problems among Nigerian MSM.
Methods: Semi-structured, in-depth qualitative interviews were conducted with 30 MSM in Lagos, Nigeria between June and August 2017. Participants were recruited through referral from key informants and snowball sampling. The interviews were conducted in a private office at a local NGO that provides HIV prevention services to vulnerable populations. Using qualitative software (NVIVO 10), an inductive content analysis approach was used to identify context and function of substance use and consequences of psychosocial problems among Nigerian MSM.
Results: The average age of participants was 27.9 years (S.D. = 4.9) and More than half (N=20, 73.3%) of participants self-identified as gay/homosexual. Salient findings included:
(A) motivations for substance use include:
i) lack of economic opportunities such as jobs,
ii) coping with negative attitudes from friends, family, and larger society due to sexual orientation, and
iii) social pressures from casual friends and sexual partners;
(B) some common consequences of substance use were engaging in unplanned and/or unprotected sexual experiences and inability to maintain sexual autonomy during experience;
(C) most participants described chronic substance use behaviors and mental health problems but lacked agency to seek treatment due to:
(i) limited financial resources,
(ii) lack of knowledge of substance use treatment facilities and mental health services in local area, and
(iii) fear of stigmatization of substance use habits or mental health problems;
(D) co-occurrence of substance use and mental health, where participants described using substances to deal with mental health issues and developing mental health issues as a result of substance-using habits.
Conclusions: Our findings highlight the need for substance use cessation and mental health services tailored to the unique needs of Nigerian MSM. Additionally, healthcare providers should undergo sensitization trainings to better serve the MSM community.

WEPED437

A serial, cross-sectional comparison of condomless anal sex and HIV testing among young men who have sex with men (MSM) in Beirut, Lebanon

G. Wagner[1], B. Ghosh-Dastidar[2], C. El Khoury[3], E. Balan[3], J. Tohme[3], M.G. Mutchler[4,5], J. Mokhbat[6], K. Goshn[3], M. Hojiej[3], C. Abi Ghanem[3], S. Tebbetts[7], S. Kegeles[7]
[1]RAND Corporation, Health, Santa Monica, United States, [2]RAND Corporation, Santa Monica, United States, [3]AFE, Beirut, Lebanon, [4]California State University, Dominguez Hills, Carson, United States, [5]APLA, Los Angeles, United States, [6]Lebanese AIDS Society, Beirut, Lebanon, [7]UCSF, San Francisco, United States

Background: In 2012, our research in Beirut with young men who have sex with men (YMSM) showed high rates of recent condomless anal sex, and low rates of recent HIV testing. In 2017 we used the same methods to collect data from YMSM, enabling us to assess for temporal changes in these behaviors, in addition to sociodemographic correlates.
Methods: Long-chain referral sampling was used to recruit 164 YMSM (age 18-29) in 2012 and 226 in 2017, with most having some university education and being gay-identified. Multivariate regression analysis was used to examine sociodemographic correlates of any condomless anal sex in the past 3 months and HIV testing in the past 6 months using the 2017 sample, and whether these behaviors differed between the two study samples. Propensity score weighting was used to eliminate any differences between the samples on all sociodemographics, increasing the likelihood that observed differences were due to temporal changes in the environment.
Results: Compared to the 2017 sample, the 2012 sample had significantly higher levels of any condomless anal sex in the past 3 months [68% vs. 51%; OR (95% CI) = 2.11 (1.30, 3.41)] and in last anal sex encounter [63% vs. 37%; OR (95% CI) = 2.93 (1.72, 4.98)], and lower levels of HIV testing in the past 6 months [27% vs. 52%; OR (95% CI) = 0.35 (0.21, 0.57)]. In the 2017 sample, employment, any university education, low monthly income and being in a committed relationship, were all independent correlates of having any recent condomless anal sex, regardless of partner HIV status; any recent condomless anal sex with partners whose HIV status was positive or unknown was associated with employment and any history of having an STI. There were no correlates of HIV testing in the regression analysis.
Conclusions: These findings suggest a temporal trend towards increased HIV protective behaviors (condom use; HIV testing) among YMSM in Beirut over the past 5 years, implying that increased grass roots, community-based efforts to combat HIV are working. Further inroads could be secured if HIV prevention programming target relational and economic influences.

WEPED438

LINX LA: Developing a web-based mobile app to improve treatment outcomes among HIV-positive sexual minority-identified young Black men

A. Miyashita Ochoa[1], I.W. Holloway[1], B.D.M. Wilson[2], E.S.C. Wu[1], T.L. Smith[3]
[1]UCLA Luskin School of Public Affairs, Social Welfare, Los Angeles, United States, [2]UCLA School of Law, Williams Institute, Los Angeles, United States, [3]APLA Health, HIV Prevention Services, Los Angeles, United States

Background: Young Black men who have sex with men (BYMSM) living with HIV experience disparities in treatment outcomes across the HIV Care Continuum (CC) in the U.S. While mobile application (app) interventions to improve HIV treatment outcomes exist, few have been culturally tailored for and designed by BYMSM to address social determinants of health. We sought to develop and test an app (LINX LA) to improve HIV treatment outcomes among BYMSM by addressing their social work and legal needs.
Methods: In partnership with community partners and BYMSM themselves, we sought to
(1) identify social service and legal barriers to engagement in care for BYMSM, and;
(2) iteratively develop and test an app to address those barriers.
Phase 1 consisted of interviews with BYMSM (N=13) to identify technology use patterns, experiences of HIV diagnosis and engagement in care, and social service/ legal needs to create a user persona and app prototype.
Phase 2 consisted of moderated interviews with BYMSM (N=20) and providers (N=11) to refine the Phase 1 prototype. Phase 3 consisted of a one week test of LINX LA with BYMSM (N=14).
Results: Social service and legal needs identified included homelessness, debt, and HIV-based discrimination. Lack of social support and HIV stigma were also major barriers to engagement in care. Three core app functions were developed:
(1) Community forum;
(2) Informational posting; and
(3) Text-based peer health navigation.
Key adjectives used to describe the app were "engaging" "private" and "useful." In Phase 3, participants initiated 31 distinct chats, posted 76 comments and 20 "likes". Participants agreed that the app was a "safe setting" where they could get "social support".
Conclusions: Mobile apps have the potential to engage BYMSM and improve treatment outcomes across the HIV CC. Iterative user-centered mobile app development resulted in the app LINX LA which will undergo efficacy testing in a randomized controlled trial. Open-source technology will enable LINX LA to be adapted for other practice settings and populations. We attribute positive feedback regarding LINX LA to our community-based participatory design process. Mobile health interventions to address HIV CC outcomes must be developed in partnership with end-users and key community stakeholders.

WEPED439

Sexual initiation and quality of life among gay, bisexual and other men who have sex with men worldwide

S. Arreola[1], O. Martinez[2], K. Wilson[2], G. Ayala[1], K. Makofane[3]
[1]MSMGF, Research, Oakland, United States, [2]Temple University, School of Social Work, Philadelphia, United States, [3]Harvard, Social Epidemiology, Boston, United States

Background: Gay, bisexual and other men who have sex with men (GBMSM) have a high prevalence of childhood sexual abuse (CSA) associated with negative health outcomes linked to HIV-risk. However, it is unclear how different categories of sexual initiation, including CSA (forced sex before 16 with someone >5 years older), relate to a broader range of quality of life (QoL) domains. This study examined the differential associations between sexual initiation (None < age 16; Consensual < age 16; Forced < age 16; and Forced ≥ age 16) and QoL.
Methods: We analyzed data from a global sample of 2,481 GBMSM, in 7 languages, collected between 2014 and 2015 from the Global Men's Health and Rights Survey. Participants were recruited through online convenience sampling (e.g. via organizational networks, email listservs and websites). We used World Health Organization´s (WHO) standardized QoL measures (Physical, Psychological, Social and Environmental); T-tests and Chi Squared tests to assess associations between four sexual initiation categories and all Quality of Life domains.
Results: Table 1. shows consensual sex before age 16 had higher psychological, social, environmental and overall QoL and lower suicidality than men who initiated sex at/after age 16; whereas before age 16, men who had forced-sex had worse QoL and suicidality than either those who had none (physical, psychological, environmental and overall) or consensual sex (all domains). This pattern held comparing forced and consensual sex at/after age 16: forced had poorer physical, psychological (marginally significant), environmental, overall QoL, and suicidality than consensual.
Conclusions: This study is the first to differentiate the impact of four categories of sexual initiation on four QoL domains among a global sample of GBMSM. Consistent with previous findings, forced sexual initiation had the most negative QoL outcomes. Results also indicate that consensual sexual initiation before age 16 was not necessarily associated with negative QoL, suggesting that subjective experience of sexual initiation is as important as age of initiation when assessing for CSA. Therefore, it is important to differentiate both childhood and adult sexual initiation deferentially for forced versus consensual experiences so that interventions may be tailored to specific trajectories related to each.

Quality of Life	Consensual vs. No Sex t statistic	p-value	Cohen's d	Forced vs. No Sex t statistic	p-value	Cohen's d	Forced vs. Consensual Sex t statistic	p-value	Cohen's d	Forced vs. Consensual Sex t statistic	p-value	effect size Cohen's d
Physical	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Psychological	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Social	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Environmental	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Overall	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	p-value	[illegible]	[illegible]	p-value	[illegible]	[illegible]	p-value	[illegible]	[illegible]	p-value	[illegible]
Lifetime	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]			[illegible]			[illegible]			[illegible]		

[Table 1. Quality of life domains comparing:
Consensual & No Sex before age 16 | Forced & No sex before age 16
Forced & Consensual Sex before age 16 | Forced & Consensual Sex at/after age 16]

WEPED440

Correlates of stages in the HIV care continuum among HIV-positive young men who have sex with men

D. Bruce[1], J. Flores[1], W. Love[1], M.I. Fernandez[2], ATN
[1]*DePaul University, Health Sciences, Chicago, United States,* [2]*Nova Southeastern University, College of Osteopathic Medicine, Davie, United States*

Background: Young men who have sex with men (YMSM) continue to be overrepresented in the HIV epidemic. Compared to adult populations, YMSM living with HIV (HIV+ YMSM) experience significant disparities at each stage of the HIV care continuum. The current study aimed to identify demographic and behavioral characteristics associated with care continuum stages among HIV+ YMSM.

Methods: We examined demographic, behavioral, and clinical data of 991 HIV+ YMSM enrolled in ATN086-106, a multisite cross-sectional study within the Adolescent Trials Network for HIV/AIDS Interventions (ATN). Demographic and behavioral variables that demonstrated significance in bivariate analyses were entered into multivariate logistic regression models to assess correlates of a range of care continuum markers.

Results: Prevalence of care continuum markers across the sample were: 63.8% reported consistent HIV care, defined as missing < 1 appointment in past 12 months; 52.3% were currently on antiretroviral therapy (ART); 36.8% were on ART >6 months; 33.2% reported >90% adherence; and 28.9% were virally suppressed. Multivariate results indicated that methamphetamine use during the past 90 days was negatively associated with consistent HIV care (OR=0.59, 95%CI: 0.42, 0.84), being on ART (0.68, 95%CI: 0.48, 0.95), and ≥90% adherence among those on ART (OR=0.47, 95%CI: 0.28, 0.81); post-high school education was positively associated with consistent HIV care (OR=1.38, 95%CI: 1.02, 1.85) and being on ART (OR=1.48, 95%CI: 1.12, 1.95); African American race (OR=0.51, 95%CI: 0.33, 0.81) and mental health symptomology (OR=0.67, 95%CI: 0.56, 0.80) were negatively associated with consistent HIV care but demonstrated no associations with other stages of the continuum. Daily marijuana use was negatively associated with consistent HIV care (OR=0.65, 95%CI: 0.48, 0.89), and any marijuana use in the past 90 days was negatively associated with adherence (OR=0.54, 95%CI: 0.36, 0.82). No demographic or other behavioral correlates were associated with viral suppression after controlling for adherence and being on ART ≥6 months.

Conclusions: Methamphetamine use appears to have negative effects on HIV care among HIV+ YMSM across the care continuum, while marijuana use frequency may have differential effects. Efforts to improve treatment as prevention approaches and the HIV care continuum among HIV+ YMSM should emphasize substance use assessment and intervention.

WEPED441

'How come you are a refugee, yet in Uganda there is no war?' Social, sexual and psychological wellbeing of East African MSM and transgender (MSM/TG) migrants in Nairobi

A.D. Smith[1], M.B. Clark[2], A. Bourne[3], R. Kabuti[4], M. Kung'u[4], H. Babu[4], P. Weatherburn[5], E. Fearon[5], J. Kimani[4,6], TRANSFORM
[1]*University of Oxford, Nuffield Department of Population Health, Oxford, United Kingdom,* [2]*City University of New York, CNUY Baccalaureate for Unique and Interdisciplinary Studies, New York, United States,* [3]*La Trobe University, Australian Research Centre in Sex, Health & Society, Melbourne, Australia,* [4]*Partners for Health and Development, Nairobi, Kenya,* [5]*London School of Hygiene and Tropical Medicine, Department of Public Health, London, United Kingdom,* [6]*University of Manitoba, Department of Medical Microbiology and Infectious Diseases, Winnipeg, Canada*

Background: East African LGBT migrants seeking asylum in Kenya report harrowing accounts of sexuality-related discrimination precipitating migration. UNHCR estimates over 400 LGBTI migrants have registered for refugee status in Nairobi - the number of illegal migrants is unknown. We explored sexual, social and psychological wellbeing of non-Kenyans enrolling in a study of MSM/TG resident in Nairobi.

Methods: 618 MSM/TG enrolled via respondent-driven sampling in 2017. Eligibility criteria were age 18+, male gender at birth/currently, Nairobi residence and consensual oral or anal intercourse with a man during the last year. Participants completed a computer-assisted survey including knowledge and access to HIV prevention/care resources, experience of discrimination and violence, and measures of social support [MSPSS] and depression [PHQ-9]. MSM/TG born outside and arriving in Nairobi since 2012 were considered international migrants (asylum or refugee status was not assessed directly). Analysis was RDS-II weighted.

Results: 100/618(17.3%) MSM/TG were born outside Kenya of whom 43(44.5%) arrived in Nairobi in the last year (recent migrants) and 56(55.5%) 1-5 years ago (established migrants). Migrants originated from Uganda 83.0%(n=86), DR Congo 11.5%(n=9), Rwanda 4.6%(n=4) and Tanzania 0.8%(n=1).

HIV prevalence was lower among migrants than Kenyan MSM (9.0 vs 30.1% p< 0.001). Recent migrants more often reported problems accessing condoms (OR 2.72[1.43-5.16] p=0.002), and lubricants (OR 1.65[0.88-3.10] p=0.117), and were less likely to have HIV tested in the past 12 months (OR 0.48[0.22-1.02] p=0.056).

31.8% recent and 25.3% established migrants had moderate to severe depression (>PHQ9) versus 15.5% Kenyan MSM/TG (p=0.025). Perceived social support was also lower (mean MSPSS: recent: 4.1; established 4.0; Kenyan MSM/TG 5.0; p< 0.001). Violence and discrimination from family, police and health care were more frequently reported by both recent and established migrants (table).

	Recent migrants (up to 1 year)		Established migrants (1-5 years)		Other study participants		p
	N	%	N	%	N	%	
	[43]		[56]		[516]		
Stigma & Discrimination: Family (ever)							
Discriminatory remarks by family	41	*97.6*	53	*95.3*	203	*35.8*	<0.001
Excluded from family activities	38	*90.3*	50	*85.4*	173	*32.3*	<0.001
Stigma & Discrimination: Friends (ever)							
Rejected by friends	36	*92.1*	42	*74.8*	202	*37.1*	<0.001
Stigma & Discrimination: Health care (12 month)							
Afraid to go to health care services	25	*62.7*	33	*54.1*	195	*37.8*	0.005
Avoided going to health care services	24	*59.0*	30	*49.0*	194	*37.2*	0.023
Not treated well in health care setting	18	*48.7*	28	*38.3*	88	*14.6*	<0.001
Health care workers gossiping/laughing	21	*56.7*	27	*42.7*	71	*11.7*	<0.001
Stigma & Discrimination: Police (12 months)							
Police refused to protect	30	*74.0*	40	*59.2*	85	*13.9*	<0.001
Threatened with arrest by police	23	*60.3*	32	*50.5*	50	*6.1*	<0.001
Stigma & Discrimination: General (12 months)							
Scared to be in public places	31	*78.8*	40	*64.1*	140	*25.3*	<0.001
Blackmailed	18	*40.3*	33	*60.1*	114	*19.7*	<0.001
Violence (12 months)							
Physical assault	30	*70.6*	37	*58.2*	99	*16.4*	<0.001
Sexual assault	11	*26.0*	18	*28.5*	58	*10.2*	<0.001

[Stigma, discrimination and violence attributed to sexual orientation reported by recent and established international migrants to Nairobi, Kenya (2017)]

Conclusions: MSM/TG migrants experience alarming levels of discrimination, assault, depression and poor social support in Nairobi. There is no coordinated response at a time when financial support for LGBT migrants has been withdrawn. Provisions for security and wellbeing of registered migrants should be urgently reviewed and addressed. Access to and information about Kenyan HIV prevention services should be made available to migrants on entry. Measurement of refugee/migrant status in future research is recommended.

WEPED442

Stigma/discrimination faced by men who have sex with men in India: Correlates and association with risk behaviours (alcohol/drug use and inconsistent condom use), and access to HIV services

V.M.L. Pinnaka[1], V. Chakrapani[1], T. Sirari[1], P. Dhadwal[1], P. Kumar[2], V. Srinivas[2]
[1]Post Graduate Institute of Medical Education and Research, School of Public Health, Chandigarh, India, [2]National AIDS Control Orgainisation, New Delhi, India

Background: The high prevalence of stigma and discrimination faced by MSM, globally and in India, has been well documented. However, from India, limited information is available on the correlates of stigma/discrimination faced by MSM and its effect on various risk behaviours and uptake of HIV prevention-related services.
Hence, this analysis aims:
1) to identify correlates of factors associated with stigma/discrimination; and
2) examine whether stigma is associated with alcohol and drug use, sexual risk, and access to HIV prevention services.
Methods: We used data from a probability-based sample of 23,081 MSM who participated in Integrated Bio-Behavioural Surveillance (IBBS) conducted in 24 states in India. Stigma/discrimination composite score was computed using 4 items:
1) physical violence;
2) sexual violence;
3) disrespectful treatment by friends, family or neighbours;
4) disrespectful treatment in health facilities.
Negative binomial regression was used with stigma composite score as the outcome variable. Multivariate logistic regression was used to examine whether stigma composite score predicts alcohol use, drug use, inconsistent condom use and exposure to HIV prevention programme (i.e., access to HIV services).

Factors associated with stigma/discrimination			
Variables	**Risk Ratio**	**p value**	**95% CI**
Age			
15 - 24 years	1		
25 - 39 years	1.10	< .01	1.03 - 1.18
≥ 40 years	0.95	.45	0.84 - 1.08
Years of Education			
Illiterate	1		
1-5 years	0.71	< .001	0.62 - 0.82
6 -12 years	0.71	< .001	0.64 - 0.80
13 and above	0.69	< .001	0.60 - 0.79
Marital Status			
Married	1		
Single	1.17	< .001	1.09 - 1.26
Identity			
Kothi	1		
Double-decker	0.90	< .01	0.84 - 0.96
Panthi	0.91	< .05	0.84 - 0.99
HIV Status			
Negative	1		
Positive	1.14	< .05	0.99 - 1.31
Sex Work			
No	1		
Yes	0.91	< .05	0.85 - 0.98
Health-related outcomes associated with stigma/discrimination*			
Variables	**aOR**	**p value**	**95% CI**
Alcohol Use	1.19	< .001	1.15 - 1.23
Drug Use	1.80	< .001	1.73 - 1.88
Inconsistent Condom Use	1.12	< .01	1.04 - 1.21
No exposure to HIV Prevention Programmes	1.08	< .01	1.03 - 1.13
* Adjusted for age, years of education, marital status, identity, sex work and HIV status			

[Table 1: Factors associated with stigma and discrimination and Its association with various health outcomes among men having sex with men in India]

Results: The mean age of the participants was 27.6 years (SD 7.4 years). About two-thirds were single, reported having about 6-12 years of education and had diverse sexual identities: kothis (feminine/receptive) - 44%, double-deckers (insertive/receptive) - 31% and panthis (masculine/insertive) - 25%. MSM who were in the age group of 25-39 years (vs. 15-24 years age group), single, and relatively less educated and kothi-identified persons had higher levels of stigma scores. HIV knowledge or HIV status did not significantly predict stigma. Stigma/discrimination scores significantly predicted alcohol use (aOR=1.19, < .001), drug use (aOR=1.80, p < .001) and inconsistent condom use (aOR=1.12, p < .01) (Table-1). Those who had experienced high levels of stigma had lower odds of exposure to HIV programme, and thus less access to HIV prevention services.
Conclusions: Experiencing high levels of stigma is associated with HIV-related risk behaviours (alcohol/drug use and inconsistent condom use), and decreased access to HIV prevention services. Stigma reduction and mitigation programmes could help in decreasing HIV risk among MSM and improve their access to HIV-related services.

WEPED443

PrEP Uptake and Persistence in a Sample of Trans MSM in the United States

K. Mayer[1], S. Reisner[2], D. Pardee[3], A. Asquith[3], G. Mayer[4]
[1]The Fenway institute/Harvard/Beth Israel Deaconess Medical Center, Infectious Diseases, Boston, MA, United States, [2]Harvard Medical School/Harvard T.H. Chan School of Public Health/Fenway Health, Boston, United States, [3]The Fenway Institute, Fenway Health, Boston, United States, [4]Gilead Sciences, Inc., Foster City, United States

Background: Transgender people are highly burdened by HIV infection, and trans masculine adults who have sex with cisgender males (trans MSM) may be at particularly high risks for HIV. Despite documented HIV acquisition risk, data on PrEP uptake and persistence in trans MSM are scarce to guide HIV prevention.
Methods: A national sample of U.S. trans MSM recruited via peer referral, dating apps and other social media completed an online survey between November-December 2017. Trans MSM self-reporting receptive anal or frontal/vaginal sex with a cisgender male sex partner in the past 6 months were eligible: HIV-uninfected TMSM who had heard of PrEP and reported on PrEP use were included in this data analysis (n=622). A multivariable logistic regression model was fit analyzing PrEP uptake (yes/no) on statistical predictors derived from transgender/MSM/PrEP research literature.
Results: Sociodemographic and clinical data from all the respondents found that mean age was 28; 10% were Black; 22% Latinx; 68% endorsed masculine identity; 33% identified as gay; 78% used testosterone. Over the prior 6 months, 68% reported anal, and 64% frontal/vaginal, condomless receptive sex (CRS) with a cisgender male; 23% were currently on PrEP and 12% had previously taken PrEP. Adjusting for age, race, education, health insurance, HIV testing, testosterone use, and stigma, factors significantly associated with PrEP uptake were: identifying as Latinx (aOR=2.55; 95%CI=1.29-5.03), binary gender identity (aOR=2.03; 95%CI=1.10-3.56), gay sexual orientation (aOR=2.71; 95% CI=1.54-4.78), polyamorous relationship (aOR=1.98; 95% CI=1.14-3.44), higher number of sexual partners (aOR=1.11, 95%CI=1.05-1.17), social media as preferred health information source (aOR=1.99, 95%CI=1.17-3.39), and higher perceived HIV risk (aOR=1.17; 95%CI=1.04-1.31), and CRS (aOR=2.19; 95% CI=1.17-4.12). PrEP was most commonly obtained via primary care providers (60%), sexual partners (21%), STI clinics (11%), or OBGYN providers (11%).
Conclusions: PrEP use was common in this trans MSM sample, which may partly be a function of recruitment methods (e.g., included outreach to HIV prevention listservs). PrEP uptake was modest, given their prevalence of HIV risk behaviors. Although 68% of the trans MSM reported sexual risk, the majority were not using PrEP, suggesting further study and community education are needed to enhance uptake among trans MSM.

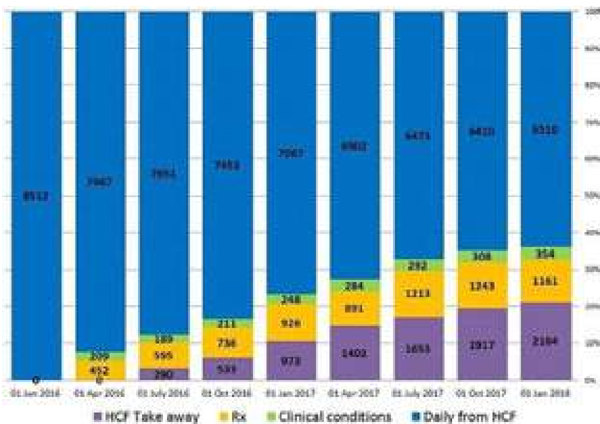
People who use drugs (including by injection)

WEPED444

Rapid scale up of takeaway practices for opioid substitution therapy in Ukraine: Exploring possibilities of new legislation

T. Grytsenko[1], I. Ivanchuk[2], O. Bidovanets[1]
[1]Public Health Center of the Ministry of Health of Ukraine, HIV, VH and STIs Prevention and Control Department, Kyiv, Ukraine, [2]Public Health Center of the Ministry of Health of Ukraine, Project Management and International Cooperation Department, Kyiv, Ukraine

Background: In order to improve retention, patients resocialization, decrease financial and HR burden on healthcare facilities, providing OST, regulatory framework, allowing patients, falling under certain criteria («patient stability») to receive up to 10 days takeaway dose, which was previously only available due to clinical conditions, has been introduced.
Description: Legislation came into force in early 2016, setting common regulations for all facilities and regions of Ukraine. As of 01.01.2018, share of OST patients receiving takeaway dosage for further self-administration has grown up to 32,6% (3325 out of 10189) (not including 354, receiving takeaway dosage due to the clinical conditions). 65,1% of them (2164) receive drugs directly from the clinic, keeping patients tied to the single facility, while 34,9% (1161) receive prescription blank, which can be presented at any eligible pharmacy. Since, regions have shown their own approach, from total disregard to the practice (0%, 0 out of 174 patients) to rapid implementation on all levels (86,4%, 146 out of 169 patients) with no specific interventions from the national level, excluding providing explanations on new legislation. Takeaway share is different in terms of drugs as well, varying from 26% for methadone tablets (2648 out of 8901 patients) to 63% for buprenorphine (677 out of 1075).



[Share of OST patients receiving takeaway drugs in Ukraine]

Lessons learned: Given the differences in implementation of new model, it`s important to provide additional tailored recommendations, depending on drug misuse and overdose risks. Assessment on recommended ratio of patients receiving OST on a daily basis under direct supervision and those, receiving takeaway dosage, based on existing evidence and considering country context, should be carried out. Implementation of the takeaway practice has significantly increased attractiveness of the program for the clients (scale up for 1677 patients within 2 years), though long-term impact on HIV epidemic, as well as illicit drug use and additional risks for the patient and PWID population remains unclear.
Conclusions/Next steps: Though takeaway model is crucial both for sustainability of OST programs in terms of limited resources and as a approach of patients encouragement, additional regulations and recommendations to mitigate possible risks and balance out with benefits is needed throughout of program scale up.

WEPED445

Will gay and bisexual men who use methamphetamine participate in PrEP services?

P. Saxton[1], S. Azariah[2], R. Franklin[2], R. Forster[2], S. Werder[2], R. Jenkins[2], J. Myers[3], J. Rich[3], M. Fisher[4]
[1]University of Auckland, Gay Men's Sexual Health research group, Dept of Social and Community Health, Auckland, New Zealand, [2]Auckland Regional Sexual Health Service, Auckland, New Zealand, [3]New Zealand AIDS Foundation, Auckland, New Zealand, [4]Body Positive, Auckland, New Zealand

Background: New Zealand is launching a fully funded and targeted PrEP programme in March 2018. Methamphetamine use by gay and bisexual men (GBM) is listed as an eligibility criterium for PrEP, but we don't know whether GBM who use methamphetamine will disclose their use to physicians or engage with PrEP services. We aim to examine methamphetamine use among GBM in the NZPrEP demonstration project.
Methods: We used an open-label single-arm treatment evaluation study design in 2017 ("NZPrEP"). The settings were four publicly-funded sexual health clinics in Auckland. The study population was 150 GBM at elevated HIV risk recruited from clinics, community sources and social media. The study medication emtricitabine/tenofovir was fully funded. At baseline, participants self-completed an online questionnaire about PrEP motivations, sexual and risk behaviours. We examined drug use (cannabis, amyl, GHB, ecstasy, amphetamine, methamphetamine, cocaine, ketamine, LSD and mephedrone) and alcohol use in conjunction with sex in the previous three months. We defined "heavy users" as participants using
(i) any of these drugs; or
(ii) alcohol "most of the time" or "always" before sex respectively.
We compared participants using substances against non-users on the following outcomes:
(a) self-reported STI in the last 12 months;
(b) self-reported rectal STI in the last 12 months;
(c) diagnosed prevalent rectal chlamydia or gonorrhoea;
(d) 10 or more receptive condomless anal intercourse partners in the last three months.
Results: We enrolled 150 GBM with a median age of 32 (range 19-51). One in 20 (5%) reported injecting drugs in the previous year. 61%, 48% and 8% reported any alcohol, drug and methamphetamine use respectively in the previous three months, and 13% and 10% engaged in heavy alcohol and drug use respectively. Participants reporting any alcohol use before sex were more likely than non-drinkers to report 10 or more receptive condomless anal intercourse partners (14.1% vs 3.5%, p=0.034), but were less likely to be diagnosed with a rectal bacterial STI at baseline (13.2% vs 26.3%, p=0.044). No other significant differences between users and non-users were detected.
Conclusions: HIV-negative GBM using methamphetamine are engaging in PrEP demonstration projects. Their HIV acquisition risk is similar to other GBM participating.

WEPED446

Prevalence of HIV, HCV and syphilis among PWUD - data from the first mobile testing and harm reduction service point in Poland

A. Kwiatkowska[1], M. Ankiersztejn-Bartczak[1], A. Świderska[2]
[1]Warsaw University, Warsaw, Poland, [2]Medical University of Warsaw, Warsaw, Poland

Background: In 2017 The Foundation of Social Education executed the pilot version of Mobile
Testing Point and Harm Reduction dedicated to the most exposed populations which are psychoactive substances users and sex workers. Professionaly full-equipment camper proffers quick tests for HIV, HCV and syphilis, the injection equipment, condoms and lubricants. Users could benefit of gratuitous medical and therapeutical guidance. The Mobile Testing Point is the first one in Poland which reached to users who never before were in public point of testing. Therefore these people examined for HIV, HCV and syphilis and get support in starting and proceed suitable treatment.

Methods: The quantitative survey was conducted using the PAPI method (the original questionnaire) from 17th August do 15th December 2017. The amount of clients of the Mobile Testing Point and Harm Reduction service was 234 in Warsaw and the surrounding areas.
Results: The percentage of HIV infections and HCV among those who performed the test is 14.6% for HIV and 56.5% for HCV. 93.1% of people infected with HIV were also infected with HCV. In 3% of people performing the test, syphilis was detected. Only 9% of people infected with HIV and 29% of people infected with HCV knew about the infection earlier. 58.6% of people with HIV and 61.5% with HCV had sexual contact without any protection . 68.4% of all respondents and 87.4% of people with a positive test received psychoactive substances in the last 30 days. Among those receiving psychoactive substances in the last 30 days the most popular were mephedrone (33.2%), heroin (23.8%) and amphetamine (9.8%). 86.2% of people infected with HIV and 74.3% of people infected with HCV reported having knowledge about the ways of infection.
Conclusions: People with addiction of drugs are particularly vulnerable to HIV and HICV. These people are willing to use the Mobile Harm Reduction Service offer. The activity of the Mobile Testing Point service contributes to limiting the pread of HIV and HCV infections. Moreover increases the level of knowledge about the ways of infection, and also allows to estimate the scale of occurrence of the problem among the most exposed groups.

WEPED447

High burden of psychosocial stress among opioid-dependent persons on medically assisted therapy in Kwale County, Kenya

S. Abdallah[1], B. Gakurya[2], F. Mdune[2], M. Swaleh[2], B. Makenzi[3], H. Albusaidy[3], A. Said[4]
[1]UNODC ROEA, Health, Mombasa, Kenya, [2]Kombani MAT Clinic, Kwale, Kenya, [3]Kwale County, Health, Kwale, Kenya, [4]Teens Watch Centre, Kwale, Kenya

Background: While it is widely acknowledged that illicit substance use is associated with numerous psychosocial problems, knowledge of the magnitude of this problem among people who use drugs in Kenya is limited. Since psychosocial interventions comprise 70% of recovery process from drug use, Kwale County introduced Medically Assisted Therapy (MAT) in October 2017 to increase access to clinical, behavioural and structural interventions for over 3,000 estimated opioid dependent persons. We conducted a simple study to assess the psychosocial well-being of clients on MAT in order to better address prevailing gaps in psychosocial interventions.
Methods: Retrospective review of psychosocial interventions register. Eligible client: all enrolled between October -December 2017, with documented indepth assessment by medical social worker, an individualized treatment plan, and brief follow up consultations. Key study variables abstracted include: socio-demographic characteristics, drug use history, self-reported psychosocial issues and interventions.
Results: Of 213 MAT clients enrolled, females comprised 8%. Due to economic constraints compounded by family breakdown,< 40.0% attained secondary level education or higher (27.8% for females): This limited their employment opportunities, with 40% of females unemployed versus 27.6% males, and 28% of all clients engaging in unskilled labour.
At baseline, over 70% clients used heroin concurrently with cannabis, benzodiazepines or alcohol. Several clients complained of low self-esteem and stress at baseline, with one harboring suicidal thoughts. Despite agonizing over relationship issues with sexual partner or other family members, many clients maintain contact with at least one family for emotional or financial support, with mother as chief supporter for 45% clients, followed by siblings. Common treatment goals: reduce/stop illicit drug use, family reunification and secure jobs.
Conclusions: Findings confirm major psychosocial problems among Kwale's MAT clients, especially females. Neglect of these issues may compromise MAT service uptake and effectiveness of methadone treatment. Underlying psychosocial issues may have either triggered or aggravated illicit substance use behaviour. In addition to more client and family-centered approach to psychosocial interventions, further implementation science research urgently needed to determine which interventions work, in order to enhance MAT treatment outcomes, reduce HIV-related risks and assure durable recovery from drug use among male and female clients.

WEPED448

Mapping and behavioral study of the population of drugs users (DUs)/people who inject drugs (PWID) along the Abidjan-Lagos corridor

A.-A. Fagbemi[1], L. Tchobo[1], I. Kone[1], A. Paul[1], A. Imorou Bah Chabi[1], M. Ndi Berinyuy[1], P. Zekeng[2]
[1]Abidjan-Lagos Corridor Organisation, Health, Cotonou, Benin, [2]Africa Synergie, Cotonou, Benin

Background: In order to effectively implement a harm reduction project for DUs and PWID, the Abidjan-Lagos Corridor Organization (ALCO) conducted mapping and behavioural study of DUs/PWID.
The objective was to identify the sites and the hotspots used by Dus and PWIDs at eight (8) border sites along Abidjan-Lagos corridor and Study their behavioral characteristics.
Methods: It was a cross-sectional survey with a programmatic focus. Qualitative data for structural component were collected using the Rapid Assessment and Response (RAR) methodology and map data using the principles of PLACE method (Priorities for Local AIDS Control Effort). Three questionnaires were administered. After the interviews, GPS coordinates were taken during site visits.
This study covered the eight border sites along the Abidjan-Lagos corridor: Noé (Côte d´Ivoire-Ghana), Elubo (Ghana-Côte d´Ivoire), Aflao (Ghana-Togo), Kodjoviakopé (Togo-Ghana), Sanvee Condji (Togo -Benin), Hillacondji (Benin-Togo), Kraké Plage (Benin-Nigeria) and Sèmè (Nigeria-Benin). It was conducted during the last quarter of 2017
The final size of the sample was 1949 (6.1% of women).
Results: Thirty-nine (39) drug use sites have been identified: 6 are in Noe, 5 in Elubo, 5 in Aflao, 2 in Kodjoviakope, 1 in Sanvee Condji, 9 in Hillacondji, 4 in Kraké and 7 in Sèmè. These sites are either bars, beaches, wasteland, ghettos, houses etc. Medication use (smoked / inhaled and oral route) was reported by 43.1% of participants while 38.5% reported using cocaine, 28% of heroin. Among cocaine users, the smoked / inhaled route was predominant with 26.7% of cases, followed by the smoked pathway in the form of crack (16.5%) and the injectable route (14.7%). Among heroin users, the smoked / inhaled route was also predominant with 23.5% of cases, followed by the injectable route (12.7%). 71% of participants of the study reported never injecting drugs. The average age for the first use was of 20 years and 22.7 years at the first injection.
Sharing of syringes with others over the past 30 days was reported in 11.8% of cases.
Conclusions: This study made it possible to have the precise list of the sites of drug use, to know the habits of consumption in order to better plan the harm reduction project.

WEPED449

Integrating harm reduction principles into HIV/AIDS healthcare delivery in the Philippines: Readiness of HIV care providers and drug rehabilitation care providers

C. O'Connor, K. Leyritana, R. Olete
Sustained Health Initiatives of the Philippines (SHIP), Madaluyong City, Philippines

Background: The Philippines' HIV epidemic is one of the fastest-growing globally. Drug use is one driver of growing infection rates. With government's "war on drugs" launched in 2016, physicians caring for PLHIV who use drugs lack clear guidelines on the legal and clinical protocols for these patients.
This study measures attitudes and practices of HIV care and drug rehabilitation providers from across the Philippines.
Methods: Our organization developed a program to improve care for PLHIV who use drugs through training, referral, and appropriate clinical protocols for HIV care and drug rehabilitation. A training/networking

event was held and a pre-training questionnaire was administered to 35 respondents (16 HIV care and 17 drug rehabilitation providers).
Results: Practices: 61% of the respondents from drug rehabilitation facilities reported having a protocol in place for HIV screening. 33% of respondents from HIV care facilities had a protocol in place for substance use screening. One rehab and no HIV care facilities had a policy for management of PLHIV who use drugs.
Attitudes: 36% of respondents disagreed with the statement "People who use drugs are dangerous." 91% of respondents disagreed with the statement "People who use drugs should be killed." 57% of respondents disagreed with "Healthcare providers should report clients' illicit drug use to law enforcement authorities." 69% agreed with "Healthcare providers should inform people who use drugs about safer practices for the use and administration of drugs." There was variation in attitudes between HIV and drug rehabilitation providers.
Conclusions: The pre-training survey showed that some providers have positive regard toward people who use drugs and harm reduction. Following training we anticipate there may be a shift in attitudes; we will conduct a follow-up. A sustained effort would be required for harm reduction practices to be acceptable to HIV care and drug rehabilitation providers in the Philippines.

WEPED450

Barriers to accessing quality care for HIV and substance use in the Philippines: In-depth interviews with PLHIV who use drugs

R. Olete[1], C. O'Connor[1], K. Leyritana[1], J. Salisi[1], R. Bona[1], G. Binay[2]
[1]Sustained Health Initiatives of the Philippines, Mandaluyong City, Philippines, [2]NoBox Philippines, Quezon City, Philippines

Background: The Philippines' HIV epidemic is one of the fastest-growing globally. Drug use is one driver of growing infection rates. Among people who inject drugs in Cebu city in 2015, HIV prevalence was 43%. With government's "war on drugs" launched in 2016, accessing care has become more challenging because of fear of legal implications, stigma/discrimination, and at worst, being killed. This study explores the underlying personal and structural factors affecting access to healthcare for PLHIVs who use drugs.
Methods: Key informant interviews were conducted with 13 respondents from 4 provinces/regions. Respondents were 11 males, 2 females, HIV+, used recreational drugs, and were recruited via local NGOs. The interview guide asked about drug use history, healthcare seeking behavior, and access to care. The interviews were recorded, transcribed, translated to English, and a qualitative thematic analysis was done.
Results: Shabu (methampethamine) is the most common drug used by the informants. Among those injecting, 100% reported sharing needles.
Eight informants did not disclose their drug use to their HIV doctors and did not plan to due to fear of being judged, scolded or taken to rehabilitation centers. This reluctance to disclose impacts ART adherence - only 4 informants reported good adherence, other informants missed doses regularly, one reported stopping ART for six months, and another for three years.
Fear of the war on drugs is a barrier to healthcare, especially for overdose. The majority of respondents had experienced overdose, and most stated that they were reluctant to or certainly did not want to be brought to hospital if they overdosed.
Conclusions: Lack of trust in healthcare providers is a key barrier for PLHIVs who use drugs in accessing quality care. Therefore, it is important to build capacity and create policies in healthcare settings to ensure that they are safe, stigma-free spaces for PLHIV who use drugs.

WEPED451

Prevalence and correlates of knowledge of hepatitis B and C virus among people who inject drugs (PWIDs) in Lagos, Nigeria

S. Iwuagwu[1], T. Eyohwo[1], N. Nwosu[1], A. Ogunbajo[2], C. Onyekatu[1], C. Ekerete-Udofia[1]
[1]Centre for Right to Health, Lagos, Nigeria, [2]Brown School of Public Health, Providence, United States

Background: In Nigeria, people who inject drugs (PWIDs) are at increased risk for infections such as human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). Knowledge about HBV and HCV may facilitate testing and treatment behavior among PWIDs. No known study has explored the knowledge of HBV and HCV among PWIDs in Nigeria. To fill this gap, the current study assessed knowledge of HBV and HCV among Akala community dwellers in Lagos, Nigeria and explored the association between knowledge of HBV and HCV and self-reported risk assessment.
Methods: The study conducted cross-sectional, snowball sampling, of PWID and non-PWID dwellers in the Akala community in Mushin, Lagos, (where local NGO, Centre for the Right to Health is implementing a UNODC-supported community-based drug rehabilitation project). Data collection was conducted between October and December 2016. Participants were asked about whether they had heard of HBV and HCV and screening for both. Risk assessment included measures of illicit drug use, history of HBV/HCV vaccination, HIV status, and self-reported HBV and HCV status. Descriptive statistics and unadjusted bivariate analysis using chi square with HBV/HCV knowledge as the primary outcome was conducted.
Results: Majority of participants (81.1%) had never heard about either HBV or HCV. Most participants had no knowledge of how HBV/HCV was transmitted (79.6%) and that HBV/HCV can be asymptomatic (84.2%). Only about a third (34.8%) of participants knew HBV/HCV was treatable. Knowledge of HBV/HCV was significantly associated with sharing of needles($p< 0.000$) and injection drug use ($p< 0.000$). Knowledge of HBV/HCV was not significantly associated with gender ($p=0.57$).
Conclusions: Lack of knowledge of HBV/HCV, how it is transmitted and the availability of treatment was high among PWID and non-PWID dwellers in the Mushin area of Lagos, Nigeria. Increased knowledge and awareness of HBV/HCV, especially among PWIDS, is pertinent to reducing hepatitis transmissions in this key population. While injection drug use and sharing of needles were associated with increased knowledge of HBV/HCV, more programs providing evidence-based information about HBV/HCV and local screening resources are needed.

WEPED452

Differentiated service delivery for harm reduction strategies for people who inject drugs_learnings from the Mauritian context

R. Petlele[1], L. Malaka[1], C. Kganakga[2]
[1]South African National AIDS Council, Johannesburg, South Africa, [2]South African National AIDS Council, Pretoria, South Africa

Background: A recent study concluded that HIV prevalence among male PWID is at 14% and 17% among female People who use drugs (PWUD) in South Africa. The 2017-2022 National Strategic Plan for HIV, TB and STIs identifies people who inject drugs (PWIDs) as one of the five key populations at high-risk of HIV infection. The NSP further stipulates the need for strategies to reach key populations with tailored packages to meet their needs.
Description: The South African National AIDS Council Secretariat, civil society and government representatives embarked on a PWID study tour to learn from Mauritius' successful harm reduction strategy to increase the South African coordination and implementation structure's understanding of the processes involved in planning, coordinating and monitoring programmes to provide HIV prevention and harm reduction services. The South African delegation was privy to learnings from the national Drug Observatory led by the Ministry of Health, site visits to facilities and outreach activities PWIDs.

Lessons learned: The successful implementation of the Mauritian HIV prevention and harm reduction strategies is the differentiated service delivery model. Doses of methadone are dispensed from caravans. PWIDs know the location and times when the caravan will be dispensing the medication. PWIDs have access to clinicians at centres around the community. Another outreach strategy used is the distribution of clean needles and syringes to PWID; a combi makes trips to designated spots around the community; here used needles and syringes are collected and new ones dispensed.

Conclusions/Next steps: Differentiated model of service delivery in Mauritius has worked very well; services are provided in the community, delivered to the users where it is accessible. With the high burden on South Africa's public health facilities, provision of PWID harm reduction HIV prevention services would be best provided outside the formal health system. PWID face discrimination, harassment from law enforcement and generally ostracised from social structures, including health facilities. The feasibility of differentiated models of service delivery is pertinent in the South African context where a safe space for service delivery will be important for increased access and uptake.

WEPED453

Barriers to effective HIV prevention and Service delivery among people who inject drugs in Nigeria

A. Ogunrombi[1], E. Godwin[2]
[1]YouthRISE Nigeria, Policy/Programs, Abuja, Nigeria, [2]Heartland Alliance Nigeria, Abuja, Nigeria

Background: According to the Nigeria 2014 Integrated Bio-behavioral Surveillance Survey (IBBSS), the HIV prevalence among people who inject drugs(PWID) is 3.4%. The HIV prevalence however varies from state to state with some as high as 7%. Female injecting drug users have also recorded higher prevalence rate than their male counterparts - seven times higher. Despite the HIV prevalence and increasing report of injecting drug use in the country, core harm reduction programs such as Opioid substitution therapy and Needle and Syringe programs are still lacking. However, HIV testing and antiretroviral services are provided for the group alongside the general population. This study examines the barriers to HIV prevention and service delivery among PWID in Nigeria from the service recipient perspectives.

Methods: Series of focus group discussions and key informant interviews involving PWID, gatekeepers
at drug using locations and community outreach workers in the Federal Capital territory were conducted. A total of 40 interviews were documented.

Results: The study showed a critical interplay of how behavioral and structural barriers affect uptake of services and availability of evidence-based HIV prevention tools for PWIDs in Nigeria. Behavioral factors such as low risk perception, HIV-related stigma and confidentiality of HIV test result are key barriers to uptake of available services. Structural barriers such as non-implementation of NSP and criminalization of drug users increases the risk of HIV acquisition with many HIV positive PWID reporting needle & syringe sharing. Also identified are gender related issues that increases the HIV risk among females who inject drugs. In relation to service delivery, peer-driven HIV testing services and community-based ART model
of care were identified as critical strategy to improve service uptake.

Conclusions: Effectiveness of HIV prevention services among PWID is not limited to just availability of the services but also how the services are delivered in ensuring utilization. Addressing structural barriers are key in reducing the HIV burden among PWIDs.

WEPED454

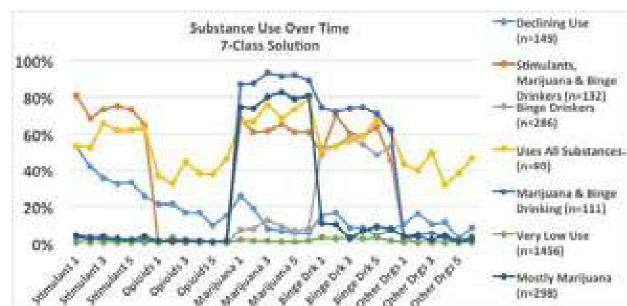
Patterns of substance use and substance use treatment predict viral suppression over time among HIV-positive women in the Women's Inter-agency HIV Study (WIHS): A cross-classified repeated measures latent-class analysis

D. Feaster[1], M. Philbin[2], C. Parish[1], T.K. Lee[1], E. Golub[3], T. Wilson[4], A. Sharma[5], S. Kassaye[6], J. Cohen[7], A. Adimora[8], I. Ofotokun[9], D. Konkle-Parker[10], J. Cook[11], R. Cook[12], L. Metsch[2]
[1]University of Miami, School of Medicine, Miami, United States, [2]Columbia University Mailman School of Public Health, Sociomedical Sciences, New York, United States, [3]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [4]SUNY Downstate Medical Center, Public Health, Brooklyn, United States, [5]Albert Einstein College of Medicine, Medicine, Bronx, United States, [6]Georgetown University Medical Center, Medicine, Washington, United States, [7]University of California San Francisco, San Francisco, United States, [8]University of North Carolina Chapel Hill, School of Medicine, Chapel Hill, United States, [9]Emory University Department of Medicine, Infectious Diseases, Atlanta, United States, [10]University of Mississippi Medical Center, Infectious Diseases, Jackson, United States, [11]University of Illinois at Chicago, Psychiatry, Chicago, United States, [12]University of Florida, Epidemiology, Gainesville, United States

Background: HIV viral suppression is an important indicator of effective HIV treatment, and decreases the likelihood of transmission. Substance use (SU) can negatively impact HIV-positive individuals' care engagement, including a higher likelihood of viremia and transmission. Therefore, it is important to understand the relationship between SU, SU treatment, and viral suppression.

Methods: Data from 2512 women were collected during six semiannual visits (10/2013-09/2016) at nine Women's Interagency HIV Study (WIHS) sites-WIHS is the largest U.S. cohort study of HIV-positive and HIV-negative women. We compared the use of single substances and SU treatment indicators to viral suppression, and then used latent class analyses of these domains to predict viral suppression.

Results: Substance use patterns were similar across HIV-positive and HIV-negative women. Among HIV-positive women, bivariate models by substance type found that stimulant users had the largest difference in viral suppression between users and non-users (74% versus 82%). In latent class analysis, individuals with consistent use of stimulants, marijuana and binge drinking had the lowest percentage of suppression (62%), with those consistently using all substances with the next lowest percentage (69%). The class that predominately used marijuana (82% virally suppressed) and the class with very low use of any substance (85% virally suppressed) had the highest rates. The interaction of SU and SU treatment classes showed that the rate of virally suppressed individuals in the Low-SU and No-SU-Treatment classes increased from 81% to 88% (baseline to 30 months), whereas the Declining-Use class and all classes including stimulants who were also in the No-SU treatment class had a decreased likelihood of viral suppression from baseline to 30 months. Individuals in Increasing-Professional-Treatment who used stimulants and other substances had the lowest viral suppression at baseline (36%) but also greater increases (13%) than the Low-Use/No-SU-Treatment individuals. Consistent Alcoholics/Narcotics Anonymous (AA/NA) attendance was associated with higher rates of viral suppression across all substance use classes.



[Substance Use Over Time: 7-Class Solution]

Tuesday
24 July

**Wednesday
25 July**

Thursday
26 July

Friday
27 July

Late
Breaker
Abstracts

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Only
Abstracts

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Percent Virally Suppressed	Substance Use Treatment Classes							
	Increasing Professional Treatment/ No AA/NA		Decreasing Treatment		Low Professional Treatment/ High AA/NA		No SU Treatment	
Substance Use Classes	Baseline	30 Months	Baseline	30 Months	Baseline	30 Months	Baseline	30 Months
Declining Use	55%	69%	70%	82%	68%	96%	73%	69%
Mostly Marijuana + Marijuana & Binge + Binge Drinkers	89%	83%	50%	77%	98%	99%	75%	84%
Stimulants, Marijuana & Binge Drinking + Uses All Substances	36%	49%	70%	68%	24%	88%	68%	64%
Low Use	64%	78%	80%	78%	90%	95%	81%	88%

[Percent viral suppression by substance use classes and substance use treatment classes]

Conclusions: Substance using women who attended treatment showed improvement in HIV viral suppression rates relative to those not in treatment. Latent class analysis provides a sharper picture of how specific patterns of SU and SU treatment affect HIV-positive women's maintenance of viral suppression.

WEPED455

Rapid assessment of the quantity, quality and effectiveness of services for the young women using drugs in the Kyrgyz Republic

R. Baiazitova
Public Foundation 'Ganesha', Bishkek, Kyrgyzstan

Background: Young women using drugs (YWUD) are often „invisible" to harm reduction and HIV prevention programs. YWUD often face violence, stigma, and discrimination. Discrimination and violence from close associates, older people using drugs, and police make the group more closed. YWUD often feel that they cannot seek help and therefore remain exposed to risk of HIV infection and without adequate protection of their human rights. YWUD continue to be underserved, with little information and few services targeted to them. In this regard Community based organization "Ganesha" conducted an express assessment of the quantity, quality and efficiency of services provided by state and non-governmental institutions for YWUD.
Methods: The rapid assessment conducted January -April 2017 in the city of Bishkek and Chui oblast. The evaluation methods were selected in accordance with objectives of the rapid assessment - quantitative data collection and analysis. Two questionnaires were developed for service providers and clients. Data collection and analysis was carried out by the community, individually with each respondent.
Results: 50 YWUD (18-32 years) participated in rapid assessment. Rapid assessment showed that Harm Reduction programs are not gender sensitive and are not designed to provide services to YWUD. The rapid assessment showed that YWUD do not know about the services provided in Harm Reduction and Guaranteed State Assistance programs. Low involvement in prevention programs is also resulted from a general lack of services targeting YWUD. Medical services in the field of HIV, SRHR are only available for adolescents with consent of official representatives, which is the main barrier to receiving medical services. A rapid assessment among service providers has shown that separate programs are needed to provide services targeted at the needs of YWUD. The country lacks interest and funding from donors and the state for HIV prevention among YWUD.
Conclusions: Implementing effective HIV prevention among YWUD requires the development and official approval of comprehensive package of services oriented to needs of YWUD that take gender into account. The Ministries of Education and Health should develop program with a non-discriminatory approach to SRHR, and reduce demand and harm from psychoactive substances with full community participation.

WEPED456

Engaging community-based model of care for differentiated anti-retroviral therapy (ART) service delivery for people who inject drugs (PWIDS) in Nigeria: Lessons and challenges

O. Alao[1], A. Adebiyi[2], O. Osisami[3], A. Kalaiwo[4], O. Tewobola[3]
[1]Youth Initiative for Drugs Research Information Support and Education, Abuja, Nigeria, [2]Youth Initiative for Drugs Research Information Support, Abuja, Nigeria, [3]Heartland Alliance International Nigeria, Abuja, Nigeria, [4]United States Agency for International Development, Abuja, Nigeria

Background: Current models of providing HIV services for prevention, testing, care and treatment are being stretched to the limit.
To reach the UNAIDS 90-90-90 targets, there is call for new and differentiated approaches needed to meet the diverse needs and expectations of all people living with HIV (PLHIV**).** The purpose of this study is to show the effectiveness of a community-based model in ART service uptake for People Who Inject Drugs (PWIDs).
Description: Between January to December of 2017, YouthRISE piloted a Mobile Community-based ART (MCA) program that provided real time service enrollment for PWIDs, from the point of HIV testing through to linkage to holistic care. Services are provided by a mobile team of social and health workers and include HIV testing, ART initiation, ARV refill, adherence counselling, nutritional support and home-based care.
Clients who are willing to go to the facility are encouraged to do so for continuation of services but those who are unable are counselled and still provided treatment services by the mobile team till a point they could go to the facility on their own.
Lessons learned: The use of the community-based model has contributed to high a rate in ART enrollment for PWIDs within the facility. Before January 2017, the ART enrollment rate for PWIDs who were HIV-positive was 18%.
Between January to December 2017, after the MCA was introduced, 1592 (1021 Males, 571 Females) PWIDs were tested for HIV out of which 102(36 Males, 66 Females) tested positive. Of these, 72 were initiated into ART representing 70.5% enrollment rate.
After 12 months, 87% were retained in care with only 13% dropping out after staying on treatment for an average of 6 months. The establishment of HIV support group for the PWID community has also improved retention in care.
Using this model of care in YouthRISE has facilitated ART initiation, provide access to proximate HIV care and minimizing structural barriers to retention.
Conclusions/Next steps: Adaptation of ART service delivery model for PWIDs is critical to ensuring PWIDs are reached with HIV testing services, enrolled and retained in treatment and care services.

WEPED457

Social-structural influences on access and adherence to antiretroviral therapy among people living with HIV/AIDS who use drugs: A qualitative meta-synthesis

T. Fleming[1], W. Damon[1], W. Small[1,2], R. McNeil[1,3]
[1]British Columbia Centre on Substance Use, Vancouver, Canada, [2]Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada, [3]University of British Columbia, Department of Medicine, Vancouver, Canada

Background: Although social and structural forces, such as drug law enforcement and economic marginalization**,** have been identified as critical determinants of access and adherence to highly active antiretroviral therapy (HAART) among people living with HIV (PLWHIV) who use drugs, there remain significant knowledge gaps in relation to how these forces intersect to produce sub-optimal HAART outcomes across settings. This qualitative meta-synthesis was undertaken to address this research gap and examine the social-structural contexts of HAART access and adherence globally to inform structural and programmatic interventions to improve HAART outcomes.

Methods: A systematic literature search of the English-language peer-reviewed qualitative literature on HAART access and adherence among PLHIV who use drugs yielded 33 articles meeting the eligibility criteria for this analysis. Eligibility criteria included articles published since 1998 focusing on HAART access and adherence in which ³50% of their sample identifying as PLHIV who use drugs. Three team members analyzed the articles in NVivo using a qualitative meta-synthesis approach.
Results: Studies included in this meta-synthesis represented an aggregate of more than 1200 HIV-positive PWUD across 15 countries. This analysis of the included articles revealed how social-structural conditions stemming from drug criminalization and socio-economic marginalization produced sub-optimal HAART outcomes. Specifically, this analysis found that: (1) drug criminalization resulted in law enforcement strategies (e.g., policing near clinics) that interrupted access to HAART and disrupted adherence routines; (2) structural and interpersonal stigma associated with drug use constrained access to HAART and undermined patient-provider relationships; and (3) structural vulnerabilities (e.g., residential instability, incarceration) were barriers to HAART initiation and produced HAART interruptions.
Conclusions: The findings of this meta-synthesis shed light on the ways in which social-structural forces converge to undermine HAART access and adherence among PLHIV who use drugs. Findings demonstrate that complementary drug policy reforms (e.g., drug decriminalization) and structural interventions (e.g., expansion of social housing) will be necessary to optimize HAART-related outcomes among this population. These complementary approaches may prove necessary to achieve 90-90-90 targets among PLHIV who use drugs.

WEPED458

Norms on drug injection in Athens, Greece (2013-2015)

A. Hadjikou[1,2], K. Pantavou[1], G. Giallouros[1], E. Pavlitina[3], L. Williams[4], G. Lavranos[2], D. Lamnisos[2], M. Talias[5], D. Paraskevis[6], S. Friedman[4], G. Nikolopoulos[1]
[1]Medical School, University of Cyprus, Nicosia, Cyprus, [2]European University of Cyprus, Nicosia, Cyprus, [3]Transmission Reduction Intervention Project, Athens, Greece, [4]National Development and Research Institutes, New York City, United States, [5]Open University of Cyprus, Nicosia, Cyprus, [6]National and Kapodistrian University of Athens, Department of Hygiene, Epidemiology and Medical Statistics, Medical School, Athens, Greece

Background: Norms on injection practices can influence drug injection-related behavior and therefore HIV outcomes. This work describes norms among people who inject drugs (PWID) in Athens, Greece in the context of an HIV outbreak during years of serious economic crisis.
Methods: The Transmission Reduction Intervention Project (TRIP) used a social network-based contact tracing approach to detect recent HIV infections (June 2013-July 2015). TRIP also collected data on injection norms, using a structured questionnaire, from 310 PWID (females 19%). Of these, 21 served as recently HIV-infected seeds to recruit 140 people from their social networks; 16 were longer-term HIV-infected seeds who recruited 59 people from their networks; and 74 people served as HIV negative controls.
Results: Around a third of the participants (35%) reported that people they use drugs with encouraged them to share syringes and more than half (52%) said that they were encouraged by those people to share other injecting equipment. The proportions were much higher for unsafe injection norms at drug-using venues. Between 60% and 70% of the participants said that they saw people at drug-using venues encouraging others to share either syringes/needles or cookers, rinse water, and other injecting equipment. The results did not significantly differ by gender or HIV status or across groups of seeds (recent vs. long-term-infected) and their networks.
Conclusions: Norms on drug injection in Athens, Greece in the months following the peak of the outbreak favored risky behaviors. These findings raise concerns. Future work should seek to understand whether these norms are a potential pathway through which macro-level processes, such as economic crises, affect HIV risk and result in HIV transmission.

WEPED459

Young and High - a rising reality: A qualitative analysis of drug use among young gay, bisexual and MSM in sexualized settings in Bangkok, Hanoi and Jakarta

N. Perera[1], A. Valeriano[2]
[1]Youth Voices Count, Mt. Lavinia, Sri Lanka, [2]UNAIDS RST Asia Pacific, Bangkok, Thailand

Background: Methamphetamine drug use among gay, bisexual and MSM in sexualized settings is increasing in the ASEAN region. Young gay, bisexual and MSM are more engaged in this behavior as per anecdotal data. There is very less information in this region about drug use in sexualized settings which hampers targeted interventions.
Methods: For the first time in ASEAN region, Youth Voices Count launched an online survey in Bangkok, Jakarta and Ho Chi Min targeting young gay, bisexual and MSM who use drugs in sexualized settings. The survey was launched in 4 languages and aimed to collect information on types of drugs used, motivation for drug-use initiation and continuation, safer sex practices, access to HIV services and harm reduction services. The data was collected between October- November 2017. 3 KIIs with young gay, bisexual and MSM were conducted in each country with a total of 9 KIIs.
Results: The initiation of drug use among young gay, bisexual and MSM has taken place as a result of psycho social issues such as anxiety with "coming out", need to be in relationships or to engage in sex work for a higher pay. Majority of respondents who have used drugs in last sexual contact have also not used condoms or visited and sexual health service during past 6 months. Majority of respondents who used drugs in sexualized settings were unaware of any harm reduction services that they could access in their cities. They are also unaware of PrEP and PeP and due to stigma and discrimination are unwilling to access sexual health services.
Conclusions: Comprehensive interventions should be implemented to address the psychosocial issues of young gay, bisexual MSM in general. More effective partnerships should be developed between organizations working on gay, bisexual, MSM communities and communities of people who use drugs to create service provision, care and harm reduction service linkages. More research needs to be done to gather strategic information to develop targeted interventions for young gay, bisexual, MSM who use drugs in sexualized settings.

WEPED460

Chemsex among men who have sex with men in Singapore and the challenges ahead: A qualitative study

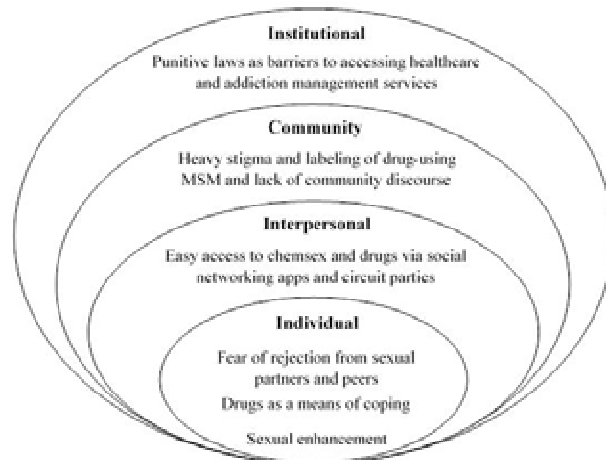
R.K.J. Tan[1], C.M. Wong[2], M.I.-C. Chen[1,3], Y.Y. Chan[3], M.A. Ibrahim[3], O.Z. Lim[3], M.T.-W. Chio[4], C.S. Wong[3], R.K.W. Chan[4], L.J. Chua[5], B.C.H. Choong[3]
[1]National University of Singapore, Saw Swee Hock School of Public Health, Singapore, Singapore, [2]Family Health International 360, Durham, United States, [3]Tan Tock Seng Hospital, Institute of Infectious Diseases and Epidemiology, Singapore, Singapore, [4]National Skin Centre, Department of STI Control (DSC) Clinic, Singapore, Singapore, [5]National University of Singapore, Faculty of Law, Singapore, Singapore

Background: Sexualized substance use, or 'chemsex' has been shown to be a major factor driving the syndemic of HIV/AIDS in communities of gay and bisexual men around the world. However, there is a paucity of research on chemsex among men who have sex with men (MSM) in Singapore due to punitive drug laws and the criminalization of sexual behavior between men. This qualitative descriptive study is the first to explore perceptions towards, motivators to engaging in, and the barriers to addressing chemsex among MSM in Singapore.
Methods: We conducted 30 semi-structured in-depth interviews with a purposively recruited sample of self-identified MSM between the ages of 18 to 39 in Singapore. Maximum variation sampling was employed to ensure a diversity of responses from MSM of varying socioeconomic backgrounds, relationship status, and HIV/STI status. Topics included participants' perceptions of drug use in the community, perceptions towards chemsex, reasons for drug use and chemsex, the impact of drug

use on the MSM community, and recommendations to help address chemsex among MSM in Singapore. Interviews were audio-recorded, transcribed, coded, and analyzed through an inductive analytical approach.

Results: Participants reported that it was common to encounter chemsex within the Singaporean gay scene as it could be easily accessed or initiated using social networking phone apps, but is often a surreptitious act that takes place overseas or away from the community's view. Enhancement and prolongation of sexual experiences, fear of rejection from sexual partners and peers, and its use as a coping mechanism were three main reasons cited for engaging in chemsex, while the impact of punitive drug laws on disclosure and stigmatization of drug users within the community were thought to be key barriers towards addressing chemsex. Participants suggested using MSM-specific commercial venues as avenues for awareness and educational campaigns, and social media to reach out to younger MSM.

Conclusions: This study highlights the complexities behind chemsex use in the MSM community, and the range of individual to institutional factors to be addressed. We recommend that community-based organizations and policy-makers find ways to destigmatize discussion of chemsex and provide safe spaces to seek help for drug use.



[Socio-ecological framework of factors driving chemsex among MSM]

WEPED461

A community health worker intervention for HIV-infected drug users in Vietnam

L. Li[1], J. Hsieh[2], C. Lin[1], S.-J. Lee[1], C.-W. Lan[2], A.T. Le[3], A.T. Nguyen[3]
[1]Semel Institute/University of California Los Angeles, Department of Psychiatry and Biobehavioral Sciences, Los Angeles, United States, [2]UCLA Center for Community Health, Los Angeles, United States, [3]National Institute of Hygiene and Epidemiology, Hanoi, Vietnam

Background: Countries with limited resources, such as Vietnam, need interventions that target not only key populations but also community health workers (CHW). Our intervention program aims to enhance CHW's capacities to effectively interact with people living with HIV and using drugs (PLHUD) to achieve optimal HIV and drug use prevention and treatment outcomes.

Description: Utilizing CHW as a vehicle and social media as a support platform, we develop and test the Vietnam Providers Network (VPN) Intervention to improve CHW's collaborations with methadone maintenance therapy (MMT) and antiretroviral therapy (ART) treatment providers, enhance outreach and communication skills with PLHUD, and ultimately increase service referrals for PLHUD. Eighty CHW and 240 PLHUD are recruited from 40 communes in four Northern provinces of Vietnam. The VPN Intervention includes two group training sessions, and Facebook groups are formed immediately after the second session. CHW joins the Facebook groups established from the previous study phase to promote virtual communications/collaborations with treatment providers across MMT and ART treatment agencies. Reunion sessions take place every two months to review progress and share challenges and solutions during the entire 12-month follow-up period.

Lessons learned: Our previous intervention projects have demonstrated the efficacy of using communication tools such as "motivational ruler" and "decisional balance sheet" to improve communication skills of CHW. The current study will take full advantages of these tools and combine them with Facebook groups. The Facebook network approach has shown to be an effective tool to enhance communications between treatment providers in this study. To involve CHW in the treatment providers' network will present opportunities for CHW to communicate directly with MMT and ART treatment providers and to strengthen their roles in treatment initiation and adherence for PLHUD. Several proven effective monitoring strategies are used to address implementation challenges in intervention delivery and evaluation.

Conclusions/Next steps: Our program combines proven effective communication tools with new social media platform for CHW's capacity building. We still need to explore ways on how to translate enhanced communications within the providers' network to maximize referrals in practice for the HIV care continuum.

WEPED462

Building workforce capacity to address HIV and substance misuse in rural areas

L.R. Frank
University of Pittsburgh, Graduate School of Public Health, Infectious Diseases and Microbiology, Pittsburgh, United States

Background: The US HIV epidemic has been negatively impacted by the increase in substance use and misuse particularly in rural areas. Rural areas are a distinct disadvantage due to fewer health professionals, lack of transportation, funding for services, stigma, and service coordination. These gaps were assessed through a needs assessment conducted by federally funded training centers to identify priorities for training, technical assistance for capacity development.

Description: The survey instrument (PRO14030407) was sent via email to 15,000 health professionals who attended HIV, substance use, and STI training in 2014. The instrument has been previously piloted in 2012 and revisions made to improve the domains of survey questions that included: HIV clinical management, behavior change,psychosoical issues, STIs, hepatitis, substance treatment. Respondents across all disciplines and domains rated the need for training on substance use and misuse (41%)and psychiatric illness(40%)in HIV patients as priorities. Across all disciplines, triple diagnosis of HIV, substance use and mental illness was ranked first in education and technical assistance need. Rural health professionals of which nurses were the largest number (28%) indicated significant need in increasing knowledge and skills for treating triply diagnosed patients.

Lessons learned: Health professionals continue to remain in acute need of education and training related to substance use, misuse, and mental illness treatment and intervention. This study demonstrates the need is equal to education related to treatment of HIV, hepatitis, and STIs. The study demonstrates that this need is particularly acute for nurses, nurse practitioners and social service providers who comprise important members of the HIV treatment team which is essential to improving the HIV care continuum. Prioritization of training and technical assistance curriculum is needed for practicing health professionals as well as education in medical, nursing, and allied health professions schools.

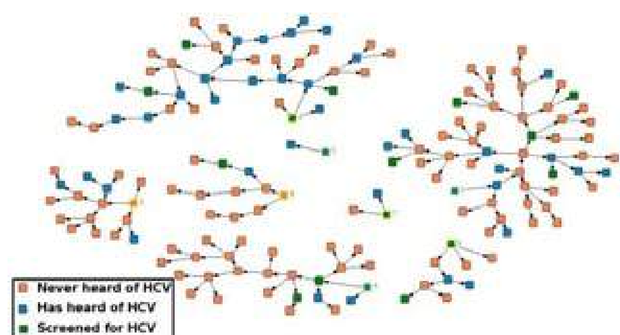
Conclusions/Next steps: The need for capacity building within health professionals is critical to address the co-morbidities of substance use/misuse and mental illness is critical. In the US and around the world, substance use and mental illness is contributing to increases in HIV, hepatitis, and STIs because both of these disorders put individuals at risk; interfere with treatment adherence, and impede engagement and maintenance in care and treatment.

WEPED463

Risky injection practices and knowledge regarding HCV: A respondent-driven sampling study among people who inject drugs in the Chiang Mai Province, Thailand

M. Prouté[1], S. Le Coeur[1], M. Tiv[1], T. Dub[1], C. Angkurawaranom[2], A. Aramrattana[2], M. Lallemant[3]
[1]French Institute for Demographic Studies (INED), Mortality, Health and Epidemiology Unit, Paris, France, [2]Faculty of Medicine, Chiang Mai University, Department of Family Medicine, Chiang Mai, Thailand, [3]French National Research Institute for Sustainable Development (IRD), IRD174/ PHPT, Marseille, France

Background: In Thailand as in most countries, people who inject drugs (PWID) are the most exposed group to HCV and HIV/HCV coinfection. Drug use remains highly criminalized and PWID have limited access to care due to their marginalization. Harm reduction services are still scarce and are mainly provided by civil society organizations supporting drug users. The objective of our study was to inform a future national HCV policy aiming to control the epidemic in Thailand.
Methods: We used a respondent-driven sampling (RDS) methodology, adapted to hard-to-reach populations. Social and behavioral data were collected with a face-to-face questionnaire. Results were weighted in the analysis using the „Successive Sampling" estimator to limit biases related to the non-random sampling method.
Results: 171 PWID were recruited between April 2016 and January 2017. The average age was 34 years old (range 18-62 years old); 11% were women; 49% belonged to a minority ethnic group. The most frequently injected drugs were heroin
(77% of participants), methadone (21%) and methamphetamine (21%). 22% [95CI 16-29] had shared their needles in the last 6 months and 32% [95CI 24-40] their injection material. Only 27% [95CI 18-35] of PWID had heard of HCV; factors independently associated were membership in a support group for drug users (aOR = 5.1 [95% CI 1.8-14.3]), ethnic group (Lahu aOR = 0.3 [95CI 0.1-0.9]) and voluntary participation in a drug rehabilitation program (aOR = 4.9 [95CI 1.5-16.7]).
5% [95CI 3-8] of participants were screened for HCV; the only factor independently associated was membership in a support group for drug users (aOR = 5.7 [95CI 1.6-19.9]).
Conclusions: The PWID population is poorly informed and screened for HCV despite widespread risky injection practices.
A public health approach aimed at reducing the incidence of HCV will need to target this population by combining rapid diagnosis, direct-acting antivirals and harm reduction measures, and a massive campaign of information and destigmatization, such as the one successfully implemented for the fight against HIV/AIDS in Thailand. Such approach should be launched in collaboration with the civil society organizations already working with PWID, whose actions have shown positive results on level of knowledge and screening of HCV.



[RDS Recruitment Chains]

WEPED464

Community mobilisation approach: A method for linking drug users to HIV, STI and harm reduction services

W.T. Lotic[1,2,3], E. Muhwezi[4], C. Baguma[4]
[1]Uganda Harm Reduction Network, Health and Human Rights, Kampala, Uganda, [2]International Drug Policy Consortium, Network Member, London, United Kingdom, [3]Eastern Africa Harm Reduction Network, Network Member, Kampala, Uganda, [4]Uganda Harm Reduction Network, Programs, Kampala, Uganda

Background: Injecting-drug users (IDUs) are a hidden community who are unable to access HIV and harm reduction services. These populations rarely access social and health services where they can be identified and documented due to fear of stigma and/or arrest by law enforcers. As a result, there is a high prevalence of HIV and STIs among this network. The 2013 mapping and size estimation of IDUs in Kampala (AMICAALL et al, 2013) indicated that there were 46 IDUs found in three divisions of Kampala. Another similar study in 2012/13 by Crane survey of high-risk populations found 1,170 habitual consumers of drugs in greater Kampala, suggesting the possible existence of a large number of IDUs in Uganda (MoH et al., 2013).
Description: UHRN uses community mobilization approach to reach this hidden population. This bottom-up approach has proved effective in addressing local needs of IDUs and linking them to HIV services. This has been made possible through interaction, integration and coordination with peers, other stakeholders and implementing partners. Peers have been trained on HIV and harm reduction services and are able to identify drug users and link them to various service providers. This approach has enabled UHRN to reach a wide number of IDUs and as a result the approach has contributed to adherence of IDUs to health services. However, this approach has worked in a few communities yet there are a number of drug users with health risks across the nation.
Lessons learned: Since January 2017, the approach has helped over 200 PWUDs to access HIV services from UHRN and partner organizations.
In order for the approach to be sustainable, peers need to be motivated financially to reach the hidden communities, improve visibility and build their capacity on human rights.
There is still a big gap to be filled by research in order to establish the magnitude of the drug users country wide.
Conclusions/Next steps: The approach has worked in the mobilization and engagement of PWUDs in outreach programs and thus helped to realize increased uptake of HIV and harm reduction services by IDUs. UHRN recommends scale up of this approach to other areas.

WEPED465

Satellite centers for women using drugs (WUD): Innovation to address neglect in drug-related treatment management programs in Northeast India

A. Singh[1], B. George[2], P. Goswami[2], S. Mathew[2], N. Bakshi[2], S. Kumar[3], T.H. Holtz[3]
[1]FHI 360, Project Sunrise, Delhi, India, [2]FHI 360, Delhi, India, [3]Division of Global HIV and TB, Centers for Disease Control and Prevention, Delhi, India

Background: Opioid Substitution Therapy (OST) with buprenorphine is part of India's harm reduction strategy for people who inject drugs (PWID). Buprenorphine is dispensed at government-accredited non-government organization (NGO) and government facility-based OST centers. The majority of PWID clients accessing OST are men, and women who use drugs (WUD) are uncomfortable attending OST centers. Often, services are not women-friendly, and apprehension persist on disclosure of status as drug users. Although there are no exclusive OST centers for WUD, NGOs do provide harm reduction services for them in drop-in centers (DIC).
Description: In 2017, Project Sunrise, implemented by FHI 360 and funded by Centers for Disease Control and Prevention (CDC), in the Northeast state of Manipur, consulted WUD to ascertain reasons for low OST enrolment. Perceptions that services are men-centric, and fear of disclosure,

were cited as reasons for poor enrollment in OST. Thus, Satellite OST Centers were established in two DICs for WUD. OST medication was transported every two weeks from the nearest government-accredited OST center, and doctors/nurses visited these DICs every week for induction of WUD and dose management. The pre-established/accredited center is referred to as a "base" center, and the DIC for WUD is termed a "satellite" of the government center that is linked to the base for medication and personnel.
Lessons learned: Enrolment of WUD to OST increased after establishment of satellite OST centres. Within three months, nearly 100 WUD not accessing OST previously registered for OST. Presently >50% of these WUD (55) are taking OST daily for at least 15 days in a month.
Conclusions/Next steps: A A collaboration of NGOs and government can ensure OST access to sub-populations who do not visit "mainstream" facilities. The OST satellite model could be applied to other sub-populations at risk such as young/adolescent PWID, and hard to reach PWID in remote locations. For WUD, the linkage to OST should be treated as an entry point for other services such as HIV testing, ART, sexual and reproductive health services, hepatitis C management, and re-integration into society.

WEPED466

Effect measure modification of association between HIV status and recent overdose among OAT patient in Ukraine

A. Mazhnaya[1,2], F.L. Altice[3,4]
[1]ICF Alliacne for Public Health, Treatment, Kyiv, Ukraine, [2]Johns Hopkins School of Public Health, Department of Health, Behavior, and Society, Baltimore, United States, [3]Yale University School of Medicine, Section of Infectious Diseases, AIDS Program, New Haven, United States, [4]Yale University School of Public Health, Division of Epidemiology of Microbial Diseases, New Haven, United States

Background: Research results suggest that HIV positive people who inject drugs may be at heightened risk for opioid overdose. Demonstrated estimates of associations between HIV and overdose, however, have high heterogeneity suggesting potential interactions with individual and context-specific factors. Opioid agonist therapy (OAT) has been shown to reduce overdose and increase HIV outcomes among PWID, however, its role in the association of HIV infection and overdose remain a research gap. This study aims to investigate whether OAT modifies association between HIV status and risk of recent non-fatal overdose.
Methods: The data for this investigation come from cross-sectional stratified survey of opioid dependent PWID followed by HIV testing in five Ukrainian cities. Opioid dependent PWID (N=1,357) were sampled from January 2014 to March 2015. Using weighted log-binomial regression model we estimated independent and interactive association between HIV status, receipt of OAT and recent (6 month) overdose controlling for age, sex, hazardous drinking, addiction severity, presence of depressive symptoms and unstable housing.
Results: Majority of the sample were male (78%) in their thirties, and less than 5% reported unstable housing. Four out of every ten participant were tested HIV positive and 8% reported experiencing non-fatal overdose within last 6 months. By survey design 31% of the sample were on OAT. Forty four percent of the sample reported hazardous drinking while 60% reported being depressed. In the adjusted multivariable model HIV positive compared to HIV negative status has been independently associated with 20% increase in prevalence of recent overdose (prevalence ratio(PR):1.20, 95% CI 0.78-1.85) among those not on OAT. Being on OAT independently was associated with 60% decrease in prevalence of recent overdose (PR: 0.34, 95%CI: 0.18 - 0.66) compared to those who were not on OAT among HIV negative. Testing HIV positive and receiving OAT, however, were associated with a 2.4- fold increase in reported prevalence of recent overdose (PR: 2.39, 95% CI 1.18 - 4.84), suggesting that OAT modifies the association between HIV status and recent overdose.
Conclusions: These results suggest that factors contributing to heightened prevalence of non-fatal overdose among HIV positive OAT patients should be further investigated and addressed.

WEPED467

Under multiple oppressions: Identifying the main trends in violence against women who use drugs in Georgia

E. Gardapkhadze, M. Khmelide
Aceso, International Organisation for Women, Tbilisi, Georgia

Background: Violence against Women (VAW) is a global issue. Women using drugs become victims of structural violence produced by punitive and repressive drug policy that maximizes the harms caused by drug addiction. Evidence is lacking that would enable the state to implement targeted interventions and monitoring of situation. To fill this gap, Aceso, carried out a qualitative research, which focused on identifying the main trends of rights violation in relation to systemic, domestic, sexual and other types of violence.
Methods: A qualitative research using focus group discussions were carried out by a research team, which made in-depth analysis of complex issue of violence. Each of 6 focus groups had 6-8 (46 in total) women, aged 27-54. Participants were selected among recipients of Opiate Substitution Treatment, Needle Exchange Program, convicted for drug use and possession. All participants were residents of the capital city Tbilisi.
Results: The respondents believe that violence against them is expressed not only in physical and verbal abuse, but also in total control and harassment they have experienced from their families. Most of the cases of domestic violence were associated with spouses or former spouses. All of the respondents with this experience mentioned that they have never approached to law enforcement agencies for the help as it was the same structures who were violating their rights systematically. In this sense, drug user and commercial sex worker women are the most vulnerable. The respondents of the study had been jailed mainly for drug use, possession and other non-violent crimes. Most of the respondents who had previous imprisonment experience mentioned that their rights were violated during the incarceration episode. Non-informing about their rights, physical violence, threatening, verbal abuse were some of the examples recalled by respondents.
Conclusions: Violence against women who use drugs is expressed in physical or verbal abuse, as well as in excretion of a total control and threats from different members of their families. Most frequently abusers are current or former husbands or parents. Furthermore seeking protection, such as from police or relatives, seeking shelter, disclosing facts of violence via media/social media proves to be impossible.

Sex workers

WEPED468

Political impunity and HIV vulnerability among Haitian female sex eorkers in the Dominican Republic

E. Felker Kantor[1], Y. Donatstorg[2], B. Gomez[3], K. Andrinopoulos[1]
[1]Tulane School of Public Health and Tropical Medicine, Global Community Health and Behavioral Sciences, New Orleans, United States, [2]Instituto Dermatologico Dominicana y Cirugia de Piel, Santo Domingo, Dominican Republic, [3]Centro de Promocion y Solidaridad Humana, Puerto Plata, Dominican Republic

Background: In the Dominican Republic (DR), Haitian female sex workers (FSWs) are at increased risk for HIV (5.4% HIV prevalence vs. 0.7% national HIV prevalence). Haitian FSWs in the DR exist in a context of political impunity resulting from lack of citizenship and the liminal criminality of sex work. Exploratory research was conducted to understand the vulnerability of Haitian FSWs to HIV in the DR.
Methods: In-depth interviews were conducted with 40 FSWs of Haitian descent (two interviews each) in Puerto Plata (n=20) and Santo Domingo (n=20). Semi-structured guides asked about sex work, family and social networks, HIV risk behavior, gender and ethnic identity following an intersectional framework. Interviews were recorded and transcribed for thematic analysis.

Results: Participants reported high risk for HIV including low HIV knowledge, alcohol use prior to sex, and challenges in negotiating condom use with clients. Relative to Dominicans, participants reported that they were more likely to be street-based (versus venue), charged less per client, and were more often threatened by the client for deportation. While described as not ideal, sex work was noted as one of the few economic opportunities available to Haitian women. Participants described both spiritual and biomedical illness narratives related to HIV. Discrimination in the healthcare setting was reported, but access to HIV testing and care was seen as feasible. Participants reported experience with and fear of violence from male clients.
Conclusions: Haitian FSWs, similar to other stateless populations globally, are doubly at risk for HIV and in need of increased access to HIV education, substance use services, and condom negotiation skills. Street-based sex work combined with the threat of deportation increases their risk of violence and lowers their ability for condom negotiation. Health services targeted to this population should accommodate their belief in both spiritual and biomedical causes of HIV.

WEPED469

Overcoming challenges in developing a sustainable cervical cancer screening program in Limpopo Province, South Africa: Training of health workers and sex worker advocates

C. Du Preez
Hoedspruit Training Trust, Health, Hoedspruit, South Africa

Background: A major challenge to successful cervical cancer screening is lack of knowledge about the disease. To prepare for integrating screening into current HIV care, a teaching program was designed. The objective was to close the gaps in knowledge for HIV advocates and deliver training in "see and treat" skills to local providers.
Description: Institutional review board approval was obtained from within the United States and South Africa. Workshops were hosted at an HIV clinic in rural South Africa. Thirteen sex worker advocates who function as lay health workers for HIV awareness participated in a one-day cervical cancer awareness program. Five nurses underwent a 4-day workshop in cervical cancer screening using pre /post- knowledge study design. Four didactic modules were presented with additional visual aids and model demonstrations where appropriate. Nurses were then evaluated one year after initial training to assess for quality and performance in cervical screening technique.
Lessons learned: Advocates completed a questionnaire on demographics and knowledge of risk factors for cervical cancer. None of the 13 sex worker advocates had previous knowledge of cervical cancer and all reported acquiring new knowledge that would benefit their community. Sex worker advocates reached out to co-workers and encouraged 84 additional advocates to participate in the screening program. Five nurses were successfully trained in "see and treat" to a level of competence in which they could practice independently. Providers were supervised in the care of 80 patients each on average, with adequate skills obtained after 50 exams. Knowledge markedly increased at the end of training as demonstrated by the post-test. Evaluation by trainers after one year showed screening was being performed correctly by the trained providers. However, additional qualitative interviews showed an expressed need for further education on cervical cancer and screening guidelines.
Conclusions/Next steps: We demonstrate successful teaching of sex worker advocates as lay health workers for increasing community cervical cancer awareness. Additionally we report on successful clinical training of five nurses to be primary providers to ensure a sustainable screening program. There is a further need for additional education for nurses and patients in rural areas on cervical cancer screening.

WEPED470

Cervical cancer screening in rural South Africa among HIV-infected Migrant farm workers and sex workers

E.C. Du Preez[1], O.,. Afzal DO[2]
[1]*Hoedspruit Training Trust, Management, Hoedspruit, South Africa,* [2]*Hoedspruit Training Trust, Health, Hoedspruit, South Africa*

Background: National Policy for cervical cancer screening in South Africa is 3 lifetime pap smears; however some services screen more frequently for high risk women with annual pap smears. At an HIV clinic in the Limpopo province, chart reviews revealed long delays in addressing abnormal Pap smears, difficulty in referrals, poor quality and lost results. To address these barriers, a "see and treat" approach to screening was proposed. The objective was to integrate this method into current HIV care offered by local providers and to obtain demographic and risk factor data for use in future educational and intervention programs in the region.
Description: Institutional review board approval was obtained from within the United States and South Africa for a cross sectional study of HIV farm workers and at-risk sex workers attending an HIV clinic. Five local nurses who had undergone training in see-and-treat screening were the primary providers, administering interview questionnaires and performing visual inspection with acetic acid (VIA) on all consenting participants. Those with positive screens were offered cryotherapy. Clinic charts were reviewed retrospectively for Pap smear results for the previous year. SPSS was used for analysis of all data.
Lessons learned: A total of 403 participants consented and underwent screening with VIA (306 Farm workers and 97 sex workers participated). 83.9% of participants (32.9% sex workers and 100% farm workers) were HIV+. VIA was positive in 30.5% of participants. Cryotherapy was performed on 114 participants; 5 women failed to return for treatment and 4 women were referred for suspicion of cancer. There was no significant difference in VIA positivity between HIV+ farm workers and sex workers (Table 1). Pap smear results were available on 54.8% of participants, of which 26.7% were abnormal. There was a positive correlation between Pap smears and VIAs results (Table 2).
Conclusions/Next steps: We demonstrate successful integration of cervical cancer screening using VIA for HIV+ farm workers and sex workers into an existing HIV treatment and prevention clinic in rural South Africa. Using the see-and-treat approach and following guidelines for triaging of positive screens, abnormal results can be readily addressed and treated promptly

WEPED471

Need for intensified interventions among brothel-based female sex workers in Mumbai, India

S. Acharya[1], S. Katkar[2], S. Joshi[3], S. Venkatesh[4], M.S. Setia[5], P. Keskar[2]
[1]*Mumbai Districts AIDS Control Society, City AIDS Control, Mumbai, India,* [2]*Mumbai Districts AIDS Control Society, Mumbai, India,* [3]*Mumbai Districts AIDS Control Society, TSU, Mumbai, India,* [4]*National AIDS Control Organization, New Delhi, India,* [5]*Consultant, Mumbai, India*

Background: Female sex workers (FSWs) have been the focus of targeted interventions (TIs) for a long time in India. However, there has been a reduction in brothel based sex work, and a higher proportion of female sex workers are now home based, street based, or bar based. We compared sexual behaviour and infections (HIV positivity and VDRL reactivity) among different types of FSWs.
Description: We used programmatic data from 19,547 FSWs collected as a part of the Individual Tracking System. We used data on age, type of sex work, risk assessment, condom use, and STI positivity (including syphilis and HIV). We used poisson regression models to estimate incidence ratios (IR) and 95% confidence intervals (CI).
Lessons learned: Overall, the proportion of syphilis positivity was 0.19% (95% CI: 0.13%, 0.25%), HIV prevalence was 0.31% (95% CI: 0.23%, 0.39%), and HIV incidence was 0.14% (95% CI: 0.10%, 0.21%). Demographic, risk, and health data are presented in Table 1. Street based (IR: 1.44, 95% CI: 1.35, 1.53) and home based (IR: 1.46, 95%: 1.39, 1.53) FSWs were more likely to get tested for syphilis compared with brothel based sex workers. Bar

girls were less likely to be VDRL reactive compared with brothel based FSWs (IR: 0.035, 95% CI: 0.15, 0.84). After adjusting for age and condom use during last sex, the incidence of HIV was significantly lower for home based (IR: 0.06, 95% CI: 0.02, 0.22) and bar girls (IR: 0.08, 95% CI: 0.03, 0.26) compared with brothel based FSWs. However, there were no significant differences in the street based (IR: 0.32, 95% CI: 0.07, 1.36) and brothel based FSWs. FSWs who had used a condom in the last sex act were less likely to become HIV infected (IR: 0.15, 95% CI: 0.06, 0.34).

Conclusions/Next steps: Even though, brothel based FSWs have high risk behavior and high incidence of STIs including HIV; they are less likely to get tested for syphilis and HIV. Thus, they should remain the focus of prevention programmes and targeted intervention programmes should be intensified in this vulnerable group.

		Brothel based n=4761	Street based n=1767	Home based n=5733	Bar girls n=7286	p value
Age	Mean (SD)	30.4 (5.4)	30.7 (6.9)	29.5 (6.8)	26.3 (4.9)	<0.0001
Risk assessment	High volume sex (> 15/week)	4271 (90)	1207 (68)	421 (7)	295 (4)	<0.001
	Condom use during last sex act	3715 (78)	1452 (82)	2087 (36)	3416 (47)	<0.001
Health care access	Tested for syphilis	2404 (50)	1263 (71)	3880 (68)	4028 (55)	<0.001
	Tested for HIV	3184 (67)	1587 (90)	5387 (94)	6189 (85)	<0.001
Health outcomes	Had an STI	585 (12)	246 (14)	609 (11)	880 (12)	0.001
	VDRL reactive	15 (0.32)	2 (0.11)	11 (0.19)	9 (0.12)	0.10
	HIV Prevalence	36 (0.76)	6 (0.34)	10 (0.17)	8 (0.11)	<0.001
	HIV Incidence	19 (0.40)	2 (0.11)	3 (0.05)	4 (0.05)	<0.001

[Comparison of demographics, sexual behavior and HIV/STI infections in different types of female sex workers, Mumbai, India]

WEPED472

Characterizing the influence of structural determinants of risk on consistent condom use among female sex workers in Senegal

J.O. Twahirwa Rwema[1], C. Lyons[2], S. Ketende[2], D. Diouf[3], G. Turpin[2], B. Liestman[2], S. Mboup[4], D. Castor[5], S. Baral[2]
[1]Johns Hopkins Bloomberg School of Public Health, Public Health, Kigali, Rwanda, [2]Johns Hopkins University, Epidemiology, Baltimore, United States, [3]Enda Sante, Dakar, Senegal, [4]Institut de Recherche en Santé, de Surveillance Epidemiologique et de Formations, Dakar, Senegal, [5]USAID, Bureau for Global Health, Arlington, United States

Background: Female Sex Workers(FSW) are disproportionately affected by HIV, even in the most generalized HIV epidemics. While structural HIV risks have been understood to mediate condom negotiation among FSW globally, there remains limited data on the relationship between structural determinants of HIV risk including violence and socioeconomic-status and condom use among sex workers across Sub-Saharan Africa. Here, we describe the prevalence of structural determinants and their associations with condom use among FSW in Senegal.

Methods: In 2016, 758 FSW ≥18 years of age were recruited by Respondent Driven Sampling (RDS) in Senegal. Information on individual, community, and network-level risks were collected through an interviewer-administered questionnaire. Poisson regression with robust variance estimation was used to model the associations of consistent condom use (CCU) and selected structural determinants.

Results: The RDS-adjusted prevalence of CCU in the last 10 sexual acts was 76.8%(95%:CI: 70.8-82.8). In the bivariate analysis, CCU was associated with being legally registered as FSW prevalence ratio PR:1.13 (95% CI:1.05-1.21), stigma PR: 0.98 (95% CI:0.97-0.99), participation in HIV prevention organization PR: 1.08 (95% CI:1 -1.16), being offered more money for condomless sex PR: 0.82 (95%CI: 0.73-0.93), recent drug use PR: 0.87 (95% CI: 0.75-1.0) and STI symptoms in the 12 months preceding the study PR:0.89 (95%CI: 0.83-0.88).

In the multivariable RDS adjusted analysis, structural determinants that remained significantly associated with lower CCU were: sexual violence adjusted prevalence ratio aPR: 0.67 (95% CI: 0.44-1.0), physical violence aPR: 0.73 (95% CI: 0.53-0.99) and difficulty to access condom aPR: 0.45 (95% CI: 0.23-0.87). High income from sex work was associated with higher CCU aPR:1.22 (95% CI:1.03-1.45) after adjusting for demographic characteristics and other determinants.

Conclusions: Taken together, these data highlight the role of structural risk determinants on condom use among FSW in Senegal. Moreover, these results highlight the importance of structural interventions including safe working spaces and violence mitigation programs to support condom negotiation in addition to condom distribution programs to ultimately increase condom use among FSW with their clients and other sexual partners in Senegal.

WEPED473

"I would like not to answer this question": Violence, police and sex work in Ukraine

N. Dorofieieva[1], N. Isaieva[1], A. Tokar[2]
[1]Ukrainian Charitable Organisation 'Legalife-Ukraine', Kropivnickyi, Ukraine, [2]ISGlobal, Barcelona Institute for Global Health, University of Barcelona, Hospital Clinic - Universitat de Barcelona, Barcelona, Spain

Background: Currently in Ukraine, sex work is prosecuted by administrative and criminal laws fuel stigmatization of sex workers (SWs) and lead to a violation of their human rights. Prohibition of sex work results in stigma and discrimination, social exclusion, unsafe working conditions, poor occupational health, low self-esteem, restriction on housing, travel and parenting. Thus, we aimed to examine experience of violence among SWs in Ukraine.

Methods: During July-August 2017, 175 structured interviews, 3 focus group discussions (N=24) with SWs and 14 in-depth interviews with stakeholders (representatives of none-governmental organizations, health care providers, SWs' managers, etc) were conducted in 8 regions of Ukraine: Donetsk, Kyiv, Kropivnytskyi, Kryvyi Rig, Nikolaev, Odessa, Zhytomir, Vinytsya. Convenient sampling strategy was applied. Structured interviews were analyzed using SPSS software; all qualitative data was transcribed and then hand coded using inductive technique.

Ethical approval was obtained from the Research Ethics Boards of the Committee on Medical Ethics of the Gromachevsky Institute of Epidemiology and Infectious diseases.

Results: In total we recruited 165 females, 7 males and 3 transgenders, aged 17-50 years old. The majority started working between 15-22 years old and was engaged in SW for 5-10 years, had full secondary education. The majority of SWs experienced violence (80%) during last year, with psychological violence (75%) being the dominant form. Half of respondents experienced sexual violence. Chances to experience violence increased with years of engagement in sex work (Table 1). Clients and police were two most commonly named sources of violence. Only 15% of victims applied for help, and only few applied to the governmental structures. During in-depth interviews most SW managers were not willing to respond on questions regarding police; still, bribes was the most common ways to deal with police raids. SWs and stakeholders were arguing for decriminalization or legalization of SW as an effective strategy to decrease abuse by the police and to promote utilization of health care services.

Conclusions: Most SWs in Ukraine face violence regularly with clients and police have been most common sources of it. Changes of current SW-related policies might decrease level of violence and support basic human rights of SWs.

Years of engagement in SW	Forms of violence, %			
	Psychological	Physical	Sexual	Economical
≤1 year	50	43	50	14
1-3 years	63	51	46	29
3-5 years	77	70	63	40
5-10 years	84	66	71	55
>10 years	83	73	71	56
Total	75	63	63	44

[Experience of violence among sex workers across 8 regions Ukraine, 2017.]

WEPED474

A randomized controlled trial to test a cognitive behavioral and structural HIV prevention intervention for Ugandan sex workers 15- to 24-years old

R. King[1], M. Nakitto[2], D. Bagiire[2], O. Kamacooko[2], L. Butler[3], J. Seeley[4]
[1]University of California, Kampala, Uganda, [2]Medical Research Council, Kampala, Uganda, [3]University of Connecticut, Storrs, United States, [4]London School of Hygiene and Tropical Medicine, London, United Kingdom

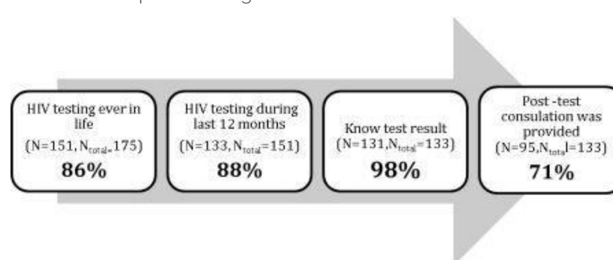
Background: Women 15-24-years old engaging in high-risk sexual behavior, young sex workers (YSW) are a key population in sub-Saharan Africa; HIV prevalence is estimated at 26% compared to 4.9% national prevalence among this group. YSW are especially vulnerable to HIV due to male partner dominance, difficulties negotiating safe sex with clients. HIV-negative YSW are particularly at risk for sexually transmitted infections, including HIV, and unplanned pregnancies. Services are limited for YSW due to stigma and discrimination.
We are currently conducting a randomized controlled trial to test the effectiveness of a combination cognitive-behavioral and structural HIV prevention intervention in Uganda. Our conceptual framework was built on individual, dyadic and structural constructs that formed risk profiles of our population. We developed an intervention to address multi-level risks and vulnerabilities and present on baseline findings.
Methods: Audio Computer Assisted Self Interview was used to administer questions about sexual activity and unprotected sexual exposures. To validate self-reported sexual behavior, a vaginal swab is collected to assess Y-chromosome sequences, a biomarker for unprotected vaginal intercourse. We describe two levels of descriptive and bivariate analysis to assess an association between empowerment variables as a mediator and baseline socio-demographic variables. We present percentages of key variables. At bivariate analysis, Chi-square distributions and Fisher's exact were used to assess associations.
Results: By 1 February, 277 of planned 450 participants have been enrolled. Forty-two percent of participants are between 15-19 years old and 58% are between 20-24 years old. Six percent have completed secondary school, 50% stated that they had a history of intimate partner violence, and 44% reported having used drugs or alcohol. There was a statistically significant association between education and key empowerment variables ($p< 0.05$), history of violence and empowerment ($p< 0.05$); those more educated being more likely to be empowered. The older age group was consistently more empowered, and more likely to use condoms; associations did not always reach significance.
Conclusions: A high level of vulnerability among young sex workers is related to a complex web of personal, relational, structural/environmental factors including education, alcohol use, violence, empowerment and ability to negotiate safer sex and a safer work environment.

WEPED475

Examining accessibility of health care services among sex workers across 8 regions of Ukraine: A mixed methods study

N. Isaieva, N. Dorofieieva, A. Tokar
UCO Legalife-Ukraine, Kropivnickyi, Ukraine

Background: Ukraine has been experiencing one of the fastest growing and largest HIV epidemics in Europe, with HIV prevalence to be around 7% among sex workers (SWs). Despite a widespread testing and free of charge treatment program, early diagnosis of HIV followed by the immediate start of antiretroviral therapy (ART) remains low. We aimed to identify potential barriers to access health care services, including HIV testing and treatment among SWs in 8 regions of Ukraine.
Methods: During July-August 2017, 175 structured interviews, 3 focus group discussions (N=24) with SWs and 14 in-depth interviews with stakeholders (representatives of none-governmental organizations, health care providers, SWs' managers, etc) were conducted in 8 regions of Ukraine: Donetsk, Kyiv, Kropivnytskyi, Kryvyi Rig, Nikolaev, Odessa, Zhytomir, Vinytsya. Convenient sampling strategy was applied. Structured interviews were analyzed using SPSS software; all qualitative data was transcribed and hand coded using inductive technique.
Ethical approval was obtained from the Research Ethics Boards of the Committee on Medical Ethics of the Gromachevsky Institute of Epidemiology and Infectious diseases.
Results: In total we recruited 165 females, 7 males and 3 transgenders, aged 17-50 years old. The majority started working between 15-22 years old and was engaged in SW for 5-10 years, had full secondary education, was unmarried.
66% of respondents have applied for medical health care service during the last 12 months, 26% had no need, and 8% (n=14) did not apply to any health service. The key reasons were: no money (17%), no time (14%), attitudes of health care workers (12%), and absence of trust (10%). Most SWs reported to be tested ever in life (86%), out of whom 88% were tested within the last year *(Figure 1)*; but out of 35 SWs living with HIV, only 16 were prescribed ART, and only 5 received it. The key barriers to start ART were: low trust in health care workers, low self-perceived risk, rejection to accept own HIV positive status.
Conclusions: Even though uptake of HIV testing is close to reach 90-90-90 goals, treatment level remains low. Current HIV treatment programs should urgently incorporate strategies to address persistent barriers and increase ART uptake among SWs.



[HIV testing among SWs across 8regions of Ukraine, 2017.]

WEPED476

A landmark ruling: A Zimbabwean sex worker-led success for human rights and health

M. Mokoele Ndlovu[1], N. Madonko[1], L.R.S. Werlich[2], S. Hendriks[2], S. Gcinekile Ndlovu[3], N. Jagessar[2]
[1]SRC, Buluwayo, Zimbabwe, [2]Aidsfonds, Sex Work Programme, Amsterdam, Netherlands, [3]Independent Consultant, Buluwayo, Zimbabwe

Background: Sex workers face unacceptable levels of violence, stigma and discrimination. It puts them in situations that make them considerably more vulnerable to HIV. Through advocacy work of SRC and ZLHR, the law on soliciting for the purposes of prostitution or loitering was correctly interpreted by the High Court of Zimbabwe, which saw an end to the arbitrary arrest and detention of sex workers in 2016. This abstract shows litigation has a positive effect to reduce violence and HIV risk.
Description: In Zimbabwe, selling sex is officially not a crime, however it is illegal to solicit clients, live on the earnings of sex work or to facilitate and procure sex work. Risks of violence, police abuse and lack of access to healthcare are higher when sex work is criminalized. In 2016, SRC and Aidsfonds conducted a mixed-method study among sex workers (N= 453 sex workers) that showed that 63% of sex workers in Zimbabwe experienced violence in the past year. In total, 32% of the cases were perpetrated by police. When arrested, sex workers were often denied access to ART and condoms were confiscated as evidence.
Lessons learned: Through an evaluation (N=50 sex workers), strategic litigation has proven to be effective, because the number of sex workers arrested dropped immensely. Consequently, sex workers are experiencing less violence by police. In addition, it resulted in increased respect of sex workers' rights among law enforcement staff. However, there were also unexpected outcomes, for example there was confusion about sex work being legalized. A negative outcome of the ruling is that sex workers are experiencing more violence perpetrated by clients, because law enforcement staff is no longer frequently patrolling the areas where sex workers work.
Conclusions/Next steps: Firstly, strategic litigation is an effective approach to reduce number of sex workers being arrested. Secondly, to reduce violence a holistic approach is needed that includes:

1) increasing awareness on the legal rights of sex workers,
2) strengthening sex worker movements, and
3) fostering partnerships with law enforcement and healthcare.
Finally, in order to reduce risks of violence and HIV, full decriminalization of sex work is needed.

WEPED477

Empowering female sex workers to advocate for integrated/comprehensive SRHR/HIV so as to reduce the negative effects of the HIV epidemic among female sex workers in Uganda

B.F. Azizuyo[1,2,3]
[1]*International Community of Women Living with HIV Eastern Africa, Project Officer, Wakiso, Uganda,* [2]*Makerere University, Kampala, Uganda,* [3]*Law Development Centre, Kampala, Uganda*

Background: Uganda has several Most at Risk Populations (MARPs) that are the leading sources of new HIV infections (*UAC MARPs Review 2014, page 6 and 9*) and have challenges accessing HIV and TB services A systematic review conducted in over 25 countries with medium and high HIV prevalence indicated that 36.9% of sex workers in sub-Saharan Africa (Uganda inclusive) were HIV positive with some countries having HIV prevalence as high as 70.7%. Female sex workers (FSWs) are at high risk of HIV infection and transmission by 24% among the youth.
Description: The International community of women living with HIV Eastern Africa with financial support from TASO (U) implemented a three month project in Mukono, Wakiso and Kampala districts. The purpose was to build capacity of selected health care providers from different health facilities in Kampala, Mukono and Wakiso Districts to deliver friendly services to female sex workers. ICWEA trained 73 peer leaders of female sex workers on SRHR/HIV and 70 health workers from 12 healthcare facilities across the three districts.
Lessons learned:
- There was a knowledge gap on PrEP. Amongst the sex workers but the training enlightened them and created demand for PrEP. across the three districts.
- 1063 sex workers were referred by the peer mobilisers to health centres in the three districts over the three months. 61 of these were below the age of 19, 213 in the age of 24 and 789 were 25years and above. Services accessed include HIV testing and counselling, ARVs, family planning and STI services
- Attitude of the trained health workers towards provision of services to sex workers improved. The project has been able to strengthen outreaches by health facilities to the hotspots in the three districts.
- While there was demand created for the SRHR/HIV services amongst sex workers, the biggest challenge was the stock out of essential drugs such as those used to treat STIs in the various health facilities.

Conclusions/Next steps:
- Follow up peer mobilisers to support sensitisation and referral of peers the health facilities.
- Replicate the work in other districts.
- Work closely with health workers to extend services to more hot spots.

WEPED478

Experiences of loss of a parent before age 18 among female sex workers across seven Western and Southern African countries

A. Grosso[1,2], V. Pitche[3,4], D. Kochelani[5], S. Kouanda[6], O. Ky-Zerbo[7], A. Kouame[8], N. Mpooa[9,10], T. Mothopeng[11], D. Diouf[12], F. Drame[13], R. Phaswana-Mafuya[14,15], Z. Kose[15], S. Anato[16], M. Mavimbela[17], S. Baral[2]
[1]*Public Health Solutions, Research and Evaluation, Brooklyn, United States,* [2]*Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States,* [3]*Conseil National de Lutte contre le SIDA, Lome, Togo,* [4]*Universite de Lome, Lome, Togo,* [5]*Johns Hopkins University, Center for Communication Programs, Mbabane, Swaziland,* [6]*Institute de Recherche en Sciences de la Sante, Ouagadougou, Burkina Faso,* [7]*Programme d'Appui au Monde Associatif et Communautaire, Ouagadougou, Burkina Faso,* [8]*Côte d'Ivoire Ministry of Health and Public Hygiene/Ministère de la Santé et de l'Hygiene Publique, Abidjan, Cote D'Ivoire,* [9]*Care for Basotho, Maseru, Lesotho,* [10]*Care-Lesotho, Maseru, Lesotho,* [11]*Matrix Support Group, Maseru, Lesotho,* [12]*Enda Sante, Dakar, Senegal,* [13]*Gaston Berger University, Saint-Louis, Senegal,* [14]*North-West University, Potchefstroom, South Africa,* [15]*Human Sciences Research Council, Port Elizabeth, South Africa,* [16]*Arc-en-ciel, Lome, Togo,* [17]*Swaziland National AIDS Program, Mbabane, Swaziland*

Background: In 2015, UNICEF estimated that there were 49.4 million children in sub-Saharan Africa who had lost one or both parents to any cause of death, including 10.9 million due to HIV/AIDS. Concurrently, parents' death has been reported as a reason for entry into selling sex, but there are limited data characterizing the prevalence of orphanhood during childhood among female sex workers (FSW). This study assessed associations between loss of one's parents before the age of 18, self-reporting that a parent had HIV and selling sex under age 18 in seven sub-Saharan African countries.
Methods: FSW ≥18 years old were recruited from 2013-2016 through respondent-driven sampling in Burkina Faso, Cote d'Ivoire, Lesotho, Senegal, South Africa, and Togo and venue-based sampling in Swaziland to complete interviewer-administered surveys including a question about how many of their parents were still living and, if applicable, the participant's age when the first parent died. Bivariate logistic regression analyses were conducted using StataSE 14 to assess the relationship between reporting at least one parent died before the participant was 18 years old and selling sex < age 18.
Results: As shown below, 37.5% (1701/1435) of FSW reported at least one parent died before the participant was 18. Of those, 8.5% (125/1476) reported that their mother had been diagnosed with HIV, and 3.5% (46/1326) reported that their father had been diagnosed with HIV. 29.2% (486/1662) of FSW who lost at least one parent before age 18 started selling sex as minors, compared to 17.9% (467/2611) of those who did not (OR 1.90, p< 0.001). Swaziland was the only location where participants were asked about when their second parent died. 7.5% reported both parents died before the participant was 18. 36.8% of those who lost both parents before age 18 sold sex before age 18, compared to 14.7% of those who lost one or no parents before age 18 (OR 3.38, p< 0.0001).

Country	Sample size	1st parent died before participant was 18		2nd parent died before participant was 18		Orphaned <18, mother had HIV			Orphaned <18, father had HIV			Orphaned <18, sold sex <18			Not orphaned <18, sold sex <18		
	N	n	%	n	%	n	N	%	n	N	%	n	N	%	n	N	%
South Africa	410	150	36.6%	-	-	17	149	11.4%	-	-	-	43	150	28.7%	26	236	11.1%
Senegal	758	263	34.6%	-	-	-	-	-	-	-	-	30	191	15.7%	38	436	8.7%
Burkina Faso (Ouagadougou)	347	108	31.1%	-	-	1	105	1.0%	1	105	1.0%	42	108	38.9%	64	229	28.1%
Burkina Faso (Bobo-Dioulasso)	350	138	39.4%	-	-	0	130	0.0%	0	130	0.0%	38	138	27.6%	48	207	23.2%
Togo (Lomé)	354	111	31.4%	-	-	0	111	0.0%	0	111	0.0%	31	110	28.2%	46	240	19.2%
Togo (Kara)	330	133	40.3%	-	-	2	131	1.5%	2	131	1.5%	74	133	55.6%	80	195	41.0%
Lesotho (Maseru)	410	256	62.2%	-	-	35	254	13.8%	8	254	3.1%	66	242	27.3%	16	139	11.7%
Lesotho (Maputsoe)	303	169	55.8%	-	-	15	167	9.0%	11	168	6.5%	32	158	20.3%	20	151	13.2%
Cote d'Ivoire	466	170	36.5%	-	-	9	169	5.3%	1	169	0.6%	65	170	37.1%	68	286	23.8%
Swaziland	778	265	34.1%	58	7.5%	46	260	17.7%	23	258	8.9%	67	264	25.4%	57	492	11.6%
						Double orphan <18, mother had HIV			Double orphan <18, father had HIV			Double orphan <18, sold sex <18			Not double orphan <18, sold sex <18		
						n	N	%	n	N	%	n	N	%	n	N	%
						13	57	22.8%	6	57	10.5%	21	57	36.8%	103	699	14.7%
Total	4036	1701	37.5%	-	-	125	1476	8.5%	46	1326	3.5%	486	1662	29.2%	467	2611	17.9%

- Not available

[Prevalence and correlates of orphanhood among female sex worker study participants, 2013-2016]

Conclusions: Orphans may be particularly at risk for exploitation and economic pressures leading to selling sex as a minor reinforcing the importance of providing child protective and social support structures.

WEPED479

Economic empowerment as a tool for HIV treatment and prevention among a sex worker collective in Nairobi, Kenya

J.M. Gathatwa[1], J. Mathenge[2], M. Njoroge[3], M.B. Clark[4]
[1]Health Options for Young Men on HIV/AIDS, STIs (HOYMAS), Research and Advocacy, Nairobi, Kenya, [2]Health Options for Young Men on HIV/AIDS, STIs, Nairobi, Kenya, [3]Health Options for Young Men on HIV/AIDS, STIs (HOYMAS), Nairobi, Kenya, [4]City University of New York, New York, United States

Background: Male sex workers (MSWs) remain at highest risk for HIV in Kenya. Despite robust HIV prevention and treatment programs, MSWs in Nairobi face structural and social barriers preventing equitable access to health care. Stigma, combined with criminalization of sex work (a primary source of economic support), pushes this population to live in extreme poverty, resulting in diminished health outcomes. Created by MSWs in 2009, Health Options for Young Men on HIV/AIDS and STI (HOYMAS) works to address this gap. One issue that sets HOYMAS apart is its novel approach to economic empowerment.
Description: Big Dreams is an Economic Empowerment Program (EEP) began by HOYMAS in 2015 to address the unique needs of the most vulnerable of MSWs. Many were HIV-positive, living on the street, struggling for food, and leaving antiretroviral treatment (ARV) adherence at a low priority. Substance and alcohol dependence was common and most sex work performed was survival-based, with little opportunity to improve economic situations. By humanizing their situation, peer educators (PE) and participants of Big Dreams were able to agree on key concepts for EEP: Ownership, Inclusivity, and Empowerment. From this place of mutual trust, the participants identified achievable economic, harm reduction, and wellness goals, arriving at a consensus for Empowerment Milestones. As a result, they were able to negotiate with clients for better pay leaving them better equipped to maintain supportive housing, adhere to medication, and improve nutrition.
Lessons learned: Through past initiatives with highly stigmatized populations, PE at HOYMAS knew it was critical to reach people at their level by working in hot spots and pubs frequented by MSWs. Today, Big Dreams has changed the economic future of more than 100 MSWs who had lost hope and given them a reason to dream again. Rates of ARV adherence has improved over 2016 and PrEP uptake for HIV negative MSWs has drastically improved. Most importantly, all have homes and are finally able to negotiate for better pay from clients.
Conclusions/Next steps: This approach of economic empowerment has managed to reach an otherwise inaccessible group of sex workers who avoided accessing services in mainstream clinics due to stigma and low self-esteem.

WEPED481

Achieving higher enrollment to care among female sex workers (FSW) recently diagnosed with HIV to ART care in Myanmar

Y.T.N. Oo[1], M.K. Lwin[2], L.L. Win[3], C.L. Oo[4], A.P. Phyo[4], H.N. Oo[5], P. Sone[6]
[1]Health System Research Division, Department of Medical Research, Yangon, Myanmar, [2]Save the Children, HIV/AIDS Global Fund, Yangon, Myanmar, [3]Health Systems Research Divison, DMR, Yangon, Myanmar, [4]Save the Children, Yangon, Myanmar, [5]National AiDS Program, Department of Public Health, Naypyidaw, Myanmar, [6]National AIDS Program, Ministry of Health, Department of Public Health, Yangon, Myanmar

Background: HIV prevalence among FSW in Myanmar is 14.6 in 2016. Myanmar aims to achieve 90-90-90 treatment targets, based on UNAIDS's fast track strategy, by 2020 in recent National Strategic Plan (2016-2020). There are concerns on percentage of newly diagnosed HIV positive cases actually receiving care. HIV prevalence among FSW is high in Myanmar and referral among this population needs to be understood.
Methods: A mixed method approach was used.Retrospective cohort secondary data analysis was carried out in five high priorty townships. Study population included newly diagnosed FSW diagnosed at NGO clinics in past four months. Secondary data from the testing sites and ART sites during the defined period were extracted using a pretested check list. For qualitative perspective, interviews with FSW and providers were done.
Results: A total of 113 sex workers were identified from NGO clinics records during data collection period. Mean age was 31.6yr (SD 8.9) . 90% of positives FSW were successfully linked to care with geographical variation in study areas. 82% were linked to ART centre within one month. For those 102 FSW linked to care at the time of study, 76.5% were on ART and 23.5% were in pre-ART status. Time from diagnosis to ART is median 33 days and time since enrollment at ART centre to ART initiation is median 15 days(IQR). One third of the FSW were diagnosed and enrolled for care mostly at WHO staging I and II. Only 14.7% of those successful came with a referral form and 91.2% were accompanied by NGO volunteers .Qualitative findings revealed the factors contributing to referral are social and system factors: stigma, migration, multiple testing, weak recording of referral , lack of provision of feedback forms from ART centres, etc.
Conclusions: A great proportion of positive sex workers were linked to care and treatment. This study looks at the first enrollment at ART centre as the outcome and could not provide information on the proportions that are loss once enrolled or not retained in care. Further studies are needed to explore retainment in care.Interventions to improve or facilitate linkage to ART care should be tested

WEPED482

#SWPrEP: HIV pre-exposure prophylaxis and sex work in Canada 2016

P.A. Sorfleet
Triple-X Workers' Solidarity Ass. of B.C., Vancouver, Canada

Background: In October 2016, funded by Elton John AIDS Foundation, Triple-X in partnership with the Dalla Lana School of Public Health, University of Toronto, organized and hosted a national consultation and invited 23 organizations from 10 provinces and territories who provide advocacy or services for sex workers.
Description: The purpose of this national consultation was to give participants the opportunity to educate themselves, explore and grapple as a group with the implications of PrEP on the sex industry.
Triple-X and DLSPH released „#SWPrEP: HIV Pre-Exposure Prophylaxis and Sex Work in Canada 2016" [http://triple- x.org/pdf/SWPrEPbook.pdf] at an ancillary event at the 2017 CAHR Conference in Montreal on April 5, 2017. The report contains transcripts of all the presentations, as well as the discussions that ensued between sex workers and those who provide services for sex workers. In addition, „#SWPrEP," a seven-minute video that teases out the issues discussed at the consultation was released. [https://vimeo.com/209825247]
Lessons learned: The Facilitator's Summary (p. 135) highlights the top 10 concerns coming out of the consultation. For example, participants did not want PrEP side-effects played down. They wanted PrEP to be presented within the spectrum of HIV prevention and for more and equal promotion of condom use. They wanted educational presentations from healthcare professionals as well as from PrEP critics. Furthermore, sex workers and sex work advocates were concerned that this new HIV prevention drug could result in elevated risks for sex workers, including new pressures from market competition to provide services without condoms if there is an expectation that sex workers are on PrEP.
Conclusions/Next steps: By December 2017, triple-x.org website recorded 51,000 downloads of the #SWPrEP book since the time of its release. New Canadian guidelines on PrEP were released November 27. „National data on HIV incidence among sex workers and their clients are scarce, perhaps in part because sex work is criminalized in Canada; as such, this guideline should be applied to these individuals based on the presence of other risk factors."
Free access to PrEP should be made available to sex workers based on individual risks discussed with their healthcare provider.

WEPED483

Better services for less money: Assessing prevention service needs among sex workers in Kyrgyzstan. Results of cross-sectional community-based participatory research

U. Tursunbaev
Ulukman Daryger, Karakol, Kyrgyzstan

Background: HIV/AIDS prevention programs for sex workers (SWs) funded by international donors have been delivered in Kyrgyzstan for over 22 years. Some services will be cut in 2018 due to funding shortages and many will transition to local funding. This qualitative research, conducted among SWs May-September 2017 in four oblasts in Kyrgyzstan, aimed to identify the services in highest demand from SWs.

Methods: The views of SW representatives were collected to analyze how their experience and attitudes influence provision of and access to services. Methods involved a situational analysis in four Kyrgyz cities, through focus groups and a survey of 110 SWs. Brainstorming and rapid needs assessment techniques were used for the focus groups. All research was conducted where SWs live and work, i.e. saunas, hotels, drop-in centers and NGO premises.

Results: Outreach work is the most popular and effective model for providing services to SWs. The majority of respondents (98 / 110) said outreach workers (OWs) form a "bridge" between service providers and SWs. They rated positively the fact that almost all OWs are from their community and this plays a very important role in removing inhibitions and barriers to communication. OWs are the main source of information in addition to advice on HIV prevention. They also develop leadership skills and qualities among SWs and identify needs to ensure provision of targeted assistance. Respondents stated the highest-priority service was condom distribution, citing the low rate of free condom availability - one per day. A new service needed by SWs aged over 30 is retraining and employment programs: younger SWs are in greater demand and those over 30 are often left with no secure income, at a time in their lives when for many their needs are increasing. This pushes them into more risky behaviors, impacting negatively on the spread of HIV among SWs.

Conclusions: With the transition to local funding, outreach work and condom distribution must be maintained at the same level in the same regions of Kyrgyzstan, as these are the services in greatest demand from SWs. Retraining and employment programs for SWs over 30 are also needed.

WEPED484

Sex work regulation and HIV risk: A qualitative analysis of the impact of different regulation regimes on HIV prevention among female sex workers in two U.S.-Mexico border cities

E. Andrade[1], M.-P. Kwan[2], C. Magis[3], H. Stainez-Orozco[4], K. Brouwer[5]
[1]University of Pittsburgh, Behavioral and Community Health Sciences, Pittsburgh, United States, [2]University of Illinois Urbana-Champaign, Geography and Geographic Information Science, Urbana, United States, [3]Centro Nacional para la Prevención y Control del Sida, Secretaria de Salud, Mexico City, Mexico, [4]Universidad Autónoma de Ciudad Juárez, Departamento de Ciencias Médicas, Ciudad Juarez, Mexico, [5]University of California San Diego, Department of Family Medicine and Public Health, La Jolla, United States

Background: Sex work regulation policies have been linked to HIV risk. In Mexico, sex work enjoys a quasi-legal status, where each state is responsible for implementing its own form of regulation. Thus, different regulatory regimes exist in the country, with differential effects on female sex workers (FSW) risk for HIV. This study analyzed the experiences of FSW in the U.S.-Mexico border, Tijuana and Ciudad Juarez, which operate different regulation regimes; compulsive registration and HIV/STI testing, and unsanctioned policing, respectively.

Methods: This analysis is part of a larger project that explored the HIV risk environment of FSW in both cities. We conducted 34 in-depth interviews with FSW in both cities, exploring different aspects of their work environment (i.e. type of venue, location, control over working conditions, etc.) and how the regulatory regimes in place in each city affect their ability to practice HIV prevention, harm reduction and influence their decisions regarding how and where they engage in sex work.

Results: Participants under compulsive registration and testing report registration fees are en economic burden; FSW who use drugs are not allowed to register; testing positive for an STI suspend work card until FSW can prove having received treatment, registration does not improve working conditions. FWS in Cd. Juarez, reported being subjected to policing practices including payment of quotas to police officers, requests for proof of HIV negative status, and displacement due to demolishment of sex work tolerance area. In both cities, sex workers who also inject drugs reported being constantly subjected to police harassment and excluded from the registration program in Tijuana, due to their drug use, thus pushing them to work in areas of the city that are less safe.

Conclusions: The current forms of regulation in both cities limit the capacity of sex workers to practice HIV prevention and engage in sex work in an environment where they can exert greater control. Considering the burden of HIV on this population in this region, sex work regulation policies need to move beyond policing and surveillance of HIV-STIs and be reoriented towards the promotion of sex workers' rights, HIV prevention and harm reduction strategies.

WEPED485

A qualitative study on male sex workers in Zimbabwe: Sex work, structural stigma and vulnerabilities for HIV acquisition and transmission

S. Qiao[1], E.Y.H. Tsang[2], F. Lipeleke[2], J. Wilkinson[3], J. Lowe[2], X. Li[4]
[1]University of South Carolina, Columbia, United States, [2]City University of Hong Kong, Hong Kong, Hong Kong, [3]Sino-US College, Beijing Institute of Technology, Zhuhai, China, [4]Univeristy of South Carolina, Columbia, United States

Background: Male sex work has been underexplored globally including in African countries. In Zimbabwe, a proliferation of MSWs in major cities was reported. However, a dearth of studies has explored their lives. The current qualitative study aims to describe the practices of sex work, life contexts, and HIV/STI risks and vulnerabilities.

Methods: Data comes from in-depth interviews among 15 MSWs recruited in Bulawayo through snowball sampling. The interviews took 30-40 minutes on average. All the interviews were conducted in privacy settings and in native language. The audio records were transformed verbatim and analyzed in Nvivo 11.

Results: MSWs got to know their clients though friends, at night clubs/bars, or through internet. Low-paid MSWs always waited for being picked up by gatekeepers ("big boss"). MSWs, particularly the low-paid ones didn't develop any romantic or stable relationship with their clients; but took the risks of abuse and physical violence during or after the sex. The structural stigma against MSM, especially the homosexuality, comes from diverse sectors including politics ("homosexuality is un-African, introduced by the White"), religion ("same sex is a sin before the God"), culture ("men should marry a woman and bear children"), law and police ("homosexuality is illegal in Zimbabwe. Engaging it can send one to prison"), media ("the media is hostile to sex workers particularly men as we are regarded as abnormal and unclean"), and their family ("should they get to know about it, they will disown me"). MSWs had limited knowledge and many misconceptions about HIV. Many MSWs were not able to consistently use condoms during sex work because of lack of knowledge, influence of alcohol or drug, and limited negotiation space as in a powerless positon. Stigma from healthcare providers also impeded them from health seeking or HIV testing. Non-disclosure to their female stable partners and sexual behaviors with female sex workers further increase their vulnerabilities for HIV infection and transmission.

Conclusions: MSWs in Zimbabwe, particularly the low-paid ones report high HIV/STI risks. The vulnerabilities for HIV infection are exacerbated by structural stigma. MSWs need support and tailored HIV prevention and treatment services to improve their HIV/STI prevention practices, health, and well-being.

WEPED486

Reaching culturally and liguistically diverse sex workers of mirgant status background in response to HIV and related infections

N.M. Cheung[1], C. Cox[2]
[1]Sex Workers Outreach Project Inc., Mulitcutural Project, Surry Hills, Australia, [2]Sex Workers Outreach Project Inc., Surry Hills, Australia

Background: Migrant sex workers from Culturally and Linguistically Diverse (CALD) backgrounds face a multitude of barriers in accessing support: These include discrimination based on race, gender, politics as well as myths and stigma attached to sex work, the criminalisation of sex work and also barriers created by language and marginalisation.

Methods: The SWOP Multicultural Project produces award winning original resources, online correspondence support and peer outreach and education programs via thorough consultation with each community/language/cultural group. Utilising Focus Testing within the language/cultural group and drawing on the expertise of a Steering Committee from the language/cultural group targeted these original resources and programs are not produced in English by non-CALD people and then translated. Rather, each original program and resource is produced from scratch by sex working members of that community/language/cultural group and each produced in a different language. The resulting Safe at Work resources won the 2017 New South Wales Government Multicultural Health Communication Awards.

Results: When accessing support, marginalisation, discrimination and the myths and stigma associated with CALD migrant sex workers are recognised as stronger barriers than language, and the input of the CALD migrant sex worker community has proved to be effective in overcoming these barriers. Since the inception of the Multicultural Project, there has been a marked reduction in the number of sexually transmitted infections among CALD sex workers, and the virtual elimination of HIV from the sex industry continues.

Conclusions: To overcome key barriers experienced by CALD migrant sex workers have been developed throughout the life of the Multicultural Project. These include extensive peer involvement such as peer interpreting support, peer translated resources, peer produced resources, peer held interagency training, workplace outreach, peer supported access to culturally responsive services and industry specific health and safety training provided in sex workers' first languages..

WEPED487

Female sex workers who use drugs and HIV/STI risk in Kazakhstan: Implications for HIV prevention

T. McCrimmon[1], G. Mergenova[2], S. Witte[1], M. Meinhart[3], A. Terlikbayeva[2], S. Primbetova[2], N. El-Bassel[1]
[1]Columbia University, Global Health Research Center of Central Asia, New York, United States, [2]Global Health Research Center of Central Asia, Almaty, Kazakhstan, [3]Columbia University, New York, United States

Background: Female sex workers (FSW) are at high risk of contracting and transmitting HIV. The prevalence of HIV among FSW in Kazakhstan is rising, and has been shown to be higher among FSW who use drugs. However, little is known about the sex work environment in Kazakhstan or in Central Asia. We utilize baseline data from an HIV prevention study among 399 FSW who use drugs in two cities in Kazakhstan to address this gap.

Methods: Women were recruited through sex work venues and peer networks. Participants completed a computerized baseline survey including sociodemographic characteristics and risk behavior assessments. This paper provides an overview of participant's sex work environment: history, employment structure, frequency and venue, and goods exchanged. It also examines sexual risk behaviors in commercial interactions, including number of partners and encounters and condom use. We use descriptive statistics and ordinary least squares (OLS) regression to examine the association between sex work environment and sexual risk behaviors.

Results: Participants averaged 34.6 years old (8.4 SD). The average age of initiation of sex work was 20.9 years (5.51 SD). Few participants (n=41, 10.3%) worked for a boss or pimp, and they worked an average of 8.9 months (4.18 SD) per year. Women exchanged sex for money (n=351, 87.9%), drugs (n=126, 31.6%), and basic needs such as food (n=97, 24.3%) and clothing (n=73, 18.3%). Participants averaged 6.78 (18.6 SD) commercial partners, and 28.9 (52.9 SD) vaginal sexual encounters with these partners in the prior 90 days. Only 13% (n=51) reported consistent condom use with these recent partners. Having a boss/pimp, working more months per year, and exchanging sex for basic needs were associated both with a higher number of paying clients and a greater number of sexual encounters. Few factors were significantly associated with condom use.

Conclusions: Our findings highlight the risks for FSW who use drugs in Kazakhstan and the need for HIV prevention efforts to increase safe sex practices. Moreover, prevention must address the structural characteristics faced by this population, such as their socioeconomic status and employment.

	Number of commercial partners in the prior 90 days	Number of vaginal sexual encounters with commercial partners in the prior 90 days
Number of months per year that they work in sex work	1.84*** (0.68)	3.25** (1.26)
Currently work for a boss/pimp	22.36*** (8.54)	25.68** (12.24)
Goods exchanged for sex in the prior 90 days: Cigarettes	24.57* (13.86)	38.91* (20.38)
Goods exchanged for sex in the prior 90 day: Transportation	37.25** (17.41)	55.63** (26.56)
Goods exchanged for sex in the prior 90 days: Food	23.03 (13.83)	35.75* (21.24)
Goods exchanged for sex in the prior 90 days: Clothes	36.98** (15.21)	46.31** (20.33)
Goods exchanged for sex in the prior 90 days: Place to sleep	29.44* (17.52)	26.62 (25.01)
How they found clients in the past 90 days: Street	11.70* (6.01)	15.91* (8.57)
How they found clients in the past 90 days: Hotel or Sauna	27.21*** (6.88)	29.74*** (9.52)

[Association between sex work environment and sexual risk behaviors (OLS Regression Partial Results)]

	Number of paid partners in the prior 90 days	Number of paid vaginal sexual encounters in the prior 90 days
Age of initiation of sex work	-0.70 (0.53)	-0.73 (0.79)
# of months per year that they work in sex work	1.84*** (0.68)	3.25** (1.26)
Currently work for a boss/pimp	22.36*** (8.54)	25.68** (12.24)
Engaged in sex work year-round (non-seasonal)	-7.90 (5.19)	-9.43 (8.00)
Goods exchanged for sex in the prior 90 days++		
Money	11.36 (22.44)	1.32 (33.57)
Drugs	10.98 (12.52)	15.17 (18.31)
Alcohol	13.30 (14.12)	25.16 (21.65)
Cigarettes	24.57* (13.86)	38.91* (20.38)
Transportation	37.25** (17.41)	55.63** (26.56)
Food	23.03 (13.83)	35.75* (21.24)
Clothes	36.98** (15.21)	46.31** (20.33)
Place to sleep	29.44* (17.52)	26.62 (25.01)
How they found clients in the past 90 days++		
Street	11.70* (6.01)	15.91* (8.57)
Hotel or Sauna	27.21*** (6.88)	29.74*** (9.52)
Internet	-2.32 (6.25)	-0.09 (9.01)
Phone	4.76 (5.70)	14.29 (8.73)
Through Friend	-3.29 (5.93)	4.52 (8.80)

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

* All outputs based on an OLS regression, controlled for ethnicity, age, marital status, homelessness, and food security
++Only included response options for which at least 10% of respondents indicated "yes"

[Table. Association between sex work environment and sexual risk behaviors]

WEPED488

Uptake of HIV oral self-testing among female sex workers in Starehe Nairobi: Lessons from the key population implementation science study

E.O. Athowe[1], A.K. Kinyua[2], E. Mukiri[2]
[1]Partners for Healyh and Development in Africa, Monitoring and Evaluation, Nairobi, Kenya, [2]Partners for Health and Development in Africa, HIV/STDs Prevention, Nairobi, Kenya

Background: The HIV epidemic in Kenya is largely generalized, but concentrated among key populations. The HIV prevalence among Female Sex Workers (FSW) is estimated at 29.3% compared to 6.9% national average for women. Using an implementation science approach, we sought to ascertain if HIV oral self- testing (HOST) would increase uptake of HIV Testing Services (HTS) among first-timers or infrequent FSW testers into FSW programs.

Description: A quasi-experimental crossover design was used. Two ongoing Sex Workers Outreach Program (SWOP) clinics, Langata and City, based in Nairobi were matched based on the number of enrolled FSW. Using Peer Educators (PE), eligible FSW were identified, counseled, and trained on HOST procedures and interpretation of results. Within the hotspots, PE distributed HOST to eligible FSW and instructed them to use and confirm their test result at SWOP City clinic within a three-month period. SWOP Langata clinic's routine program data was used for comparison to measure proportion of HTS uptake and enrollment rate.

Lessons learned: Out of the 113 FSWs who received HOST kit, 2 did not meet the eligibility criteria, and 1 participant withdrew from the study. The remaining 110 (97%) used the kit, 72 confirmed their results in the DICE, 24 confirming results at other health facilities, while 2 did not confirm their results. All the 72 enrolled into the program and of whom 6 (8%) tested HIV positive.

Follow up of individuals given the OST kits revealed various reasons that impeded or delayed confirmation of results. Of the 196 follow-ups conducted, 96 (49%) mentioned lack of time or inconvenient clinic operating hours, 45 (23%) had travelled, 24 (12%) were scared of testing positive, 17 (9%) had unfavorable home environment due to family, and 14 (7%) forgot to confirm.

Conclusions/Next steps: HIV Oral-Self Testing encouraged extra testing and enrollment at the FSW clinic for the targeted hard-to-reach FSW. Those who did not confirm their result at the clinic cited constraints that can be addressed programmatically. Overall, majority of the hard-to-reach FSW got to know their HIV status and therefore HOST scaled up should be considered in FSW programs.

WEPED489

Sex worker driven approaches to enable the optimal introduction of HIV self-tests: Addressing social and structural barriers

K. Kanivale, J. Kim, T. Powell
Scarlet Alliance, Newtown, Australia

Background: There is a dearth of reliable research examining the potential implications of introducing HIV self-tests into legal and policy environments that discriminate against sex workers, particularly sex workers living with HIV and other STIs. In Australia, self-testing is anticipated to be introduced in the near future. Not surprisingly, sex workers are anticipating new challenges as well as new opportunities with the introduction of the tests.

Description: Scarlet Alliance, the national sex worker organisation in Australia, conducted a multi-stage consultation, consisting of focus groups, individual interviews and an online survey, on self-testing with peer educators and individual sex workers of different genders, backgrounds, sero-status and experiences in each state and territory in Australia. The participants were asked about the potential risks, barriers to, and benefits of self-tests in different social, legal and policy environments in Australia.

Lessons learned: Although the participants noted that self-tests present sex workers with an opportunity to test outside of a clinical setting, the discriminatory legal restrictions placed on sex workers living HIV may deter sex workers from getting confirmatory testing upon receiving a reactive self-test result. This may be additionally exacerbated by the limited availability of free, voluntary, anonymous and sex worker friendly sexual health services in general. The participants noted that self-testing may affect safer sex negotiations with clients, such as the implementation of universal protections, despite the self-test results not being definitive. Also, the participants from jurisdictions with mandatory testing noted that introducing self-tests in an already coercive testing environment may result in the tests being added onto existing mandatory testing regimes.

Conclusions/Next steps: To ensure self-tests do not inadvertently further deter sex workers from accessing comprehensive sexual health care or exacerbate human rights violations, laws and policies that generally create barriers to testing for sex workers need to be reformed. Alongside, the participants advocated for formal legal protections from coercive testing in the form of occupational health and safety and industrial protections. Additionally, there is a need to address structural barriers to testing such as by increasing investment in voluntary, free, anonymous and peer sexual health services.

WEPED490

Acceptability of Pre-Exposure Prophylaxis (PrEP) amongst sex workers in South Africa

S. Nene[1], K. Govender[1], G. George[1], T. Khoza[2], C. Braga[3]
[1]University of KwaZulu-Natal, Health Economics and HIV/AIDS Research Division, Durban, South Africa, [2]North Star Alliance Southern Africa, Durban, South Africa, [3]University Eduardo Mondlane, Maputo, Mozambique

Background: Sex workers in Southern Africa are at high risk for HIV acquisition, yet access to and uptake of HIV prevention services are low. This study sought to determine the individual and socio-economic factors that enable or hinder the use of HIV prevention methods, access to health services, and knowledge of new prevention measures such as PrEP and acceptability of such services by sex workers.

Methods: This paper presents the qualitative part of a mixed-methods study conducted with sex workers in Bloemfontein, South Africa from August to September 2017. Specifically, it presents their perceptions on factors underlying ability to practice safe sex, knowledge of PrEP and willingness to adopt it as a preventative tool, and treatment conditions and providers for its distribution to sex workers. Semi -structured in-depth individual interviews were conducted. Snowball sampling was employed to recruit participants. Data was analysed using NVIVO version 11 and conventional content analysis.

Results: Thirty five interviews were conducted with thirteen self-identified gay male and twenty two female sex workers. Participants reported an awareness of increased risk to HIV infection but majority reported inconsistent condom use citing money and violence as barriers to condom negotiation. Knowledge and awareness of PrEP and its providers were low. Once informed, all participants expressed willingness to use it if it were made available to them. Participants reported that a collaboration between government and NGOs would ensure distribution to the group as public health facilities are easily accessible and NGOs work closely with vulnerable populations such as sex workers and were perceived to be in a good position to motivate for their prioritization with PrEP roll- out.

Conclusions: This study aimed to gather knowledge on HIV prevention among sex workers in light of South Africa's 2016 launch of PrEP at selected demonstration sites as per National Sex Work HIV Plan guidelines which encompass combination HIV prevention interventions for sex workers. The study showed that difficulty in negotiating safe sex together with financial incentives not to use condoms are primary drivers for sex workers wanting alternate HIV prevention options.

WEPED491

Condom Use Patterns among FSWs: Women in Transactional Sex and Casual Sex in High HIV Risk Venues in Abuja FCT, Nigeria

G. Ashefor, F. Agbo
National Agency for the Control of AIDS, Survey Research and Monitoring and Evaluation, Abuja, Nigeria

Background: The World Bank has been providing technical assistance to Nigeria to improve the efficiency and effectiveness of HIV prevention services. This technical support enabled Nigeria to conduct local epidemic appraisals and in 2015 the World Bank supported the design and implementation of a study on the sexual ethnography of high risk venues and locales in urban areas of Nigeria to provide in-depth knowledge about the context of risk and thereby contribute to the design of effective and efficient HIV prevention strategies. A pilot study that focused on how and what type of sexual networking is developed within high-risk settings was conducted in the Abuja, Federal Capital Territory (FCT). In addition, socio-demographic profile and sexual behaviors of women with risk behaviors attending these venues were also explored.
Methods: : The study population consisted of 450 female sex workers (FSWs), 200 women in transactional sex and 200 women in casual sex respectively in 105 active hotspots in Abuja. In addition to other parameters the study investigated condom use behavior among women in each group by their different types of partners.
Results: 88% of the occasional clients used condom at last sex with the FSWs. The occasional partner also used a condom with their transactional partner (86%). Men who visit the women repeatedly are more likely to use condom and about 95% reported that they used condom at last sex with their clients who either pay cash or gifts. On the other hand, non-paying partners were less likely to use condom with their partners (66% among FSW and 75% among women in transactional sex. Condom use with the most recent sexual partner is lowest (32%) among women in casual sex, though it was about 43% with the second last and 48% with the third last sexual partners.
Conclusions: The study underscores the need for sexual ethnography of high risk venues and locales in Nigeria to provide in-depth knowledge about the context of HIV risk and thereby contribute to the design of effective and efficient HIV prevention strategies. The next step is to conduct this study in additional cities in Nigeria

WEPED492

Crystal methamphetamine use and its associated factors in female sex worker in Iran, 2015

M. Shokoohi[1,2], M. Karamouzian[1,3], H. Sharifi[1], A. Rahimi-Movaghar[4], A. Carrico[5], S. Hosseini-Hooshyar[1], A. Mirzazadeh[1,6]
[1]HIV/STI Surveillance Research Center, and WHO Collaborating Center for HIV Surveillance, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran, Islamic Republic of, [2]Epidemiology & Biostatistics, Schulich School of Medicine & Dentistry, University of Western Ontario, London, Canada, [3]School of Population and Public Health, Faculty of Medicine, University of British Columbia, Vancouver, Canada, [4]Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran, Islamic Republic of, [5]University of Miami, Department of Public Health Sciences, Miami, United States, [6]University of California, Epidemiology and Biostatistics, Oakland, United States

Background: Crystal methamphetamine (CM) use has been associated with increased sexual risks and elevated risk of HIV as well as other sexually transmitted infections (STIs) among female sex workers (FSW). Given the dearth of evidence on CM use among FSW in the conservative context of the Middle East, this study aimed to examine the prevalence and correlates of CM use among FSW in Iran.
Methods: We analyzed data of the second bio-behavioral surveillance survey among 1,347 FSW across 13 major cities in Iran in 2015. We recruited a facility-based and outreach sample of women aged ≥ 18 years who reported penetrative sex with more than one client in the previous year. Data were collected by one-to-one interviews using a standardized risk-assessment questionnaire. The study outcome was a binary measure of any past-month self-reported CM use or injection. To examine the correlates of CM use, adjusted prevalence ratio (APR) and 95% confidence intervals (CI) obtained from Poisson regression models were reported (final analytic sample=1,295).
Results: Non-injecting CM use was reported by 15.0% (95% CI: 8.7, 24.7), while injecting CM use was only reported by 0.9% (95% CI: 0.4, 2.1). Overall, self-reported CM use was reported by 15.7% (95% CI: 9.3, 25.1) of the participants. CM use was more likely to be reported by FSW who reported opium use (APR: 2.08; 95% CI: 1.13, 3.81), heroin use (APR: 3.84; 95% CI: 2.62, 5.62), non-prescription methadone use (APR: 3.10; 95% CI: 1.50, 6.35), had forced sex (APR: 1.47; 0.99, 2.18), had more than one non-paying sexual partner (APR: 2.05; 95% CI: 1.14, 3.69), and unstable housing status (APR: 3.54; 1.82, 6.89). In contrast, CM use was less likely to be reported by FSW who had higher levels of education (APR: 0.35; 0.11, 1.07).
Conclusions: A considerable number of FSW reported CM use, which was associated with concomitant opioid use, higher number of sexual partners, violence and unstable housing. Gender-specific and couple-focused harm reduction and prevention strategies are essential to address substance use in this key population and their intimate drug-using partners to help improve their health and well-being.

WEPED493

"The society around us is the one that segregates us": A comparative exploration of sex work stigma among female sex workers living with HIV in Tanzania and the Dominican Republic

T. Karver[1], C. Barrington[2], Y. Donastorg[3], M. Perez[3], H. Gomez[3], J. Mbwambo[4], S. Likindikoki[4], C. Shembilu[4], S. Beckham[1], D. Kerrigan[5]
[1]Johns Hopkins Bloomberg School of Public Health, Health, Behavior and Society, Baltimore, United States, [2]University of North Carolina-Chapel Hill, Department of Health Behavior, Chapel Hill, United States, [3]Unidad de Vacunas IDCP-COIN-DIGECITSS, Santo Domingo, Dominican Republic, [4]Muhimbili University of Health and Allied Sciences, Department of Psychiatry and Mental Health, Dar es Salaam, Tanzania, United Republic of, [5]American University, Washington, United States

Background: Female sex workers (FSWs) are among the most marginalized populations globally, experiencing high levels of occupational stigma and discrimination. Prior research suggests that internalized sex work stigma is significantly associated with decreased retention in HIV care and ART interruption among FSWs living with HIV. We conducted a comparative qualitative study to explore the dynamics and contexts of sex work stigma among FSWs in Tanzania and the Dominican Republic (DR).
Methods: We conducted 40 in-depth interviews (20 per country) with FSWs living with HIV, recruited from established cohorts in Iringa, Tanzania and Santo Domingo, DR. Interviews were audio-recorded, transcribed, and systematically analyzed using narrative and thematic coding techniques to explore a priori and emergent domains and themes.
Results: Participants in both countries exhibited patterns of silence and secrecy related to disclosing their involvement in sex work, including with their close personal networks and healthcare providers. Internalized sex work stigma manifested through feelings of shame, perceptions of being a bad example, and beliefs that they were abnormal for engaging in sex work. FSWs in DR often reported receiving support from family regarding their HIV status, but feared losing this support if their engagement in sex work was revealed. Across countries, women reported facing enacted sex work stigma or discrimination from their communities, where disapproval about their involvement in sex work induced experiences of humiliation, judgment, and isolation. Women in both countries expressed the perception that society views FSWs as a threat to marriage and families. The link between FSWs as vectors of disease responsible for "contaminating others with venereal diseases" and HIV was more pronounced among women in Tanzania.
Conclusions: The multiple manifestations of sex work stigma are powerful and salient factors among FSWs living with HIV, challenging norms associated with womanhood across settings and creating social exclusion. Findings highlight key themes within the domains of internalized, enacted and perceived stigma to include in an aggregate measure of sex work stigma, including secrecy, silence, and experiences of deviance. Such a measure could be used for a more nuanced assessment of the relationship between sex work stigma and HIV outcomes among FSWs.

WEPED494

Factors influencing transgender and male sex workers' access to sexual health care, HIV testing and support

J. Jones[1], J. Dean[2], L. Fitzgerald[2], R. Brennan[2]
[1]*Respect Inc, Spring Hill, Australia,* [2]*The University of Queensland, Herston, Australia*

Background: Globally, male and trans sex workers are reported to be at elevated risk of HIV transmission. However, current literature on their sexual health behaviours and needs is limited. Data suggests 20 per cent of workers are male or trans. Our research investigated the sexual health and HIV prevention behaviours of male and/or trans sex workers in Queensland, Australia, focusing on newer health technologies including PrEP and rapid HIV testing, to determine their needs. This is the first qualitative research on male and trans sex workers in Australia.
Methods: 35 male and/or trans sex workers in Queensland participated in interviews conducted by peer researchers. The workers were both urban and regional based, and of various ages, nationalities, and socioeconomic backgrounds. The interviews discussed work practices, stigma, sexual health, access to testing, and knowledge and attitudes about HIV testing and prevention.
Results: Participants reported diligent sexual health practices, including condom use and regular testing, even those working outside of regulated settings. A significant number experienced stigma in healthcare and other settings. Most were familiar with rapid testing and some, particularly migrant workers, relied solely on rapid testing for their sexual health checks. Migrant workers in particular reported not knowing how to access other sexual healthcare. Many were familiar with PrEP and some had used it. Attitudes were divided, with some seeing PrEP as a valuable sexual health tool and others holding concerns, either seeing it as a risk for condomless sex leading to other STIs or fearing it was still an ´experimental´ drug. Asked about their needs as sex workers, most discussed the need to reduce stigma and for law reform around sex work.
Conclusions: Trans and male sex workers in Queensland are generally well informed about sexual health, and many are accessing newer HIV prevention and testing technologies. Healthcare workers must be trained to work with sex workers and people of diverse genders and sexualities, to reduce stigma and improve access to care. Sex workers need to made aware of friendly, accessible sexual health facilities. Decriminalisation of sex work is increasingly demanded by workers to ensure safe working conditions.

WEPED495

General self-efficacy as a predictor for HIV testing among female sex worker in Mombasa, Kenya

M. Pham[1,2], G. Manguro[3], F. Ampt[1,4], C. Gichuki[5], M. Chersich[6], M. Stoove[1,4], M. Hellard[1,7], K. L'Engle[8], W. Jaoko[9], M. Lim[1,4], M. Temmerman[5,10,11], P. Agius[1,4,12], P. Gichangi[5,9,10], S. Luchters[1,4,10]
[1]*Burnet Institute, Melbourne, Australia,* [2]*Hanoi Medical University, Institute for Preventive Medicine and Public Health, Hanoi, Vietnam,* [3]*International Centre for Reproductive Health (ICRH), Mombasa, Kenya,* [4]*Monash University, Department of Epidemiology and Preventive Medicine, Melbourne, Australia,* [5]*International Centre for Reproductive Health (ICRH, Mombasa, Kenya,* [6]*University of the Witwatersrand, Wits Reproductive Health and HIV Institute, Johannesburg, South Africa,* [7]*The Alfred Hospital, Department of Infectious Diseases, Melbourne, Australia,* [8]*University of San Francisco, San Francisco, United States,* [9]*University of Nairobi, Nairobi, Kenya,* [10]*Ghent University, International Centre for Reproductive Health, Department of Obstetrics and Gynaecology, Ghent, Belgium,* [11]*Aga Khan University, Narobi, Kenya,* [12]*La Trobe University, Judith Lumley Centre, Australia*

Background: Female sex workers (FSWs) in Kenya continue to bear a high burden of HIV infection and will benefit from repeated HIV testing and counselling (HTC). General self-efficacy (GSE) is a psychological construct that refers to one's belief in their own ability to respond to challenges to achieve positive outcomes across multiple domains. GSE is, therefore, likely to be predictive of individuals' health-seeking behaviour. This secondary analysis assessed whether GSE is associated with self-reported uptake of HTC services in the past six months among FSWs in Mombasa, Kenya.
Methods: We analysed baseline data from 883 randomly selected HIV-negative FSWs enrolled in a larger two-arm cluster-randomised mHealth trial (WHISPER or SHOUT study), which aims to improve their sexual and reproductive health or nutrition. A structured questionnaire collected information on socio-demographics, sex work, sexual and other risk behaviours, psychosocial variables and HIV testing uptake. Self-efficacy was measured using the validated GSE scale (10-items, Cronbach's alpha=0.80) and dichotomized at the median score. The association of GSE with self-reported uptake of HTC in the past six months was determined in stepwise hierarchical regression analysis, controlling for potential confounders including age, education, sex work characteristics, substance use, condom use and perceived stigma.
Results: Median age of study participants was 25 years (interquartile range (IQR)=22-29) with a median duration in sex work of four years (IQR=2-6). GES score range was 18-40, median score was 36 (IQR=32-39). One quarter 226/883 (25.6%) had sought HTC services in the past six months. Regression models showed that higher self-efficacy (i.e. stronger belief in ability to respond to challenges), was associated with higher self-reported attendance of HTC services, and did not alter with sequential introduction of potential confounding factors (adjusted odds ratio (AOR)=1.69; 95% confidence interval=1.29-2.22; p< 0.001).
Conclusions: Better strategies are needed to increase regular HIV testing uptake among FSWs given current inadequate levels. Sex workers' GSE was an important and independent predictor for uptake of HTC services, and screening for low GSE might identify women requiring additional motivation and support. Further efforts are needed to develop interventions to improve women's personal agency and determine the impact on HIV and other health outcomes.

WEPED496

I did not believe I could trust anyone with what I was living through: The HIV continuum of care as a site of support for us based sex workers

J. Brown[1,2], B. Robinson[1]
[1]*Call Off Your Old Tired Ethics Rhode Island (COYOTE RI), Providence, United States,* [2]*Brown University, Alpert Medical School, Providence, United States*

Background: In the United States, sex workers (SWs) are a key population that experience disproportionately high rates of HIV but are often hesitant to seek care due to the criminal status of sex work. SWs are often not reached by HIV education, prevention, and treatment programs and stigma surrounding sex work isolates SWs from crucial support systems. A community-based research project conducted by COYOTE RI carried out to understand how SWs experience the HIV continuum of care found that SWs are able to find and initiate support within healthcare settings if cared for in an understanding way. This study looks to explore how HIV care settings can best serve to counter the isolation many US SWs experience.
Methods: This community-based research project was carried out by sex workers rights organizations that have been working in the US to uphold the rights of sex workers for many decades. This study surveyed people working in various areas of the sex industry in all regions of the US [n = 1,496]. Analysis of the data utilized qualitative and quantitative methodologies and key findings were developed through the use of grounded theory.
Results: Respondents provided complex narratives surrounding the difficulties of disclosure of SW status within healthcare settings. Responses stated that being able to explain SW status and confide in HIV care providers played, or would play, an invaluable role in the respondent feeling socially connected, valued, and would build hope. As stated by a respondent „please understand that you are probably the only person they can go to and the only person aware of these situations."
Conclusions: The ability of a provider to care for SWs in a non-judgmental way would greatly reduce isolation and serve as an entry point to other forms of care and support. Widespread discrimination against SWs in and out of healthcare continues to exist in the US and education for providers on caring for SWs in a compassionate way could greatly improve HIV outcomes.

WEPED497

Just give me the information I need to survive: Understanding the needs of US based sex workers within the HIV continuum of care

J. Brown[1,2], B. Robinson[1]
[1]*Call Off Your Old Tired Ethics Rhode Island (COYOTE RI), Providence, United States,* [2]*Brown University, Alpert Medical School, Providence, United States*

Background: In the United States, sex work remains criminalized and sex workers (SWs) are often isolated from basic healthcare and social support systems. SWs are a key population and experience a disproportionately high rate of HIV but it is challenging to connect with SWs due to their fear of being prosecuted for being open about being SWs. It can be difficult for SWs to engage with the HIV continuum of care and COYOTE RI developed this research project to understand the experiences of US-based SWs within the HIV continuum of care. This project seeks to use a human rights-based approach to understand the complexities of how existing HIV programs serve or fail US-based SWs.
Methods: This community-based research project was carried out by sex workers rights organizations that have been working in the US to uphold the rights of sex workers for many decades. This study surveyed people working in various areas of the sex industry in all regions of the US [n = 1496]. Analysis of the data utilized qualitative and quantitative methodologies and key findings were developed through the use of grounded theory.
Results: Through this study it was shown that US-based sex workers experience the HIV continuum of care in a range of ways that are fundamentally different from other populations. SWs frequently do not disclose their SW status, experience high rates of many forms of discrimination, and frequently avoid HIV services for fear of being surveilled or outed in other areas of their life.
Conclusions: Throughout the sample, respondents articulated the desire to be treated the same as other patients, with respect and attention, and provided additional insights into what SW-inclusive care could look like in the US. This study provided a nuanced exploration of the challenges SWs face in receiving education, preventative services, and treatment surrounding HIV. As a key population that faces legal persecution within the US, the perspectives and suggestions of SWs in this study provide valuable insight into how to improve how the HIV continuum of care in the US works to uphold the rights of US SWs.

WEPED498

Awareness, practice and preferences of PrEP among female sex workers in Lagos, Nigeria

V.A. Adepoju[1], C.-E. Udofia[2], T. Eyohwo[2], O. Lawal[3], V. Okafor[4], O. Adejumo[5]
[1]*KNCV Tuberculosis Foundation, TB/HIV Prevention, Care and Treatment, Lagos, Nigeria,* [2]*Center for the Rights to Health, Key Populations, Lagos, Nigeria,* [3]*KNCV Tuberculosis Foundation, Laboratory Health Systems Strenghtening, Lagos, Nigeria,* [4]*Project Support Officer, Improved TB/HIV Prevention and Care, Lagos, Nigeria,* [5]*Mainland Hospital, Lagos, Community Medicine and Public Health, Lagos, Nigeria*

Background: Little is known in Nigeria about the knowledge, practice and preferences of FSWs on PrEP despite its proven efficacy in the prevention of HIV among Female Sex Workers. The objective of the study is to describe knowledge, practices and preferences towards PrEP among FSWs in high HIV prevalent setting, Lagos, Nigeria.
Methods: Interviewer administered questionnaires was administered to 130 FSWs selected across various hotspots in Lagos, Nigeria. The questionnaire was adapted from University of California; San Francisco Center for HIV research. The questionnaire was adapted and modified for the Nigerian context and used to collect participants' behavioral and social network data. The data was part of regional surveys conducted among biological female sex workers aged 18 years and above in Lagos, Nigeria between December 2017 and January 2018.Data was entered into SPSS. Bivariate analysis was conducted to determine associations with PrEP awareness, practice and preferences.
Results: A total of 130 FSWs participated in the study. 1(0.8%) were 1-19 years, 125(94%) were 20-39 years and 7 (5.3%) were 40-45 years. Majority 68.8% (86/125) of the FSWs were Christians and attended secondary school, 66.2% (84/127).60% is either Yoruba or Igbo ethnicity. 79.2% were neither in school nor learning trade while 20.8% were students. The median age of the FSWs was 29 yrs (19-45, IQR-7.81.3% were negative and 18.3% were positive. 79.4% (85/107) of respondents have experienced sexual assault or rape over the last 12 months. 46.2% (60/130) have heard and aware of PrEP, 24.6% (32/130) are using PrEP; 34% (11/32) use PrEP alone while 65% (21/32) use PrEP in combination with condom. 11/30(37%) preferred daily prep while 63% (19/30) preferred on-demand PrEP. FSWs who have experienced sexual assault or rape over the last 12 months are more significantly aware of PrEP (86.4%vs13.6%, p<0.001).
Conclusions: The study revealed low level of awareness of PrEP among Female Sex Workers and those sexually assaulted more likely to be aware of PrEP. There is a need to protect the right of FSWs in Nigeria including sexual rights. Interventions aiming at translating knowledge of PrEP to usage need to be strengthened among FSWs who are at higher risk of HIV.

WEPED499

Trends in HIV testing uptake among female sex workers in Ukraine: Findings from four integrated bio-behavioral surveys

A. Tokar[1], I. Sazonova[2], M. Becker[3], S. Mishra[4,5], J.V. Lazarus[1], J.E.W. Broerse[6], J. Blanchard[3]
[1]*Barcelona Institute for Global Health (ISGlobal), University of Barcelona, Hospital Clínic - University of Barcelona, Barcelona, Spain,* [2]*International Charitable Foundation "Alliance for Public Health", Kyiv, Ukraine,* [3]*Centre for Global Public Health, Department of Community Health Sciences, University of Manitoba, Manitoba, Canada,* [4]*Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, Canada,* [5]*Department of Medicine, University of Toronto, Toronto, Canada,* [6]*Athena Institute, Vrije Universiteit Amsterdam, Amsterdam, Netherlands*

Background: Ukraine has one of the fastest growing HIV epidemics in Europe with high rates of HIV among female sex workers (FSW). Despite a widespread testing program HIV testing uptake remains low.We examined temporal trends in outcomes of HIV testing among female sex workers using self-reported data from four rounds of integrated bio-behavioral surveys (IBBS) in Ukraine in 2009, 2011, 2013, and 2015.
Methods: The outcomes of interest included accessibility of HIV testing, ever in life testing for HIV, testing for HIV in the last 12 months and knowledge of HIV status. We examined correlates of accessing HIV testing. We collected IBBS samples from FSW in major regional cities of Ukraine (3,286-2009, 5,023-2011, 4,906 -2013; 4,300-2015). Each year a combination of different recruitment methodologies was applied in different cities, such as respondent-driven sampling (RDS), time-location sampling (TLS), and convenience sampling. Therefore, we used unweighted pooled analyses of samples and made no inferences to the overall population of FSW. We first calculated prevalence of each HIV testing behavior for each year and then performed Cochrane-Armitage test for trend to examine differences across the rounds. Next, using unweighted multivariable logistic regression we examined annual correlates of accessing testing.
Results: The reported testing accessibility progressively increased from 87% in 2009, to 90% in 2011, 94% in 2013, and 97% in 2015 (p< .0001). The prevalence of ever testing for HIV and knowledge of one's HIV status also increased from 69% and 67% in 2009 to 80% and 84% for both indicators in 2013 and in 2015 (p< .0001). Testing for HIV in the last 12 months showed no significant change over time and ranged between 60-63% (p< .0001). In all samples, younger FSW (less than 25 years old) were significantly less likely to access testing. Injecting drug use during last 30 days was the strongest predictor of testing accessibility.
Conclusions: HIV prevention and testing programs in Ukraine should focus on younger FSW as they report less ability to access it. FSW who inject drugs have better access to testing services, probably because of strong national harm reduction and testing programs for people who inject drugs.

WEPED500

Characterizing the prevalence and determinants of incentivized condomless sex among female sex workers in Lesotho

O.M. Olawore[1], S. Ketende[1], N. Taruberekera[2], T. Mothopeng[3], J. Nkonyana[4], S. Sweitzer[1], A. Grosso[5], S. Baral[1]
[1]Johns Hopkins University School of Public Health, Epidemiology, Baltimore, United States, [2]Population Services International, Johannesburg, South Africa, [3]Matrix Support Group, Maseru, Lesotho, [4]Ministry of Health, Maseru, Lesotho, [5]Public Health Solutions, New York, United States

Background: Even in the context of a generalized HIV epidemic in Lesotho, female sex workers (FSW) carry a disproportionate burden of HIV with 72% estimated to be living with HIV. In the context of emerging HIV prevention strategies including PrEP, consistent condom use (CCU) remains a crucial HIV prevention strategy. We present prevalence and determinants of incentivized condomless sex among FSW in Lesotho.
Methods: Adult FSW were recruited using respondent-driven-sampling between February-September, 2014 with analyses reported here limited to those who were offered money for condomless sex. Bivariate and multivariate logistic regression models were used to evaluate factors associated with accepting money for condomless sex.
Results: 744 women were recruited into the study, 585(79%) reported to have been offered money for condomless sex, and 351/585(60.4%) accepted the offer. The median amount offered for sex with condom was R50 (IQR:R20-R500) and R100 (IQR:R30-R1000) for condomless sex. FSW who self-reported to be living with HIV were more likely to accept money for condomless sex compared to those who self-reported to be HIV negative (OR:1.41 [95%CI:0.99-2.01], p=0.056), (aOR:1.40 [95%CI: 0.93-2.08], p=.0.103). Lack of HIV-related knowledge was also associated with accepting money for condomless sex.
Conclusions: Despite a high burden of HIV among FSW Lesotho necessitating sustained HIV preventions, our findings show an increased prevalence of incentives for, and willingness to accept more money for condomless sex. This dynamic highlight the challenges of HIV prevention using CCU. New approaches are needed including structural approaches to safely increase condom use as well as better condoms to prevent transmission and acquisition of HIV.

WEPED502

Violence victimization among male sex workers in the U.S. Northeast

E. Brown[1], M. Mimiaga[1,2,3], S. Safren[4], K. Mayer[1,5,6], K. Biello[1,2,3]
[1]Fenway Health, The Fenway Institute, Boston, United States, [2]Brown University School of Public Health, Behavioral & Social Sciences and Epidemiology, Providence, United States, [3]Brown University School of Public Health, Center for Health Equity Research, Providence, United States, [4]University of Miami, Department of Psychology, Coral Gables, United States, [5]Harvard Medical School/Beth Israel Deaconess Medical Center, Division of Infectious Disease, Boston, United States, [6]Harvard T. H. Chan School of Public Health, Global Health and Population, Boston, United States

Background: Intimate partner violence is associated with HIV transmission risk among men who have sex with men; however, research is lacking on intimate partner and client-perpetrated violence against male sex workers specifically—a group at high HIV transmission risk. Male sex workers may be at increased risk of violence due to heightened stigma and power imbalances in transactional relationships.
Methods: One hundred male sex workers living in Boston, MA and Providence, RI were enrolled in a cohort study to assess social, sexual and substance use networks. We estimated baseline prevalence of physical, sexual, and emotional violence victimization perpetrated by intimate partners and/or clients. Multivariable logistic regression models were used to examine sociodemographics (i.e., age, race, employment, sexual orientation, housing status, street- vs. internet-based sex work, source of income outside of sex work) and potential psychosocial (i.e., depression, stigma associated with sex work) and behavioral (i.e., alcohol use, drug use, condomless anal sex [CAS]) risk factors for violence victimization.
Results: Participants' mean age was 33.6 (SD=11.4), and 40% identified as White, 32% Black and 19% Latino. Nearly 50% identified as bisexual, 36% gay and 12% straight. Most (63%) were unemployed and 43% reported recent unstable housing. Half had no income outside of sex work, and two-thirds participated in street-based sex work. While engaging in sex work, participants reported previously experiencing: verbal abuse (22%), physical abuse (10%), rape (8%), forced CAS (9%), forced drug use (11%), and forced drinking (6%). In the past 6 months, 30% reported experiencing emotional (24%), physical (10%) and/or sexual violence (9%) by a client or intimate partner. In multivariable models, higher CESD depression scores (OR=1.09, 95%CI 1.01-1.17, p=0.022) and stigma scores (OR=1.60, 95%CI 1.23-2.08, p< 0.0001) were associated with recently experiencing violence perpetrated by a client or intimate partner.
Conclusions: Violence victimization was common among male sex workers in the US Northeast particularly when engaging in sex work, underscoring the need for violence education and prevention. Psychosocial risk factors were associated with violence victimization among male sex workers, suggesting the need for access to comprehensive health and social services for this deeply marginalized population.

Transgender people

WEPED503

Advocacy in health care coverage for the transgender population in Argentina

N.F. Cardozo, M. Romero
Asociación de Travestis, Transexuales y Transgéneros de Argentina (ATTTA), Buenos Aires, Argentina

Background: The Association of Transvestites, Transsexuals and Transgenders of Argentina
(ATTTA) is an organization founded in 1993 that aims to fight against violations of Human Rights. One of the most important achievements has been the approval of the Gender Identity Law No. 26743, enacted on May 9, 2012.
Description: Despite the fact that 5 years and eight months have passed since the approval of the law, most of the Argentine territory does not comply with article 11 that guarantees integral health care of trans people. This means that trans people still continue to find barriers in access to health care system.
Lessons learned: Therefore, ATTTA has established a strategy of community, territorial and political advocacy to guarantee trans people access to health care services without stigma or discrimination. In the first place, ATTTA has established cooperation agreements for the creation of inclusive health care centers. Currently these centers operate in the city of Buenos Aires, Lomas de Zamora, San Martin, Avellaneda, Mar del Plata, Chivilcoy, San Juan, Córdoba,. In addition, ATTTA coordinates a program in the main referral center for HIV-AIDS treatment, Francisco Muñiz Infections Hospital, where it works
„Trans Vivir", which provides support and accompaniment to trans women living with HIV-AIDS.
Additionally, ATTTA has signed an agreement with the Global Fund to fight AIDS, Tuberculosis and Malaria and has sensitized 43 health care personnel since 2016/17. The inauguration of the first Trans House is a model to replicate throughout the region. So far this year, 1,800 transgender women and men have passed for counseling, material delivery, vaccination, HIV testing.
Conclusions/Next steps: The best strategy to reverse the prevalence rates of HIV-AIDS, which in Argentina is around 35% and the life expectancy that is 35 years for the trans population is the community work of organized civil society with the support of the State. This result had been caused by the continuous violation of human rights and institutional violence. It is necessary to increase efforts to continue holding awareness-raising workshops in different public and private health care spaces, and continue with political advocacy to continue with the opening of more inclusive centers for the trans population.

WEPED504

Understanding the impact of incarceration and re-entry on HIV risk and treatment for transgender women in the United States

S.L. Creasy[1,2], M.E. Hawk[1,2], M.R. Friedman[1,2], C. Mair[1], J. McNaboe[3], J.E. Egan[1,2]
[1]University of Pittsburgh Graduate School of Public Health, Pittsburgh, United States, [2]Center for LGBT Health Research, Pittsburgh, United States, [3]Beth Israel Deaconess Medical Center, Boston, United States

Background: Transgender women (TW) experience higher rates of both HIV and incarceration than their cisgender counterparts, and this cycle of incarceration and poor health is understudied. Previously incarcerated TW who are living with HIV, particularly TW of color, are less likely to receive the HIV treatment they need due to economic and discrimination-related barriers. Furthermore, TW have unique challenges that may not be addressed in standard re-entry programs. The purpose of this mixed-methods study is to understand the experiences, needs, and resiliencies of TW during incarceration and re-entry in order to understand the cycle of poor health and recidivism in this population.
Methods: In this ongoing study we use qualitative interviews and spatial analysis to describe lack of access to resources, as well as challenges regarding HIV treatment and other healthcare services. We interview previously incarcerated adult TW residing in a mid-size city in the United States regarding experiences during incarceration, re-entry, and post-release. Additionally, we map city neighborhoods, bus lines, mental health providers, and trans-inclusive resources using geographic information system (GIS) software to explore barriers to transportation and access.
Results: Currently 50% of participants are HIV+ and 67% identify as Black/multiracial. Of the participants who received re-entry services, all were placed with cisgender men and no programs were trans-inclusive. Preliminary results indicate that immediate access to HIV treatment and other healthcare, housing, transportation, and trans-inclusive community support are the most significant barriers to successful re-entry. The spatial relationship between low-income neighborhoods and proximity to community resources suggests that TW residing outside urban areas have increased difficulty regarding access to HIV treatment and other needs.
Conclusions: TW face significant and unique challenges during re-entry and post-release from incarceration, particularly related to consistent HIV care. Future multilevel interventions should incorporate HIV treatment and other healthcare services, trans-inclusive community support, access to stable housing, and the alleviation of transportation barriers. Co-location of re-entry services will increase access, support, and treatment for TW re-entering the community. Developing trans-inclusive interventions during this vulnerable time of heightened HIV risk is vital for improving the health and well-being of TW and our communities.

WEPED505

My health, my rights/two case studies on the conditions of transgender women and effeminate gay men in prison

C. Cruz-Camacho[1], J.J. Hernandez[1], J. Elizalde[2], R. Suarez[3], R. Boivin[1]
[1]Colectivo Sol A.C., Salud y Derechos, Mexico D.F., Mexico, [2]Colectivo SerGay de Aguascalientes, Aguascalientes, Mexico, [3]Centro de Apoyo a las Identidades Trans, Salud y Derechos, Mexico D.F., Mexico

Background: My health, my rights (MHMR) has the purpose of strengthening the sense of citizenship of key populations in Mexico -mainly transgender women and gay men- to ensure access to stigma and discrimination-free HIV/STI prevention and care services, through community systems strengthening, evidence-based advocacy actions and external relations.
Description: Case studies describe and document in detail abuses and violations to the human rights of imprisoned and sentenced transgender women in two states in Mexico. The study describes how these violations affect their health and wellbeing; it denounces how in-prison transphobic violence is a threat to their lives and impinge on their human rights and dignity. Case studies include a groundbreaking and exhaustive analysis of how abuses entail law breaking by police, general attorneys and judges and expose the denial of health services to address HIV and consequences of bodily transformation of trans women.
Lessons learned: MHMR designed and developed a set of practical tools to implement participatory community assessments (PCA) to specifically collect data on HR abuses against TTT. The PCA methodology allows full and meaningful involvement of target populations in data search, identification, documentation, organization and analysis. As a result, the program documented and systematized for the first time in Mexico violations of human rights of trans people in prison, as described and analyzed in the two case studies of HR abuses. Both case studies reveal the ordeal Liz and Karina went through -starting with their apprehension- and demonstrate how ingrained homophobic and transphobic prejudice of public servants have a detrimental effect on due process, access to justice and to specific HIV/STI-related health services. The publication of the Case Studies as a key program output, sets the stage for further rapid research in other prisons at state and federal level and serves as a tool to generate and enrich new data, showing the impact that discriminatory and abusive practices by civil servants in the justice system are a threat to the health, safety and lives of these populations.
Conclusions/Next steps: New case studies on the conditions of transgender women and effeminate gay men in prison.

WEPED506

Understanding barriers, working alongside the community: A formative study for the implementation of a peer-navigation intervention among transwomen living with HIV in São Paulo, Brazil

G. Saggese[1], D. Barros[1], R. Batisteli[1], H. Gilmore[2], J. Sevelius[2], S. Lippman[2], M.A. Veras[1]
[1]Santa Casa de Sao Paulo School of Medical Sciences, Sao Paulo, Brazil, [2]University of California, San Francisco, UCSF School of Medicine, San Francisco, United States

Background: Transwomen are disproportionately affected by HIV worldwide. Their lived experiences often include stigma and gender-related discrimination, which may hinder access to healthcare services and create cycles of violence that exacerbate existing health disparities. If diagnosed with HIV, transwomen also often face difficulties engaging in HIV care and adhering to ART. This study aimed to explore these challenges to inform a peer-navigation intervention for improving engagement in HIV care among HIV-positive transwomen in São Paulo, Brazil.
Methods: Between October 2017 and January 2018, we conducted 10 in-depth interviews with key informants (transwomen and health professionals working with transwomen), as well as 3 focus groups with transwomen only. A total of 33 people participated. Semi-structured guides sought to elicit experiences around access to social and healthcare services, with an emphasis on HIV care, as well as to understand the potential benefits and challenges of peer-navigation for transwomen living with HIV.
Results: Main barriers included access to social and healthcare services due to limited service hours and the lack of sensitivity and preparedness of professionals in addressing transwomen's specific needs, such as the correct use of the preferred name, medical knowledge regarding hormone provision and complications related to industrial silicone. Low adherence to ART appears to be related not only to the obstacles transwomen face accessing care in general, but also to reduced prospects for successful careers, financial stability, and general safety and well-being. All participants, however, were very enthusiastic that peer-navigation could provide needed support.
Conclusions: This formative study confirmed that a peer navigation intervention among transwomen living with HIV in São Paulo has potential to enhance ART adherence and well-being by addressing some of the barriers pointed out with the help of empowered and adherent peers, at both medical and social levels. Consulting affected communities prior to program development and implementation will certainly improve its success.

WEPED507

Inclusion of transgender youth in educational institutes to mainstream the community and reduces the vulnerabilities to HIV & mental health

Y. Singh[1], V.R. Anand[2], S. Gupta[2], M. Benjwal[1], G. Yadav[1], S. Parashar[2], M. Sivasubramanium[2], S. Rawat[2]
[1]Humsafar Trust, New Delhi, India, [2]Humsafar Trust, Mumbai, India

Background: The Indian Supreme Court's NALSA judgement of 2014 recognized the third gender, and recommended for reservations in jobs and education. Despite this, the enrolment of TG youth in educational institutes and jobs remains suboptimal. The literacy rates continue to remain low among TGs, and the community sustains on begging and sex work, which increases their vulnerability towards HIV and other health issues. The Humsafar Trust, conducted sensitization meetings with educational institutes in Delhi NCR to facilitate enrolment of TG communities for higher education.
Description: Under the CONNECT project, we conducted 10 meetings of 120 community members with national open educational institutes like Indira Gandhi National Open University. The meetings were attended by more than 30 staff members from these institutes who were sensitized on issues faced by the community in providing required documentation for enrolment. The sensitization workshops further helped clarify myths and foster understanding on complex issues of sexuality, gender and PLHIVs. This resulted in first ever declaration from Indira Gandhi National Open University that will support transgender communities in pursuing higher education. They also assured scholarships and free education support to the TG communities.
Lessons learned: The major challenges were in gathering the documents from transgender youth, as majority of them either didn't have documents with them or were having it with the gender & name assigned to them at birth. As an immediate step, we were successful in securing appointment of a TG person as a Help Desk Facilitator, at the educational institute who facilitated admission process for 32 TG women/men who were enrolled into the university. This was done in collaboration with other grassroots level organizations further strengthened this process not only in terms of institute sensitization but also the admission process.
Conclusions/Next steps: Along with sensitization workshops with faculty, there is need to institutionalize the processes of education opportunities for TG communities. The setting up of the systems (helpdesk) at educational institutes, will help ensure the stigma and discrimination free education to TG youth; will empower them and thus will help in overall reducing the vulnerabilities of the TG youth.

WEPED508

Inclusion of married transgender population in HIV-related services

S.K. Giri
Kolkata Rista, Kolkata, India

Background: Both in India and globally, there is no specific targeted intervention or program for the MTG (married transgender) community, transgender people assigned male at birth who are married to women out of familial compulsion or choice, and who are often socially compelled to live as heterosexual men. In that context, Kolkata Rista, a community-based organization of transgender, hijra and MSM people, conducted a year-long study of the barriers to HIV-related services faced by MTG people in three states of India: West Bengal, Bihar and Uttar Pradesh.
Description: The project was a qualitative multi-sited study of the barriers to HIV-related services faced by MTG (married transgender) population. It was conducted between January 2017 and December 2017 at 6 sites (both urban and rural) in three states of India: West Bengal, Bihar and Uttar Pradesh. The study included 12 FGDs (Focus group discussions), two at each site, and a total of 60 interviews, ten at each site. The FGDs were conducted with MTG people, while the interviews were conducted with both MTG people and their partners.
Lessons learned: As per the FGDs and interviews, over 90% of MTG individuals reported that compared to the rest of the transgender population, they experience double barriers to accessing services such as HIV/STI testing and antiretroviral treatment (ART). Firstly, MTG experience huge stigma and discrimination from the broader transgender community, which prevents them from accessing community-based intervention programs.
Secondly, they also face barriers accessing services from non-community-run service centers because of the general isolation of transgender people in mainstream health services. They thus face compounded intersectional forms of vulnerability to HIV.
Conclusions/Next steps: While we are talking of Universal Health Coverage for all by 2030 and LNOB (leave no one behind), we are leaving behind the doubly marginalized MTG community. Since the present scenario of health services for MTG is unfriendly and discriminatory, it is essential to implement specifically targeted projects for MTG population if we really want to end HIV by 2030. Such targeted projects would help to bring HIV services to all marginalised communities, such that no one is truly left behind and we can achieve UHC 2030.

WEPED509

Health care guide for the respect of trans people in Latin America and the Caribbean

M. Romero
Red Latinoamericana y del Caribe de Personas Trans, Buenos Aires, Argentina

Background: In the framework of the proposal „Women Trans without Borders against Transphobia and HIV / AIDS" of the Global Fund to Fight AIDS, Tuberculosis and Malaria, REDLACTRANS has developed the only Health Guide developed by trans woman of Latin America and the Caribbean with the purpose of raising awareness among health care professionals about comprehensive care for this population.
Description: Over the past 2 years, REDLACTRANS conducted 57 awareness-raising workshops in 13 different countries in Latin America and the Caribbean, reaching a total of 2065 health care providers who were sensitized about comprehensive health care and HIV-AIDS towards the trans population. The „Recommendations Guide on Comprehensive Health Care for Trans Women in Latin America and the Caribbean" has increased the reach of this audience and its socialization has led to the reduction of discriminatory practices in health care centers, which impede access by trans people to health care services.
Lessons learned: On the one hand, the awareness workshops were led by trans women who could sensitize health care providers from their own experiences. This dynamic reaffirmed the importance of trans people sensitizing health care professionals about their own needs. On the other hand, these instances have been the first steps for the development of inter-institutional agreements between Civil Society Organizations and Hospitals in order to guarantee unrestricted access to health care services. Among these advances, it is necessary to highlight the opening of Health care Centers and the respect for the identity of those trans people living with HIV / AIDS.
Conclusions/Next steps: These achievements highlight the importance of carrying out political strategies that articulate actors from both civil society and the government agencies with the purpose that trans people can freely access an elementary Human Right: health care.

WEPED510

The *Transcendendo* cohort study - unveiling the social vulnerabilities of transgender women and *travestis* in Rio de Janeiro, Brazil

A.C.G. Ferreira, L.E. Coelho, E.M. Jalil, R.K. Friedman, S.W. Cardoso, R.C. Moreira, L.F. Eksterman, C.V. Castro, M. Derrico, R.I. Moreira, M.R. Guimarães, B. Fernandes, P.M. Luz, V.G. Veloso, B. Grinsztejn
Evandro Chagas National Institute of Infectious Diseases, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil

Background: Transgender women and *travestis* (transwomen) are the most affected population in the Brazilian HIV epidemic. Recent data showed high HIV prevalence among transwomen in Rio de Janeiro. However, transwomen are underrepresented in HIV epidemiologic, be-

havioral and clinical studies and have poor access to prevention and health care services. The Fiocruz Transgender Health Clinical Cohort (*Transcendendo*) was created in 2015 to improve our knowledge of this population.
Methods: The Fiocruz Transgender Health Clinical Cohort is a clinic-based open cohort of HIV-infected and at risk HIV-uninfected trans-women ≥18 years living in Rio de Janeiro, Brazil. Data are prospectively collected at annual visits that include face-to-face interviews, clinical, behavioral and laboratory assessments. Additional information is retrieved from medical records and linked national databases. Baseline data are presented.
Results: From August 2015 to July 2017, 323 transwomen were enrolled. Median age was 31.5 (IQR 25.7 - 39.5), age of transformation was 16 (IQR 14-18) and age of sexual debut was 6 (IQR 4-11). Markers of vulnerability, such as poor schooling (36.9% with less than 8 years of education), high rates of physical (54.0%) and sexual (46.0%) violence were prevalent. Access to reassignment surgery (5.9%) and feminization procedures (41.0%) was poor and frequent use of unsupervised hormone therapy (75.0%) and industrial liquid silicone injection (49.0%) was observed.
The HIV-infected group (N=175, 54.0%) had higher rates of less than 8 years of education (42.9% vs. 29.4, p=0.015), were younger at the time of gender transformation (15 [14-18] vs. 16 [15-18.2], p=0.048) and sexual debut (6 [4-10] vs. 7 [5-13], p=0.034), were more frequently engaged in sex work (52.9% vs. 39.2%, p=0.022) and had higher rates of sexually transmitted infections, tobacco and cocaine dependence. At cohort enrollment, the median time since diagnosis was 1.8 years (IQR 0-7.3), 67.0% were on antiretroviral therapy, with a median CD4+ cell count of 617 (IQR 373-804) and 69.7% had undetectable viral load.
Conclusions: Data from *Transcendendo* cohort highlighted alarming socioeconomic vulnerability, high rates of violence, substance dependence and poor access to gender affirming care among the transgender population.

	HIV negative N=148	HIV positive N= 175	Total N=323	p-value
Alcohol ASSIST index ≥ 4	65 (59.1)	76 (51.7)	141 (54.9)	0.420
Tobacco ASSIST index ≥ 4	47 (44.7)	86 (58.6)	134 (52.1)	0.055
Cannabis ASSIST index ≥ 4	22 (20.0)	52 (35.4)	74 (28.8)	0.005
Cocaine ASSIST index ≥ 4	15 (13.6)	46 (31.3)	61 (23.8)	0.004
Syphilis	36 (24.6)	54 (30.9)	90 (24.9)	< 0.001
Hepatitis B	5 (3.4)	12 (7.4)	17 (5.5)	< 0.001
Hepatitis C	1 (0.7)	4 (2.3)	5 (1.5)	< 0.001
Rectal chlamydia	17 (11.5)	18 (10.3)	35 (10.8)	< 0.001
Rectal gonorrhoeae	8 (5.4)	10 (5.7)	18 (5.6)	< 0.001

[Prevalence of substance dependence and sexually transmitted diseases in the Fiocruz Transgender Health Clinical Cohort]

WEPED511

Knowledge and attitude towards transgender-related healthcare among Malaysian medical doctors: Implications for HIV treatment and prevention

M.H. Cha[1], A. Vijay[2], Y.C. Tee[1], S.H. Lim[1,3], F.L. Altice[1,2,4], J.A. Wickersham[1,2]
[1]University of Malaya Faculty of Medicine, Centre of Excellence for Research in AIDS, Kuala Lumpur, Malaysia, [2]Yale University School of Medicine, Internal Medicine, New Haven, United States, [3]University of Malaya Faculty of Medicine, Social and Preventive Medicine, Kuala Lumpur, Malaysia, [4]Yale University School of Public Health, Epidemiology of Microbial Disease, New Haven, United States

Background: Effective HIV treatment and prevention for transgender people requires physicians who can address their unique needs. For transgender patients, gender-affirming healthcare that is coupled with HIV treatment and prevention may have a synergistic effect on outcomes. This study reports on Malaysian physicians' knowledge and experience of transgender healthcare.
Methods: A total of 436 physicians in Kuala Lumpur, Malaysia, completed an online survey about transgender healthcare. Measures included socio-demographics, clinic- and provider-level attributes, and transgender stigma-related constructs, including prejudice, internalized shame, fear, stereotypes, and belief that transgender people deserve good care. Descriptive statistics are reported and chi-square and t-tests were used to examine correlates of contact with transgender persons.
Results: Physicians were mostly female (52.8%) and specialized in internal medicine (25.2%) or primary care (11.9%). Average age was 34.7 years and medical officer (37.4%) and specialist (28.4%) were the most common clinical statuses. Transgender-specific care was not offered in most clinics (76.6%) and physicians ranked themselves as novice or beginner (84.4%) on transgender health; most (95.4%) had no formal training in transgender care. Nearly all (95.2%) said their clinic had no intake/triage procedure to identify transgender patients and most (58.9%) viewed such screening as unnecessary. Regarding sex reassignment surgery, 46.1% said it should not be available to transgender patients; and most (59.6%) said transgender people should be prohibited from changing their sex on government-issued identification. Physicians who recently provided care to transgender patients (26.6%) had lower prejudice (p< 0.05) and fear (p< 0.05) and were more willing to provide care to transgender patients (p< 0.05) compared to physicians who had not provided care. No differences in stereotype, internalized shame, and belief in good care were observed. Personally knowing a transgender person was associated with lower fear of transgender people (p< 0.05) and greater interest in receiving training in transgender healthcare (p< 0.05).
Conclusions: Effectively engaging transgender patients in HIV treatment and prevention requires trans-competent physicians. Concerning from these results are the low knowledge of transgender care and low support for gender-affirming procedures. Contact with transgender persons, however, appears to mitigate prejudice and fear. Curriculums, including continuing medical education, should scale-up training in transgender care.

WEPED512

Combating violence and promoting sexual health among transgender persons using trauma-informed psychosocial support in the Federal Capital Territory, Nigeria

P. Umoh[1], T. Jaiyebo[1], G. Emmanuel[1], B. Ochonye[2], A. Yusuf[1], C. Trout[3]
[1]Heartland Alliance International, Programs, Abuja, Nigeria, [2]Heartland Alliance International, Abuja, Nigeria, [3]Heartland Alliance International, Los Angeles, United States

Background: Intimate partner violence (IPV) often results in acute and chronic physical and mental health problems. Though there is no data on IPV against transgender (TG) individuals in Nigeria, studies from other countries have shown that the lifetime prevalence of IPV against TGs is higher than among the general population. IPV is associated with low self-esteem, drug and alcohol abuse and high-risk sexual activities which are also risk factors for sexually transmitted infections, including HIV.
Methods: In 2014, Heartland Alliance International (HAI implemented a 10-month trauma-informed psychosocial intervention to reduce IPV and mitigate its effects among TG during support groups. A questionnaire was used to collect categorical quantitative data on sexual behavior, history and attitudes relating to IPV and emotional intelligence before and after the intervention. We used the calculator at http://vassarstats.net/propcorr.html to construct odds ratios for each outcome and perform two-tailed McNemar's tests to check if the changes in outcomes between start and finish were statistically significant at the P=0.05 level.
Results: In total, 34 TG participants were recruited into the project in the Federal Capital Territory. Assertiveness skills increased by the end of the project. At baseline, 68%% (23) were sure about negotiating condom use but 88% (30) were at the end. At baseline, 23 participants (68%) would not stay with a partner that beat them which increased to 82% (28). Those who did not seek self-validation from a high number of sexual partners increased from 56% (19) to 92% (31) and 88% (32) said they felt good about themselves despite not dating anyone at the end, up from 71% (24). Also, 79% (27) now had people in their life to rely upon, up from 58% (20). Awareness of serostatus increased from 82% (28) to 97% (33). The changes in all five outcomes before and after the intervention were statistically significant at the P=0.05 level. (Table 1)

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Conclusions: While the sample was small, TG who participated exhibited healthier attitudes regarding relationships, IPV and were more likely to know their status. HAI intends to scale up this intervention to prevent and mitigate IPV and promote healthy attitudes among TG.

	Total #	Baseline #	Baseline %	Endline #	Endline %	OR	OR Confidence Interval	P (McNemar's two-tailed test)
Sure about negotiating condom use	34	23	68%	30	88%	5.75	1.99-16.63	0.0003
Not Stay with a violent partner	34	23	68%	28	82%	2.88	1.29-6.43	0.01
Doesn't need Self-validation from increased sexual partners	34	19	56%	31	92%	6.33	1.87-21.40	0.0009
Feels good despite not dating anyone	34	24	71%	32	94%	12	2.84-50.8	<0.0001
Have people to rely on	34	20	58%	27	79%	2.86	1.21-6.76	0.0192
Aware of HIV status	34	28	82%	33	97%	28	3.81-205.80	<0.0001

[Table 1: IPV knowledge, attitudes and behaviors among trangender beneficiaries pre-and post-intervention]

WEPED513

A literature review of the factors that affect use and uptake of Pre-Exposure Prophylaxis (PrEP) among young transgender women (TGW) aged 15-24 years in sub-Saharan Africa

J. Kottutt[1], C. Kottutt[2]
[1]Emory University, Rollins School of Public Health, Global Health, Atlanta, United States, [2]Ferris State University, School of Pharmacy, Big Rapids, United States

Background: Current literature on PrEP adherence has mostly focused on men who have sex with men (MSM) with limited studies on transgender populations (TGP). However, TGP particularly TGW, are disproportionately affected by HIV and the evidence is extremely lacking, particularly in sub-Saharan Africa. The purpose of this study was to conduct a literature review of peer-reviewed literature to establish the factors that affect the uptake of PrEP among TGW so that culturally appropriate biomedical and behavioral interventions can be created.

Methods: Two independent reviewers electronically searched published studies and articles from 2000 to 2018 on PubMed, EMBASE, Web of Science, and Google Scholar. The reviewed resources focused on PrEP adherence, uptake, and use among TGW living in sub-Saharan Africa. A transgender individual was defined as someone who identified as being different from the assigned sex at birth. The search terms included "PrEP adherence", "PrEP uptake", "PrEP use" among "transgender-women" AND "HIV" AND "15-24 years". Due to the limited number of resources, we included studies with PrEP adherence, some not specific to TGW in sub-Saharan Africa.

Results: 77 studies were reviewed to establish the factors that affected PrEP adherence among young TGW. Individual factors include sexual position during anal intercourse, having multiple high-risk sexual partners and, internalized transphobic stigma. A major epidemiological factor is the failure of most studies to differentiate between MSM and TGW in the pathophysiology and etiology of HIV. Structural factors include marginalization of trans populations, which make them prone to poverty and sex work; parental permission laws; lack of youth/adolescent friendly HIV services; stigmatization and discrimination of youth/adolescent HIV/AIDS services; criminalization, and in some cases punishment.

Conclusions: Insufficient scientific studies on PrEP adherence among TGP and this has resulted in a limited understanding of the epidemiological, structural and individual barriers that affect TGW. Moreover, it has impeded the development of culturally appropriate interventions as well as policies that address the unique challenges of PrEP provision among young TGW in sub-Saharan Africa. Future research should focus on qualitative methods in order to establish the specifics needs of TGW so that culturally appropriate biomedical and behavioral interventions for PrEP adherence can be created.

WEPED514

Princess project: Increasing health and well-being for African American transwomen living with HIV in Oakland, CA, USA

T. Nemoto, M. Iwamoto, S. Suico
Public Health Institute, Oakland, United States

Background: HIV prevalence is high among transwomen in the U.S., particularly among African American transwomen; however, they tend not to enroll in HIV primary care and also drop out from care.

Description: The Princess Project provided a Motivational Enhancement Intervention (MEI) to facilitate the enrollment and retention in HIV primary care for African American transwomen living with HIV in Oakland/Alameda County, California. Participants were asked to take the initial 3 MEI sessions, and then monthly 6 MEI sessions. Working with trans Health Educators, participants developed a realistic and workable behavioral change plan and strived to attain the objectives through client-centered MEI sessions. Participants were also encouraged to participate in a weekly support group.

Lessons learned: Among 63 participants enrolled, 54% had completed the required 3 MEI sessions, and 21% completed additional 6 MEI sessions. At intake, half of the participants (33 out of 66) had not enrolled in HIV primary care even though they knew their HIV positive status. Through MEI intervention, 11 out of 33 participants enrolled in HIV primary care and continued to be in care. Health Educators made a number of referrals in addition to HIV care, such as to drop-in centers, housing assistance, substance abuse treatment, legal assistance, mental health treatment, and food assistance programs. Participants had a number of barriers to enroll in and maintain HIV primary care (e.g., priorities for securing income and housing). A weekly support group was successful to assist participants to increase access to information about HIV care and other health issues (e.g., hormone therapy).

Conclusions/Next steps: A large proportion of African American transwomen living with HIV had not enrolled in or dropped out from HIV primary care and lacked access to comprehensive care and support in Oakland/the San Francisco Bay area where a number of HIV care and health services for transwomen are available. In order to reduce the number of HIV positive African American transwomen without HIV primary care, trans sensitive and comprehensive programs are needed to address their urgent needs (e.g., financial security, food, housing, and gender affirmation health care), as well as to build supportive communities for transwomen of color.

WEPED515

Factors associated recent HIV testing among transgender women in Cambodia: Findings from the National Integrated Biological and Behavioral Survey (TG-IBBS 2016)

S. Yi[1], S. Tuot[1], S. Chhim[2], P. Chhoun[1], P. Mun[3], K. Chhim[4]
[1]KHANA Center for Population Health Research, Phnom Penh, Cambodia, [2]FHI 360 Cambodia, Phnom Penh, Cambodia, [3]National Center for HIV/AIDS, Dermatology and STD, Phnom Penh, Cambodia, [4]KHANA, HIV/AIDS Flagship Project, Phnom Penh, Cambodia

Background: Globally, the HIV prevalence among transgender women remains high, and a large proportion of transgender women are unaware of their HIV status. This study aimed to identify factors associated with recent HIV testing among transgender women in Cambodia.

Methods: The National Integrated Biological and Behavioral Survey was conducted in 2016 among a nationally representative sample of transgender women recruited from the capital city and 12 provinces with a

high HIV burden using Respondent Driven Sampling method. Face-to-face interviews were conducted using a structured questionnaire. A multivariate logistic regression analysis was performed to explore factors associated inconsistent condom. This study was approved by the Cambodian National Ethics Committee for Health Research.

Results: In this analysis, we included 1375 transgender women with a mean age of 25.8 years (SD= 7.1). Of total, 49.2% had been tested in the past six months. After controlling for several potential confounding factors, participants who had been testing for HIV in the past six months remained significantly less likely to be a student (AOR= 0.36, 95% CI= 0.20-0.65), to perceive that they were unlikely to be HIV infected (AOR= 0.50, 95% CI= 0.32-0.78), and to report always using condoms with male non-commercial partners in the past three months (AOR= 0.65, 95% CI= 0.49-0.85) compared to those who had not been tested. Regarding access to community-based HIV services, participants who had been testing for HIV in the past six months remained significantly more likely to report having been reached by community-based HIV services in the past 6 months (AOR= 5.01, 95% CI= 3.29-7.65) and receiving some forms of HIV education and materials in the past six months (AOR= 1.65, 95% CI= 1.06-2.58) compared to those who had not been tested.

Conclusions: More than half of transgender women in this study had not been tested for HIV in the past six months despite the availability of extensive community-based HIV testing services across the country. HIV testing promotion programs with both HIV education and HIV testing services should be tailored to reach sub-groups of this high-risk population who have not been reached by the existing strategies.

WEPED516

Exposure to gender-based violence and depressive symptoms among transgender women in Cambodia: Findings from the National Integrated Biological and Behavioral Survey (TG-IBBS 2016)

S. Yi[1], S. Tuot[1], P. Chhoun[1], S. Chhim[2], P. Mun[3], G. Mburu[4]
[1]KHANA Center for Population Health Research, Phnom Penh, Cambodia, [2]FHI 360 Cambodia, Phnom Penh, Cambodia, [3]National Center for HIV/AIDS, Dermatology and STD, Phnom Penh, Cambodia, [4]Lancaster University, Division of Health Research, Lancaster, United Kingdom

Background: Transgender women are at significant risk of HIV and they face intersecting barriers to health, social, and legal services. However, data regarding the unique needs and experiences of transgender people is scant globally. This study examined the relationship between gender-based violence and depressive symptoms among transgender women in Cambodia.

Methods: This cross-sectional study included 1,375 sexually active transgender women recruited by using respondent-driven sampling in the capital city of Phnom Penh and 12 provinces of Cambodia. Data were collected between December 2015 and February 2016. Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression scale (CES-D). Multivariate regression analysis was conducted to explore factors associated with depressive symptoms.

Results: Of total, 45.0% of the participants had depressive symptoms, and 21.8% had severe depressive symptoms. After controlling for potential confounders, transgender women with depressive symptoms remained significantly more likely to report several negative experiences of gender-based violence such as a feeling that co-workers or classmates were not supportive regarding their transgender identity (AOR= 2.00, 95% CI= 1.22-3.28), having difficulties in getting a job (AOR= 1.67, 95% CI= 1.29-2.16), having been denied or thrown out of a housing (AOR= 1.53, 95% CI= 1.02-2.26), having difficulties in getting health services (AOR= 2.40, 95% CI= 1.50-3.82), having been physically abused (AOR= 1.54, 95% CI= 1.15-2.08), and having been fearful of being arrested by police or authorities (AOR= 2.18, 95% CI= 1.64-2.91) because of their transgender identity. Regarding their childhood experiences, transgender women with depressive symptoms remained significantly more likely to report that someone had tried to touch them or make them touch in a sexual way when they were growing up (AOR= 2.08, 95% CI= 1.61-2.68).

Conclusions: Transgender people in Cambodia experience high levels of depressive symptoms. To address this concern, a combination of service and policy interventions are required. These may include training and sensitization of trained and lay health providers in screening for depressive symptoms and integration of mental health services into facility- and community-based HIV services with enforcement of policies and laws that protect the rights of transgender women against gender-based violence.

WEPED517

Potential barriers in access to community-based HIV services among transgender women in Cambodia: Findings from the National Integrated Biological and Behavioral Survey (TG-IBBS 2016)

K. Chhim[1], S. Tuot[1], P. Mun[2], S. Chhim[3], P. Chhoun[1], S. Yi[1]
[1]KHANA Center for Population Health Research, Phnom Penh, Cambodia, [2]National Center for HIV/AIDS, Dermatology and STD, Phnom Penh, Cambodia, [3]FHI 360 Cambodia, Phnom Penh, Cambodia

Background: Transgender women are at significant risk of HIV, and they face intersecting barriers to health, social, and legal services. However, data regarding the unique needs and experiences of transgender people is scant globally. This study was conducted to explore barriers in access to community-based HIV services among transgender women in Cambodia.

Methods: These cross-sectional data were collected in 2016 as part of the National Integrated Biological and Behavioral Survey. Sexually active transgender women were recruited from the capital city of Phnom Penh and 12 provinces using respondent-driven sampling method. A structured questionnaire was used for face-to-face interviews. Multivariate regression analysis was conducted to explore factors associated with depressive symptoms. This study was approved by the National Ethics Committee for Health Research.

Results: The study sample included 1375 transgender women with a mean age of 25.8 (SD= 7.1); of whom, 45.0% reported having received at least one community-based HIV service in the past three months. Transgender women with access to community-based HIV services remained significantly more likely to reside in a rural setting, report having used gender-affirming hormones, have been tested for HIV in the past six months, and have been arrested by police or authorities because of their transgender identity or expression compared to transgender women without access to community-based HIV programs. However, transgender women with access to community-based HIV services were significantly less likely to report being in receptive role, using condom consistently with men not in exchange for money or gifts, and not using condoms because it was not available. Regarding gender-based discrimination and violence, transgender women with access to community-based HIV programs were significantly less likely to perceive that their co-workers or classmates were very supportive regarding their transgender identity compared to that of transgender women without access.

Conclusions: We found that the respondent-driven sampling method enabled us to reach a large proportion of transgender women who had not been reached by community-based HIV programs. This method may be adapted to increase the coverage of the programs reaching out sub-groups of this high-risk population who could not be reached by the existing interventions.

WEPED518

The HIV care cascade among trans women in Canada: Barriers and facilitators

A. Lacombe-Duncan[1], G. Bauer[2], P.A. Newman[1], C.H. Logie[1], Y. Persad[3], M. Shokoohi[2], A. Kaida[4], A. de Pokomandy[5,6], N. O'Brien[7,8], M. Loutfy[9,10]
[1]Factor-Inwentash Faculty of Social Work, University of Toronto, Toronto, Canada, [2]Western University, Department of Epidemiology & Biostatistics, London, Canada, [3]The 519 Community Centre, Toronto, Canada, [4]Simon Fraser University, Faculty of Health Sciences, Vancouver, Canada, [5]McGill University Health Centre, Chronic Viral Illness Service, Montreal, Canada, [6]McGill University, Department of Family Medicine, Montreal, Canada, [7]McGill University, Family Medicine, Montreal, Canada, [8]Chronic Viral Illness Service, Montreal, Canada, [9]University of Toronto, Department of Medicine, Toronto, Canada, [10]Women's College Hospital, Women's College Research Institute, Toronto, Canada

Background: Transgender (trans) women experience a disproportionate HIV prevalence, yet little is known about the engagement of trans women living with HIV (WLWH) in the HIV care cascade and associated socioecological factors. This study sought to describe
a) the proportion who attained each HIV care cascade outcome, and
b) socioecological factors associated with each HIV care cascade outcome among trans WLWH in Canada.

Methods: The Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS) collected national baseline survey data from 2013-2015. Of 1422 WLWH, 50 self-identified trans women were included in this analysis. Proportions of trans WLWH linked to HIV care (ever accessed), engaged in care (received any, past year), initiated and currently using antiretroviral therapy (ART), adhered to ART (≥ 95% ART taken, past month), and reported an undetectable HIV viral load (< 50 copies/mL) were summarized. Bivariate analyses identified correlates of each outcome.

Results: Results showed that 92% (n=46/50) (95% Confidence Interval (CI): 84%-100%) were linked to care. Of those linked to care, 91% (n=42/46) (83%-98%) were engaged in care. Additionally, 78% (67%-89%) (n=36/46) of those linked to care had initiated and were currently using ART, among whom optimal adherence to ART was reported by 67% (n=24/36) (52%-83%). Among those with optimal adherence, 96% (n=23/24) (85%-100%) reported an undetectable viral load. Statistically significant associations were identified with linkage (positively correlated: years living with HIV, violence; negatively correlated: physical health-related quality of life [HRQoL], barriers to care access); engagement (negatively correlated: affectionate social support, social interaction, trans stigma); ART initiation/use (positively correlated: years living with HIV, hazardous alcohol use, recreational drug use, violence; negatively correlated: increased age, physical HRQoL, personalized HIV-related stigma, unstable housing, racism, barriers to care access, access to a family physician, trans stigma); and ART adherence (negatively correlated: depression, PTSD).

Conclusions: Findings suggest gaps in care access across the cascade for trans WLWH, particularly for ART use and adherence. Targeted research is needed to further understand the mechanisms by which socioecological factors impede care access for trans WLWH, in particular trans-specific factors (e.g., trans stigma), in order to inform contextually-relevant interventions to increase HIV care engagement for this population.

WEPED519

Factors predicting viral suppression and retention in HIV care among transgender women of color living with HIV in four urban centers in USA

G. Rebchook[1], S. Shade[2], D. Chakravarty[1], J. Keatley[3], J. Xavier[4], C. Reback[5], R. Contreras[6], J. Perloff[7], T. Woods[8], J. Birnbaum[9], K. Ducheny[10], T. Nemoto[11], Special Projects of National Significance Transgender Women of Color Study Group
[1]UCSF Center for AIDS Prevention Studies, Medicine, San Francisco, United States, [2]UCSF, Epidemiology & Biostatistics, San Francisco, United States, [3]UCSF Center of Excellence for Transgender Health, Family and Community Medicine, San Francisco, United States, [4]Independent Consultant, Silver Spring, United States, [5]Friends Research Institute, Los Angeles, United States, [6]Bienestar Human Services, Los Angeles, United States, [7]Chicago House and Social Service Agency, Chicago, United States, [8]Tri-City Health Center, Fremont, United States, [9]SUNY Downstate Medical Center, Department of Pediatrics, Brooklyn, United States, [10]Howard Brown Health, Chicago, United States, [11]Public Health Institute, Oakland, United States

Background: Transgender women of color (TWOC) experience high HIV infection rates while facing unique barriers to healthcare engagement. HRSA's Special Projects of National Significance TWOC initiative is an evaluation of care engagement interventions implemented by 9 demonstration projects in 4 US urban centers.

Methods: The demonstration sites conducted computerized surveys (baseline and 4 follow-up surveys every 6 months) with 858 TWOC living with HIV between December 2013 and August 2016 (mean age=37; 49% Latina, 42% Black) to assess key barriers and facilitators to healthcare engagement. Medical chart data were also collected throughout the initiative. We defined retention in care as at least one visit in each of two prior six month periods, separated by ≥ 60 days. We conducted exploratory analyses to uncover changes in viral suppression (VS) (viral load< 200) and retention in care (both evaluated from medical chart data) over time, by the facilitators and barriers to care (from the baseline survey data). We used GEE modeling used to assess how changes over time in retention and VS were associated with multiple self-reported barriers and facilitators to care at baseline.

Results: A significant improvement in VS at the 24-month follow-up period was detected among participants who at baseline, reported (for previous 6 months): drug use, homelessness, transience, food insecurity, transportation challenges, and disclosing their gender identity compared to those who did not report those barriers or facilitators at baseline (Table 1). A significant improvement in retention in care at the 24-month period was associated with baseline reporting of: childhood sexual abuse, transience, transportation challenges, disclosing gender identity, and higher levels of healthcare empowerment.

EXPLANATORY VARIABLES±	ODDS RATIO		
	Baseline	12-month	24-month
Outcome: Viral Suppression			
Drug use	0.34**	1.48	1.58*
Homelessness	0.51***	1.24	1.34*
Moved 2 or more times in 6 mos.	0.40**	1.52**	1.84**
Food insecurity	0.54***	1.11	1.38*
Transportation challenges	0.51	1.46***	1.67***
Disclosed gender identity	1.07	1.64**	1.47*
Outcome: Retention in HIV Care			
Childhood sexual abuse	0.59**	1.28**	1.67**
Moved 2 or more times in 6 mos.	0.57**	1.22**	1.49**
Transportation challenges	0.43***	1.80**	2.01*
Disclosed gender identity	0.62	2.40***	2.38*
Healthcare empowerment	1.22	1.43*	1.57*

*p<.05; **p<.01; ***p<.001 (Non-significant barriers/facilitators are not presented in table)
±Recall period for all variables: previous 6 months

[Table 1: Baseline barriers and facilitators associated with changes in VS and retention in care over time in bivariate GEE models]

Conclusions: People reporting barriers at baseline generally had lower levels of engagement in care than those who did not report barriers. But, those who reported certain barriers (e.g., drug use, childhood sexual abuse, food insecurity, homelessness, transience, transportation barriers) demonstrated more improvement than others over 24 months. Disclosure and healthcare empowerment are important facilitators to consider in interventions to improve engagement in care.

These findings indicate that the interventions were successful at improving engagement in care for the most vulnerable groups of transwomen of color living with HIV.

WEPED520

Sex work is associated with sexual violence and HIV among transwomen in São Paulo, Brazil

G. B. de Souza[1], E. C. Wilson[2], C. Turner[2], A. B. M. da Rocha[1], M.A. M. Veras[1], Divas Project
[1]Faculdade de Ciências Medicas da Santa Casa de São Paulo, Public Health, São Paulo, Brazil, [2]San Francisco Department of Public Health, San Francisco, United States

Background: Studies have shown that transwomen (TW) engage in sex work to survive, but little is known about the health and wellness of TW who do sex work in Brazil. Data from other regions suggest TW who do sex work suffer high rates of discrimination, physical, and sexual violence, which may precipitate poor health outcomes. The present study was conducted to determine the prevalence and correlates of sexual violence and HIV infection among TW sex workers living in São Paulo.
Methods: DIVAS was a cross-sectional study of 386 adult TW conducted from November 2016 to May 2017 in São Paulo, Brazil. Descriptive analyses and multivariable logistic regression models were used to calculate the HIV prevalence among TW with a history of sex work and to examine the associations between sex work (lifetime and current) and sexual violence, forced sex without a condom, and HIV infection. Odds Ratios were adjusted based on significant demographics and risk factors (use of condom, housing, gender, race, and education) associated with sex violence in bivariable analyses.
Results: Among all TW in DIVAS, 90.41% (N=349) ever experienced sexual violence and 80.00% (N=308) were ever forced to have sex without condoms. Most participants had a history of sex work (N=326, 84.46%), and of those, 92.02% (N=300) reported experiencing sexual violence and 43.97% (n=135) tested positive for HIV. TW who were currently engaged in sex work had greater odds of experiencing sex violence (adjusted odds ratio, AOR=2.41;[95%CI]=1.07-5.41) and being forced to have sex without a condom (AOR 2.21;[95%CI]=1.92-7.79) than those not currently engaged in sex work. TW with a history of sex work had 2.59 ([95%CI]=1.20-4.07) times the odds of having HIV compared to those with no history of sex work.
Conclusions: HIV and sexual violence is prevalent among TW in São Paulo; even more so among TW who do sex work. TW sex workers are at greater risk for being forced to have condomless sex, which has important implications for their wellbeing and the transmission of infectious diseases. Interventions that address violence, particularly among transwomen engaged in sex work, are needed to promote well-being and reduce risk for sexually transmitted infections.

Sex Work Involvement	Sex Violence	Forced to have sex without condom	HIV infection
	Adjusted OR (95% CI)	Adjusted OR (95% CI)	OR (95% CI)
History of sex work			
No	Reference	Reference	Reference
Yes	2.41* (1.07 - 5.41)	3.87* (1.20 - 4.07)	2.59* (1.34 - 5.02)
Current Income from sex work			
No	Reference	Reference	-
Yes	2.52* (1.10 - 5.75)	2.21* (1.92 - 7.79)	-
* p value <0.05			

[Bi and Multivariable analysis of sex work involvement associated with sex violence and HIV]

WEPED521

Sexual behavior and health of transgender people who are sexually active with MSM in Japan: An online survey through gay geosocial networking mobile application, *LASH study*

T. Ohtsuki[1], Y. Ikushima[1], T. Miwa[1], M. Yamaguchi[2], C. Ikegami[1], M. Tarui[1], LASH Study Group
[1]PLACE TOKYO, Tokyo, Japan, [2]Bunan Hospital, Saitama, Japan

Background: MSM account for 60-70% of people living with HIV in Japan. However, little is known about those transgender individuals who are sexually active with MSM. The objectives of this study were to better understand their sexual behavior and health issues so that their needs for prevention, care, and support could be filled.
Methods: Data come from the LASH study conducted from September to October 2016. MSM including transgender people who have sexual relationship with MSM were subjected for the study, and the respondents were recruited through Japan's most popular gay geosocial networking mobile application. Then an anonymous, self-completed online survey, composed of 97 questions about love, sex, and health, was conducted to measure their view of relationships and sexual health such as HIV-related risk behaviors and knowledge.
Results: Of total 6,921 respondents who completed the survey, 83 respondents were transgender (41 trans women, 23 trans men, and 19 others, e.g. X-gender persons) with a mean age of 31.0 years (95%CI 29.1-32.9). Among trans women, 41.5% had sexual contact with 2 to 5 men and 29.3% with 6 or more men over previous six months; meanwhile, 56.5% had sexual contact with 2 to 5 men and 8.6% with 6 or more men among trans men. Compared to 62.3% in all respondents, 56.6% in trans men, 39.0% in trans women, and 57.9% in other transgender persons had tested for HIV at least once in their lifetime.
When asked about knowledge of HIV, transgender respondents less understood (more than 10% of gap between transgender and all respondents) the effect of ART, social welfare services for HIV/AIDS, and links between HIV and STIs.
Conclusions: The results suggest that most of transgender people are sexually active, but they neither grasp HIV risk nor test for HIV as often as non-transgender populations. Since it is limited to gay mobile application users, future in-depth research is expected to prepare appropriate strategies of prevention, care, and support for this population.
*This study was conducted for Research on Support for PLHIV and Drug Users in Regional Communities by Research on HIV/AIDS from Health, Labour and Welfare Sciences Research Grants (fiscal 2015-17).

WEPED522

Transgender stigma - barrier to accessing HIV testing and treatment services in Federal Capital Territory (FCT), Nigeria

T.A. Alamu[1], C. Trout[2], J. Stapleton[2], B. Ochonye[3], A. Kalaiwo[4], G. Emmanuel[3], O. Ugege[3], A. Ojemeire[3], O. Irinoye[3]
[1]Heartland Alliance International, Strategic Information and Knowledge Management, FCT, Nigeria, [2]Heartland Alliance International, Chicago, United States, [3]Heartland Alliance International, FCT, Nigeria, [4]USAID, FCT, Nigeria

Background: Globally, many transgender people face stigma, discrimination, social rejection and exclusion that prevent them from fully participating in society, including accessing health care, education, employment and housing[1]. Transgender people are 49 times more likely to be living with HIV infection than the general population[2]. Recently, Heartland Alliance International (HAI) began implementation of HIV comprehensive care and treatment among the transgender population in Nigeria.
Description: From February through December, 2017, HAI recruited 746 (169 male, 577 female) transgender individuals through mobile outreach and in "One Stop Shops" (fixed locations that provide specialized comprehensive HIV prevention, care and treatment for key populations). The service package included HIV prevention services, HIV testing services (HTS), sexually transmitted infection (STI) syndromic management and

tuberculosis (TB) screening and referrals, comprehensive care and treatment to HIV-positive clients, and mobile refills of medication prescriptions to clients in FCT.

Lessons learned: HAI ensured 100% of clients 746 (169 male, 577 female) knew their HIV status out of which 62 (8.3%) were identified to be HIV positive (22 male, 40 female); 725 (169 male, 556 female) or 97.2% of 746 were screened for other sexually transmitted Infections (STIs). Four females had STIs and were treated. From the 62 who were HIV positive, 31 (50%) (11 male, 20female) were successfully initiated on ART by the mobile OSS and 100% retained, while 31 or 50% (13 male, 18 female) were not prepared to commence ARV treatment.

Conclusions/Next steps: HAI has successfully implemented an intensive, mobile-based approach to mitigating the HIV epidemic among the transgender population. While HAI will continue to provide access to quality HIV services for transgender people, there is a dire need for additional mapping in order to recruit more trans individuals into HIV prevention services. Additionally, outreach must be done to raise awareness in the transgender community about the availability of stigma-free services in order to increase demand for HTS.

Other populations vulnerable in specific contexts

WEPED523

Improving targeted HIV testing services (HTS) in Zimbabwe: A study to identify orphan and vulnerable children (OVC) sub populations most at risk for HIV

C. Sisimayi[1], R. Malaba[2], P. Ndlovu[2]
[1]PSRT Centre, Harare, Zimbabwe, [2]World Education, Inc., Harare, Zimbabwe

Background: OVC programs have increasingly been called upon to increased uptake of HTS in pursuit of UNAIDS 90-90-90 goals. Experience in Zimbabwe demonstrates that mass testing efforts among broad OVC populations however, have not yielded high positivity rates. More targeted testing is needed to ensure limited resources are applied to finding, testing, and initiating those OVC most in need onto treatment and care. This study set out to inform community-based screening processes that feed into targeted testing by establishing which social and clinical characteristics among the OVC population best represent individuals with the greatest HIV risk.

Methods: A retrospective case control study was conducted in Bubi District in November 2017 to identify index markers related to HIV infection. Secondary data on HIV status of OVC and primary data generated through administration of a 14-item, standardized questionnaire to 159 OVC caregivers via interviews by a Community Health Worker were gathered. Study participants included OVC caregivers of both HIV-positive and HIV-negative children enrolled in Bantwana Initiative's OVC program activities. Data were analyzed utilizing advanced predictive techniques (Logistic Regression, Chi-square Automatic Interaction Detector-CHAID and Random Forest Modeling) to elicit the relationship between risk markers and HIV status.

Results: The study identified 56 cases and 103 controls (54.1% male, 45.9% female). 92.9% of the study population was over 5 years of age and 42% cared for by a grandparent. 58.5% of caregivers had at least secondary level education. Regression analysis identified 'poor school attendance', 'orphanhood' and 'living with an HIV+ contact' as the social markers strongly associated with HIV infection (p <0.05). CHAID and Random Forest analysis recognized 'living with an HIV+ contact' as a strong predictor of HIV infection.

Conclusions: Children who demonstrate irregular/no school attendance, orphans and those residing with a person living with HIV are at heightened risk of HIV infection and should be targeted for HTS. Given the similar performance of social and clinical index markers in predicting HIV positivity, community-focused OVC programs are well positioned to carry out comprehensive social profiling to identify and track socio-demographic determinants related to HIV risk that can inform more targeted testing.

WEPED524

Increasing uptake for HIV testing services (HTS) among key populations using linkage facilitators

M. Irene, N. Hellen, K. Carol, K. Francis
IntraHealth International, Programs, Kampala, Uganda

Background: Addressing the second 90, in the 90:90:90 global agenda is becoming a key challenge due to poor adherence and loss to follow up, using health facility linkage facilitators who are Key populations peers already in care to bring the gap of HTS among key population community as helped increase adherence and treatment compliance in Eastern Uganda. This approach was adopted after the move by the ministry to roll out test and treat strategy where by any patient who tests positive is immediately enrolled in care Improving performance in linking HIV Positives to Care as part of the second 90**.** Overall, 55% of the HIV positive clients identified in FY 2017 were linked to care.

Description: RHITES-E worked to improve performance on this indicator by enlisting a key population peer leader per health facility as a linkages person for fellow key populations who test positive this resulted in 88.8% initiation to care under the new test and treat strategy. RHITES-E provided educational materials, condoms, moon light testing to KPs at identified bars as a way to address the first 90 in, brothels and known hot spots targeting female sex workers (FSW), Men who Sex with Men (MSM) and People who inject drugs (PWID) in Mbale and Tororo districts.

Lessons learned: The performance of RHITES-E in getting HIV+ individuals into ART is significantly stronger in its work with Key Populations, with 81.3% of all HIV positive KP initiated on ARVs.

RHITES improved linkage to care to 60% in this reporting period. This high linkage percentage can be attributed to the role played by peers as linkage facilitators from community to facilities.

Conclusions/Next steps: This practice, coupled with a team of four health workers per facility as contact persons for key populations was found to boost key population facility attendance and continuity of services, a practice that will be scaled up in other hot spots.

WEPED525

Breaking the silence for learners with disabilities

J. Hanass-Hancock
South African Medical Research Council, HIV-Prevention Research Unit, Durban, South Africa

Background: Adolescents and youth with disabilities in South Africa lack access to comprehensive sexuality education, which increases their vulnerability to HIV and other sexual reproductive health issues. This is exacerbated for learners with intellectual disabilities whose educators often lack skills and tools to accommodate these learners in sexuality education lessons and who may hold negative believes about these learners sexuality. In response, the Breaking the Silence approach, a curriculum implementation and disability-accommodating approach, was developed, piloted and formatively evaluated in KwaZulu-Natal, South Africa.

Methods: We conducted a formative evaluation of the approach with educators of learners with intellectual and learning disabilities from eight special schools. Using in-depth interviews we describe the educators' understanding and experiences of using this approach and what contextual factor provided barriers or enablers for implementation. The analysis used conventional content analysis and NVIVO software.

Results: Educators still conceptualized sexuality education within a risk-protection discourse but began to break through towards a rights-based approach. They revealed that the training and tools enabled them to provide sexuality education in accessible formats, tackle difficult topics such as sexual orientation and masturbation, and improved awareness and assertiveness within their learners. Educators began to address cultural taboos related to talking about sexuality and disability. The findings revealed that contextual factors impacted the degree of implementation. These factors were related to perceptions of socio-cultural norms, interpersonal engagement with peers and management, the structural environment of school settings, and the wider community setting. In particular negative attitudes of untrained staff and cultural taboos were

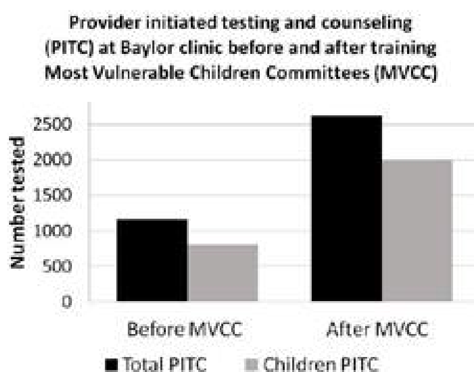
experienced as major barrier. The heightened risk of sexual violence against these learners was an additional challenge in their work.
Conclusions: Through its application within the South African mainstream Life Orientation curriculum, this approach lends itself for further development and testing through implementing the approach within a whole school setting and ongoing support that will not only drive change in educators' skills and knowledge but also drive the needed shift in cultural norms and values. The further development also needs to respond to the socio-cultural context in which educators have to implement comprehensive sexuality education.

WEPED526

Vulnerable children committees pave the way towards achieving first UNAIDS 90-90-90 for pediatrics in Tanzania

R. Mushi[1], T. Roche[1], M. Mgawe[1], A. Salum[1], F. Swai[1,2], S. Makungu[1], J. Cataldi[1,3], J. Gwimile[1], M. Minde[1,3], L. Mwita[1,3]
[1]Baylor College of Medicine Children's Foundation-Tanzania, Mwanza, Tanzania, United Republic of, [2]Bugando Medical Centre, Mwanza, Tanzania, United Republic of, [3]Baylor College of Medicine International Pediatric AIDS Initiative at Texas Children's Hospital, Houston, United States

Background: Despite the outstanding progress towards an AIDS-free generation, Tanzania faces challenges in meeting the UNAIDS 90-90-90 targets for pediatrics. These challenges include identifying HIV positive children and linkage to care and treatment. Only 67% of the estimated 91,000 children living with HIV in Tanzania have been identified. Baylor Tanzania conducted a community-based educational program with the Most Vulnerable Children Committees (MVCCs) in our catchment area.
Description: Beginning November 2016, we identified, trained, and supported members from the MVCC along with district, ward, and village community leaders. MVCC members were trained to educate and sensitize families and caregivers of orphans and vulnerable children (OVC) for HIV testing, care and treatment services. MVCC received monthly ongoing support and feedback. A retrospective review of provider-initiated testing and counseling (PITC) monthly clinic reports was performed.
Lessons learned: During the six months preceding MVCC training, the 1163 clients received PITC services at Baylor: 70% (810/1163) clients were children and 1% (9) were referred by MVCC members. Of the total clients tested, 10% (119) were HIV positive, including 6% (47/810) of children. During the six months after the MVCC initiative began, 2618 clients received PITC services: 77% (2004) were children and 69% (1805) were referred by MVCC members. Of clients tested during the post-training period, 5% (136) were positive including 3% (62/1805) of children tested. 46% (62/136) of all newly identified HIV positive clients were children and all were linked to care and treatment services.
Conclusions/Next steps: MVCC sensitization efforts substantially increased the number of children and family members knowing their HIV status and were successful at identifying HIV positive children and linking them to care. Targeting priority groups using community members may contribute in closing the gap needed to achieve "the first 90" for pediatrics.



[Number of clients tested for HIV at Baylor clinic before and after MVCC training]

WEPED527

The economic empowerment of women vulnerable to HIV: Experience from Kyrgyzstan

E. Zhirnova
AFEW Kyrgyzstan, Project Management, Bishkek, Kyrgyzstan

Background: Traditional interventions for marginalized women, including women living with HIV in Kyrgyzstan, usually focus on providing crisis interventions. However, this ignores other aspects of women's lives, especially high levels of poverty and stigmatisation. The project "*Our choice: economic empowerment of vulnerable women in Kyrgyzstan*" set the goal to enhance the social and economic capabilities of vulnerable women in Kyrgyzstan (single mothers, sex workers, women living with HIV, partners of drug users, former prisoners, mothers of children living with HIV).
To achieve the goal the following comprehensive approach is being offered to vulnerable women during the project framework (August 2017-January 2020).
Description: The initial intervention is client management to help women in solving a wide range of social, medical and legal problems. The client managers also encourage women to participate in first stage training on personal development in order to increase women's self-esteem and internal strength. The next intervention is second stage training about economic independence which aims to mobilize the resources of each participant and design a business plan. The most interesting and feasible business plans are awarded with micro-grants.
By December 2017, 172 women were reached by the client management program through outreach and referrals from partner organizations. 79 started changing their lives through participation in the trainings on personal development. 46 women attended the economic independence sessions. 19 women demonstrated legible financial goals and started implementing their business plans with the support of the Project.
Lessons learned: Making positive changes in people's lives is impossible without integrated support which includes economic empowerment and personal development. Questionnaires confirmed that 89% of the project participants had an increased sense of internal strength and motivation to resist stigma. 100% of second stage training participants announced that they became stronger in financial computations. All grantees increased their income by at least 15 %.
Conclusions/Next steps: The project's approach is broader than resolving client's critical situation. Using consecutive steps of complex program we intend to change women's life perception, focusing on economic empowerment, and improve their quality of life.

WEPED528

Turning the tide, breaking the barriers to access, adherence and retention to antiretroviral therapy and prevention of mother to child transmission of HIV among adolescents in Kenya

M. Murenga
Lean on Me Foundation, Nairobi, Kenya

Background: The shift to combination therapies for treating people living with HIV has increased adherence and improved health outcomes. However, HIV morbidity and mortality among adolescents is still on the rise. We set to identify barriers associated with adherence to antiretroviral therapy (ART) among adolescents and find sustainable solutions to improving health outcomes for them.
Description: The program engaged 250 adolescents (ages 15 - 24 years) living with HIV who had been on antiretroviral therapy for over 1 year with high viral loads. We had 100 males and 150 females of which 72 needed Prevention of Mother to Child Transmission (PMTCT) services, 11 had HIV/TB co-infection. We employed both qualitative data collection methods in form of individual and focus group discussions to identify barriers to adherence. The quantitative involved using hospital records to assess the impact of adherence on viral load and clinical outcomes.
Lessons learned: Factors that influence adherence were identified as:
(1) Individual factors such as stigma, discrimination, disclosure, fatigue, pill burden, poverty and treatment literacy.

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(2) Medication regimen such as dosing, side effects and food requirements.
(3) Relationship with health care providers.
(4) The system of care such as short waiting time.
We conducted treatment literacy and adherence counselling; held group therapies for peer learning and sharing; had dialogue sessions with health care providers to improve relationships; supported in reduction of self-stigma; supported disclosure; aided provision of differentiated care and provided nutritional support to those who had TB/HIV co-infection. After 24 months, out of 250 adolescents who were active on antiretroviral therapy, 94% (*N* = 235) achieved viral suppression, 100% (*N* = 72) who were on PMTCT had HIV free babies and 82% (*N* = 9) who had TB co-infection completed their treatment got cured of TB. We had 0.8% (N=2) Mortality.
Conclusions/Next steps: Turning the tide against AIDS is possible but will require more concentrated focus on adolescents and young people. It is critical to understand the epidemic among the adolescents. We need to put deliberate efforts to improve treatment literacy and address stigma, gender-based violence and other human rights related barriers to access to HIV services.

WEPED529

Accessing healthcare services and supports in remote communities: The stories of 29 First Nations people living with HIV in Ontario, Canada

S. Hillier[1], L. Lavallée[2]
[1]*Ryerson University, Policy Studies, Toronto, Canada,* [2]*University of Manitoba, Office of Indigenous Engagement, Winnipeg, Canada*

Background: In 2014-2015 Indigenous peoples represented 17.5% of all HIV infections in Canada, yet account for only 3.2% of the population. In 2008 in Ontario (ON), Indigenous people accounted for an estimated 3.2% of people living with HIV, while comprising 2.4% of the population. From 2009 to 2011, 2.7% of new HIV diagnoses in ON were Indigenous people, of whom 7.2% were women. One in three Indigenous people is infected through the use of drugs. This research study sought to assess the efficacy of funding and services for HIV/AIDS services within ON First Nations (FN) communities. This research will improve understanding of services available to people and communities affected by the HIV/AIDS epidemic.
Methods: ON FN people who were at least 16 years of age and living with HIV/AIDS (n=29) participated (demographics are outlined in Table 1). Using the Indigenous based method of storytelling, participants were asked five open-ended questions related to their use of and access to healthcare services. Stories were transcribed and analyzed using Nvivo. Grounded theory formed the basis of analysis which brought forward common themes from each story. Transcriptions form the bases of re-written first-person stories, detailing the life and experiences of the participants and their experiences of living with HIV/AIDS and accessing care.

Table 1	Gender Identity		
	Female	Male	2-Spirited
Demographics			
Age (High)	65	63	60
Age (Average)	50	45	51
Age (Low)	41	31	43
Avg. Monthly Net Income (CAD)	$1,329	$1,214	$1,942
Sexual Orientation			
Straight	11	11	-
2-Spirited	1	2	2
Gay	-	-	1
Not Straight	-	-	1
Total	12	13	4

[Table 1]

Results: In northern communities, all participants experienced issues with access to care and supports. Participants were forced to leave their northern communities, either permanently or temporally, due to limited access to care. HIV related stigma played a role in access to prevention, testing, and care. All participants indicated difficulties with HIV education either in understanding their own HIV status or in the lack of education within the broader community. Historical traumas (residential schooling & the 60s scoop) and discrimination were a central theme to many stories, impacting the lives of participants and their overall health outcomes.
Conclusions: Greater access to community based, holistic care in northern FN communities is urgently required. There is pressing need for culturally competent and relevant HIV prevention measures and education within communities to reduce stigmatization and improve access to prevention and care services.

WEPED530

Moving ART services behind bars: A differentiated service delivery model for ART services results in high viral load suppression among inmates in correctional facilities in Zambia

K. Mwanda[1], M. Chikuba Mcleod[2], D. Phiri[3], E. Mwila[4], K. Chibesakunda[5], D. Chikondi[6], M. Banda[3], L. Kawanga[7], J. Jose[7]
[1]*JSI/USAID DISCOVER-Health Project, HIV/AIDS Clinical Services, Lusaka, Zambia,* [2]*JSI/USAID DISCOVER-Health Project, Lusaka, Zambia,* [3]*JSI/USAID DISCOVER-Health, Kabwe, Zambia,* [4]*JSI/USAID DISCOVER-Health, Lusaka, Zambia,* [5]*JSI/USAID DISCOVER-Health, Kitwe, Zambia,* [6]*JSI/USAID DISCOVER-Health, Solwezi, Zambia,* [7]*JSI/USAID DISCOVER-Health, Ndola, Zambia*

Background: HIV prevalence among prison inmates in Zambia is twice as high as that in the non-incarcerated population, 27% compared to 13.3%. Correctional facilities are overcrowded and the warden to prisoner ratio is often low, resulting in challenges in escorting HIV positive inmates to health facilities for ART and related care. USAID DISCOVER-Health project applied a differentiated service delivery (DSD) model for the provision of ART, care and adherence support to prisoners. The objective was to eliminate key barriers to comprehensive HIV treatment/care in correctional facilities and improve treatment outcomes.
Description: Working together with the Zambia Correctional Services between October, 2016 and December, 2017, the Project established service provision within prison grounds and prison walls at eight correctional facilities. Standard of care in these prisons was typified by inmates only get to a health facility upon being escorted by a wader or a prisoner enlisted for parole. In contrast, the DSD model addressed the risk of missed clinic appointments and provided comprehensive HIV treatment and care including adherence within easier reach.
Lessons learned: Viral load investigations were conducted in line with national guidelines. 241 (55%) viral load results were received of the 438 submitted. Of these 234 (97.1%) were males and seven (2.9%) were females. 221 (98.2%) were virally suppressed. Of this figure, all the seven females were virally suppressed (100%), while among the males, 214 (98.1%) were suppressed. For the suppressed males, the majority, 178 (83.2%), were initiated in prison while 25 (16.8%) were already on treatment at the time of imprisonment. All the females were initiated on ART in prison. Inmates benefiting from this differentiated model had higher viral load suppression rates (98.2%) compared to the non-incarcerated population (89.2%) (ZAMPHIA, 2016).
Conclusions/Next steps: Eliminating barriers to treatment, care, and adherence support in prison settings can yield better viral suppression rates. The Project's next steps include undertaking an empirical study to scientifically ascertain this correlation. The Project will engage government and other stakeholders to both scale-up this model to other correctional facilities and to implement structural changes that will sustainably support similar innovations in Zambia.

WEPED532

Towards 90-90-90: Examining the knowledge and attitude of prisoners in Nigeria towards HIV/AIDS

A. Ekpenyong[1,2], Y. Adebisi[3], S. Adeyemi[4], B. Ntacyabukura[5]
[1]University of Uyo, Faculty of Pharmacy, Uyo, Nigeria, [2]National Assembly Clinic, Abuja, Nigeria, [3]University of Ibadan, Ibadan, Nigeria, [4]Federal Medical Center, Ondo, Nigeria, [5]University of Rwanda, College of Medicine and Health Sciences, Kigali, Rwanda

Background: Prisoners risk for infections including HIV/AIDS is very high due to their lifestyle. This made it pertinent to understand their knowledge and attitude towards HIV/AIDS which will further contribute to the achievement of the 90-90-90 treatment target in 2020. The aim of our study was to systematically review available evidences on the knowledge and attitude of prisoners towards HIV/AIDS in Nigeria.
Methods: A systematic review of literature on PubMed, Scopus, Web of Science, Embase and Cochrane Library was performed from 2010 to 2017. This search was complemented with conference abstracts and unpublished research reports. The studies were screened for eligibility. 13 studies were carefully chosen: 7 qualitative, 2 quantitative and 4 mixed methods studies. Qualitative content analysis was carried with the resultant data extracted and summarized to highlight prisoner's knowledge and attitude towards HIV/AIDS.
Results: From the systematic review, the knowledge and awareness about HIV/AIDS was identified to be high with the mass media as the main source of information. The knowledge of the 90-90-90 target and antidiscrimination laws protecting people living with HIV/AIDS however was found to be minimal. There were certain misconceptions about HIV/AIDS along with incidences of high risk behaviors among inmates despite the perceived increase in knowledge and awareness about HIV/AIDS. Injection of drugs was also found to be common among the prisoners using unsterilized materials. The common sexual practices identified among the articles reviewed were masturbation and homosexuality, with the latter representing a significant source of HIV in Nigerian prisons. Sociocultural factors and religion were not prominent factors influencing the knowledge of inmates. However, it had a significant effect on their attitude towards HIV/AIDS.
Conclusions: More awareness needs to be carried out to address misconceptions about HIV/AIDS as well as reduce the prevalence of risky behaviors among inmates in Nigerian prisons, a necessary step in achieving target 90-90-90. Furthermore, mass sensitization of the inmates on antidiscrimination laws is essential to prevent incidences of stigmatization and ensure improved treatment outcomes.

WEPED533

Mobilization efforts to ensure an uninterrupted access to treatment, care and support for PLWH in the armed conflict zone at the non-government controlled areas in Ukraine

Y. Strelnikov
CO, Kyiv, Ukraine

Background: Abstract focuses on mobilization efforts to ensure an uninterrupted access to treatment, care and support for PLWH in the armed conflict zone.
Description: Since the beginning of the armed conflict in Ukraine Charitable Organization "Variant" has been providing an interrupted access for treatment, care and support for people with HIV infection. In 2014, there was a threat of interruption of treatment of 6,500 HIV positive people due to inability to supply the antiretroviral medications from the Ukraine government to non-government controlled areas in Ukraine. Using the status of a non-governmental organization, CO 'Variant" managed to mobilize efforts of local medical facilities and HIV-service organizations to ensure human rights and access to treatment for people with HIV infection, including convicts.
Lessons learned:
· Since the beginning of the armed conflict, the organization has been working in 13 prisons (providing services for secondary HIV prevention for more than 5,000 convicts);
· 600 HIV positive convicts and 1,500 people living with HIV in Donetsk and neighboring towns are under social support program;
· In 2016 the primary HIV prevention program has been renewed (now 8,000 adolescents are under this program);
· CO "Variant" serves as a subject matter expert and an accredited partner for Humanitarian Missions at the non-government controlled areas in Ukraine.
Conclusions/Next steps: Practical experience of CO "Variant" can be considered as the best practices in HIV/AIDS advocacy, community mobilization, harm reduction and protection of PLWH's rights at the armed conflict zones. And we will be proud to share our experience with others to work to end the HIV epidemic all over the world.

WEPED534

Mental health resilience for young children whose parents have died

L. Sherr[1], A. Macedo[1], M. Tomlinson[2], S. Skeen[2], K. Roberts[3]
[1]UCL, Global Health, London, United Kingdom, [2]Stellenbosch University, Stellenbosch, South Africa, [3]UCL, London, United Kingdom

Background: Parental loss is a major stressful event that has been found to increase risk of mental health problems in childhood. Option B+ and ARV treatment will dramatically affect parental survival, but the legacy of AIDS parental deaths still remain. Yet, some children show resilient adaptation in the face of adversity across time. Studies focus on the negative implications, but we explore predictors of mental health resilience among parentally bereaved children, and their cumulative effect.
Methods: Consecutive child attenders (aged 4-13) of HIV community services randomly selected in South Africa and Malawi were interviewed at baseline and 15-18 month follow up (N=833 - 0.7% refusal rate;; 84% follow up). Interviews comprised study specific and standardised inventories on demographic information, child and family data, child mental health, bereavement experience and community characteristics. Resilience was the absence of symptoms of depression, suicidality, trauma, and emotional and/or behavioural problems at baseline and followup.
Results: 490 (58.8%) had lost one or both parents (182 paternal orphans, 84 maternal orphans, 224 double orphans). One quarter of orphaned children, 70 girls, 54 boys, showed no mental health problems at either wave and were classified as resilient. Resilience status did not differ by age (OR=1.03, 95% CI= 0.95, 1.11) or gender (female: OR=1.20, 95% CI=0.80,1.91).8 significant predictors were identified. Being a quick learner, having a role in helping ill family members, positive caregiving, living in a home where someone was employed, higher community support, and lower exposure to domestic violence, harsh physical punishment, or stigma at baseline predicted sustained resilience. There were cumulative influences of predictors of resilience. For those experiencing one of the predictors, resilience rates were 11.1% climbing to 42.3% with 7 predictors. OR=1.42, 95% CI=1.21, 1.66, p< .001). Only 4 children experienced all 8 protective factors.
Conclusions: This study enhances understanding of resilience in younger children in the wake of parental death. Attention should be given to both positive and negative mental health. The longitudinal study identifies a number of potential environmental and psychosocial factors for bolstering resilience in orphaned children. These should be incorporated into the AIDS response.

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WEPED535

Increasing TB case detection and treatment among street children in the slums of Kampala District; the case of Kamwokya Christian Caring Community (KCCC)

N. Seruma[1], A. Namugwere[2], KCCC Study Group
[1]Kamwokya Christian Caring Community, Monitoring and Evaluation, Kampala, Uganda, [2]Kamwokya Christian Caring Community, TB Section, Kampala, Uganda

Background: Despite concerted efforts to curb TB in the slums of Kampala district, KCCC realized that there was no intervention to increase TB case detection and treatment among Street Children in Kampala district and TB still remained a public health burden among street children. The Stigma and social economic status of street children makes it difficult for them to access treatment from public clinics and information on TB. In 2015 KCCC launched a 3 year project aimed at strengthening TB/HIV Prevention and care among street and other vulnerable children in Kampala district.
Description: 144 Community Health Works were trained to map dwelling places for street children, Weekly community outreach clinics were launched to screen children on the streets, Sputum samples for children aged 0-17 years were examined using Microscopy or Genexpert, Clinical Diagnosis, X-Ray tests were done for children whose sputum results tested negative but had signs of TB. Nurses and Community Health Workers visited children on treatment on a daily basis to collect adherence data. Nutritional support was given to Street Children on TB treatment so as to adhere to medication. Those Co-Infected with HIV were initiated on ARVS.
Lessons learned: Between 2015 and 2016, 1532 street/vulnerable children were tested for TB using microscopy, Genexpert, X-ray and clinical diagnosis. 26 had TB (5 females and 21 males) This year 160 children tested for TB and 9 tested positive; An overall 35 children since 2015 have been diagnosed with TB and of those, 5 were co-infected with HIV/AIDS and initiated on ART. 2 children were pregnant and also co-infected with HIV/AIDS. All street children diagnosed with TB have registered 100% adherence to TB medication.
Conclusions/Next steps: TB detection in children requires a combination of diagnosis methods such as Genexpert, Clinical diagnosis, microscopy and x-Ray, because using one method is difficult to detect TB in children.

WEPED536

Closing the gaps: Addressing sexual and reproductive health needs of young persons with disabilities (PWDs) using school based minimum prevention package intervention (MPPI) strategy

R. Ajayi[1,2], B. Osuolale[3], A. Ajumobi[4]
[1]PEDOFAT, Community Mobilization and Program Planning, Ado - Ekiti, Nigeria, [2]Ekiti State AIDS Control Agency, Community Mobilization and Program Planning, Ado - Ekiti, Nigeria, [3]Irewolu Women Society, Community Mobilization and Program Planning, Ado - Ekiti, Nigeria, [4]Ekiti State AIDS Control Agency, Monitoring and Evaluation, Ado - Ekiti, Nigeria

Background: Young person with disabilities are found to be more vulnerable to HIV compared to those without disabilities and yet they face several challenges in accessing HIV services due to many factors such as stigma from their host community and health care providers, transport challenges,long queue, requirement for escort, facility infrastructure not being physically accessible and lack of skills and sensitivity on the part of Care providers.
The HAF project (funded by the World Bank) in Ekiti State Nigeria designed a two years disability-inclusive HIV/RH programme to address sexuality and health needs of PWDs.
Description: Three special government schools for PWDs, one urban and two rural were selected as project sites. A cohort of health Care providers comprising of Government health facility, civil society, private sector organizations and the host schools were constituted under the supervision of three (3) local programme officers on HIV/RH services. PWDs in the four categories (blind, deaf, physically challenged and intellectually impaired) were profiled to explore their sexual vulnerability using psychosocial, health, legal and education indices. HIV/SRH facilities were mapped and designated. Specially PWDs tailored tools and materials such as braille, pictorial, audio- aids, sign language manual, PEP model were developed to deliver a comprehensive MPPI program among PWDs. The result of the intervention was collated, analyzed and documented using District Health Information Service (DHIS) and implementation completion report(ICR).
Lessons learned: The result showed a varied sexual and reproductive health requirement of young persons with disabilities as the project outcome revealed that 45% of PWD access condom services, 25% HIV Testing and Counselling, 3% STI services, 0.5% family planning services,1% TB services,86% health education, 25% educational support, 15% nutritional support services, 76% psychosocial support services and 5% legal protection.
1157 individuals representing 89% of the host community were enrolled and assessed HIV/RH services within the two years project,increase in health seeking behaviour among PWD rose from 12% to 68%.
Conclusions/Next steps: Provision of disability inclusive HIV/RH services for PWDs is key in meeting their sexuality and reproductive needs where it also addresses PWDs vulnerability challenges to accessing services like other person without disabilities. More still need to be done in overcoming communication barriers to reach a large segment of PWDs.

WEPED537

Utilization of PHC services of rural Migrant communities in South Africa

J.A. Kruger[1,2], B. van Wyk[2], C. Zarowsky[2]
[1]Western Cape Government, Health, Cape Town, South Africa, [2]University of the Western Cape, School of Public Health, Cape Town, South Africa

Background: Large scale labour migration is central to the regional economy of southern Africa. With millions of people already on HAART and with a growing burden of chronic disease, health systems based on models of stable catchment area populations are increasingly unable to respond to the real health needs and social realities of the people they serve both migrant and sedentary. 11,000 migrant workers from Zimbabwe, Lesotho, Malawi and other provinces in South Africa come to the fruit growing areas of Cape Winelands District between September and March each year, increasingly including families with young children. Farmworkers often travel between many locations as different crops mature hence risk suboptimal continuity of care and poor health outcomes for both migrants and the community where they reside. The children are also at high risk of neglect, malnutrition and diarrhoea.
Methods: A cross-sectional, quantitative survey of 807 households in De Doorns were administered to 807 migrant workers (334 = male; 473 = female; mean age = 35 years) by trained research assistants. Descriptive analysis was conducted to describe utilization of health care services.
Results: Both women (89%) and men (74%) reported high utilization of public primary health care services. TB (21 %) and HIV (18%) health services were mostly accessed by male migrants; while females mostly accessed health services for Maternal and Child Health (MCH) 37% ((pregnancy (17%), child care (20%)), and HIV (16%). Services for non-communicable diseases (NCDs) were less utilized at 8% and 7% for diabetes and 12% and 26% for Hypertension amongst men and women, respectively, which indicate undetected and/or uncontrolled chronic conditions.
Conclusions: High utilisation of public health services for HIV/TB and maternal and child health indicates high trust in public health care services, and holds promise for realizing universal health coverage. HIV/TB and MCH services should be used as access points to reach migrant populations with chronic care services such as undiagnosed diabetes and hypertension and other NCDs.

WEPED538

Suicidal feelings and attempts among HIV/AIDS-positive sub-Saharan African Migrant women in Belgium: A qualitative study

A. Arrey[1], J. Bilsen[1], P. Lacor[2], R. Deschepper[1]
[1]Vrije Universiteit Brussel, Mental Health and Wellbeing Research Group, Public Health, Brussels, Belgium, [2]Universitair Ziekenhuis Brussel, Internal Medicine and Infectious Diseases, AIDS Reference Center, Brussels, Belgium

Background: Globally, suicide remains a major public health problem and should be given high priority especially in chronic illness management. In Belgium about seven cases of successful suicides are reported daily. Suicidal feelings are not uncommon among people with diverse psychosocial issues or diagnosed with chronic and incurable diseases like cancer, mental health issues and HIV. There is dearth of research on suicidal ideation and attempts among Africans with HIV/AIDS. This paper examines suicidal feelings and attempts among HIV-infected sub-Saharan African (SSA) migrant women in Belgium.
Methods: We conducted a qualitative research between April 2013 and December 2014 in Belgium consisting of semi-structured interviews and observations. Participants were recruited through purposive and snowball sampling techniques if from SSA, females, >18 years, diagnosed HIV-positive for more than 3 months, receiving treatment and care in Belgium. Thematic analysis was used to analyze study data. To enhance the validity of this qualitative research, different data collection methods were used: interviews, observations and document analysis to increased credibility. Ethical approval was obtained from the Ethics Committee of the Universitair Ziekenhuis Brussel and the Internal Review Board of the Institute of Tropical Medicine, Antwerp, Belgium.
Results: 44 women were interviewed. 25 of the 44 reported having seriously contemplated or attempted suicide because of shame, guilt, blame, depression, stigma, discrimination, fear and uncertainty since diagnosed HIV positive. Many of those who reported suicidal feelings/attempts did not indicate seeking any type of mental health services. Participants also indicated intermittent periods of depression and anxiety. A relationship between suicidal ideation and awareness of successful suicide of others was found among participants. No timeline for suicidal thoughts was mentioned by participants.
Conclusions: Our findings highlight the ubiquity of suicidal ideation/attempts among HIV-infected SSA migrant women in Belgium. Understanding the relationship between the outcomes of stigma/discrimination and suicidal ideation may contribute to a holistic care of HIV-infected women. Assertive interventions to reduce suicidal feelings/attempts among SSA migrant women and other people living with chronic illnesses early in their disease trajectory should be redesigned. Future research is needed to investigate the increasingly aging HIV population at risk of neuropsychiatric diseases and other co-morbidities.

WEPED539

Innovative model HIV, recidivism and risk behavior prevention among adolescents in conflict with the law in the context of juvenile justice reform in Ukraine

H. Skipalska[1], T. Castillo[2], M. Snitko[3], N. Pustilnik[1]
[1]Ukrainian Foundation for Public Health, Kyiv, Ukraine, [2]HealthRight International, New York, United States, [3]HealthRight International, Kyiv, Ukraine

Background: In 2017, there were 1164 adolescents on probation and 260 adolescents in closed settings in Ukraine. Juveniles in conflict with the law commonly face higher risks of HIV because of low access to information, social circles with high prevalence of HIV and drug use, risks of re-offence and incarceration in adult prisons. The juvenile justice reform shifted focus from incarceration to suspended sentences for minor offenders creating an opportunity for NGOs and probation services work together with adolescents in the community.
Description: Our HIV and recidivism prevention model is focused on adolescents on probation or in juvenile prisons. NGOs collaborate with probation services providing high-quality case management support, HIV/HCV testing and counseling, and innovative behavior change programs. The model is built into the existing penitentiary system delivering training on non-discriminatory approaches for juvenile justice professionals. The collaboration between NGOs and prison officers is an effective referral system in supporting resocialization and reducing risk behavior. Probation officers provide official supervision of the case and refer clients to NGOs who are responsible for comprehensive case management support.
Lessons learned: Combining HIV and recidivism prevention activities for adolescents in conflict with the law has been an effective mechanism for prevention of HIV transmission. Behavior change programs are specifically designed to meet adolescents' needs, address main causes of re-offence (i.e. substance use, aggressive behavior) and incorporate HIV education. HIV counselling and testing should be combined with other approaches, such as case management, behavior change programs and working with families. The analysis of 116 queues filled by participants of an HIV prevention program showed the increase in HIV- and health-related knowledge by 32.2%. Implementation of complementary program for parents reduces risks by influencing the social environment of a person. Finally, case management approach improves the quality of services and reduces recidivism risks.
Conclusions/Next steps: The introduction of HIV and recidivism prevention activities in probation services showed positive results in reducing risky behaviors among adolescents serving their sentences in the community. It is an effective strategy for HIV prevention using a comprehensive approach to address health risks and recidivism. We are adapting this model to reach soon-to-be released female prisoners.

WEPED540

Call to action: Why a disability sensitive SRH policy is needed in Lagos State

O. Akanni[1], A. Adebayo[2], E. Okotie[2], F. Fijabi[1], D. Ayinla[1], Journalists Against ADS(JAAIDS) Nigeria and Nigeria Association of the Blind (NAB)
[1]Journalists Against AIDS (JAAIDS), Lagos, Nigeria, [2]Nigeria Association of the Blind (NAB), Lagos, Nigeria

Background: Lagos State is arguably the most populated state in Nigeria with an estimated population of nearly twenty million. About three million of the populations in Lagos State are persons with disabilities (PWDS), who are mostly neglected, excluded and unable to access basic services including health. Research has shown that the marginalization and exclusion of PWDS from basic health services results from three broad factors namely low awareness, poor capacity and the inadequacy or absence of appropriate legal and policy frameworks.
Description: Journalists Against AIDS [JAAIDS) Nigeria in collaboration with the Nigeria Association of the Blind (NAB) with support from the AMPLIFY CHANGE is working on a project titled *Voices for Change: Promoting increased uptake of SRH services among People with Disabilities (PWDs) in Lagos State.* The project, involves a research to assess current legal provisions and practices in order to build an evidence base and includes media monitoring, focused group discussions with PWDs, key informant interviews (KII) with health care workers and a desk review of HIV/SRH policies.
Lessons learned: Outcomes of the research revealed t that Lagos state currently has no specific policy on sexual and reproductive health; although, the state implements a number of SRH programmes none of which are disability-inclusive. While existing health sector legal and policy frameworks in the state make barely minimal provisions which promote access of PWDs to health services, there are significant limitations in these health laws and policies which largely inhibit the uptake of HIV/SRH and other health services by PWDs. There is also limited knowledge on the part of the PWDs about HIV/SRH issues and a dearth of information, education and communication (IEC) materials in accessible formats. Limiting societal and behavioural attitudes also impact on the SRH rights of PWDs..
Conclusions/Next steps: Beyond facilitating PWDs participation in the state health budget consultations, efforts are ongoing under the project to strengthen collaboration between the State Ministry of Health, PWDs Organisations and Civil Society Organisations in order to intensify awareness raising, capacity building of PWDS and promotion of disability sensitive policies that will promote and protect the SRH rights of PWDs.

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Multidisciplinary approach to TB Control in Uzbekistan

N. Parpieva[1], S. Tashkhodjaeva[2], E. Mun[2], E. Suleymanova[2], M. Volik[3]
[1]Republican Specialized Scientific - Practical Medical Center of Tuberculosis and Pulmonology, Tashkent, Uzbekistan, [2]USAID TB Control Program in Uzbekistan, Tashkent, Uzbekistan, [3]USAID TB Control Program in Central Asia, Tashkent, Uzbekistan

Background: Uzbekistan is among 18 TB high-priority countries in the Eurasian Region and one of the 30 high MDR-TB burden countries in the world. Labor migrants, people living with HIV, and ex-prisoners are the most affected populations with TB. The USAID TB Control Program together with the National TB Program (NTP) has been pioneering a multidisciplinary approach to ensure their equitable access to TB services. To reach these key populations, the Program helped the NTP to establish four multidisciplinary teams (MDT) in pilot areas. The MDT includes coordinator, TB doctor, Infection Disease specialist, psychologist, nurse, and five outreach workers. The MDTs link TB health providers and local communities to provide the program clients with TB diagnosis, treatment, and psychosocial support.
Description: Clients who are supposed to undergo TB screening are referred for further examination and diagnosis. The clients diagnosed with TB are enrolled in TB case management and receive peer-to-peer and psychosocial support until they complete TB treatment.The Program introduced the MDT and outreach in TB care in 2015. Each adult, belonging to the key populations who have not received proper TB services, can become a MDT client. To monitor client responses to referrals, prevent double counting, and prevent disclosure of personal information, the Program uses unique identifier codes. On average, outreach worker communicates monthly with 35-40 clients including TB/HIV educational sessions, personal risk assessments, and referrals to TB testing.
Lessons learned: Within the period of June 2015 to March 2017, the MDTs have reached out to 21,400 individuals with more than 45,000 peer educational mini-sessions related to TB and HIV. About 14,500 individuals were referred to TB services, and 87% (12,500) of the referred clients were tested for TB. 110 TB cases were detected. 105 started TB treatment.
Conclusions/Next steps: The MDT approach along with peer-to-peer outreach is an effective way to deliver TB health care services among vulnerable populations that helps to increase TB detection and improve TB treatment adherence in Uzbekistan.
Using MDT improves awareness of TB and HIV, coverage of the target population, referral to TB services; and supports TB patient treatment adherence through the TB case management program.

WEPED542

Understanding perceived internalized stigma among pregnant HIV positive women in rural Mpumalanga province, South Africa

S. Ramlagan[1,2], S. Sifunda[1,2], K. Peltzer[1,3], J. Jean[4], R.A.C. Ruiter[2]
[1]Human Sciences Research Council, HIV/AIDS, STI and TB (HAST), Pretoria, South Africa, [2]Maastricht University, Department of Work & Social Psychology, Maastricht, Netherlands, [3]University of Limpopo, Department of Research and Innovation, Sovenga, South Africa, [4]University of Miami, Miller School of Medicine, Miami, United States

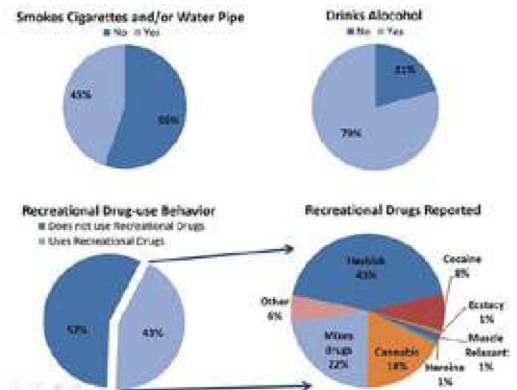
Background: Given the varied and profound ways in which HIV-related stigma, particularly internalized stigma, affects the lives of PLHIV and their ability to access and maintain HIV-related, care it becomes imperative to understand how that affects pregnant HIV positive women as they navigate through the added layers of negotiating their socially constructed roles of womanhood and motherhood. The goal of this study was to assess the correlates of HIV-related internalized stigma among HIV positive pregnant women in rural Mpumalanga province, South Africa.
Methods: A total of 673 HIV positive women, less than 6-months pregnant were recruited from 12 community health centres in rural Mpumalanga province. The Berger et al. (2001) 40 item internalised stigma scale (= 0.96) was utilized along with demographic, and HIV related variables. Factor analysis was performed using SPSS 24.0 to produce four factors, namely personalised stigma (17 items), concerns with public attitudes about people with HIV (7 items), disclosure concerns (6 items), and negative self-image (10 items). Cronbach's Alpha for each of the four subscales was between = 0.79 to = 0.94. Bivariate and multivariate analysis was carried out to predict associations that would lead to the likelihood of participants experiencing internalised stigma.
Results: The mean age of the 673 HIV positive pregnant participants were 28 years old (SD=5.73). The multivariate model on personalized stigma found associations with not completing schooling i.e. Grade 11 or less, income of less than R310, those who experience IPV, and those that have no male involvement in their current pregnancy. With the components of public attitude and disclosure concerns stigma, significance was found with those who receive a monthly household income of less than R310 and those that have no male involvement. Those who have no male involvement were more likely to experience negative self-image.
Conclusions: This study revealed the ways in which higher levels of education, income and partner involvement (outside of the context of IPV) serve as protective factors against internalized stigma, at multiple layers.

WEPED543

Sexual health, condom-use agency and substance-use behavior among 1222 sexually active unmarried women in Lebanon

S. Abu Zaki[1], J. Naous[1], A. Ghanem[1,2], D. Abou Abbas[1], N. Kinge[1], R. Aaraj[1], R. Majed[1], S. Mandour[1], R. Tomb[2], A. Assi[1,2]
[1]Marsa Sexual Health Center, Beirut, Lebanon, [2]Faculty of Medicine, University of Saint-Joseph, Beirut, Lebanon

Background: Women residing in Lebanon, who are unmarried, are reluctant to seek sexual health services for fear of being stigmatized (Jimenez 2013). It was shown that stigma increases women's vulnerability to sexually transmitted infections (STIs), risky sexual practices and substance-use (Poteat 2015). There are no studies on rates of STIs and common sexual practices among unmarried women in Lebanon and MENA region. The aim was to assess rates of STIs and risky behaviors including substance-use among women in Lebanon.
Methods: An anonymous questionnaire was administered by trained sexual health educators to 1222 sexually active unmarried women who presented consecutively to a sexual health clinic in Lebanon between 2015 and 2017. Collected sexual health indicators were: demographics, substance-use, sexual practices and risky exposures. STI status was collected through rapid testing and/or medical consultation. Determinants of condom-use and substance-use behaviors were assessed using regression models.
Results: Majority of the sample (95%) were women having sex with men. There were no cases of HIV, Syphilis, HBV or HCV. Symptoms indicative of HPV were in 15.6% and of Gonorrhea/Chlamydia in 10%. The majority (79%) reported inconsistent condom-use for various reasons among them: 26% were attributed to lack of agency (she was coerced, nervous or uninformed), and 11% were due to being under the influence of a substance. Only 24% reported receiving sexual health information from reliable sources and 43% reported using recreational drugs (fig.1).



[Figure 1. Substance use behavior of 1222 woman in Lebanon: cigarette/ water pipe smoking, alcohol consumption, recreational drug use and the reported drugs used]

Recreational drug use behavior was associated with smoking and alcohol consumption (p< 0.001, OR=4 each). Risky condom-use behavior was associated with having more than 5 sexual partners in last 3 months (p=0.04, OR=1.4) and substance-use behavior (p= 0.028, OR=4).

Conclusions: This is the first study in Lebanon and MENA region to assess prevalence of STIs, sexual behaviors and substance-use among unmarried women. HPV was prevalent, showing that a nationwide campaign on methods of prevention and treatment is necessary. Moreover, the results showed that women were not involved in condom-use decisions which makes them more vulnerable to STIs. This study indicates an urgent need of empowering women in Lebanon to become more informed and proactive in decisions concerning their sexual health and wellbeing.

WEPED544

Condom use at first sex protects young women in South Africa from HIV and teenage pregnancy

M. Rampedi[1], S. Magni[1], S. Johnson[1], S. Goldstein[2], V. Nkumanda[1], A. Ismail[3]
[1]Genesis Analytics, Health, Johannesburg, South Africa, [2]Soul City Institute for Justice, Johannesburg, South Africa, [3]Genesis Analytics, Johannesburg, South Africa

Background: Young women in South Africa have persistently high rates of HIV and teenage pregnancy. Understanding what influences this is essential in designing programmes to address this problem. We used data from an existing impact evaluation to explore this.

Methods: 403 women aged 18-26 from Gauteng and KwaZulu-Natal were sampled as a part of a retrospective cohort study which included HIV testing. We measured pregnancy based on women's self-reported pregnancy status. This included women who have been pregnant in their lifetime and those have experienced teenage pregnancy.

Results: 79% (n= 320) of young women had ever had sex. Of these, 16% (n =38) were HIV positive and 42% (n=134) reported having been pregnant. Young women who used a condom at first sex were significantly more likely be HIV negative (AOR 2.50, 90% CI 1.15 - 5.42, p = 0.02). Young women who used a condom the first time they had sex were also less likely to have ever been pregnant (AOR 0.47, 95% CI 0.27 - 0.80, p =0.006) and less likely to have had a teenage pregnancy AOR 0 .34, 95% CI 0.14 - 0.82, p = 0.016).

Conclusions: In this study condom use at first sex seems to protect young women against both HIV infection and early pregnancy. Health programmes need to improve self-efficacy for condom use and assist young women to have the confidence and ability to use condoms. Programmes need to reinforce messaging around condom use at first sex and emphasise the need for consistent condom use in order to reduce HIV and teenage pregnancy in South Africa.

WEPED545

Factors associated with perceived access and utilization of HIV testing services among international students studying in Japanese language schools in Tokyo

P. Shakya[1,2], T. Sawada[2,3], H. Zhang[1], T. Kitajima[1,2]
[1]Kyorin University, Tokyo, Japan, [2]University of Tokyo, Department of Community and Global Health, Tokyo, Japan, [3]Minatomachi Medical Center, Yokohama, Japan

Background: Migrants receive the least healthcare services in society. Japan hosts around 260,000 international students, mostly from Asian developing countries. Among them, language school students have tripled from 2011 to 2017, against the backdrop of labor force shortage in Japan. Most of these students are also engaged as cheap labors and are high risk population with poor access to health services. Several socio-economic and behavioral factors may increase their vulnerability to HIV and also prevent them to access HIV testing services in Japan. However, evidence is scarce in Japan on these issues. We examined the factors associated with perceived access and utilization of HIV testing services among international students in language schools in Tokyo.

Methods: From September to December 2018, we conducted a cross-sectional survey among international students studying in Japanese language schools in Tokyo. We collected data from 769 Chinese, Vietnamese and Nepalese students using self-administered questionnaire. We used multivariable logistic regression models to analyze the data.

Results: Nepalese students were less likely to have better perceived access to HIV testing services in Japan than Chinese students (AOR=0.12, 95% CI 0.01-0.96). Students who had poor perceived access to health worker (AOR=0.47, 95% CI 0.28-0.81) and who did not have knowledge on free and anonymous HIV testing services (AOR=0.18, 95% CI 0.08-0.42) were less likely to have better perceived access to HIV testing services. Student who did not need Japanese language interpreter during visit to health facility were more likely to have better perceived access to HIV testing services (AOR=1.93, 95% CI 1.14-3.25). Students who had not utilized HIV testing services in their home country (AOR=0.09, 95% CI 0.03-0.28) and who did not have knowledge on free and anonymous HIV testing services (AOR=0.06, 95% CI 0.02-0.20) were less likely to utilize HIV testing services in Japan.

Conclusions: Factors associated with perceived access and utilization of HIV testing services among language school students in Tokyo are nationality, need of Japanese language interpreter, perceived access to health worker, and knowledge on free and anonymous HIV testing services. These findings may help to design interventions for improving access to HIV testing services among international students in Japan.

WEPED546

An integrated approach of addressing GBV and HIV for AGYWs. The case of DREAMS project in Malawi

T. Mwandira[1], A. Mwenifumbo[2], P. Mkandawire[3]
[1]PSI Malawi, HIV, Blantyre, Malawi, [2]PSI Malawi, Blantyre, Malawi, [3]PSI Malawi, Lilongwe, Malawi

Background: Half of the 100,000 new HIV infections in Malawi occur among young people (15-24 years).
[1] Early sexual debut coupled with socio-cultural practices involving unprotected sex increase young girls vulnerability to sexually transmitted infections. In Malawi, 65% of girls experience some form of child abuse during their lifetime.
[2] Despite strong evidence highlighting the risks gender based violence (GBV) poses for HIV, specifically for girls, most programs continue to address the two epidemics separately.
[1] Malawi - 2013 UNAIDS modes of HIV Transmission model
[2] Malawi - 2013 Violence against Children and Young Women Ministry of Gender and Children Welfare.

Description: Through the DREAMS initiative, PSI Malawi offer integrated health services including GBV to Adolescent Girls and Young Women (AGYW) in Machinga district. Health services on offer to AGYW's through mobile outreach clinics are STI screening, HIV testing and first-line support to survivors of GBV. Program data was used to understand the effectiveness of integrating GBV and HIV service for AGYW.

Lessons learned: Program data show steady increase in number of GBV cases reported and biomedical services given to survivors of GBV. 90% of the 81 GBV survivors mentioned their sexual partners as perpetrators of the violence. Although most AGYWs experienced different forms of violence, most (82%) only disclosed physical violence. Out of the 81 AGYW survivors of GBV, 4 HIV +cases were identified with most (3 HIV+ cases) among survivors of physical violence compared to survivors of sexual violence (1 HIV+ case). This highlights the need for an integrated effort in addressing all forms of GBV and HIV.

Conclusions/Next steps: An integrated approach of addressing GBV and HIV for AGYWs is a potentially powerful strategy to address the two epidemics considering the risks GBV poses for HIV.

WEPED547

Community-based strategies to ward off new HIV infections among sex workers, substance users, women, and transgender people who live in homeless encampments in the Oakland, San Francisco Bay Area

G. Lockett[1], C. Carey-Grant[2], B. Green-Ajufo[1,3]
[1]California Prostitutes Education Project (CAL-PEP), Oakland, United States, [2]Women Organized to Respond to Life-Threatening Diseases (WORLD), Oakland, United States, [3]University of California San Francisco, Center for AIDS Prevention Studies, Department of Medicine, San Francisco, United States

Background: The growing number of homeless encampments in the Oakland, San Francisco Bay Area, with people living in tents under freeways and bridges, has required California Prostitute Education Project (CAL-PEP) and Women Organized to Respond to Life-Threatening Diseases (WORLD) to develop new, creative outreach and linkage strategies within their existing programs. From 2015 to 2017, the homeless population in Oakland increased by 26%. Members of key HIV populations experience homelessness at higher rates than the general population.
This growing public health crisis is a concern for local AIDS service organizations (ASOs) and their partners committed to helping vulnerable populations most impacted by the epidemic.
Description: CAL-PEP and WORLD are partnering to address the explosion of homelessness among women - inclusive of transwomen - sex workers and drug users at increased risk of HIV infection. Outreach is adapted to take into account the lack of privacy, safety, hygiene products and facilities, as well as water and nutrition affecting homeless populations. Outreach staff consists of peer individuals "buddies" from the same community as the target groups and with similar firsthand experience. Staff distributes prepared meals and hygiene kits along with condoms and harm reduction materials from mobile testing units provided by corporate sponsors. Collaboration with safety net providers, local government, healthcare providers and research institutions supports this expanded work.
Lessons learned: Non-traditional, cross sector collaborations are necessary to address the complex, intersecting needs of homeless communities and communities highly impacted by HIV/AIDS.
Passive recruitment of people into services is no longer adequate. The complex social circumstances associated with being homeless and being at risk for HIV infection require outreach wherever people are at anytime.
Hiring and training people with similar life experience (e.g., peers/buddies) to work alongside service providers is particularly relevant when serving homeless populations.
Conclusions/Next steps: The homeless community is a potential emerging key population for the HIV epidemic. The current, ongoing work of CAL-PEP and WORLD recognizes the importance of addressing this situation head on to ensure that HIV does not become more prevalent in our fluid homeless encampments.

WEPED548

Sexual network-structure and vulnerability of HIV: Observation from Indian village

S. Roy
NIT, Durgapur, Humanities and Social Science, Durgapur, India

Background: This study is trying to explore dynamics,social context and pattern of sexual network between migrant, wives of migrant and adolescent boys (15-19)from the same villages and their use of contraceptives and knowledge of HIV and S/RTI.
Methods: 896 women with migrant husbands, 881 adolescent boys (15 to 19 years old) were surveyed followed by in depth interview of 40 migrant husbands from 12 high migration blocks of 4 districts of two states of India. Multi-stage stratified random sampling was used. Migrant men were purposively selected for this study from the same villages and invited to participate In In-depth Interview. For further and in-depth understanding of the field, particularly to understand local custom, culture, jargons and terminology we had repeated discussion with community workers from same field. Cross sectional mixed methodology was adopted to triangulate information.
Results: More than 70% women of total sample reported that they suspected their husbands extramarital relationship. Even after underreporting, around 10% women reported physical relationship outside marriage, often with the younger guys in the neighbourhood. Out of 896,130 used condoms, only 88 reported that they ever had used condoms with their husbands.66% women of all respondents reported symptoms of RTI or STI, 1.4% knew about two ways of preventing HIV transmission. Significant number of women reported that their husbands have symptoms of S/RTI. Less than 1%knew about HIV. Almost all migrant men reported symptoms of S/RTI.12 out of 40 reported extramarital relation with low to no condom use.50% of adolescent reported physical relation with their partners and significant number reported relation with married women, both of adolescent and migrant men´s group reported low condom use and low level of HIV related knowledge.
Conclusions: The study findings indicate that three groups are connected to each other through sexual network. Study findings reveal low level of condom use in concurrent and serial monogamous relation; coupled with low level of knowledge regarding HIV, R/STI are increasing vulnerability to the whole sexual network and which is reflecting in increasing number in ANC clinic.

WEPED549

Nepalese returnee migrants from India: Are they at risk of HIV?

R. Adhiakri[1], B. Rawal[2], K. Ranju[3]
[1]Mahendra Ratna Campus, Tahachal, Kathmandu, Nepal, [2]National Centre for AIDS and STD Control, Kathmandu, Nepal, [3]School of Planning Monitoring Evaluation and Research, Kathmandu, Nepal

Background: Nepal is one of the major source countries of migrant laborers in Asia and abroad. Migrants may serve as a „bridge" population transmitting HIV/STDs from high-risk groups to the general population. The objective of this paper is to assess the sexual risk behaviors related to HIV among the returnee migrants from India.
Methods: The data from this study was drawn from cross sectional study entitled 'Integrated Biological and Behavioral Surveillance (IBBS) Survey among Male Labor Migrants in Western and Mid to Far Western Region of Nepal. A total of 720 MLMs were selected for the interview and testing of blood samples. Bivariate and Multivariate analysis were performed.
Results: Almost a third of the sampled returnee migrants (32%) were involved in sexual risk behavior. Multivariate analysis showed that age group, level of education, caste, marital status, place of residence (region), alcohol consumption and participation in HIV and AIDS awareness program in community were significant predicators for sexual risk behaviour. Illiterate migrant were more than two times (aOR=2.35) more likely to involve in risk sexual behaviour than who had grade 10 or more. Similarly, migrants who consumed alcohol every day, at least once a week and less than once a week were 5 times, 2.9 times and 2.7 times more likely to involve in high sexual risk than those who never consumed alcohol. Migrant who every involved in HIV/AIDS awareness program in community were less likely to involve in high sexual risk behaviour (aOR=.68) than those who never participated in HIV/AIDS awareness program in community
Conclusions: The findings show that returnee migrations are exposed to health hazards through their sexual behavior. This problem should be addressed early by targeting these groups of high-risk students.

WEPED550

"Prepara, Nem": An innovative strategy to empower, promote education and human rights among LGBTQI communities living in Rio de Janeiro, Brazil

L. Montenegro[1], M. Malta[1], V. Giraldo[2], C. Costa Neto[3], M. Seixas[4], G. Cunha[4]
[1]Oswaldo Cruz Foundation, National School of Public Health, Rio de Janeiro, Brazil, [2]Federal University of Rio de Janeiro, Mathematics, Rio de Janeiro, Brazil, [3]Federal University of Rio de Janeiro, Aplication School, Rio de Janeiro, Brazil, [4]NGO Conexão G, Rio de Janeiro, Brazil

Background: Brazil has the unfortunate reputation of being one of the deadliest places in the world in terms of recorded anti-LGBTQI violence. About one LGBTQI Brazilian is killed in a hate-motivated crime each day, but the police are often reluctant to register anti-LGBTQI crimes as hate attacks. The extreme social exclusion faced by Brazilian LGBTQI translates into increased vulnerability to HIV, other diseases, including mental health conditions, limited access to education and employment, and loss of opportunities for economic/social advancement.
Description: Our group implemented a project called "Prepara, Nem", in English something like "Get ready, baby" - a free college prep course that happened twice a week at a leading Public Health School in Brazil (ENSP/FIOCRUZ) in close partnership with Rio de Janeiro Federal University (UFRJ). Students received personalized study plans, top-quality supplementary materials, transportation, and food support. The intervention was implemented during 1 year and improved LGBTQI access to formal education and to HIV-related interventions available at ENSP/FIOCRUZ: free HIV testing, Prep, PEP and HIV-treatment. (https://www.youtube.com/watch?v=MPClXuos9UM)
Lessons learned: The engagement of activists, researchers, educators and the LGBTQI community at large improved the intervention outcomes and impact. The non-judgmental, cultural sensitive and engaging environment promoted students engagement. Nowadays "Prepara, Nem" is being offered inside a large slum complex from Rio de Janeiro (Complexo da Maré), within a close partnership between educators, UFRJ and a local NGO (Conexão G). The strong college-prep curriculum allowed many students to meet the requirements for entry into colleges and universities, become tutors and peer educators.
Conclusions/Next steps: This work directly relates to advancing the rights of disenfranchised LGBTQI people living in Rio de Janeiro slums. Thought a close partnership between the LGBTQI community, researchers and educators we were able to improve access to education, HIV-prevention and treatment services.
Our intervention will be replicated in other slums from Rio de Janeiro, aiming at promoting human rights, gender equality, strengthen social/economic development, put a stop to untrammelled violence and properly respond to high HIV vulnerability among LGBTQI living in Rio de Janeiro slums.

WEPED551

Between the Rock and a hardplace: Comprehensive sexuality education vs cultural religious norms in rural Zimbabwe a case study of young women in Masvingo youth friendly corners

L. Hwenga
Zimbabwe National Family Planning Council, Marketing and Communications, Masvingo, Zimbabwe

Background: The study explores the impact of the reception of HIV and and AIDS communication on self efficacy among young women in Masvingo Province youth friendly corners. The study arises from the realisation that female reproductive health remains low, particularly in marginalised communities as mass media seem not to prioritise reproductive health communication.
Various organisations including NGOs have created alternative communication on HIV and AiDS which do not take into cognisance the cultural and religious norms of the recipients. However engaging traditional leaders improved support for HIV communication that was perceived to be at odds with socio cultural norms.
Description: In this qualitative research. Data was collected through archival research complimented by semi structured interviews of key informants focus group discussions Wit young women to establish their reception patterns., the impact of HIV communication on their self efficacy as well as the role of traditional leader in the intervention.
Lessons learned: The study revealed that comprehensive sexuallity education exposed the young females to HIV and AIDS messages which contradicted with their cultural and religious norms on appropriate social and and sexual behaviours. Social factors associated with stigma and culture disempower young females from undertaking SRH promotion activities tailored for unmarried adolescents. Therefore unsafe sexual practices among young females in Masvingo rural Youth friendly corners are sustained not only byvlack of access to SRH services but also the social structures or norms that support such practices.
Conclusions/Next steps: SRH communication alone thus had no capacity to improve self efficacy among young females in societies where ambiguous social norms were central to adolescent sexual behaviors.

Sexualities and sexual cultures: meanings, identities, norms, and communities

WEPED552

Gangsterism on the Cape Flats: Gangster masculinity and HIV risk for young men in a Coloured township in Cape Town, South Africa

C. Chantre[1], C.J. Colvin[2]
[1]University of Cape Town, Cale Town, South Africa, [2]University of Cape Town, Cape Town, South Africa

Background: The communitied of the Cape Flats of Cape Town are recognized for their high incidences of gang violence, drug abuse, and exceptionally high rates of HIV and TB. Most studies concerning community dynamics and their relation to HIV prevention and/or ARV adherence however, tend to concentrate on interpersonal relationships, economic factors, and populations such a women and girls. This study focused on a critical population: men, and their relationship with gangsterism, a dynamic force operating throughout most of the townships in the Cape Flats. This study examined masculinities existing in relation to gangsterism and their relationship with HIV risk and ARV adherence in a Coloured township of the Cape Flats.
Methods: This qualitative study consisted of a nine month long participant observation along with semi-structured interviews among residents of a Coloured township inn Cape Town, South Africa. Interview included four focus group discussions and foury four in-depth interviewsaong a target group of 18-30 year olds and staff at the local community health clinic and hospital, respectively.
Results: Part of upholding a gangster masculinity included in partaking in gang activity, consuming illicit drugs, engaging in risky sex, and experiencing constrained social and physical environments due to entrenched gang territories. Visibly marked gang territories prohibited both gangsters and non gangster residents of the township from accessing their local clinic and hospital which translates into reduced visits for HIV testing and pickup of ARV medication.
Conclusions: Gangsterism organizes a sizable area of The Cape Flats and influences mens´ behaviors in two chief ways: encouraging risky behavior that renders them vulnerable to HIV infection as well as hindering their access to HIV testing and treatment. The results demonstrate a greater need for interventions hat respond to the realty of the gang dominated areas of the Cape Flats principally those that provide men improved access to testing and ARV medication.

WEPED553

Socio-legal and the religious environment vrs. the human rights approach and it´s implications of LGBTI activities in Ghana

M.-J. Blantari[1], E. Awotwi[2], T.S. Ndeogo[1]
[1]Ghana Police Hospital, Public Health Department, Accra, Ghana, [2]UNFPA, Accra, Ghana

Background: The Human Rights Approach to Law Enforcement and its pursuits promotes Freedom, dignity and worth of every individual especially marginalized groups. Evidence abounds to show that Rights based Approaches, protective and enabling legal environments reduce the vulnerability of LGBTI individuals to HIV infections. This is because these groups are often marginalized and stigmatized coupled with harmful legal environments and practices not founded on Human Rights exclude or punish those that are marginalized. They also perpetuate stigma and discrimination by dehumanizing and criminalizing those who are vulnerable and they place a disproportionate burden on those affected by HIV.

Description: To promote rights-based policing approaches towards KPs The Ghana Police AIDS Control Program with support from the Ghana AIDS Commission/CEPERGH implemented orientation sessions in 6 out of 10 Regions in Ghana for members of the LGBTI Community. The program targeted 180 community members who were decision makers in their respective NGOs. Qualitative methods were employed through the holding of FGDs for 6 gay groups, 6 Lesbian Groups and 6 bisexual groups.to:

a) Solicit information on challenges faced by community members from
- their peers
- general society
-law enforcement officials

b) How these challenges could be addressed or minimized.

Lessons learned: There were similar levels of threats and challenges across the sites

From Community members
- Neglect and torture
- Blackmail and extortion
- Negative name-calling
- stigmatization especially if one partner contracts STI

From Society
- we are considered as demon-possessed
- parental neglect and denial of job opportunities including family support
- misconceptions from religious groups

From Law Enforcement
- Police often side with and defend perpetrators of crime because of our presumed sexuality
- Police more often than not focus on our sexual orientation instead of the law and this leads to unlawful detentions
- Unsupportive and unwillingness to prosecute those who violate the rights of LGBTI.

Conclusions/Next steps: Acceptance of misconduct is a major breakthrough to reform. This program has the support of the Police hierarchy and seeks to punish subsequent perpetrators of abuse of KPs. Consensus building among the police and efficient use of available resources will help sustain the program.

WEPED554

Health risks of lesbian, bisexual, queer and transgender women in Kazakhstan

Z. Sekerbayeva
Kazakhstan Feminist Initiative, Almaty, Kazakhstan

Background: The needs assessment research on the situation of lesbian, bisexual, queer and transgender women in Kazakhstan was initiated by Kazakhstan Feminist Initiative „Feminita". It is the first research of its kind that reaches out to cities and towns other than Astana and Almaty, which majority of researches focus on. It is also so far the first and only research in Central Asia focusing on LBQT women.

Methods: A mix of qualitative and quantitative methods was used for the purposes of the research. All respondents filled out a 92-question multiple choice survey, participation in the deep semi-structured interviews was offered to all participants on voluntary basis (43 agreed). The survey topics covered demographics, economic and social status, general health, sexual health, mental health, access to healthcare, sexuality, civic and political attitudes, human rights and discrimination. The interview topics focused on significant moments of their lives, self-awareness, self-identification relationships, violations of human rights.

Data from 228 respondents from 16 cities - Aktau, Atyrau, Taraz, Temirtau, Kostanay, Kokshetau, Kyzylorda, Petropavlovsk, Almaty, Aktobe, Astana, Karaganda, Semey, Shymkent, Uralsk, Ust-Kamenogorsk - was analysed. These cities cover a wide geographical range of the country with its north, south, west and east.

Results: Only 5% from 228 respondents of the research know about HIV/AIDS as a potential health risk for LBTQ women. 71% - did not answer the question: „What do you know about potential health risks for LBTQ women?" Both of these percentages indicate an alarming rate of illiteracy regarding sexual health risks for lesbian, bisexual, trans and queer women. Considering at least 24% of them are or have been in heterosexual marriages or have had or were forced to have heterosexual contacts, the rate of illiteracy is dangerously high.

Conclusions: Research suggests that the needs of LBQT women are not catered for in traditional health education messages; for example, perception of risk of cervical cancer may be different in heterosexual women. They are excluded from health education materials in sexual health where the emphasis is on heterosexual sexual relationships. Health risks of lesbian, bisexual, queer women in Kazakhstan are a huge lacuna in general public health.

WEPED555

Resilience, heritage and vulnerability: Qualitative assessment on violence and HIV among indigenous women and girls in the Amazon region

G. Braga-Orillard[1], C. Euzebio[1], E. Carrasco[2]
[1]UNAIDS, Brasilia, Brazil, [2]UNAIDS, Panama, Panama

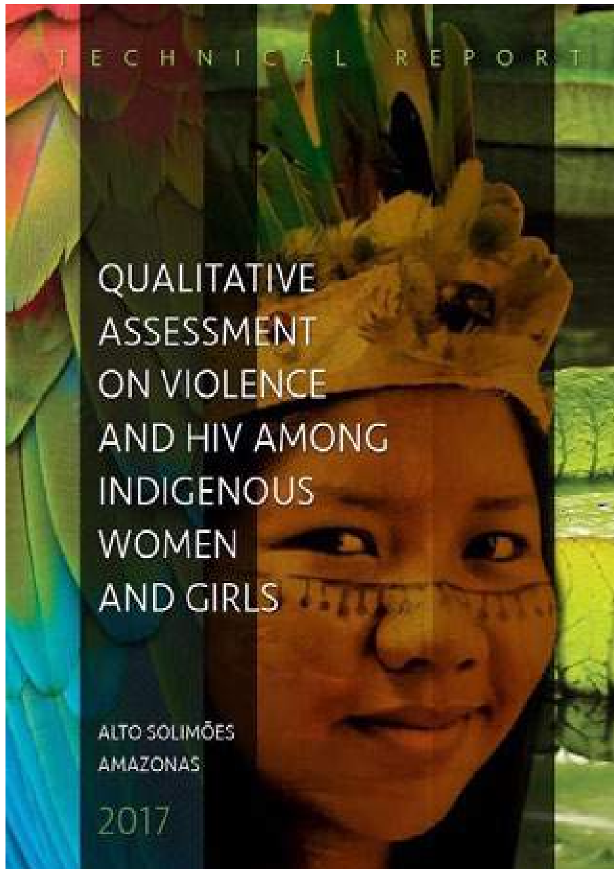
Background: The study aimed to provide an overview of the situation of violence and HIV among indigenous women in the Amazonian region of Alto Solimões - border with Brazil, Peru and Colombia, in order to influence policies and implementation of programmes. The study identified:
(i) the needs of indigenous women and girls for HIV and violence-related interventions;
(ii) the gap of services with a holistic approach to HIV and violence;
(iii) community-based organizations in the area.

Methods: The study focused on the indigenous areas of Umariaçu I (population: 2374 in 2016), Umariaçu II (population: 5389 in 2016) and Belém do Solimões (population: 10918 in 2016).
(i) A desk review of the demographic, epidemiological, historical and ethnographic data was performed;
(ii) field interviews of public officials and non-governmental organizations;
(iii) interviews with indigenous women and men, previously identified by community leaders. UNAIDS counted with the support of Portuguese-Tikuna translators for the exercise.
(iv) systematization and analysis of qualitative data.

Results: The cross-border setting brings several concerns:
(i) difficult access to public services;
(ii) trafficking of illicit drugs;
(iii) exchange of sex for alcohol and/or drugs
(iv) various forms of violence.
(v) violence impacting disproportionately the young indigenous populations.

Gender-based violence identified:
(i) physical;
(ii) psychological;
(iii) sexual,
(iv) patrimonial and
(v) domestic. Violence was identified, especially by the elderly, as a consequence of non-respect of traditions, as well as abuse of drugs and alcohol.

Due to fear, the interviewees declared to witness daily violence against women, but did not declare themselves as victims. Episodes of intra-community violence appear as an embarrassment factor for families.
Conclusions: Violence is closely associated with the abuse of drugs/alcohol. Indigenous women who are victims of violence feel shame and fear, what limits their possibilities to cope with these situations. The study made a set of recommendations to tackle this.
Although the indigenous living with HIV represent only 0.5% of all people living with HIV in the country, the impact for the individual is important. Sanctions from the community to people who acquire HIV can vary from domestic reprimand to public beating, resulting in ostracism or even suicide.



[Copy of the cover of the publication to be launched at AIDS2018]

Adolescents, sexuality, and relationships

WEPED556

Young hearts - I just want to love: The success story behind the Emmy-nominated web series and the use of edutainment to talk about HIV to very young audiences in Brazil

D. De Castro[1], G. Braga-Orillard[2], G. Estrela[3], E. Jacobina[4]
[1]*UNAIDS, Communications, Brasilia, Brazil,* [2]*UNAIDS, Brasilia, Brazil,* [3]*Projeto Boa Sorte, São Paulo, Brazil,* [4]*Globo Network, Entertainment, Rio de Janeiro, Brazil*

Background: Since 2015, UNAIDS has been Globo TV's main partner on HIV- and discrimination-related issues. The office has supported fine-tune language and contributed with ideas for storylines, scenes, and characters. The strategy:
(i) To partner with the team of writers of Globo's longest running tele-novela 'Malhação', with a 20-million viewers daily audience;
(ii) To introduce in the plot an HIV-positive character for five months to help break down stigma and misinformation;
(iii) To build on this experience and create the internet complement 'Young Hearts' go more in-depth about issues related to serodiscordant couples, based on the love story of Henrique and Camila, mixed with real-life stories.
Description: Mixing fiction and documentary, the five-episode series tells the stories of young serodiscordant couples, encouraging debate about sexuality and relationships involving people living with HIV. In the spin-off production, Henrique and Camila are invited to be part of a web documentary, alongside four real serodiscordant couples, talking about the impact of HIV in their daily lives.
Lessons learned: The partnership led us to realize the need to speak about sex, sexuality, and HIV to this young audience. Considering the limitations imposed in Brazil to broadcast TV in afternoon slots, a digital series for Globo's streaming platforms was chosen as the best fit for purpose. The production soon became a hit: from April-June 2016, it was the third most-watched original series on the platform: almost 1 million views. On 16 October 2017, it was nominated for the Emmy Kids 2017 in the digital category, alongside productions from Norway and Japan.
Conclusions/Next steps: (i) UNAIDS supported Globo to get HIV back on the agenda for young people in Brazil, where AIDS detection rates have more than tripled in the past decade among young men aged 15-19 years, and almost doubled among those aged 20-24 years;
(ii) Initiatives in partnership with mass media can positively contribute to breaking HIV-related barriers and change behavior of millions of people at very low cost
(iii) edutainment designs characters and storylines to provide viewers with positive role models to relate to, often at a personal and emotional level.

[Young Hearts - Digital series on serodiscordant couples - Globo and UNAIDS in Brazil]

WEPED557

Who are the male partners of adolescent girls and young women in DREAMS sites in Malawi, and how can they be more engaged in HIV services?

N. Pilgrim[1], W. Chimwaza[2], E. Chipeta[2], V. Mwapasa[2], L. Tenthani[3], N. Jani[1], S. Mathur[1]
[1]Population Council, HIV & AIDS Program, Washington, United States, [2]University of Malawi, College of Medicine, Blantyre, Malawi, [3]Population Council, HIV & AIDS Program, Blantyre, Malawi

Background: A successful HIV/AIDS response in sub-Saharan Africa requires identifying and engaging the male partners of adolescent girls and young women (AGYW) in HIV testing, care and treatment services. AGYW vulnerability to HIV is in large part related to male partners. Yet, men generally are reluctant to access HIV services. We sought to 1) identify and locate the male partners of AGYW in Malawi; 2) understand the challenges to and facilitators of them accessing HIV services; and 3) identify strategies to engage them in HIV services.
Methods: We conducted four community mapping exercises with AGYW and community opinion leaders to identify locations within Zomba and Machinga districts—two DREAMS intervention sites—where AGYW meet male sexual partners. The participants identified the types of men who had sexual relationships with AGYW and where they could be found. Afterward, the study team visited the identified venues (e.g., football grounds, markets) and invited men, aged 18 and older, to participate in focus group discussions (FGDs). Men were eligible if they were in a relationship with a woman aged 15-24. Thematic content analysis was conducted.
Results: The profile of men recruited in the FGDs matched those identified during the mapping experience, representing a range of ages and occupations. A total of 157 men, with mean age of 27.5 (range 18-55), participated in 16 FGDs. The male partners of AGYW were teachers (15%), transporters (e.g., bus driver) (13%), businessmen (12%), and football players (11%). Representing less than 10% each were students, vendors, farmers, health workers, fishermen, and estate workers.
Barriers to HIV service use included fear of testing positive, stigma, long waiting times that disrupted income generation, and lack of privacy and confidentiality. Peer and partner influence facilitated HIV service use.
Strategies to engage men proposed by FGD participants included offering male-only services, incorporating features from traditional circumcision initiation camps into circumcision services, providing community-based services, and leveraging media and technology for HIV prevention services.
Conclusions: The male partners of AGYW in Malawi are diverse. Given their gender-specific needs and preferences, they should be engaged in the development of HIV services and reached through venues where they meet AGYW.

WEPED558

Feasibility of accessing sexual partners of young women at high risk of acquiring HIV in rural KZN

H. Humphries[1], S. Phakathi[1], M. Mdladla[1], Q. Abdool Karim[1,2]
[1]CAPRISA, Durban, South Africa, [2]Columbia University, Department of Epidemiology, Mailman School of Public Health, New York, United States

Background: Accessing sexual partners of young women at high risk of acquiring HIV remains a challenge. Respondent-driven sampling to access sexual networks provides an opportunity to locate male sexual partners, understand overlaps between sexual networks and obtain a more nuanced understanding of partner characteristics and behaviours.
Methods: This study took place in 2 phases between October 2016 and January 2018 in Vulindlela, a rural sub-district located 150km west of Durban, South Africa. Phase 1 identified and interviewed 11 female index cases aged 18-24 years old, 6 sexually active with no negative sexual health outcomes (SARS) and 5 who had experienced at least one negative SRH outcome (SARU). Index cases were asked to identify their male sexual partner(s) and a sexually active girl friend who were followed up for an interview. In Phase 2, we identified 5 SARU and 3 SARS index cases and only interviewed partners. We also assessed the feasibility of accessing partners of identified partners. Basic descriptive statistics were used to summarise key quantitative data, and thematic analysis was used to analyse interview transcripts.
Results: We were able to conduct interviews with 84.2% of the partners identified by the 19 index cases (Phase 1 and 2) and 72% of the friends in Phase 1. Age range of SARS cases was 18-24 years, and their partners 18-46 years. Age range of SARU cases was 19-24 years, and their partners 18-28 years. 44.4% of SARS and 27.3% of SARU cases reported more than one current partner, 40% of partners in both groups reported having other current partners. There were many discrepancies between what women and men believed about their partners sexual behaviours, and what partners reported including being the only current partner, being the main partner, HIV status belief discrepancies and age of partner.
Conclusions: Our findings highlight many discrepancies between believed and actual sexual behaviours within these sexual networks. Sexual networks of young women were high-risk and underscore the importance of expanding the study to advance our understanding of young women's sexual networks.

WEPED559

Addressing challenges among adolescents living with HIV(ALHIV) using structural approaches - a practical example from rural Kenya

F. Mutiria
Nazareth Hospital, HIV/TB Clinic, Nairobi, Kenya

Background: Adolescents face multiple challenges that obstruct their access to quality, accessible and affordable HIV prevention, treatment and support services. Obstacles facing adolescents include: disclosure, non adherence to ART, stigma and discrimination, unmet sexual and reproductive health, drug and substance abuse, lack of education, unemployment, violence and lack of social support.
Description: Structural approaches work by altering the context within which health is produced or reproduced. This is by addressing the factors that affect individual behavior in contrast to behavioral approaches that attempt to change of behavior. These are the contexts that shape or constrain individual communities and societal health outcomes. In addition they also address societal factors that increase vulnerability to HIV, promote human rights to remove punitive laws that block the AIDS response.
The approaches help in combating gender inequality and HIV related stigma and discrimination, encourages joint planning and captures potential synergies and replaces the fragmented approach of HIV prevention programs as well as discouraging the silo approach that focuses on single intervention. The structured approach in our community involved engaging the adolescents in activities that are of their interests. Such activities include;
1. Support group activities such as; i) Green house farming ii) Bead making iii)Soap Making
2. Health club where they use the 'wheel of knowledge' to learn and Understand adolescent package of care through role play, discussions, games and competition.
3. Adolescents led initiative for example home visits for adolescent facing challenges by the youth champions.
Lessons learned:
1. Adolescent led meetings planning and organization has built their esteem and empowered them in leadership.
2. Viral suppression from 79% to 91% among ALHIV in the last three year.
3. Self assertiveness where youth champions were invited to facilitate on positive living to the university students and engaged on sexual-gender based violence conference.
4. Social economic empowerment through #beadsforhealth, #farmingiscool.
Conclusions/Next steps: Adolescents living with HIV need a space within which they can express themselves freely devoid of social stigma and pressure. These spaces need to be structured just like the society is structured.

[Adolescents during bead making as they share on health issues]

WEPED560

Capitalizing on aspirations of adolescent girls to reduce their sexual health risks: Implications for girls' HIV prevention in Tanzania

J. Wamoyi[1], D. Nyato[2], N. Kyogombe[3], A.M. Buller[3], L.H. Heise[3]
[1]Natioal Institute for Medical Research, Sexual and Reproductive Health, Mwanza, Tanzania, United Republic of, [2]National Institute for Medical Research, Mwanza, Tanzania, United Republic of, [3]London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Young people have aspirations and will use whatever means to achieve them. Little has been done to understand how young people's aspirations are key in determining the sexual decision-making. This paper set out to explore aspirations of young people and the strategies they used to meet them and how that enhanced or reduced their risk for HIV.

Methods: This study employed ethnographic research design involving 18 participatory focus group discussions and 43 in-depth interviews with girls and boys in-and-out-of-school, adult men and women within the study sites. Fieldwork was undertaken in rural and urban Tanzania in 2016. Participants were sampled purposively and by snowball sampling techniques. Thematic analysis was conducted with the aid of NVIVO 10 software.

Results: Girls mentioned their aspirations as: getting education; having a job; having nice clothes; an attractive body; a good life; good behaviour that is praised by everyone; having someone to take care of their needs; getting married and having children. Men were aware of the aspirations and desires of adolescent girls and mentioned these as: status among peers; trendy things such as smartphones, clothes; and marriage. Young men mentioned that a popular girl was one who had several pairs of clothes and was always in nice clothes; and a smart one at school. Young men talked about their aspirations as: performing well at school and having many friends and has behaviour that is acceptable among peers. Sex was one of the ways girls met their material and non-material aspirations. For example, sexual relationships with adults in power fulfilled some of their non-material aspirations (e.g. education) as well as material ones (trendy clothes mobile phones). Girls aspired for young men with certain characteristics (attractive, hardworking, smart at school) to help them meet some of their long-term aspirations such as marriage and passing examination at school.

Conclusions: The aspirations of young women were important in determining their sexual decision making and ultimately risk for HIV. There is need for interventions to capitalize on these aspirations by addressing them in interventions as they are critical for their sexual decision making, sustainable development and achievement of future goals.

WEPED561

Understanding the influence of a conditional cash transfer on sexual behavior among adolescent girls and young women in Northwestern Tanzania

K. Atkins[1], J. Wamoyi[2], P. Balvanz[1], S. Maman[1], A. Pettifor[3,4]
[1]University of North Carolina Gillings School of Global Public Health, Health Behavior, Chapel Hill, United States, [2]National Institute for Medical Research, Tanzania, Mwanza Research Centre, Mwanza, Tanzania, United Republic of, [3]University of North Carolina Gillings School of Global Public Health, Epidemiology, Chapel Hill, United States, [4]University of North Carolina, Carolina Population Center, Chapel Hill, United States

Background: Adolescent girls and young women (AGYW) aged 15-24 in Tanzania face increased vulnerability to HIV infection compared with their male peers. This is exacerbated by structural factors, including poverty and gender inequality, that shape HIV risk behaviors. Conditional cash transfers (CCT) may address AGYW's economic vulnerability, in turn reducing HIV risk behaviors such as transactional sex. This study sought to understand how CCT to AGYW in Northwestern Tanzania may influence their sexual behavior, including partner choice and engagement with transactional sex.

Methods: We conducted in-depth interviews (n=20) with AGYW enrolled in a CCT project in Northwestern Tanzania. Interviews sought to understand their sexual partnerships, sexual decision-making, and the influence of the CCT, which was conditional on participation in an HIV prevention and economic strengthening program, on sexual behavior. In addition, we used Photovoice (n=15), a qualitative community-based participatory research methodology, to record AGYW's strengths and concerns and promote critical dialogue through photography and focus group discussions with AGYW. We analyzed interview and Photovoice data to understand initial impacts of the CCT on sexual partnerships and behavior.

Results: Preliminary evidence shows that CCT influenced AGYW's sexual behaviors and partner choice, particularly among unmarried women. AGYW reported reduced engagement in compensated sex and condomless sex, reduced numbers of sexual partners, and increased interest in men who provide emotional, rather than financial, support. Unmarried AGYW reported decreased engagement with partners overall. In addition, while married women relied on their husbands for advice regarding CCT use, unmarried women relied more on female family members for financial advice than their partners. AGYW saw CCT as a way to promote gender equality and reduce their reliance on men for support; partner and family expectations and support for AGYW may have influenced the extent to which these changes occurred.

Conclusions: This study showed that CCT for HIV prevention may play a role in AGYW's sexual behavior by influencing their partner choice and motivations for engagement with sexual partners. The impact of CCT may vary based on AGYW's age, relationship history, or family context; future implementation should take these factors into account when enrolling AGYW in CCT programs.

WEPED562

Effect of time change on adolescent and young people accessibility to youth friendly health services in Akure, Ondo State Nigeria

O. Aiwanfo, Monitoring and Evaluation Team
Kids & Teens Resource Center, Monitoring & Evaluation Department, Benin City, Nigeria

Background: The Government of Ondo state have made significant effort in establishing youth friendly health care centres to increase young people´s access to health and social services. But it became very frustrating to see very few young people patronizing such centres due 8am-4pm working hours.Change in time to 4pm-8pm showed a significant difference in young people access to Adolescent and youth friendly health centre services.

Description: Young people 10-35years in Akure either attend school from 8am-4pm or go to centres where they learn skills from 8am-6pm. With this kind of schedule, it is very difficult for young people to leave

Tuesday 24 July
Wednesday 25 July
Thursday 26 July
Friday 27 July
Late Breaker Abstracts
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school or their skill centres to access the services provided by this adolescent and youth friendly health centres. In 2017, there was an extension in service time to 8pm, there was an increase from 2persons per day to 12persons per day of adolescent and young people accessing social and health services at this centre's from 4pm-8pm.

Lessons learned: It was observed that the additional 10 persons came between 4pm to 8pm. Most of the young people preferred the evening hours because it was very convenient and it allowed them do their daily activities. Also it reduced stigmatization because absence at school or work leads to questions been raised

Conclusions/Next steps: Provision of Adolescent and youth friendly health centre isn't enough, passionate Friendly health workers should be employed and Service time should be convenient for young people to come as well as the location should be strategic.

WEPED563

Adolescents, sexuality, and relationships among girls aged 10-14 in Homa Bay and Siaya counties, Western Kenya

A.M. Muthigani[1], I. Jurkevich[2], S. Goldfrank[2]

[1]Kenya Conference of Catholic Bishops, Nairobi, Kenya, [2]American International Health Alliance, Washington, United States

Background: The Kenya Conference of Catholic Bishops (KCCB) is implementing a DREAMS project geared to reduce the rate of HIV infection among adolescent girls in Homa Bay and Siaya counties in Kenya. DREAMS is an evidence-based approach addressing structural drivers that increase HIV risk for girls, including gender inequality, lack of education, poverty, and sexual violence. KCCB collaborates with American International Health Alliance (AIHA) to implement this DREAMS intervention targeting girls between the ages of 10 and 14. The program has assisted 24,842 adolescent girls to develop life skills and enhance supportive relationships that will keep them safe from risky behaviors that hinder achievement of life goals.

Description: From April 2016 to September 2017, KCCB/AIHA delivered a school-based HIV prevention program called Making Life's Responsible Choices (MLRC) in 185 primary schools in target counties, reaching 19,227 girls in Siaya and 5,615 in Homa Bay. The intervention package, delivered by 344 volunteer teachers, covered self-awareness, human sexuality, relationships, peer pressure, sexually transmitted infections (STIs), HIV and AIDS, and life skills. In project Safe Spaces, 205 DREAMS mentors provided continuous psychosocial support to all enrolled girls, while 9,342 parents in Siaya County and 3,891 in Homa Bay participated in a complementary Families Matter! Program (FMP) designed to enhance parent-child communication about sexuality and sexual risk reduction. This multi-pronged approach ensures adolescent girls are supported by parents, teachers, and mentors to strengthen positive relationships that encourage achievement of their life goals.

Lessons learned: Faith-based approaches offer great opportunities through educational institutions to address HIV interventions at the community-level. Volunteer MLRC teachers ensure sustainable change due to their interaction, availability, and acceptability to the girls targeted through DREAMS. School-based prevention programs intended to help girls and young women develop life skills, link them to more school and community activities, and increase their hope for the future may delay their involvement in sexual activity.

Conclusions/Next steps: Many adolescent girls and young women have limited opportunities and are often devalued or seen as unworthy of investment or protection. A multi-faceted intervention involving volunteer teachers, mentors, and parents enhances relationships can effectively reduce vulnerability of targeted adolescent girls.

WEPED564

What do adolescent girls and young women tell us about their male partners and their relationship characteristics?

J. Okal[1], J. Matheka[1], S. Mathur[2]

[1]Population Council, HIV/AIDS, Nairobi, Kenya, [2]Population Council, HIV/AIDS, Washington DC, United States

Background: Adolescent girls and young women (AGYW) in Kenya are at high risk of HIV infection, in part because of their partner's behaviors and characteristics. Yet, less is known about male partners of AGYW. This study examined characteristics of male partners of AGYW to inform targeted HIV prevention interventions.

Methods: Survey was conducted with AGYW, 15-24 years (N=1,778) in urban and peri-urban locations in Kisumu, Kenya from October 2016-February 2017. Questionnaires assessed characteristics of recent male partners, their relationship characteristics and their partner's HIV risk characteristics. Descriptive analysis was conducted to assess attributes of current male partners among adolescent girls (AG, 15-19-year olds) and young women (YW, 20-24-year olds).

Results: Respondents' average age was 19 years and 58% were currently in school. Nearly half, 49% of all AGYW (24.16%, AG and 69.76%, YW) had a current sexual partner, and 67.0%, YW vs. 33.0%, AG were married. Mean age of AG's partners was 22.0 ±4 years and 27.0 ±4.3 years for YW. 65.7% of YWs partner lived within the community, versus 38.5% of AGs partners, p< 0.00. Over 22% of the male partners had high-risk jobs, e.g. trucker (22%, AG vs. 31%, YW). Over 70% of all AGYW were in relationships of 1-4 years in length. Reported condom use at last sex was 74.3% among AG vs. 48.7% among YW, p< 0.00. AGYW knew their partner's HIV status (88.8%, AG vs. 88.5%, YW); 16.6% of AG vs. 14.7% of YW knew that their partner had other partners in the last year, and less than 1 in 5 AGYW perceived their partner at elevated risk for HIV. Recent experiences of physical (17%, AG vs. 30%, YW: p< 0.00) and sexual violence (17%, AG and YW) from intimate partners were high.

Conclusions: Key differences emerged between AG and YW's partner age, residence, condom use, and physical violence. Similarities emerged in partner occupation, duration of relationship, knowledge of partner's HIV status and sexual concurrency, HIV risk and sexual violence. Programmers need to understand the differential patterns and experiences of AGYW within partnerships to design effective couple-level HIV prevention and risk mitigation among AGYW.

WEPED565

From peer education to full engagement: Promoting adolescents and youth friendly HIV services in Jiangsu Province

J. Li, X. Huan, G. Fu, X. Liu, L. Shi

Jiangsu Provincial Center for Disease Control and Prevention, Department of STD/AIDS Prevention and Control, Nanjing, China

Background: As of the end of 2017, there are cumulatively 4660 reported HIV cases aged 15-24 in Jiangsu, China. To encourage multi-sectoral participation in adolescent and youth HIV prevention, especially youth themselves, we started the Youth Engagement Prevention programme "YouAI" in 2015.

Description:

1. Management: Jiangsu CDC was the lead agency for this programme. UNICEF China was engaged to provide financial and technical support to "YouAI" and this abstract.
2. Design: A 2-level approach was used with youth engagement every step of the way: firstly, a provincial Youth Peer Educator contest mobilized a large number of youths to creative publicity and a supportive social environment for students to use services. Secondly, a youth-designed "Test and Assess" campaign was launched to empower young clients walk into healthy facilities as "secret clients", ask for a test, and evaluate youth-friendliness.
3. Operation: More than 2000 youths participated in "YouAI", 64% of them getting tested for HIV, 85% shared their experience with friends. Their experience and findings were shared with provincial CDC, leading

to measurable improvements in service quality and understanding of adolescent needs among providers. As a result, percentage of providers willing to provide test to adolescents increased from 60% to 89%, referral rate increased from 6% to 60% in 2017, compared with 2016.

Lessons learned:

1. Traditional peer education model of information and knowledge sharing can contribute to improved youth access to quality HIV-SRH services, if combined with youth-driven, creative models of service promotion and quality improvement; it also helps create awareness and support from multiple stakeholders including youth.
2. The "Test and Assess" campaign not only provided evidence for service quality improvement, but also adolescent and youth health seeking literacy and self-efficacy. Technology has great potential to quickly mobilize youth, collect, analyze and share data, and advocate with stakeholders for positive change, going beyond the traditional KAP model.

Conclusions/Next steps: Adolescents and youth are at increased risk for HIV due to a number of factors in Jiangsu, China. Their participation in all stages of HIV prevention must be integrated into the overall HIV prevention plan to improve service access, uptake and quality for this age group.

WEPED566

The status of sex education in times of political turmoil in Peru: HIV-related findings indicate progress but also important needs

J.C. Enciso Durand[1], A. Motta[1], C. Sandoval[1], K. Konda[1,2], A. Nunez-Curto[1], C. Caceres[1]
[1]Cayetano Heredia University, Center for Interdisciplinary Studies in Sexuality, AIDS and Society, Lima, Peru, [2]University of California Los Angeles, Division of Infectious Diseases, Department of Medicine, Los Angeles, United States

Background: Sex education can be a useful supporting strategy for HIV/STI prevention. Sex education in public schools of Peru has been facing strong criticism from religious groups since November 2016. Initially a political weapon against the administration, the ['Don't mess with my children'] movement gained momentum and put the national policy into question. We conducted a large evaluation of sex education across three geographical regions in Peru, as part of an international study, aimed at performing an in-depth exploration of sex education across three regions of Peru covering knowledge, practices and opinions from teachers and principals, as well as knowledge, practices, beliefs and experiences among students.

Methods: Data were collected between 2015 and 2016 in three Peruvian provinces (Lima, Ayacucho and Ucayali representing the coast, the highlands, and Amazonia, respectively). The study used multi-stage probabilistic sampling of schools and students; 2528 adolescents participated. Analysis used descriptive statistics such us frequency and contingency tables.

Results: Most students 75% (n=1896) reported that they had received at least one sex education class at school, and 85% of them had been taught about HIV and STIs. Only 52% knew where to obtain HIV/AIDS prevention and treatment services. Over 35% of students wanted to know more about HIV/AIDS and where to get prevention and treatment services. Additionally, 40% hoped to learn how to talk with their partner about being tested for HIV. Nearly three-quarters of students would be willing to befriend a person living with HIV. 70% of adolescents think that the sex education they receive is useful for their HIV-preventive practices. Some differences across regions exist, with indicators often showing better estimates of positive attitudes and adequate knowledge in Amazonia.

Conclusions: The sex education that students receive is valued, but its gaps are well-identified by them, including lack of information on HIV services. Our study helped reframe the discussion based on evidence that It is important to address differences across regions mainly in the areas with lack of knowledge (Highlands and Amazonia). As the majority were willing to befriend people living with HIV, this suggests that forces sustaining stigma and discrimination may be receding.

WEPED567

Successfully reaching young key populations with essential HIV prevention, care, and treatment services in Mali

T. Madani Moctar Saidou[1], A. Ag Altini[2], A. Lambert[3], D. Mohamed Amadou[4], F. Sidibe[2], D. Bore[1], M. Hamdallah[3], A. Dit Agali Wele[4], S. Garangue Souko[2], H. Rodriguez Sherman[3], S. Cisse[5], J. Bashi Bagendabanga[1]
[1]FHI360, LINKAGES, Bamako, Mali, [2]SOUTOURA, Bamako, Mali, [3]FHI360, LINKAGES, Washingtown, United States, [4]CSLS, Bamako, Mali, [5]USAID, Bamako, Mali

Background: There is scarce epidemiological and service uptake data on young key populations (YKP) in Mali. The USAID- and PEPFAR-supported LINKAGES project in Mali implemented a comprehensive package of HIV services for key populations, including YKP. This program analysis describes HIV outreach, care and treatment services for young female sex workers (FSW) and young men who have sex with men (MSM) in Mali.

Description: Program activities were conducted from July to December 2017 by local NGO, Soutoura, in four regions: Bamako, Kayes, Segou, and Sikasso. YKP age groups were defined as 18-19 and 20-24 years old. Aggregate data from monthly reports captured and disaggregated by KP group included: number of YKP reached, tested, enrolled into care, and enrolled in ART; number experiencing gender based-violence (GBV); and number screened for STIs. We conducted a chi-square test to compare results among groups.

Lessons learned: A total of 2,672 (49%) of all KP reached (5,417) were YKP, of which 79% were FSW and 21% were MSM. Table 1 presents data disaggregated by FSW and MSM. Of the YKP, 24% were under 20 and 76% were 20-24 years old; 48% were located in Bamako and 52% in other regions. HIV testing was provided to 70% of those reached. HIV case finding was 3.7%, with higher rates observed among MSM 20-24 years old (8.8%) and among YKP in Bamako (7.8%). Enrollment into care and initiation on ART for HIV+ YKP was 65% and 56%, respectively. Prevalence of GBV among YKP was 7.6% and higher in Bamako (6.8%) and the MSM group (18.6% and 15.7% respectively for 20-24 and under 20 years old). Primary care was provided for 88% of incidents of GBV. STI screening services were provided to 74% of YKP reached. Among those screened, 34% were diagnosed and treated for STIs.

Conclusions/Next steps: In Mali, half of the KP reached are under 25. The LINKAGES program, jointly with the Ministry of Health, will use these findings to develop urgently a youth-friendly approach to reach, improve access to care and treatment, and retain YKP in the program.

	FSW		MSM		Total
	18-19	20-24	18-19	20-24	
Number of YKP	483	1,627	147	415	2,672
Number of YKP screened for HIV	349 (72%)	1,133 (67%)	114 (78%)	274 (66%)	1,870 (70%)
HIV+	14 (4%)	29 (2.6%)	2 (1.8)	24 (8.8%)	69 (3.7%)
Enrolled into care	8 (57%)	24 (83%)	2 (100%)	11 (46%)	45 (65%)
Initiated ART	5 (63%)	16 (67%)	1 (50%)	3 (27%)	25 (56%)

[Young key populations (YKP) reached and tested in four regions in Mali, July-December 2017]

Same-sex-attracted, bisexual, and queer people

WEPED568

The relationship as a safety bubble: Reasons for not testing for HIV regularly among gay male couples in the US

L. Darbes[1], D. Chakravarty[2], T. Neilands[3], C. Hoff[2]
[1]University of Michigan, Department of Health Behavior and Biological Sciences, Ann Arbor, United States, [2]San Francisco State University, Center for Research on Gender & Sexuality, San Francisco, United States, [3]University of California, San Francisco, Center for AIDS Prevention Studies, San Francisco, United States

Background: Gay men in relationships are at high risk for HIV infection, yet many men may perceive being in a relationship as being protective. Although biomedical strategies (e.g., PrEP, TasP) offer effective prevention tools, HIV testing is the first step in the HIV treatment continuum. CDC guidelines recommend sexually active gay men test for HIV every 3-6 months. However research indicates that men in relationships may not adhere to these guidelines.

Methods: The Gay Couples Study is a longitudinal survey of 441 gay male couples (336 concordant HIV-negative, 105 serodiscordant) in San Francisco, California. To be eligible, couples had to have been together for at least 3 months, and at least one partner had to report anal intercourse in previous 90 days. Couples concurrently but independently completed computerized surveys regarding HIV testing, reasons for not testing, and sex behavior. We explored time since last test and reasons for not testing among the HIV-negative men (N=777) in the baseline sample.

Results: Average age was 41.7 years; median relationship was 5 years. Over one third of the sample (36%) had not tested in over one year. For men in concordant HIV-negative relationships who reported condomless anal intercourse (CAI) with an outside partner of unknown or discordant HIV status (DISC), more than one quarter (26%) had not tested in at least six months; 10% had not tested in over two years. For men in serodiscordant relationships, among those who reported CAI with a DISC primary or outside partner, more than one third (35%) had not tested in over six months. "I am in a relationship" was among the reasons for not testing endorsed by 54% of the twenty-four men who had never tested and 47% of those who had not tested in over one year. Only 36 (4.6%) HIV-negative participants reported being on PrEP.

Conclusions: Gay men in relationships may underestimate their need for HIV testing due to perceiving relationships to be protective, even when behavior may confer increased risk for HIV. We identified high rates of non-adherence to CDC HIV testing guidelines. Gay couples may need tailored messages and interventions to increase their HIV testing frequency.

Gender issues and gendered relationships

WEPED569

Association between intimate partner violence and HIV status among Haitian women

A. Saxena[1,2], M.-M. Deschamps[3], N. Dorvil[3], I. Christophe[3], R. Rosenberg[1], M. Jean-Gilles[1], J. Pape[3,4], J. Dévieux[1]
[1]Florida International University, AIDS Prevention Program, Miami, United States, [2]Baptist Health South Florida, Center for Healthcare Advancement and Outcomes, Miami, United States, [3]GHESKIO, Port-au-Prince, Haiti, [4]Cornell University, Center for Global Health, Department of Medicine, New York, United States

Background: The prevalence of intimate partner violence (IPV) among women in Haiti has increased from 25% to 29%. A number of studies have associated higher levels of STD/HIV transmission with IPV among women, in part due to forced sexual activity and microscopic vaginal and anal tears that increase viral contact through raw wounds. This study examined the associations between IPV and HIV status and the factors contributing to this relationship.

Methods: Participants included HIV+ women (n = 55) drawn from a larger sample of women (N=513) who had experienced IPV and were attending the GHESKIO clinics. From the larger sample, a 1:2 optimized matching was performed to get a control group of HIV- women (N=110) with a history of IPV, matched on demographic and mental health variables. Attitudes towards gender roles, mental and physical well-being, and partner violence were assessed using a culturally adapted version of the questionnaire from the from the World Health Organization multi-country study. Logistic regressions were utilized to calculate multivariable adjusted odds ratios.

Results: HIV+ participants reported poorer general and mental health. Both groups reported very high partner control, however HIV+ women were more likely to report more severe forms of psychological violence such as being belittled or humiliated in front of other people ($p < 0.05$) and made to feel scared on purpose ($p < 0.01$) as well as severe physical violence such as being choked or burnt on purpose and being threatened to use or actually having their partner use a gun, knife or other weapon against them ($p < 0.0001$). Women who experienced severe forms of IPV were 3.5 times more likely to have an HIV positive status compared to those who did not experience severe IPV (= 1.248, $p < 0.0001$).

Conclusions: This study points to the significant associations between severe forms of physical and psychological IPV and HIV status, indicating important areas for future studies and interventions among Haitian women.

WEPED570

Sexual violence, stigma and HIV vulnerability experienced by lesbian women from Rio de Janeiro, Brazil: The women group 'Felipa de Souza'

M. Seixas, R. Fernandes de Castro, M.C. Nobua Cruz
Grupo de Mulheres Felipa de Souza, Rio de Janeiro, Brazil

Background: Brazil is experiencing a wave of ´corrective rapes´, with many men raping lesbian women to ´cure them´ or their homosexuality. Overall less than 30% of rapes are reported, and yet governmental statistics indicate that one woman is raped every 11 minutes - the vast majority adolescents and young adults.There are five women beaten every two minutes in Brazil, and an average of 13 murdered every day, according to the nonprofit 'Mapa da Violencia' (Violence Map). Latin America is the region with the most female murders on earth. An estimated one in three women and girls worldwide report suffering physical or sexual abuse, making gender-based violence one of the most widespread human rights violations.

Description: The Women Group 'Felipa de Souza' develops several interventions targeting black lesbian from disenfranchised communities in Brazil. Thought group interventions the NGO address sexual violence and proper reporting of it, homophobia, family issues, sexism, racism, and assertiveness skills development. The vast majority of participants live in Rio de Janeiro slums or other hard to reach and disenfranchised communities with high rates of violence.

Lessons learned: Participant narratives reveal a trajectory of marginalization. Structural factors such as social exclusion and violence elevate their risk for HIV infection; this risk was exacerbated by inadequate HIV prevention information targeting lesbian. Participants face multiple barriers to HIV testing and proper care, including pervasive stigma, heteronormative assumptions in HIV-testing and treatment facilities, discriminatory and incompetent treatment by health professionals. Underrepresentation of lesbian women in HIV research further contribute to marginalization and exclusion.

Conclusions/Next steps: Structural factors elevate HIV risk among lesbian black women, limit access to HIV prevention and present barriers to HIV care and support. This intervention conceptualization of a trajectory of marginalization enriches the discussion of structural factors implicated in the wellbeing of lesbian black women and highlights the necessity of addressing lesbian black women needs in HIV prevention, care and research. Interventions that address intersecting forms of mar-

ginalization (e.g. sexual stigma, transphobia, HIV-related stigma) in community and social norms, HIV programming and research are required to promote health equity among lesbian black women.

WEPED571

Comparative analysis of intimate partner violence among HIV positive pregnant and non-pregnant women in a health facility in Mozambique

H. Muquingue[1], E. Matsinhe[1], R. Frescas[1], D. Correia[2], N. Carter[3], J. Gleckel[4], R. Cuco[5], R. Cossa[6], C. Lee[7], E. Necochea[7], A. Baptista[8], A. Jaramillo[1]
[1]Jhpiego Mozambique, Maputo, Mozambique, [2]CDC Mozambique, Maputo, Mozambique, [3]University of California, Center on Gender Equity and Health, San Diego, United States, [4]Public Health Institute of Western Massachusetts, Springfield, United States, [5]Ministry of Health, National Directorate of Public Health, Maputo, Mozambique, [6]Ministry of Health, Maputo, Mozambique, [7]Jhpiego, Baltimore, United States, [8]Jhpiego Mozambique, Gender Based Violence, Maputo, Mozambique

Background: Intimate partner violence (IPV) is a highly prevalent form of gender-based violence (GBV), widely recognized as one of the leading causes of poor health, disability, and death among reproductive-age women. In Mozambique, HIV prevalence among women aged ≥15 years is 15.1%, and 32% of women have experienced GBV in their lifetime. To improve HIV-related outcomes, the Ministry of Health piloted an intervention addressing women's experiences of GBV as driver for poor HIV outcomes. Through routine GBV screening in health facilities with the highest HIV prevalence, MOH sought to increase IPV identification, and link survivors to GBV care.
We compared IPV rates among HIV positive (pregnant and non-pregnant) women, and assessed whether HIV seropositivity is associated with more IPV in pregnant women.
Methods: We conducted a cross-sectional study of 4,664 women aged 15 to 49 years attending antenatal consultations (ANC) or voluntary HIV testing (VCT) at a peri-urban health facility. All were screened for exposure to IPV in the previous 12 months. We compared HIV test results and GBV screening results over nine months. Analysis used Pearson Chi-square test, stratifying by pregnant and non-pregnant women.
Results: At both ANC and VCT sites, 4,664 women were screened for IPV; 2,385 (51%) were in ANC and 2,279 (49%) were in VCT. Overall IPV prevalence was 4.8%. At ANC, 27 women who were HIV positive were IPV survivors (7% of the 370 HIV positive women). At VCT, 30 women who were HIV positive were IPV survivors (12% of the 246 HIV positive women). HIV positive pregnant women were more likely to have experienced IPV than HIV-negative pregnant women (p=0.0032); the same was observed among non-pregnant women (p=0.00001). Reported IPV among HIV positive pregnant women was as frequent (1.1%) as in HIV positive non-pregnant women (1.3%).
Conclusions: HIV positive women were more likely to have experienced IPV than HIV-negative women, and this was true for both pregnant and non-pregnant HIV positive women. There is need to expand GBV screening in both ANC, to improve support services for pregnant seropositive women, and in VCT settings to ensure post-GBV services are offered and provided to women who need them.

WEPED572

HIV status disclosure patterns and male partner reactions among HIV+ pregnant women on lifelong ART in southwestern Kenya

L. Abuogi[1], K. Hampanda[2], M. Njuguna[3], A. Helova[4], T. Odeny[3], M. Onono[3], E.A. Bukusi[3], J. Turan[4]
[1]University of Colorado, Denver, Pediatrics, Denver, United States, [2]University of Colorado, Denver, School of Public Health, Denver, United States, [3]Kenya Medical Research Institute, Centre for Microbial Research, Nairobi, Kenya, [4]University of Alabama, Birmingham, Department of Health Care Policy and Organization, Birmingham, United States

Background: Disclosure of HIV status to sexual partners in the context of prevention of mother-to-child transmission (PMTCT) may contribute to adherence to antiretroviral medication and improved PMTCT outcomes. We report on patterns of disclosure and male partner reactions to status disclosure.
Methods: We conducted semi-structured surveys of 200 HIV positive postpartum women within the Mother-Infant Visit Adherence and Treatment Engagement (MOTIVATE!) study (R01HD0808477; Abuogi, Turan) in southwestern Kenya. We sampled HIV-positive women on ART at 12 months postpartum between April-August 2017. Women completed an in-person semi-structured survey administered by female interviewers in their preferred language. Descriptive analysis of patterns of disclosure and male partner reactions are described.

	Total	Positive (Male partner reaction)	Negative/Mixed (Male partner reaction)	Odds Ratio [95% Confidence Interval]	p-value
	N=168 (%)	N=147	N=21		
Age of woman (mean sd)	28.2 (5.0)	28.3 (5.1)	27.6 (5.0)	1.0 (0.94 - 1.13)	0.55
Anticipated Stigma					
Yes	44.3% (74)	45.8% (66)	38.1% (8)	1.4 (0.54 - 3.52)	0.51
No	55.2% (93)	54.2% (78)	61.9% (13)	ref	
Age of man (mean sd)	36.2 (9.1)	36.3 (9.4)	35.6 (5.3)	1.0 (0.72 - 0.96)	0.72
Male partner tested for HIV					
Yes	95.1% (156)	95.0% (137)	95.0% (19)	1.0 (0.12 - 8.83)	0.98
No	4.9% (8)	4.0% (7)	5.0% (1)	ref	
Partner Education Level					
None	1.3 % (2)	1.3 % (2)	0% (0)	ref	
Some - finished primary	63.4% (102)	64.5% (91)	55.0% (11)	omitted	
some 2-finished secondary	31.1% (50)	30.5% (43)	35.0% (7)	0.74 (0.26 - 2.05)	0.57
certificate or higher	4.4% (7)	3.6% (5)	10.0% (2)	0.30 (0.06 - 1.75)	0.18
Partner HIV status					
HIV positive	70.7% (106)	73.3% (96)	52.6% (10)	[illegible]	[illegible]
HIV negative	29.3% (44)	26.7% (35)	47.4% (9)		
How partner disclosed to					
Self-disclosed	56.6% (95)	54.2% (78)	70.0% (14)	ref	
Couples HIV Testing and Counseling	32.5% (54)	36.1% (52)	5.0% (1)	9.3 (1.2 - 73.1)	0.03
Antenatal Clinic	7.7% (13)	6.3% (9)	20.0% (4)	0.40 (0.11 - 1.49)	0.17
Other	3.6% (6)	3.5% (5)	5.0% (1)	0.90 (0.10 - 8.27)	0.92
When did partner learn status					
Prior to woman learning status	37.7% (55)	40.2% (51)	26.7% (4)	ref	
At the same time	26.0% (38)	25.8% (34)	26.7% (4)	0.67 (0.17 - 2.65)	0.58
After woman learned her status	36.3% (53)	33.1% (42)	46.7% (7)	0.47 (0.13 - 1.72)	0.25
Intimate Partner Violence					
How often has your partner said cruel or angry things during a disagreement?					
Frequently*	13.3% (22)	10.4% (15)	33.3% (7)	0.23 (0.08 - 0.67)	0.01
Rarely†	86.7% (143)	89.6% (129)	66.7% (14)	ref	
How often has your partner physically hurt you during a disagreement?					
Frequently*	11.6% (19)	10.5% (15)	19.1% (4)	0.50 (0.15 - 1.68)	0.26
Rarely†	88.4% (145)	89.5% (128)	81.0% (17)	ref	

[Table 1. Association between male partner reaction to HIV disclosure of post-partum HIV positive women]

Results: A total of 180 (90%) women reported having a main male partner of whom 95.5% respondents reported disclosing their HIV status to that partner. The majority of women (82.8%) reported disclosure to their male partner occurred within one year of their diagnosis, with 62.7% of disclosure occurring within one week. Most common forms of disclosure were: self-disclosure (55.4%), couple's HIV testing (31.5%), and at antenatal care visit (7.7%). Women reported 87.5% of male partner reactions to disclosure were positive. There were no reports of gender-based violence, threats or break up as a result of disclosure. Women reported 162 (90%) of their male partners had an HIV test, 8 (4.4%) untested, and 10 (5.6%) unknown. Of those who also knew their partner's HIV status, 62% were HIV-positive and 29% HIV-negative. Disclosure to male partners via couples counseling and testing was positively associated with a positive reaction to disclosure compared to self-disclosure (Odds Ratio (OR) 9.3; p=0.03). (Table 1) Women experiencing verbal intimate partner violence were nearly 80% less likely to experience a positive response to disclosure (OR 0.23; p=0.01).

Conclusions: The majority of HIV+ pregnant and postpartum women in this cohort disclosed to their male partners early after diagnosis and experienced a positive reaction. According to women, knowledge of HIV status is high among male partners but most often does not occur at the same time as women's HIV diagnosis.

WEPED573

Harnessing peer support amongst women living with HIV in positively women: A case for gender sensitive interventions

D. Onyango[1], S. Petretti[1], H. Rogers[1], S. Paparini[2]
[1]Positively UK, London, United Kingdom, [2]Graduate Institute of International and Development Studies, Geneve, Switzerland

Background: Around 29,000 women are living with HIV (WLWH) in the UK and Black African women are disproportionately affected. Sex and gender interact with HIV status, ethnicity, socio-economic background, immigration status, and personal factors. The Positively Women's project was initiated in recognition of women's specific needs following a wide consultation with WLWH at the 2014 Women Know Best conference in London.
Description: The Project aims to increase women's agency in managing health through peer support. Collective activities support women in all aspects of life and women can train to become peer mentors. Interventions include: individual peer support from specialised case workers and volunteer peer mentors in HIV clinics and at our premises; regular group support and workshops on topics chosen by women (e.g. sex and relationships, legal rights, financial management); partnership and sustained advocacy with other services.
Lessons learned: Gender-based power imbalances at home and work and structural barriers in UK welfare and immigration policies affect a large proportion of the women in the project, constrain our capacity to meet their intersecting needs, and limit their ability to become peer mentors. Other public and voluntary service providers do not always display awareness of the specific material and psychosocial needs of WLWH. It is challenging to deliver an inclusive service to women who differ in terms of: employment, age, motherhood, ethnicity, literacy, gender identity, sexuality, citizenship and legal rights. Yet issues with isolation, stigma, and disclosure are common irrespective of this diversity. Ongoing feedback from project beneficiaries, volunteers, staff and the evaluation team enable tailoring of the project. The project success is growing: 140 group and 244 individual sessions have been held this year and increasing numbers of women access the service; collaboration with other services is strengthening; project staff are invited to present on project activities at other organisations and events in local communities.
Conclusions/Next steps: The task of meeting the needs of a heterogeneous population of WLWH in the UK remains a challenge. However, the project is needed and well-attended as it empowers women to live positively with HIV, help their peers through training as volunteer peer mentors, and be active stakeholders in service delivery.

WEPED574

Engaging men and boys is key to preventing violence against women and for promoting better health outcomes for women and children

M. Umoh, A. Adetunji, P. Inyang, E. Babatunde
Health Initiative for Safety and Stability in Africa (HIFASS), Calabar, Nigeria

Background: Health initiative for safety and stability in Africa (HIFASS) through USAID funding is currently supporting Cross River State, South-South Nigeria to provide quality care, protection and support services to orphans and vulnerable children (OVC) and their households especially in rural and hard to reach communities. Violence such as rape and physical assault against girls and women have been a major occurrence in these communities.
This paper examines the outcome of interventions to reduce violence against women and girls in rural communities.
Description: Violence against women have been a major challenge in the rural communities where we work. These violence against women are mostly are perpetrated by men. Violence is being condoned by these communities because it is regarded by culture as a show of masculinity and power control by the men folk. Hence the need to reach out to men within these communities and sensitize them on the effect of violence against women and the overall impact on the health of women and children.
Several advocacy and sensitization visits were made to the community leaders who were mostly men. In-depth interviews were held to obtain information on their knowledge, attitude and practices on HIV/AIDS related issues. In addition, community sensitization and outreach activities targeting men and boys were conducted in eighteen communities to create awareness on the effect of negative social norms in the community and how they predispose women and girls to HIV infection and other sexually transmitted infections.
Lessons learned: Results from in-depth interviews conducted reveal that most boys and men were ignorant of the consequences of sexual violence on women/girls and the impact on children. After 12 months of consistent community engagement meetings and sensitization outreaches, uptake of HIV testing services in the community increased from 35% to 70% while number of reported cases of sexual assault including rape decreased from 10 -15 reported cases per month to 4 - 6 cases.
Conclusions/Next steps: Active engagement of men within the community play a significant role in the reduction of violence against women since critical decisions affecting the wellbeing of women & girls in most communities are made by men.

WEPED575

An Exploration of the interplay between perceived relationship power imbalance, couple-race, and sexual risk behavior for HIV among gay male couples

C. Hoff[1], D. Chakravarty[1], S. Dworkin[2], T. Neilands[3]
[1]San Francisco State University, Center for Research and Education on Gender and Sexuality, San Francisco, United States, [2]University of Washington, Bothell School of Nursing and Health Studies., Seattle, United States, [3]University of California, Center for AIDS Prevention Studies, San Francisco, United States

Background: Between 40% and 68% of new HIV infections among MSM in the USA is attributed to sexual risk behaviors within male couples. While relationship power is known to shape HIV risk in male-female couples, few studies measure relationship power among male couples or examine its association with HIV risk. Using a newly developed relationship power scale for same-sex male couples, we examined the association between relationship power and sexual risk for HIV as it intersects with couple-race.
Methods: Between June 2012 and October 2014, Black, White and biracial Black-White male couples (N=377 couples) were recruited in New York City and the San Francisco Bay Area and completed a self-administered ACASI survey exploring relationship power, sexual risk behavior and relationship dynamics. Each partner was categorized based on his perceived power imbalance (PPI) within the relationship
(0: less imbalance; 1= more imbalance). Using logistic generalized estimating equations (GEE) accounting for data clustering within couples, we tested the association of PPI and couple-race with sexual risk, defined as condomless anal sex with an outside partner of discordant or unknown HIV status (CASDU) in the previous 3 months.
Results: The sample contained 53.6% White, 23.7% Black and 22.7% Black-White couples where 72.7% were concordant HIV-negative and 27.3% were serodiscordant. CASDU was reported by 10.4% of the participants. The model demonstrated a statistically significant interaction between PPI and couple-race. Specifically, among Black-White couples, controlling for relationship length and couple serostatus, the partner with higher PPI had significantly greater odds of reporting CASDU compared to his partner (aOR=3.88; p=0.005). This was not true for Black and White same-race couples. Further, in Black-White couples, the White partner had the higher PPI in significantly more instances.
Conclusions: Greater perceived power imbalances among partners in Black-White couples is associated with greater odds of sexual risk for HIV. Further exploration of various factors that possibly interplay with

couple-race including couples' socio-economic status, individual HIV-statuses, agreement type, and relationship dynamics such as communication (levels and -types) is needed to uncover the mechanisms behind this association. Meanwhile, HIV prevention programs for male couples should incorporate the handling of relationship power imbalances to minimize this risk.

WEPED576

Are relationships protective for trans women and trans men partnered with cis gendered men?

C. Hoff[1], S. Castellanos[1], C. Michels[1], V. Tykulsker[1], S. Sicro[1], C. Tate[2]
[1]San Francisco State University, Center for Research and Education on Gender and Sexuality, San Francisco, United States, [2]San Francisco State University, Psychology, San Francisco, United States

Background: HIV disparities in the U.S. continue to affect the most marginalized groups. Transgender women represent alarmingly high rates of HIV, and trans men report high risk sexual behaviors, particularly with cis men, and increasing rates of HIV. Past research has identified important relationship factors associated with risk among gay couples. However, little is known about relationships that feature a trans partner. We conducted a study that explored relationship factors associated with HIV risk among trans women and trans men in committed relationships with cis men.
Methods: Between May 2016 and May 2017 we recruited *N* = 39 couples in the San Francisco Bay Area. Targeted recruitment strategies were used at transgender community events, community-based organizations, as well as social media (e.g., Facebook). Couples were interviewed simultaneously but separately at our offices in downtown San Francisco. Semi-structured interviews explored gender identity, discrimination, sexual behavior, agreements, HIV prevention and relationship satisfaction. Interviews were transcribed, coded and analyzed by the study team.
Results: Of the 39 couples, 22 were trans women with cis male partners and 17 were trans men with cis male partners. Approximately 48% of the sample identified as White, and 19% were HIV-positive. Of those who were HIV-positive, approximately half were trans women and half were cis men. None of the trans men in the sample reported being HIV-positive. Overall, sexual risk behavior for HIV was low. Factors contributing to this included: a clear understanding of agreements about whether or not sex with outside partners was allowed; condom use with outside partners; and few reports of broken agreements. Most couples did not perceive themselves to be at risk, none were taking PrEP, and most were satisfied with their sexual relationship with their partner. Few discrepancies between partners were reported in any of the interview topics.
Conclusions: Trans women and trans men in committed relationships with cis men reported low sexual risk for HIV. Relationship factors like having clear agreements and not breaking agreements support these couples to have satisfying sexual relationships without the burden of significant risk. Relationships may serve as a protective mechanism against risk for HIV among these couples.

WEPED577

Sexual agency and disproportionate risk: Young women's experience with HIV risk in Cape Town, South Africa

S. Manley
York University, Department of Politics, Toronto, Canada

Background: Young women in South Africa are experiencing a greater disproportionate risk of HIV than their male counterparts. Relationship dynamics and gender roles shape the environment within which men and women can engage successfully with HIV risk prevention. This study investigates gender imbalances in sexual relationships that exacerbate women's risk and looks to how gendered HIV risk perception is understood and performed in sexual partnerships.
Methods: The primary data findings are based on a sample study from field research conducted in Cape Town, South Africa from February 2016 - June 2016. This study conducted focus group discussion and used qualitative thematic content analysis to analyze responses from 280 men and women (18-30) who engaged in heterosexual partnerships in the past 6 months in Kilpfontein sub-district and Khayelitsha sub-district.
Results: The themes derived from recurrent and similar patterns of discussion revealed:
(a) Maintaining the relationship with the main partner as more important then communicating HIV prevention;
(b) The sexual decision making power was constrained for women in sexual partnerships. Women chose their male partners but would submit to the demands of the male partner when gift giving was present;
(c) Men and women spoke of the lack of trust between genders, minimal communication about prevention and openly acknowledged engaging in multiple partnerships.
This lack of trust by both the men and women has culminated into an increase in risk actions taken by young women. The study revealed that women age 25-30, were more likely to be waiting at home for their partner to bring HIV to them, while the younger women age 18-24, suggested that they are purposefully seeking multiple partnerships. There is strong link between women's means of subsistence (money), sexual partnering and the risk actions taken. These gendered dynamics contribute to agency constraints for young women.
Conclusions: This study reveals an important connection between HIV risk perception, agency and sexual partnering dynamics. Prevention efforts need to be tailored to recognize the constraints of sexual agency for young women and reduce barriers to effective and more sustainable gendered combination prevention strategies that focus on the underlying sociocultural and economic factors related to gender inequality.

WEPED578

Religious leader a mechanism for change in HIV prevention and gender based violence: A community approach

A. Erinmwinhe
Nigeria Network of Religious Leaders Living with or Personally Affected by HIV/AIDS, Programs, Federal Capital Teritory, Nigeria

Background: Studies show that violence perpetuated against women and Men can directly or indirectly enable HIV transmission. Justifications for violence frequently are on based gender norms that is, social norms about the proper roles and responsibilities of men and women. These cultural and social norms socialize males to be aggressive, powerful, unemotional, and controlling, and contribute to a social acceptance of men as dominant. Similarly, expectations of females as passive, nurturing, submissive, and emotional also reinforce women´s roles as weak, powerless, and dependent upon men. The socialization of both men and women has resulted in an unequal power relationship between men and women. Some faith teachings have been implicated as drivers of HIV stigma and erroneous gender narratives that trigger violence against women.
Description: Nigerian Network of Religious Leaders living with or Personally Affected by HIV/AIDS (NINERELA+) in collaboration with INERELA+ South Africa conducted community/media dialogues and education for female religious leaders on HIV prevention stigma & SGBV. The dialogue was aimed at building the capacity of female religious leaders to serve as champions in fight against HIV/AIDS, SGBV,SD by educating community who are likely perpetuators, identifying cases and linkage into care/justice. Participants identified innovative strategies to address SGBV and HIV Issues in churches/mosque to curb issues.
Through CD meetings religious leaders who were living in denial of SGBV/HIV publicly disclosed their experiences and shared personal testimonies as HIV persons who has overcome stigma and are reporting cases of injustice. These has led community ownership of the project by clerics.
Lessons learned: Using religious leaders has help victims disclose their status.
Different strategies were adopted by Female leaders to address common problems.
Female leaders created save space for women to confront issues that were not initially discussed comfortably.
Media enlightenment helps to promote cases of injustice and stigma cases.

Conclusions/Next steps:

1. Religious leaders are to expand the network of women working on gender and stigma reduction in their communities.
2. The community should be allowed to take ownership of the project and the lead the process.

WEPED579

Determinants of post-disclosure violence against HIV positive women in serodiscordant unions: A cross-sectional study in Kumasi, Ghana

Y.O.I. Hardy[1], E.K. Agbeno[2], A. Enimil[3], P.K. Antwi[4], F. Agyemang-Yeboah[5], N.K. Mensah[6]
[1]School of Medical Sciences, Kwame Nkrumah University of Science and Technology/Komfo Anokye Teaching Hospital, Internal Medicine, Kumasi, Ghana, [2]School of Medical Sciences, University of Science and Technology, Obstetrics and Gynaecology, Cape Coast, Ghana, [3]School of Medical Sciences, Kwame Nkrumah University of Science and Technology / Komfo Anokye Teaching Hospital, Paediatrics, Kumasi, Ghana, [4]Arocha Ghana, Environmental Science, Kumasi, Ghana, [5]School of Medical Sciences/University of Science and Technology, Molecular Medicine, Kumasi, Ghana, [6]Komfo Anokye Teaching Hospital, Public Health Unit, Kumasi, Ghana

Background: Violence against women is a global epidemic that infringes on their rights and has negative health outcomes. In sub-Saharan Africa lifetime prevalence of partner violence is over 30%. HIV positive women in serodiscordant unions are at risk of violence after disclosure of their status. This can hinder their adherence to antiretroviral therapy, with serious public health consequences. Knowledge of the determinants of violence can help design appropriate interventions. This study assesses the risk factors for post-disclosure violence against HIV positive women in serodiscordant unions in Kumasi, Ghana.
Methods: A cross-sectional study was conducted among 129 consented HIV positive women in serodiscordant unions attending the HIV clinic at a tertiary health facility in Kumasi, Ghana from May to October 2017. Self reported biodata, social history and experience of post-disclosure violence from their partners were confidentially obtained from each participant using standard interviewer administered questionnaires and analysis done using SPSS version 20 statistical software. Characteristics of the respondents who reported violence and those who did not were compared using Chi square analysis at 5% level of significance.
Results: The mean (sd) age in years of respondents and their partners was 40(±8) and 46.9(±9.3) respectively. Post-disclosure violence was reported by 24 (18.6%) respondents; psychological violence was the most common (n=18, 75%), followed by physical (n=3, 12.5%) and sexual violence (n=3, 12.5%). Women who experienced violence were more likely to be financially independent of their partners than those who did not (40.7% vs 13.3%, p=0.005), more likely to be in a polygamous relationship (61.1% vs 10.8%, p< 0.001) and more likely to have partners who took alcohol (83.3% vs 16.7%, p=0.006).
Conclusions: Screening for partner violence and provision of the needed support should be integrated into routine ART services especially for vulnerable HIV positive women who are prone to violence. Behaviour change communication strategies against alcohol intake and polygamy should also be developed. Furthermore caregivers should be trained to empower women, with identified risk factors for violence, with skills on status disclosure so as to minimize violence.
There is a need for further research into factors that determine violence among financially independent women.

WEPED580

Sex and age differences of clients accessing post gender based violence care services in selected states in Nigeria

O. Idoko[1], P. Ikani[1], T. Akibu[1], T. Philip-Ononye[2], A.A. Aliu[3], C. Agbakwuru[1], E. Iwara[1], E. Oladele[1], O. Adedokun[1], S. Raj Pandey[1], H. Khamofu[1]
[1]FHI 360, Abuja, Nigeria, [2]USAID, Abuja, Nigeria, [3]Federal Ministry of Women Affairs and Social Development, Abuja, Nigeria

Background: Gender-Based Violence (GBV) is a global pandemic that afflicts men, women and children. However, women and girls are the most affected by gender-based violence. An estimated one in three women worldwide has been beaten, coerced into sex, or abused in her lifetime. Nigeria in recent years witnessed instability in various political, ethnic and religious conflicts, which has been further heightened by the terrorist group Boko Haram in northeastern Nigeria. With these conflicts, came media reports of increased GBV and sexual assault of women and children. The USAID funded SIDHAS project has a design that includes strategies to increase awareness of GBV, post-exposure prophylaxis uptake, and post-GBV care at all supported health facilities and communities. This review describes sex and age difference among clients receiving Post-GBV care in the SIDHAS supported treatment program in Nigeria.
Methods: We reviewed data from 143 supported public health facilities located across 13 states in Nigeria. Post-GBV care was available for both sexual violence and physical violence at the facilities. Post-GBV care data dis-aggregated by type of violence was documented in the National register and reported monthly in the DHIS. We reviewed Post-GBV data reported from January 2016 to October 2017.
Results: A total of 5,986 individuals received post-GBV care services of which 2,941 and 3,045 were cases of sexual and physical violence respectively. Females accounted for 83% (2,438) of individuals that received post-GBV care for sexual violence and 65% (1,981) for physical violence. Individuals below 25 years accounted for 68% (1,992) and 45% (1,368) of people that received post-GBV care for sexual violence and physical respectively. Children 0-9 years contributed 14% and 3% to post-GBV care for sexual and physical violence respectively. Majority (53%) of all the sexual violence cases reported was from the South-south states with the North-East accounting for 13% (383). Sixty nine percent (2,032) of clients receiving post-GBV care for sexual violence received post-exposure prophylaxis (PEP), of which 84% (1,711) were females (p< 0.001).
Conclusions: This highlights the need for a comprehensive GBV intervention in Nigeria, addressing first and foremost violence against women and girls and secondarily men and boys.

Sexual concurrency and sexual networks

WEPED581

Using virtual reality to make young people more aware of their sexual network in order to reduce unfounded trust in their partner´s STI status

H. Roosjen, F. Zimbile, E. Fisser, K. Vermey
Soa Aids Nederland, Amsterdam, Netherlands

Background: International research into the determinants of condom use shows repeatedly that trusting your partner, however long you've known him or her, is the main reason for not using condoms - "they wouldn't have an STI!". Confronting young people with the unknown factor of their sexual network, by asking them how many exes they have, is a good way to make them think again.
Description: That's why Soa Aids Nederland has developed the Ex-O-Meter: an online application that calculates and visualises the size of a sexual network based on details given by the person themselves. Being confronted with the size of their network seems to heighten a young

person's perceived necessity for using condoms. When the network is visualised, it makes them aware that they actually have to trust their ex's ex too if they want to have safe sex without a condom.

Lessons learned: The Virtual Reality version currently in production will further increase the impact of the Ex-O-Meter. Rather than being just a spectator, you really enter the network of exes, making the experience much more intense. Interacting with them provides you with information that convinces you of the risks of unsafe sex.

Pretesting the prototype showed us that it does increase awareness of the network: "I see the reality that I don't dare think about. We all know the risks of unsafe sex, but tell ourselves that nothing will actually happen." Making the experience too scary proofed to be counterproductive.

Conclusions/Next steps: VR is an innovative method for bringing about behavioural change. The preliminary results of the Ex-O-Meter suggest that it enhances the experiences of the users and therefore might have a bigger impact on the determinants of condom use, namely awareness, risk perception and intention. An important condition is that it does not arouse fear.

Soa Aids Nederland believes the Ex-O-Meter can be effective as an interactive installation at schools and events. The organisation has an extensive national network that enables us to reach many young people. We will also be exploring possibilities for exporting our VR experience internationally, to middle-income and even low-income countries.

[Ex-O-Meter in virtual reality]

WEPED582

A longitudinal analysis of the impact of PrEP on sexual behaviour and drug use among Australian gay and bisexual men

G. Prestage[1], L. Maher[1], F. Jin[1], L. Degenhardt[2], S. Vaccher[1], A. Bourne[3], M. Hammoud[1]

[1]University of New South Wales, Kirby Institute, Kensington, Australia, [2]University of New South Wales, National Drug and Alcohol Research Centre, Kensington, Australia, [3]La Trobe University, Australian Research Centre in Sex Health and Society, Bundoora, Australia

Background: It has been claimed that PrEP may change sexual and drug using behaviors among gay and bisexual men (GBM) but few studies have assessed this longitudinally.

Methods: Between 2014-2017, we enrolled into the FLUX online cohort study 1246 GBM who were not HIV-positive and who provided five rounds of six-monthly follow-up data collection. We describe changes in sexual behavior and methamphetamine use following PrEP uptake.

Results: .At baseline, mean age was 33 years and 13 men (1.1%) were using PrEP.

Among 228 men (15.1%) who commenced PrEP during 24 months follow-up, number of partners in the previous six months increased from baseline (Mean=24) to 24 months (Mean=44) ($p< 0.001$); the proportion reporting group sex also increased from 25% to 49% (p-trend< 0.001). Nearly 60% of men who commenced PrEP reported condomless anal intercourse (CLAIC) in the round prior to commencing PrEP, and almost 25% reported methamphetamine use. In particular, receptive CLAIC increased among these men who commenced PrEP, from 45% at baseline to almost 80% by 24 months follow-up, but methamphetamine use remained steady. Also, whereas 5% reported 'often' engaging in receptive CLAIC at baseline, this increased to 16% at 24 months.

Of 930 men who had never used PrEP throughout the study period, 23% reported recent CLAIC and 9% reported methamphetamine use at baseline; they reported a mean of 10 recent partners. Prevalence and frequency of these behaviours remained steady over time.

Among men who reported any receptive CLAIC during 24 months follow-up, 29% of men who had commenced using PrEP and 15% of men who never used PrEP reported receptive CLAIC only with partners who were using PrEP.

Conclusions: Men who initiated PrEP became significantly more sexually active in general and were more likely to engage in CLAIC, and to do so more often. Methamphetamine use remained steady after commencement of PrEP. GBM who commence using PrEP change their sexual behavior, though not necessarily their drug use behavior. These behavior changes appear not to have affected men who do not use PrEP.

WEPED583

Hearing from the men: Multiple partnerships, HIV risk, and drivers of their relationships with AGYW in Swaziland and Uganda

J. Pulerwitz[1], A. Gottert[1], G. Siu[2], P. Shabangu[3], P. Keilig[1], S. Mathur[1]

[1]Population Council, HIV and AIDS Program, Washington, DC, United States, [2]Makerere University, Child Health and Development Centre, Kampala, Uganda, [3]Institute for Health Measurement, Mbabane, Swaziland

Background: Given very high incidence rates among adolescent girls and young women (AGYW) in eastern and southern Africa, HIV risk experienced by AGYW and their male partners is a major concern in the HIV field. However, little is still known about these relationships from men's perspectives. We conducted in-depth qualitative research with 135 men as part of implementation science research to reach and characterize male sexual partners of AGYW, and understand drivers of their relationships.

Methods: From March-August 2017, we conducted in-depth interviews (IDIs) with 40 men in Swaziland and 95 in Uganda, ages 18+. Respondents were recruited primarily at community 'hot spot' venues. Data analysis involved coding in atlas.ti and synthesizing findings.

Results: Respondents were 28 years old on average in both countries (range of 20-47 in Swaziland; 19-45 in Uganda). Most men reported sexual relationships with AGYW over the past year, who were usually 3-7 years younger than them. Eighty percent of men in Uganda and 33% in Swaziland were married/cohabiting. Men's relationships in Uganda generally consisted of multiple, overlapping long-term partners, whereas in Swaziland they reported multiple shorter-term casual relationships. Most men in both countries described norms supporting multiple partnerships and common patterns of conflict within their relationships. In Uganda this manifested primarily as unresolved discord in their marriage, which men said drove them to seek younger side partners who would be more likely to value and respect them. In Swaziland, men described ubiquitous distrust within relationships, which they said has led to a shift among youth to delay formalizing relationships in marriage until older (e.g., age 30+). In both countries, couples report infrequent and/or blaming communication about HIV prevention and family planning.

Conclusions: Inability to resolve conflict in relationships, and to communicate about HIV and reproductive health, emerged as a root cause of both relationship dissatisfaction and men's multiple concurrent relationships in Swaziland and Uganda. Carefully designed interventions focused on healthy couple communication and conflict resolution skill-building, and critically examining norms around the need for multiple partnerships, are urgently needed for both men and their partners.

Sexuality, gender, and prevention technologies (including condoms, treatment as prevention, male circumcision, pre-exposure prophylaxis)

WEPED584

"I feel like shackles have been loosened a little": The impact of PrEP on gay men's sexual cultures in Australia

B. Haire[1], S. Vaccher[1], L. Maher[1], D. Murphy[2], I. Zablotska-Manos[3]
[1]UNSW Sydney, Kirby Institute, Sydney, Australia, [2]University of Sydney, Sydney, Australia, [3]University of Sydney, Sydny, Australia

Background: Background: By the end of 2017, more than 14,000 gay and bisexual cisgender and transgender men (GBM) were accessing HIV pre-exposure prophylaxis (PrEP) in Australia. This study explores the culture of PrEP adoption and the evolving concepts of 'safe sex'.
Methods: Between September 2015 and February 2018, 38 in-depth interviews were conducted with 24 GBM using PrEP, and seven sexually active GBM not using PrEP. Twelve participants completed a follow-up interview 9-18 months later. Interviews were electronically recorded and transcribed. Data were analysed thematically.
Results: Of the 24 PrEP users, three had ceased use by the follow-up interview. Cessation due to side effects provoked anxiety due to renewed HIV acquisition risk. Some PrEP users reported sporadic or non-existent condom use prior to PrEP access, and most reported reducing condom use following PrEP uptake. Many participants associated condoms with HIV-related anxiety and loss of pleasure and intimacy, however some positively associated condoms with practices of negotiation and expressions of mutual care. HIV-negative men not on PrEP reported an increasing difficulty in having sex with condoms, and feeling stigmatised as non-PrEP users. Some participants described PrEP as a means of reducing barriers based on serostatus, but most PrEP users still wanted HIV-positive partners to have undetectable viral loads. Positive impacts of PrEP included reduced HIV-related anxiety, improved sexual negotiation, and the resurgence of peer-based sexual health support. Negative impacts included concerns about sexually transmissible infections and perceived loss of sexual capital by those who wanted to continue condom use.
Conclusions: Many study participants reported irregular or infrequent condom use prior to PrEP initiation, which declined further after adoption. However, this is not a concern for HIV transmission in a high adherence context. Reduction in HIV-related anxiety suggests a mental health benefit for PrEP users. Of concern are reports of normative pressure on non-PrEP users to adopt PrEP. While PrEP has made HIV prevention easier for many, findings suggest that the sex culture has not yet shifted to an inclusive 'combination prevention' approach. Paradoxically, maximising the benefits of PrEP may require further support for those opt to continue condom use.

WEPED585

Community research engaging women (CREW): Utilizing participatory action research to understand women's knowledge, attitudes, and beliefs about PrEP

C. Carey-Grant
WORLD (Women Organized to Respond to Life-threatening Disease), Oakland, United States

Background: African American and Latina women in Oakland are at significant risk of HIV infection. According to the Oakland TGA Comprehensive HIV Service Plan, women comprise 19% of people living with HIV/AIDS- higher than in any major metropolitan area in the western US; with 64.9% being African American and 13.1% Latina. PrEP can reduce the risk of HIV by almost 90% among HIV discordant heterosexual couples.
While studies show using PrEP properly can reduce the risk of HIV transmission, uptake has been slow. •At the 2014 HIV and Drug Therapy Congress in Glasgow, community level data collection was recommended as a means to integrate PrEP into HIV prevention messaging and service.
Description: CREW engages and empowers women in Oakland to better identify the opinions, motivators, and barriers to PrEP adoption by our community. Using Participatory Action Research (PAR), our research was based on what our constituency knows about their unique circumstances-rather than from external research. WORLD trained 25 women to become Peer Researchers during a 1.5 day training which included information on PAR, the power of research in policy & advocacy, and how to ethically conduct research in the community setting.
Of the 25 women who graduated from the training, 17 went on to interview women. Data from 503 women were collected using a 12 page interview tool with self-identified women, age 18 or over.
Lessons learned: 21% of sample have heard of PrEP (n=105) Of those, 31% have never heard of PrEP for women
• Many know it's a pill taken orally & daily to prevent HIV but there are many misconceptions
• Confused PrEP with PEP
• For gay men only. 16% know where to access PrEP
• 12% have accessed PrEP •2% have a partner who uses PrEP
Conclusions/Next steps: Through the data we gathered, we were able to develop a tailored PrEP 101 fact sheet geared towards women. Our fact sheet address the concerns women have about PrEP and provides a guide for their own personal decision making regarding PrEP. The data was shared at a one day convening with over 70 attendees comprising of community members, researchers, physicians, policy makers, consumers, and social service providers.

WEPED586

Will male partners of adolescent girls and young women (AGYW) support their PrEP use? A comparative analysis of AGYW and male partners of AGYW views in Tanzania

N. Jani[1], N. Pilgrim[1], V. Saria[1], C. Kahabuka[2], N. Makyao[3], L. Apicella[1], J. Pulerwitz[1], S. Mathur[1]
[1]Population Council, HIV & AIDS Program, Washington, United States, [2]CSK Research Solutions, Dar es Salaam, Tanzania, United Republic of, [3]National AIDS Control Programme, Dar es Salaam, Tanzania, United Republic of

Background: Power differentials in AGYW's sexual relationships are a contributing factor to AGYW vulnerability to HIV. Although PrEP is a female-initiated HIV prevention method, AGYW's relationship contexts could potentially influence uptake and adherence to PrEP. We assessed male partners of AGYW's support of AGYW PrEP use in Tanzania via a qualitative comparative analysis of AGYW's and male partners of AGYW's views.
Methods: Twenty-four in-depth interviews (IDIs) and four focus group discussions (FGDs) were conducted with AGYW aged 15-24 residing in Dar Es Salaam and Mbeya. Sixteen IDIs were conducted with men aged 18 or older who were married to or in a relationship an AGYW. To acquaint participants with PrEP, a visual, standardized script of PrEP information was shared with them prior to IDIs and FGDs. AGYW and male partners were asked the same questions during their interviews, including perceptions of their partners' use of PrEP and reactions of their partners' to their PrEP use. Thematic content and constant comparative method analyses were used.
Results: Both AGYW and male partners agreed that most male partners would be willing to support PrEP use by AGYW partners. However, both expressed that male partner support would be dependent on his early inclusion in the decision-making process. This early inclusion, respondents noted would remove suspicion of infidelity and alleviate negative consequences associated with late or inadvertent-disclosure of PrEP use.
AGYW noted potential consequences associated with covert use of PrEP. Potential consequences included relationship dissolution, loss of financial support, and verbal and physical violence. Male partners however denied such potential extreme consequences associated with their partner's covert use of PrEP.

Male partners recommended engagement in PrEP initiatives targeted toward AGYW - including providing education to men on PrEP, equipping AGYW with skills educate their partners, couples counseling by providers, provision of PrEP for men, and community education and sensitization as strategies for gaining men's support of PrEP.
Conclusions: Engaging male partners may need to be an essential component to ensure AGYW's access and use of PrEP. Educating male partners about PrEP and engaging them in implementation activities should be part of PrEP roll-out strategies for AGYW.

WEPED587

Gender in biomedical HIV prevention trials in sub-Saharan Africa: A review of the issues and recommendations for gender transformative research

L. Lorenzetti, K. MacQueen, J. Tharaldson, N. Eley
FHI 360, Durham, United States

Background: Since the early 2000s, biomedical HIV prevention trials have embraced approaches emphasizing community engagement and social protection. Despite the importance of gender dynamics in influencing decisions to participate, use products, and be retained in a trial, gender considerations are not explicitly addressed in such research. Furthermore, given past controversies regarding biomedical trials with vulnerable populations, including female sex workers (FSW), there are arguments to adopt procedures that promote gender transformative practices. We conducted a systematic review of articles from 2001-2017 to analyze gender-related issues in biomedical HIV prevention trials and generate recommendations to make such trials gender transformative.
Methods: A search of eight databases and sourced bibliographies identified 4832 unique articles. Title, abstract, and full texts were reviewed, yielding 99 peer-reviewed publications of biomedical HIV prevention trials and associated social and behavioral research that included discussions relevant to gender-related themes. We examined gender-related themes for general trial populations and key groups: adolescent girls, FSW, pregnant women, men who have sex with men (MSM), and transgender women (TGW).
Results: We examined themes related to pregnancy, contraceptives, partner engagement and communication, decision-making, violence, stigma, and others. Pregnancy and birth control requirements were major themes; trials typically required participants to avoid pregnancy to remain on product. This was often at odds with gender norms and participants' family planning desires. Some women and gender minority participants experienced distrust, discrimination, or violence when partners or the community misunderstood the study or product's intent. Certain products were designed as women-controlled options, allowing for covert use if necessary; however, most women discussed product use and trial participation with partners to promote engagement, potentially transforming sexual decision-making norms. Some partners were not engaged due to inequitable gender attitudes or fear of abuse or abandonment. Gender themes for MSM and especially TGW were rarely addressed.
Conclusions: To make biomedical HIV prevention trials gender transformative, researchers should become competent in and responsive to gender norms affecting study populations; educate communities while promoting gender equitable attitudes; empower women to decide how to involve their support networks, if at all; and consider the needs of under-represented groups, such as TGW.

WEPED588

Internalized homonegativity decreases access to condoms among MSM in 10 countries of Eastern Europe and Central Asia

O. Shestakovskyi[1], M. Kasianchuk[2], A. Garner[3], S. Howell[3], V. Djuma[2], P. Sabelashvili[2]
[1]Independent Scholar, Kyiv, Ukraine, [2]Eurasian Coalition on Male Health, Tallinn, Estonia, [3]Hornet Gay Social Network, San Francisco, United States

Background: Condom distribution coverage should be increased among men having sex with men (MSM) in Eastern Europe and Central Asia (EECA) region. There is evidence that internalized homonegativity (negative attitudes on own same-sex attractions, IH) can be a significant predictor of a lower coverage. We test a link between IH and receiving free condoms in EECA countries that is for the first time in the region.
Methods: A cross-sectional online survey of MSM was conducted by Eurasian Coalition on Male Health (ECOM) from August 13 until October 2, 2017. Total sample includes 5775 respondents from 10 countries (Armenia, Azerbaijan, Belarus, Estonia, Georgia, Lithuania, Kazakhstan, Kyrgyzstan, Russia, and Ukraine). We used binary logistic regression to examine relationship between IH and condoms distribution coverage. Receiving free condoms in the last 6 months (22%) served a dependent variable.
A reversed 8-item Short Internalized Homonegativity Scale (SIHS) measured IH. As confounders, we employed country, residence (capital, other big city, small town/village), availability of a MSM-service NGO, sexual identity, "outness" of one's sexuality to the others, age, education, and cohabitation status.
Results: Reversed SIHS increase significantly associated with lower chances of receiving free condoms holding all confounding variables constant (OR:0.90 [CI:0.84-0.97] per one-unit change). Other significant effects include having an NGO available (7.83 [6.70-9.16]); living in Belarus (1.84 [1.39-2.44]), Kyrgyzstan (2.94 [1.89-4.57]) or Ukraine (2.55 [2.12-3.07]) vs. living in Russia; cohabitation with a female partner (0.46 [0.30-0.70]); being less "out" as an MSM (0.87 [0.81-0.93]); older age (0.987 [0.978-0.997] per year); living in a non-capital big (0.74 [0.63-0.88]) or small domicile (0.76 [0.59-0.98]) vs. living in a capital city; having below tertiary (1.30 [1.06-1.59]) or basic tertiary (1.31 [1.09-1.57]) vs. full tertiary education. In a similar logistic model on those who has an NGO available (N=1594, 55% received condoms) SIHS remained significant (OR:0.83 [CI:0.75-0.92]).
Conclusions: IH among MSM significantly diminishes their chances to be covered by condom distribution in EECA countries, even if a service NGO is available. Interventions against MSM self-stigmatization are needed to increase this prevention effect.

Approaches to scale and the optimisation of service delivery

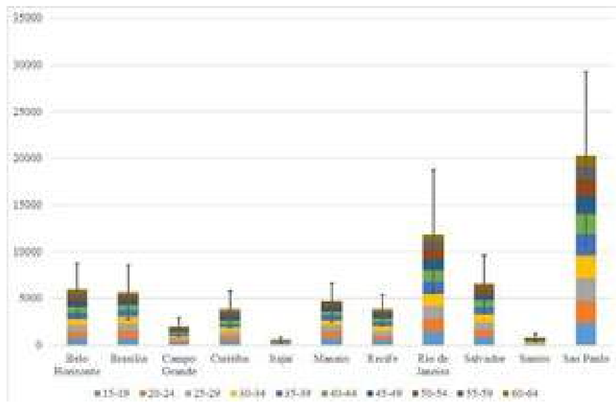
WEPEE589

PrEP adopted by the Brazilian National Health System: What is the size of the demand?

P. Luz[1], A. Benzaken[2], T. Alencar[2], C. Pimenta[2], V. Veloso[1], B. Grinsztejn[1]
[1]Oswaldo Cruz Foundation, National Instittute of Infectious DIseases, Rio de Janeiro, Brazil, [2]Ministry of Health, Department of Surveillance, Prevention and Control of STI, HIV/AIDS and Viral Hepatitis, Brasilia, Brazil

Background: Brazil's response to the HIV epidemic now includes free access to pre-exposure prophylaxis (PrEP) to populations at substantial risk for HIV infection including men who have sex with men (MSM). We used nationally representative demographic, epidemiologic and surveillance data to offer estimates for the number of MSM at substantial risk for HIV infection who might be eligible and willing to use PrEP in Brazil.
Methods: Starting from the age/sex-stratified population, we calculated the number of men aged 15-64 years, in 5-years age groups, and the proportion of those who report sex with other men during their lifetime.

We focused on 11 cities (representing all regions) that are responsible for a significant fraction of the HIV burden of the country and used city-specific HIV-prevalence estimates to infer the fraction of MSM that is HIV negative. We then derived the proportion of HIV-negative MSM under substantial risk for HIV infection defined as having unprotected receptive anal intercourse in the six months prior to study participation. Finally, PrEP uptake among the eligible was inferred from the PrEP Brasil study.
Results: Our results show that PrEP demand in these 11 cities is of 66,120 men aged 15-64 years. When we consider the lower and upper bounds for the available parameters, we find that PrEP demand in these 11 cities might vary from 33,378 to 97,962 men. If PrEP is restricted to those aged 15-49 years, demand drops by 20%. PrEP demand varies considerably by city, mostly due to the differences in population size and city-specific HIV prevalence (Figure).
Conclusions: We have shed light on the probable size of PrEP demand in Brazil certain that the incorporation of PrEP as part of Brazil's combination prevention for populations at substantial risk for HIV infection is a necessary challenge. PrEP will not only prevent HIV infections, it will also expand testing among the most vulnerable with the added benefit of offering combination prevention for the uninfected and immediate treatment for those already infected. As such, expected added benefits of PrEP will be earlier linkage to care, prompt treatment initiation leading to health benefits and decreased transmission.



[Figure. Estimated pre-exposure prophylaxis demand by city and age group.]

WEPEE590

Experience of reaching hard-to-reach people who inject drugs through field mentors with HIV prevention and treatment services in northeastern states of India

S. Mathew, B. George, P. Goswami, A. Singh, N. Bakshi, K. Ditya, T. Jamir, N. Roshan, R. Khiangte
FHI 360, New Delhi, India

Background: Reaching people who inject drugs (PWID) with comprehensive HIV prevention services is challenging. Only 65% of PWID in India report ever having been tested for HIV. Field mentors selected from the PWID community implemented innovative strategies for PWID who are unreached and hard-to-reach through government-supported targeted interventions (TI).
Description: Field mentors were placed in 12 priority districts under Project Sunrise, funded by President's Emergency Plan for AIDS Relief (PEPFAR) in the northeast states of India. Strategies implemented through mentors included:
(a) Secondary distribution of needle and syringe (SDNS) for unreached PWID;
(b) Community-based Index case testing for HIV;
(c) Tracking of clients lost to follow-up from opioid substitution therapy (OST) and ART services;
(d) Accompanied referral for HIV positive PWID to ART services;
(e) Registering new, more vulnerable and young PWID through non-incentivized snow balling approach;
(f) Organising testing camps beyond the coverage areas of targeted interventions;
(g) Facilitating new OST enrolments through client motivation and support group meetings; and
(h) Collecting and consolidating feedback from the PWID and refining program approaches.
Lessons learned: A total of 28 mentors were trained. Of the estimated 2,039 unreached and hard-to-reach PWID in the districts, mentors distributed clean needles and syringes to 373 hard-to-reach PWID through SDNS. Through community based index testing 383 unreached PWID were identified, 238 PWID were contacted and 211 PWID were tested for HIV and 23 (10.9%) were confirmed HIV positive and initiated ART. Of the 931 PWID who were tested through camp approach, 444 PWID who were not registered with TI were having higher positivity (5%) compared to those registered with TI (2%). Around 303 PWID were navigated to the ART centres and initiated on ART. Mentors enrolled 1,229 new OST clients, increasing OST coverage from 2,611 to 3,840 clients from April to September 2017.
Conclusions/Next steps: The mentoring model has improved access to HIV prevention and treatment services altogether for 1,200 unreached and hard-to-reach PWID. The National AIDS Control Program is replicating and scaling up the mentor model in its targeted intervention programs for key populations.

WEPEE591

Integration of community and facility care across the continuum to improve pediatric ART enrolment and retention: Lessons learned from Munhava Health Centre, Beira-Mozambique

B. Rato[1], V. Macome[2], J. Fernando[2], N. Juma[2], G. Garfo[1]
[1]Family Health International FHI 360, CHASS, Beira, Mozambique, [2]Family Health International FHI 360, CHASS, Maputo, Mozambique

Background: ART initiation for children exposed to HIV is a challenge. In Beira City in Mozambique, in 2015 just 50% of HIV infected children were enrolled in care and only 70% of those were retained in treatment after 12 months. The reasons include long turnaround time for PCR early infant diagnosis (EID) results and poor linkage of high risk children into ART services due to limited psychosocial support and adherence counselling and the absence of paired consultation for mother and baby. Innovative interventions involving community support and reorganization were piloted by the Clinical and Community HIV and AIDS Services Strengthening (CHASS) project to improve enrollment and retention.
Description: Between November 2015 and April 2016, CHASS worked with facility staff at Munhava health center to improve these linkages by introducing a point of care (POC) machine for EID in the consultation room for children at high risk, reallocated staff to provide pediatric ART, and assigning a community case manager to follow defaulters and strengthen psychological support. Regular supervision and mentoring supported these innovations. Routine clinic data were collected from patient registers and clinical files from of exposed and infected children. Retention rates were tracked for six months. Results following the introduction of the intervention were compared to those in the 6 months prior to the intervention.
Lessons learned: In the 6 months prior to the intervention 282 exposed children were enrolled versus 352 in the 6 months post intervention. The percent of children tested for PCR EID increased from 73% to 100% and positivity increased from 4 percent to 7.9 percent. Enrollment in care increased from 84% to 100% and 6-month retention from 79% to 95%.
Conclusions/Next steps: Simple reorganization in the high risk consultation room for children in combination with integrating testing services and providing a community case manager for immediate identification for follow up and psychosocial support can improve enrollment and retention without substantial additional effort or resources. Given the simplicity of the interventions and positive feedback from clinical and managerial staff, this approach can be easily scaled up in similar health facilities in the country.

WEPEE592

Acceptability and feasibility of promoting HIV testing to sexual partners using self-testing among HIV-positive men who have sex with men in Guangzhou, China

H. Xu[1], W. Cheng[1], W. Jin[2], Y. Gu[1], F. Zhong[1]
[1]Guangzhou Center for Disease Control and Prevention, Guangzhou, China, [2]China Southern Airlines Henan Airlines Co. Ltd., Zhengzhou, China

Background: HIV testing of sexual partners (SPs) of HIV-positive men who have sex with men (MSM) has always been a significant challenge. Owing to the convenience and privacy, HIV self-testing (HIVST) has become increasingly acceptable. But it is unclear whether HIVST could enhance the uptake of testing among SPs of HIV-positive MSM. Therefore, the current study aimed to evaluate the attitude and the influencing factors about promoting HIVST to SPs among HIV-positive MSM in Guangzhou, China.

Methods: Participants were recruited at the HIV voluntary counseling and testing (VCT) clinic of Guangzhou Center for Disease Control and Prevention between April and December 2016. Attitude and the associated information were collected by electronic-questionnaire and analyzed using logistic regression.

Results: 340 HIV-positive MSM were included in the study, with the median age of 28 (18~52). 76.8% (261/340) participants would recommend HIVST to SPs for HIV testing. The proportion of participants who had anal intercourse with regular SPs and casual SPs within the past 6 months were 81.5% (145/178) and 70.3% (104/148), respectively. The willingness to promote testing to regular SPs by HIVST was higher for participants who got diagnosis less than 6 months (aOR: 3.50, 95%CI: 1.09~11.28), once notified the regular SPs for the past 6 months (aOR: 2.37, 95%CI: 1.06~5.29), with self-experience (aOR: 2.84, 95%CI: 1.02~7.92) or experience from friends (aOR: 2.72, 95%CI: 1.16~6.38) about HIVST. Regarded HIVST as non-inferior to VCT (aOR: 6.56, 95%CI: 1.36~31.61), got diagnosis less than 6 months (aOR: 3.80, 95%CI: 1.31~11.01) and once notified the casual SPs for the past 6 months (aOR: 2.93, 95%CI: 1.32~6.46) may be the associated factors for recommending HIVST to casual SPs. Among participants that finished the questionnaire at VCT and preferred to bring HIVST to SPs by themselves, 46.7% (7/15) really took the HIVST kits.

Conclusions: Positive attitude about promoting HIVST to SPs for HIV testing was found among HIV-positive MSM in Guangzhou, China. Enhancing the perception of HIVST, strengthening the consciousness of partner notification and to mobilize SP testing as early as possible after diagnosis of HIV infection, would be the crucial factors for the actual implementation. Anyway, a feasible operation mode is needed.

WEPEE593

Scale-up of a passive referral model of HIV Index case testing to accelerate case identification in Mangochi, Malawi

T. Tembo[1], K. Simon[1,2], S. Ahmed[1,2], T. Beyene[1,2], E. Wetzel[1], A. Kabwinja[1], W. Kammera[1], H. Chibowa[3], B. Chavula[1], Z. Nkhono[1], E. Kavuta[1], P. Kazembe[1,2], M. Kim[1,2]
[1]Baylor College of Medicine Children's Foundation Malawi, Lilongwe, Malawi, [2]Baylor College of Medicine International Pediatric AIDS Initiative, Houston, United States, [3]Malawi Ministry of Health, Lilongwe, Malawi

Background: Timely identification of people living with HIV (PLHIV) is a critical first step towards the elimination of HIV/AIDs. Index case testing (ICT) can be a high yield strategy to identify PLHIV. Malawi's national HIV Testing Services (HTS) guidelines recommend ICT through passive referral using family referral slips (FRS). However, only 40% of newly diagnosed PLHIV received FRS in the last quarter of 2016. We describe the scale up of ICT via passive referral and its impact on HIV case identification in Mangochi, Malawi (estimated HIV prevalence 10.1%).

Methods: A total of 753 HTS and antiretroviral therapy (ART) providers from 33 health facilities supported by the Tingathe Program in Mangochi district, received a 2-hour on-site training on ICT and how to issue FRS to clients from May-June 2017. "Index cases" defined as clients either newly diagnosed with HIV or known to be HIV-infected and on ART were educated on the importance of ICT. Those who consented to index testing were given a FRS for each household contact with unknown HIV status. FRS contained information inviting the individual to the facility for family health education. We conducted a descriptive analysis of routinely collected program data from these facilities to examine the number of index cases screened as well as the proportion of and yield amongst contacts tested over a 6-month period post-training.

Results: Between June-November 2017, 4177 index clients were screened. There were 7956 FRS issued; a 50% increase from the 4028 issued from December 2016 to May 2017. Of the FRS issued, 1315 (17%) were for sexual partners and 6641 (83%) for children. There were 1035 (13%) contacts who reported for HTS; 159 tested HIV-positive (15.4% yield). Among those returning for HTS, 228 (22%) were sexual partners, 745 (72%) children and 62 (6%) guardians. Of sexual partners tested, 135 (59%) were male.

Conclusions: Facility-based ICT through passive referral using FRS is scalable with a brief targeted training. Further, it is a high-yield strategy for identifying PLHIV. To optimize the impact of this intervention on case identification, additional efforts are needed to increase the proportion of contacts reporting for HTS.

WEPEE594

Piloting community-based saliva testing increases coverage of key populations in Armenia

S. Orbelyan, Y. Amirkhanyan, N. Kostanyan
Mission East Armenia, Mission East GFATM NGO PR Unit, Yerevan, Armenia

Background: The National Programme on the Response to the HIV Epidemic in Armenia for 2017-2021 adopted United Nations' 90-90-90 targets. Among the challenges for reaching these targets is new case detection among key populations (KP). Within Global Fund to fight AIDS, TB and Malaria (GFATM) HIV grants for the last 5 years testing among KPs is done with HIV rapid blood tests. The current legislation permits HIV blood testing only within licensed laboratories, which limits testing coverage particularly among hard-to-reach KPs. To mitigate this challenge community testing with saliva tests for KPs was introduced in August, 2017.

Description: Six-months pilot project in capital city Yerevan envisaged testing of KPs (MSM, PWIDs, CSWs) with "OraQuick HIV-½" tests procured with GFATM support in August 2017-January 2018. The project was aimed to increase the uptake of testing services among KPs. Outreach workers working with KPs underwent a 3-day training on tests application and counseling at the National Center for AIDS Prevention (NCAP). Beneficiaries were tested either at the implementing NGO premises or in the field. Testing and pre- and posttest counseling were provided on 24/7 basis. Positive feedback was received from implementers and beneficiaries during monitoring visits.

Lessons learned: During the pilot 1388 beneficiaries were tested in all KP groups. Overall, 17 HIV-positive cases were detected with further linkage to NCAP for care (8 cases detected within health care settings during the previous semester). Virtually all cases (16) were new beneficiaries. The results of the project suggest that a) application of saliva tests at the community level allowed reaching primarily beneficiaries, who avoid testing within health care settings due to stigma and discrimination; b) provision of testing unbounded to regular day-time working hours was another advantage for testing expansion.

Conclusions/Next steps: The pilot project proved that community-based saliva testing attracts new hard-to-reach beneficiaries into prevention projects. The project results and positive feedback from the KP communities shaped country consensus on future testing approach in Armenia. Scale-up of community-based testing with saliva tests was considered by country stakeholders as a measure to alleviate low case detection among KPs in Armenia in the GFATM proposal development process.

WEPEE595

Distance learning course about rapid test for healthcare professionals as an strategy to increase the access to HIV diagnosis in Brazil

P.C. Gaspar[1], R.A. Comparini[1], A.F. Pires[1,2], J.B. Alonso Neto[1], M.V. Martins[1], D.C. Soares[1], L.M.B.B. Parucker[3], A.S. Benzaken[1]
[1]Ministry of Health of Brazil, Department of Surveillance, Prevention and Control of Sexually Transmitted Infections, HIV/AIDS and Viral Hepatitis, Brasília, Brazil, [2]University of Brasilia, Postgraduate Program in Collective Health, Brasília, Brazil, [3]Federal University of Santa Catarina, Department of Clinical Analysis, Florianópolis, Brazil

Background: Increasing the population´s access to HIV diagnosis, especially with the use of rapid tests (RT), is a key strategy of the Brazilian Ministry of Health (MoH) to reach the 90-90-90 target by 2020. Only in 2017, MoH distributed more than 12 million RT, 23 times more than in 2005 (509,180 tests), when they were adopted as public health policy. In addition, it is also necessary to increase the number of healthcare professionals capable to perform the RT. Considering the continental dimension of the country, with 5570 cities, and the need for an alternative to on-site trainings, MoH offers a free distance learning course called TELELAB. We present the extent of the coverage of this education strategy.

Methods: TELELAB provides online courses about diagnostic of sexually transmitted infection with video lessons and instruction manuals. For places with difficult internet access, it is also possible to request and receive all TELELAB contents on a DVD by post office. After the course is completed, professionals are awarded a certificate once they pass an exam with 70% or higher. We conducted a descriptive analysis using Excel regarding the healthcare professionals who obtained certification in "HIV diagnosis course" during 2017.

Results: In 2017, 14,278 healthcare professionals were certified (61% more than 2016; and 322% more and 2015) (Figure 1). Nurses are the highest number of certification (i.e. 61% of the total). 1,943 different municipalities were observed. Out of this, 10,264 healthcare professionals (i.e. 72% of the total) reside out of capital, and many of them in remote and rural areas with no access to laboratory services.

Conclusions: TELELAB turned out to be an important strategy to ensure greater access to HIV diagnosis, since it better qualifies healthcare professionals, especially nurses, which are present in major primary healthcare services in Brazil. In addition, because more professionals are qualified, it became possible to increase the number of RT distributed annually by MoH. Considering we still need to expand TELELAB use countrywide, in 2018 TELELAB will be available as cell phones application, consisting a new alternative to encourage even more the professional continuing education.

[Figure 1. Number of healthcare professionals certified at HIV diagnosis course per year (2013-2017).]

WEPEE596

Estimating health workforce requirements for achieving the UNAIDS 90-90-90 targets in three regions of Ukraine and developing strategies to address projected gaps

A. Latypov[1], Y. Sereda[2], S. Belyakov[1], O. Danylenko[3], N. Ryzhenko[4], O. Chernenko[5]
[1]Deloitte Consulting LLP, The USAID HIV Reform in Action Project, Kyiv, Ukraine, [2]Independent Consultant, Kyiv, Ukraine, [3]Poltava Regional AIDS Center, Poltava, Ukraine, [4]Kherson Regional AIDS Center, Kherson, Ukraine, [5]Mykolayiv Regional Center of Palliative Care and Integrated Services, Mykolayiv, Ukraine

Background: Health workforce is a key resource required for a major scale-up of HIV testing, treatment and care services in Ukraine. We aimed to estimate the needs in human resources for health (HRH) for achieving the UNAIDS 90-90-90 targets in three regions of Ukraine representing medium (Poltava and Kherson) and high (Mykolayiv) HIV burden oblasts.

Methods: Study design included five steps for estimating HRH for HIV requirements for the period up to 2020:

(1) defining HIV service package components and annual frequencies of service provision per person;

(2) chronometric study of time spent on each service component and proportion of services provided by different groups of health cadres (observation of 154 health workers at 59 facilities during 5 days; 44,735 cases of service provision measured);

(3) predicting targets using Box-Jenkins models for service coverage for two scenarios: continuation of on-going trends and achieving the UNAIDS 90-90-90 targets;

(4) measuring HRH for HIV requirements in full-time equivalents (FTE) based on chronometric data and coverage targets;

(5) estimating gaps.

Results: In Poltava region, the availability of HRH for delivery of HIV services was estimated as 122.0 FTE, while HRH for HIV availability was lower in Kherson (78.6 FTE) and Mykolayiv (84.0 FTE) regions. To achieve 90-90-90 targets by 2020 and ensure major scale-up of opioid substitution therapy (40% coverage of people who inject opioids), the required HRH would be 100.8 FTE (95% CI: 87.6-113.9) in Poltava, 144.9 FTE (95% CI: 125.4-164.4) in Kherson, and 256.7 FTE (95% CI: 224.4-288.9) in Mykolayiv regions. In all regions, projected needs for physicians and psychologists/social workers were much greater than for nurses.

Conclusions: To address projected gaps in HRH for HIV for achieving the UNAIDS targets (Kherson and Mykolayiv regions), regional authorities need to implement rapid decentralization strategies. Health service delivery standards need to be reviewed/adopted and enforced to address potential inefficiencies. As supply of new cadres might be limited, task-shifting options from specialized providers to primary healthcare practitioners and nurses with shorter training and fewer qualifications must be fully embraced, including through legislative amendments and provision of required training for those who assume new HIV tasks.

WEPEE597

Reaching more men with HIV testing through PMTCT program in Southern regions of Tanzania

J. Gamaliel[1], C. Mbelwa[1], B. Christian[2], H. Haule[3], A. Ikonje[3], M. Njozi[3], J. Bisimba[4], E. Okechukwu[1], M. Njelekela[3]
[1]Family Health International (FHI 360), USAID Boresha Afya Southern Zone, Dar es Salaam, Tanzania, United Republic of, [2]Management and Development for Health, USAID Boresha Afya, Dar es Salaam, Tanzania, United Republic of, [3]Deloitte Consulting Limited, USAID Boresha Afya Southern Zone, Dar es Salaam, Tanzania, United Republic of, [4]United States Agency for International Development, Health, Dar es Salaam, Tanzania, United Republic of

Background: With the global adoption of the 90-90-90 HIV epidemic control strategy, the first 90 is very crucial and an entry point into the cascade. In Sub Sahara Africa, most of the clients receiving HIV care are women and reaching men has been a challenge. Male partner testing using the Ante Natal Clinic (ANC) platform has been one of the ap-

proaches that could improve access to HIV testing for men. We evaluated the effect of PMTCT program in influencing male partner's testing in facilities supported by USAID funded projects; the former (TUNAJALI II 2012-2017) and follow on (USAID Boresha Afya 2016-2021) in Morogoro, Iringa and Njombe, Tanzania.

Description: The National PMTCT program and PEPFAR through USAID in 2013 and subsequent years supported roll out of PMTCT Option B+ to scale up ART services among pregnant and breastfeeding women. This was preceded by awareness campaigns encouraging women to come with their male partners for ANC services. The healthcare providers were trained and oriented on couple counseling and pregnant women who came with their male partners were prioritized. Monthly supervision and mentorships were conducted by trained mentors and program staff to improve quality of data and services.

Annual PMTCT program data (October 2013-September 2017) from 653 supported health facilities from Morogoro, Iringa and Njombe regions were extracted from DHIS2 into excel and analyzed using STATA. Comparison of proportion of male HIV testing yearly with respect to women attended ANC was conducted.

Lessons learned: A total of 636,440 pregnant women attended ANC services, 545,429 (86%) were tested for HIV and 4% were HIV positive. Over the period 275,349 male partners had attended for HIV testing and positivity was 3%. Increasing proportion of male partner (31%, 40%, 47% and 53%) brought by their female partners over the period was 22% (p< 0.001). The increase was gradual with more men testing in each subsequent year.

Conclusions/Next steps: ANC clinic has the potential as the platform for reaching men with healthcare services especially for HIV testing. This entry point for optimizing HIV testing to reach more men should be emphasized as one of the approaches toward achieving the first 90.

WEPEE598

Mobile health and behavioral PMTCT intervention among community health workers improves exclusive breastfeeding and early infant diagnosis in India: A cluster randomized trial

N. Suryavanshi[1], A. Kadam[1], A. Hegde[2], S. Sivalenka[3], V.S. Kumar[3], J. McKenzie-White[4], S. Kanade[1], A. Gupta[4], R.C. Bollinger[4], A. Shankar[5], N. Gupte[4], V. Mave[4]

[1]Lakshya, a Society for Public Health Education and Research, Pune, India, [2]National AIDS Control Organisation, New Delhi, India, [3]Centers for Disease Control and Prevention, Division of Global HIV and TB, New Delhi, India, [4]Johns Hopkins University, Center for Clinical Global Health Education,School of Medicine, Baltimore, United States, [5]Johns Hopkins University, Bloomberg School of Public Health, Baltimore, United States

Background: During the roll out of Option B+ prevention of HIV mother-to-child transmission (PMTCT) services in India, we assessed a strategic, integrated mobile health and behavioral intervention that aimed to enhance the capacity of community outreach workers (ORW) in the national program, to optimize PMTCT services uptake.

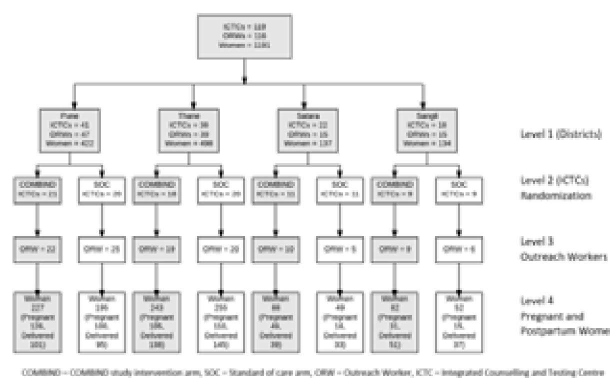
Methods: From April 2015-March 2017, a cluster randomized trial was conducted in four districts of Maharashtra, India. Integrated counselling and testing centers (n=119), their ORWs (n=124) and their assigned HIV+ pregnant/ breastfeeding women (n=1191) were randomized to standard of care (SOC) vs. COMmunity Home Based INDia (COMBIND) PMTCT intervention (Figure 1) that had 4 strategies: 1) Specialized ORW interactive motivational counseling training; 2) Strategic feedback to ORWs; 3) Targeted feedback to HIV+ women; and 4) Use of an mhealth platform (eMOCHA) to facilitate communication with ORWs and women using educational videos and smart form-based counselling scripts. To account for multilevel structure of the data and to assess the effect of COMBIND intervention on study endpoints (Table 1) univariable and multivariable random-effects logistic regression model with random effect for districts and ORWs was used.

Results: Of 884 eligible for outcome assessment, 487 women assigned to 60 ORWs were cluster randomized to COMBIND arm, and 397 women (56 ORWs) were assigned to SOC arm. Median age was 25 (IQR, 22-28) years; median CD4 count was 420 (IQR, 248-587) cells/ml. HIV+ women in COMBIND arm showed increased uptake of exclusive breastfeeding (EBF) at 2 months (aOR, 2.10; 95% CI 1.06-4.15), and early infant diagnosis (EID) at 6 weeks (aOR, 2.19; 95% CI 1.05-3.98). We also found a trend towards higher uptake of EBF at 6 months (aOR, 1.74, 95% CI 0.95-3.16), and EID at 6 months (aOR, 1.54, 95% CI 0.94-2.51) (Table 1).

Conclusions: While uptake of key PMTCT services were high in both COMBIND and SOC arms, uptake of EBF and EID among HIV+ pregnant/ breastfeeding women was 2-fold higher in the COMBIND arm compared to the SOC arm. Our study provides evidence that a scalable mHealth strategy supporting strategic motivation and education of ORWs and HIV+ pregnant women can improve implementation of key components of PMTCT services.

Study Endpoints (Eligible participants)	COMBIND arm endpoints Achieved / Eligible N (%)	SOC arm endpoints Achieved/ Eligible N (%)	Unadjusted Odds Ratio (95% CI), p-value	Adjusted* Odds Ratio (95% CI), p-value
Antiretroviral at delivery (n=478)	227/276 (85)	162/202 (80)	1.21 (0.71 - 2.04); p=0.48	1.41 (0.81 - 2.45); p=0.22
Nevirapine Prophylaxis for 6 weeks (n=609)	304 /348 (87)	224 /261 (86)	1.15 (0.72 - 1.85) p=0.56	1.75 (0.73 - 4.19); p=0.21
Exclusive Breast feeding 6 Months (n=695)	209 /385 (54)	145 /310 (47)	1.82 (1.09 - 3.04); p=0.02	1.74 (0.95 - 3.16); p=0.07
Early Infant Diagnosis at 6 Months. (n =711)	295/389 (76)	232/322 (72)	1.22 (0.81 - 1.83); p=0.34	1.54 (0.94 - 2.51); p=0.09
Early Infant Diagnosis 6 Weeks (n=566)	266/327 (81)	184/239 (77)	1.34 (0.87 - 2.05); p=0.18	2.19 (1.05 - 3.98); p=0.02
Infant HIV testing at 12 Months (n=769)	298/406 (73)	250/363 (67)	1.24 (0.87 - 1.77); p=0.24	1.13 (0.74 - 1.74); p=0.56
Infant HIV testing at 18 Months (n=635)	250384 (73)	198)/291 (68)	1.23 (0.80 - 1.89) p=0.34	1.04 (0.64 - 1.68); p=0.88
Excusive breast feeding at 2 months (n= 488)	196/286 (69)	112/202 (55)	2.05 (1.23 - 3.41); p=0.006	2.10 (1.06 - 4.15); p=0.03
SOC=standard of care * adjusted for HIV+ women's age, occupation, education, family type; ORW's age, years of education and HIV status.				

[Effect of COMmunity Home Based INDia (COMBIND) intervention on the uptake of national PMTCT services in Maharashtra, India]



[Cluster randomization by Integrated Counselling and Testing Centers (ICTC) at each study district.]

WEPEE599

Difference-in-difference estimate of effect of PEPFAR human resources for health investments on HIV treatment results, fiscal year 2016-2017

T. Lim[1], P. Hosseini[2], D. Frymus[3], V. Vasireddy[2], A. Hurst[3], C. McKinney[1]
[1]U.S. Centers for Disease Control and Prevention, Division of Global HIV & Tuberculosis, Atlanta, United States, [2]U.S. Department of State, Office of the U.S. Global AIDS Coordinator, Washington, United States, [3]United States Agency for International Development, Office of HIV/AIDS, Washington, United States

Background: In order to accelerate the global fight against HIV and achieve the UNAIDS 95-95-95 fast track targets, PEPFAR supports human resources for health (HRH) who provide HIV prevention, care and treatment services directly to patients in most long term strategy countries. The effect of increasing support for HRH on HIV treatment programs has not been estimated globally; PEPFAR is the largest bilateral funder of global HIV programs.

Methods: Our units of analysis were geographic subnational units ("SNU", such as districts) nested in countries where PEPFAR programs directly support both HRH and HIV treatment. PEPFAR implementing partners report annually on the full-time equivalent (FTE) person-time that PEPFAR compensates for HIV services, as well as total patients on antiretroviral therapy (ART). HRH FTE was a zero-inflated non-normal variable that we split into quartiles for modeling. We fit a mixed effects negative binomial model in Stata 14 for total patients currently on ART, as a function of fiscal year, overall quartile of PEFPAR-supported HRH FTE, and SNU treatment prioritization level. To reduce selection bias and unobserved confounding, we further estimated a difference-in-difference (DID) effect as the interaction term between year and HRH FTE quartile. We modeled a random intercept for country.

Results: 1,618 SNUs across 19 countries were included in our model. Higher PEPFAR support of HRH was associated with higher total ART patients. Moreover, the DID coefficients showed that the highest relative net increase in ART patients between FY16 and FY17 were in SNUs with the third and fourth highest quartile of PEPFAR HRH support (1.52 times [95% CI: 1.06 - 2.17] and 1.43 times [95% CI: 1.01 - 2.03] higher than first quartile, respectively, Table 1a). This association is similar when looking only at clinical cadres (Table 1b); but is not statistically significant when looking only at lay cadres.

Conclusions: DID estimation suggests that higher levels of PEPFAR support for HRH facilitated a higher net increase of patients on ART over time, and clinical HRH, rather than lay workers, may be most responsible. Lack of global subnational confounder data, including total HRH not supported by PEPFAR, is a limitation to address in further analysis.

Independent Variable	(a) Ratio of total patients on ART, all HRH model [95% CI]	P value	(b) Ratio of total patients on ART, clinical HRH model [95% CI]	P value
Year				
Fiscal year 2016	1 (reference)			
Fiscal year 2017	0.80 [0.61 - 1.04]	0.102	0.81 [0.68 - 0.96]	0.018*
HRH FTE supported by PEPFAR	All cadres		Clinical cadres only	
Quartile 1	1 (reference)		1 (reference)	
Quartile 2	1.02 [0.81 - 1.27]	0.875	1.44 [1.12 - 1.85]	0.004**
Quartile 3	1.83 [1.46 - 2.30]	<0.001**	1.95 [1.52 – 2.48]	<0.001**
Quartile 4	3.75 [2.94 - 4.78]	<0.001**	3.80 [2.93 - 4.92]	<0.001**
Interaction (DID)				
FY17 x HRH Quartile 1	1 (reference)		1 (reference)	
FY17 x HRH Quartile 2	0.79 [0.56 - 1.12]	0.193	1.38 [0.98 - 1.94]	0.067
FY17 x HRH Quartile 3	1.52 [1.06 - 2.17]	0.022*	1.47 [1.06 - 2.04]	0.021*
FY17 x HRH Quartile 4	1.43 [1.01 - 2.03]	0.046*	1.45 [1.04 - 2.01]	0.028*
PEPFAR prioritization level				
Non scale-up	1 (reference)			
ART Scale-up	8.50 [7.20 - 10.03]	<0.001**	10.56 [9.01 - 12.36]	<0.001**
Random intercept σ^2	1.95 [0.85 - 4.51]		1.92 [0.83 - 4.45]	

* = p<0.05, ** = p<0.01

[Table 1. Coefficient results from the mixed effects negative binomial model with the outcome of total patients on ART as a function of the level of PEPFAR-supported human resources for health, fiscal year, and the interaction term of HRH x year]

WEPEE600

Trend analysis of HIV/TB integrated services utilization and coverage in Uganda Harm Reduction Referral Points in Kampala, Gulu, Mbarara and Mbale

W.T. Lotic[1,2,3], E. Muhwezi[4], C. Baguma[5], S. Ajuna[5]
[1]Uganda Harm Reduction Network, Health and Human Rights, Kampala, Uganda, [2]International Drug Police Consortium, Network Member, London, United Kingdom, [3]Eastern Africa Harm Reduction Network, Network Member, Kampala, Uganda, [4]Uganda Harm Reduction Network, Kampala, Uganda, [5]Uganda Harm Reduction Network, Programs, Kampala, Uganda

Background: TB and HIV co- infection places patients at sharply increased risks of mortality and morbidity. Strengthening access to TB/HIV co- infected patients with needed ART and TB treatment and monitoring is a priority to health service partners. Through implementation of the HIV and Harm Reduction Project in Uganda, a Global Fund-funded project started in 2016. Most at Risk Population Initiative (MARPI)-Mulago through its regional branches has been providing health services or act as Drop in centres for People who use and inject drugs.

Methods: Using routine aggregate HIV/TB program data, an observational, one year trend analysis was conducted in January 2017. Quarterly health facility TB/HIV reports were the data sources. TB/HIV integrated services indicators analysed included: number of TB registered cases, percentage of TB cases tested for HIV, HIV positivity rate among TB patients, percentage of TB cases who were started on cotrimoxazole prophylaxis, and percentage of TB/HIV co-infected started on ART.

Results: From January 2016 to December 2016, the number of TB registered cases varied between 350 and 700 per quarter. The analysis revealed an increasing trend in HIV test coverage in TB registered patients (from 41% in the first quarter of 2016 to 70% in December 2016); a similar pattern was observed in cotrimoxazole prophylaxis initiation (53% to 90% in the same period).

Conclusions: Although this trend analysis has limitations to establish causation, the implementation of HIV and Harm Reduction Project in 4 districts of Uganda and the expansion of ART services with integrated TB services for Drug users has contributed to a scale-up in TB/HIV services utilization in other referral MARPI points in other districts. HIV patients have obtained growing access to TB services over time and TB/HIV co-infected patients are being identified and are more widely accessing ART, which will undoubtedly have a positive impact on health outcomes.

WEPEE601

Optimizing HIV case finding and linkage to care and treatment among adolescents in western Kenya through a comprehensive case finding intervention package

J. Kose-Otieno[1,2], A. Tiam[2,3], B. Ochuka[1], E. Okoth[1], J. Sunguti[1], M. Waweru[1], E. Mwangi[1], T. Wolters[2], N. Rakhmanina[2,4,5]
[1]Elizabeth Glaser Pediatric Aids Foundation, Programs and Research, Nairobi, Kenya, [2]Elizabeth Glaser Pediatric Aids Foundation, Medical and Scientific Affairs, Washington DC, United States, [3]University of Bergen, Bergen, Norway, [4]George Washington University, Washington DC, United States, [5]Children's National Medical Centre, Washington DC, United States

Background: Low HIV testing uptake among adolescents affects identification of HIV-positive adolescents and their effective linkage to care and treatment services. To address this gap, an innovative package was implemented to improve HIV testing uptake and linkage to care among adolescents aged 10-19 years in Western Kenya.

Methods: This quasi-experimental study used program data at pre- and post-intervention periods to describe effects of an innovative adolescent package at 139 health care facilities (HCFs). The study population was adolescents aged 10-19 years divided into early- and late-age cohorts (10-14 years and 15-19 years). Three types of HCFs were included: hospitals, health centers, and dispensaries. The innovative adolescent package included staff capacity building, program performance monitoring tools, an adolescent-focused HIV risk screening tool and adolescent-friendly HCF hours. Implementation began in July 2016. Data collected included numbers of adolescents tested for HIV, tested HIV-positive,

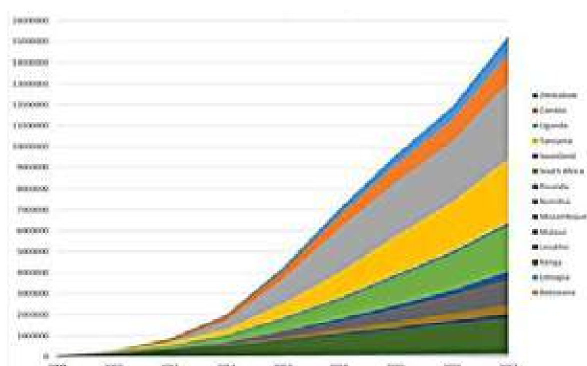
and were linked to care services. Data were analyzed with descriptive statistics. Pre- and post-intervention demographic and testing data were compared using the Poisson mean test, while Chi-square testing was used to compare the linkage to care rates.
Results: Pre-intervention data were collected from January to March 2016, and post-intervention data collected from January to March 2017. During the pre-intervention period, 25,520 adolescents were tested and 198 were HIV-positive (0.8%) compared to 77,644 adolescents tested with 534 being HIV-positive (0.7%) during the post-intervention period (Seroprevalence was unchanged but p< 0.001 - for absolute numbers tested and testing positive). HIV positivity was highest in TB clinics followed by maternal and child health and in-patient clinics. The HIV positivity was also high in nutrition clinics among younger adolescents. The proportion of HIV-positive adolescents linked to care increased from 61.6% to 94.0% (p< 0.001). This increase was seen for both males and females, both early and late adolescent cohorts, and in all HCF types (all p-values < 0.001).
Conclusions: Implementation of the adolescent service package in western Kenya improved new HIV case identification and linkage to treatment services among adolescents aged 10- 19 years. The package addressed factors associated with increased testing such as staff training, program performance monitoring and provision of adolescent-friendly HCF hours.

WEPEE602

Making the impossible possible: Progress in scale-up of voluntary medical male circumcision for HIV prevention supported by the United States President's emergency plan for AIDS relief through 2017

C. Toledo[1], S. Davis[2], J. Hines[2], M. Habel[2], L. Hinkle[2], K. Izenour[2], A. Thomas[3], V. Kiggundu[4], C. Cooney[5], D.H. Watt[5]
[1]US Centers for Disease Control and Prevention (CDC), Atlanta, United States, [2]US CDC, Atlanta, United States, [3]DoD HIV/AIDS Prevention Program, Defense Health Agency, US Department of Defense, San Diego, United States, [4]USAID, Washington, DC, United States, [5]Office of the U.S. Global AIDS Coordinator and Health Diplomacy, US Department of State, Washington, DC, United States

Background: Voluntary medical male circumcision (VMMC), which offers men with lifelong partial protection from HIV and other sexually transmitted infections (STIs), has become a cornerstone of the global HIV prevention portfolio through support by national and global programs, such as PEPFAR. VMMC was introduced in 14 southern and eastern African countries, which scaled-up services progressively between 2007 and 2011. Since then, the PEPFAR program has experienced rapid growth and is contributing to epidemic control in these countries.
Description: All PEPFAR-supported programs report key metrics, including total VMMCs performed and disaggregations of client age range, technique, HIV test results, and post-operative follow-up. These indicators provide an overview of accomplishments and key characteristics of the program.
Lessons learned: From 2007 through 2017, 15.2 million VMMCs were performed with PEPFAR support (Figure 1); representing over 80% of global procedures performed. 2010-2014, annual performance approximately doubled each year. After temporarily slowing of performance during 2015-2016, 2017 represented the highest single year of VMMCs performed since program inception, contributing nearly one-fourth (22%) of all PEPFAR-supported circumcisions performed to date.
In 2017, 48% of VMMC clients were between the ages of 15-29 years, a priority age group for immediate impact on HIV incidence. Over twenty-four thousand clients tested positive for HIV at VMMC sites. Device-based techniques constituted a minority of circumcisions, except in Rwanda where they dominated (53%). Post-operative follow-up rates were over 80% overall, ranging from between 60% in South Africa to 100% in Rwanda.
Conclusions/Next steps: VMMC has undergone an historic scale-up within global health, enabled by dedicated resources, targets setting, leadership, rapid expansion of surgical skills and responsibilities to non-physicians, and public outreach campaigns. Models estimate that the VMMCs conducted through 2016 will avert at least 500,000 infections by the end of 2030. VMMC has also helped prevent HIV and STIs among women. The PEPFAR program's achievements demonstrate the feasibility of rapid expansion of circumcision, but global strategy must continue evolving to maximize impact, achieve revised UNAIDS targets including circumcising 27 million men during 2016-2020, maintain safety, and meet broader UNAIDS and PEPFAR objectives.



[Cumulative Number of PEPFAR-Supported Voluntary Medical Male Circumcisions by Country, 2009-2017]

WEPEE603

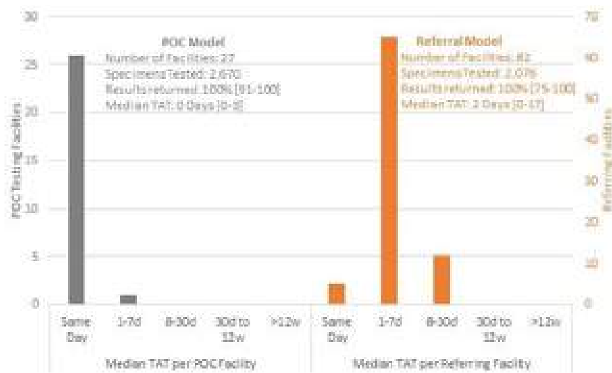
Can a short-haul specimen referral system work efficiently to access "point-of-care" early infant diagnosis testing? Lessons from Lesotho and Zimbabwe

T. Samosamo[1,2], H.W. Mafaune[2,3], A. Mataka[1], A. Chadambuka[3], J.-F. Lemaire[4], UNITAID EGPAF POC EID Group
[1]EGPAF Lesotho, Maseru, Lesotho, [2]Authors Contributed Equally, -, United States, [3]EGPAF Zimbabwe, Harare, Zimbabwe, [4]EGPAF, Innovation and Technical Leadership, Geneva, Switzerland

Background: Specimen referral systems can increase access to diagnostic services but are also vulnerable to logistical and system efficiency challenges. An efficient specimen referral over short distances (< 1 hour) was adopted to increase access to point-of-care (POC) early infant diagnosis (EID). We compared key clinical and service delivery outcomes observed within testing facilities (POC model) to those within referring facilities (referral model), in Lesotho and Zimbabwe.
Methods: We used data from POC EID testing forms routinely used across all 109 facilities (27 testing facilities; 82 referring facilities) having access to POC EID from February to October 2017 across Lesotho and Zimbabwe combined. Key POC EID clinical outcomes (percentage of results returned to caregivers at facility and percentage of HIV-infected infants initiated on treatment) and key service delivery outcomes, including intermediate turnaround times (TAT) (between specimen collection, transport, processing, result transmission facility, and return to caregiver) and total TAT (from specimen collection to result return to caregiver at facility) were aggregated per facility. We assess differences between the two delivery models using the Wilcoxon rank-sum test on summary statistics (median, range intervals, proportions) from aggregated facility outcomes.
Results: In both POC and referral models, there were no significant differences in percent results returned (100%), or in the proportions of HIV-infected infants initiated on treatment (100%), despite the latter having a small but significant distribution difference (Table 1). The total TAT median observed in the referral model (2 days [0-28]) was only two days longer than in the POC model (0 days [0-3]), with a significant difference in the TAT groups' distributions (Figure 1 and Table 1). Whereas both models experienced same-day specimen transportation, caregivers took significantly longer (1 day vs 0 days) to collect the result from facility in the referral model (Table 1).
Conclusions: A short-haul POC EID specimen referral system showed no significant differences in key clinical outcomes, and a significant increment of only 2 days in the final TAT, (mostly due to time required for caregivers to collect results) as compared to patients seen at POC testing sites, and may be considered to increase access to POC EID.

Indicator		POC Model	Referral Model	p value*
Number of facilities analyzed		27 testing facilities (2,670 specimens)	82 referring facilities (2,076 specimens)	
Percentage of results returned to caregiver (medians)		100% [91-100]	100% [75-100]	p=0.996
Percentage of HIV-infected infants initiated on treatment (medians)		100% [0-100] (n=67)	100% [0-100] (n=53)	**p=0.018**
	Blood collection to reception at testing site (including sample transportation)	0 days [0-0]	0 days [0-2]	**p=0.004**
	Blood reception to processing at testing site	0 days [0-0]	0 days [0-1]	p=0.059
Median TAT from:	Processing to result sent to requesting unit	0 days [0-0]	0 days [0-5]	**p=0.008**
	Result at Requesting unit to result received by caregiver	0 days [0-1]	1 days [0-24]	**p<0.001**
	Blood collection to result communication to caregiver	**0 days [0-3]**	**2 days [0-28]**	**p<0.001**
*The significance threshold was set at 0.05				

[Table 1: Comparison of key POC EID clinical and service delivery performance indicators observed in facilities of the POC and the referral models]



[Figure 1: Median Turnaround Times from Sample Collection to Return of Results to Caregiver in Facilities of the POC and Referral Models]

WEPEE604

Patient's preferences for differentiated HIV service delivery in a routine program setting in Uganda: A cross sectional survey

F.C. Semitala[1,2,3], E. Atuhumuza[3], W. Muyindike[4], L. Sabiti[2], G. Karirirwe[5], S. Walusimbi[2], A. Cattamanchi[6], M.R. Kamya[1,3]
[1]Makerere University School of Medicine, Internal Medicine, Kampala, Uganda, [2]Makerere University Joint AIDS Program, HIV/TB Treatment and Implementation Research, Kampala, Uganda, [3]Infectious Diseases Research Collaboration, Research, Kampala, Uganda, [4]Mbarara University of Science and Technology, Medicine, Mbarara, Uganda, [5]Makerere University, Medicine, Kampala, Uganda, [6]University of California, Division of Pulmonary and Critical Care Medicine, San Francisco, United States

Background: The World Health Organization recommends implementation of Differentiated Service Delivery Models to optimize the quality of HIV care and efficiency of service delivery. Current models of care are typically facility-based, with limited choice of other options for people living with HIV (PLHIV). We evaluated PLHIV's preferences for facility- vs. community-based care, and desire to be engaged in making a choice as to how to receive treatment.

Methods: .We conducted a cross sectional survey that included PLHIV who were receiving facility-based care at three clinics in Uganda: an urban clinic (Mulago AIDS Clinic, Kampala), a peri-urban clinic (Mbarara Municipality clinic) and a rural clinic (Bwizibwera Health centre IV, Mbarara District). Consecutive adults presenting for care at the three clinics were included unless they were unable or declined to provide informed consent. Data on age, sex, median CD4 cell count and duration in HIV care were extracted from clinic records. We administered a questionnaire to assess preferences for facility- vs. community-based ART, and for being engaged in the decision related to model of care (vs. having health care providers decide on their behalf). We summarized data using appropriate descriptive statistics, and compared survey responses by clinical characteristics, clinic location, gender and other variables using the chi-squared test.

Results: During November and December 2016, 532 of 604 PLHIV with complete data were included in the analysis. Majority 337 (63%) were women, median age 39.5 years (IQR, 33.6-47.5) and median CD4 count 502 cells/µL (IQR, 359-657). 517 (97.2%) clients had been in HIV care for at least six months. Most PLHIV visited the clinic every 2 months (N=323, 60.7%) or every 3 months (N=190, 35.7%). The majority (N=465, 87.4%) preferred community-based care. Nearly half (N=242, 45.5%) preferred to be engaged in making a choice for the ART delivery model. PLHIV in the urban clinic were more likely to prefer choosing a model for ART delivery (OR 1.33, 95% CI, 1.07 - 1.66) compared to PLHIV in peri-urban and rural clinics.

Conclusions: Most PLHIV preferred community-based care and many desired to be engaged in making decisions for the models of HIV service delivery, particularly in the urban clinic.

WEPEE605

Adaptive social and behavior change communication strategies achieve modification in social norms around uptake of voluntary medical male circumcision services in traditionally non-circumcising communities in three regions of Tanzania

M. Makokha[1], A. Christensen[1], A. Hellar[1], M. Machaku[1], C. Francis[1], S. Tesha[1], P. Massawe[1], K. Curran[2], Z. Mwandi[3], M. Carrasco[4], V. Kiggundu[4], E. Mlanga[5], G. Lija[6], G. Msalale[6], P. Luvanda[6], E. Kessy[6]
[1]Jhpiego, AIDSFree, Dar es Salaam, Tanzania, United Republic of, [2]Jhpiego, Washington, United States, [3]Jhpiego, AIDSFree, Nairobi, Kenya, [4]U.S. Agency for International Development (USAID), Washington, United States, [5]USAID, Dar es Salaam, Tanzania, United Republic of, [6]Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC), Dar es Salaam, Tanzania, United Republic of

Background: In 2009, Jhpiego collaborated with the Tanzania Ministry of Health to start offering voluntary medical male circumcision (VMMC) for HIV prevention to males ages 10 years and older in Iringa, later expanding to Njombe and Tabora regions. At inception, male circumcision (MC) prevalence in Iringa, Njombe, and Tabora (all traditionally non-circumcising regions) was 29%, 29%, and 38%, respectively, compared to 67% nationally.

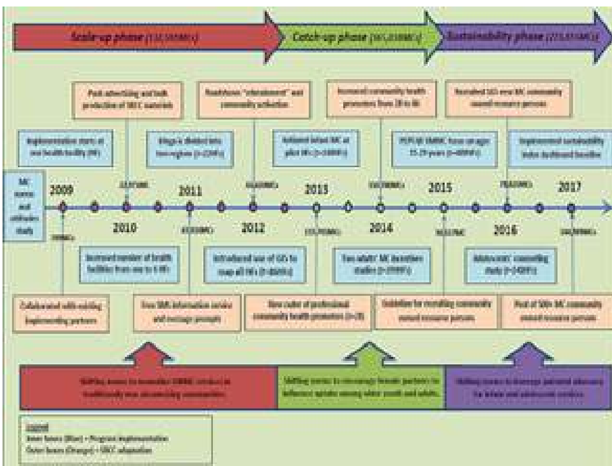
As of September 2017, the program had performed 721,444 VMMCs, contributing to an MC prevalence of 80%, 62%, and 67%, respectively, in the three regions, compared to 80% nationally.

Description: Social and behavior change communication (SBCC) strategies were developed to support three VMMC implementation phases: a scale-up phase focusing on normalizing VMMC in traditionally non-circumcising communities, implemented at the beginning when coverage was low among all age groups; a catch-up phase mobilizing female partners to influence VMMC uptake among older youth and men, implemented as the program expanded VMMC in all communities in the three regions; and a sustainability phase leveraging parental advocacy to cultivate future demand for infant and adolescent VMMC services, implemented as coverage reached 80% among males ages 15-29 years.

The program used experiential learning approaches backed by independent operational research on motivational incentives, message dissemination and timing options, service environment, and the role of community-owned resource persons as drivers of VMMC uptake.

The main SBCC strategies corresponding to each phase were mass media campaigns promoting self-reinforcing messages; community mobilization at village level incorporating social routines and schedules; and setting-based one-to-one interactions to address individual needs and support linkage to services.

Lessons learned: SBCC strategies responsive to context factors and incremental service coverage, augmented by experiential learning and operational research, helped VMMC to evolve from a cultural novelty to a normative practice in these communities. Figure 1 shows how SBCC strategies adapted as VMMC evolved in the program.



[Figure 1: How SBCC adapted as VMMC evolved in the program]

Conclusions/Next steps: The program is working to integrate VMMC into routine facility-based health services. SBCC's new challenge is to promote and maintain peer-to-peer advocacy among VMMC adopters, friends, and networks to make future demand for VMMC self-sustaining.

WEPEE606

Scaling up pediatric HIV treatment coverage in Uganda through a prioritized approach

S. Jaidev[1], B. Kabasomi[2], B. Mirembe[2], N. Hariharan[2], P. Nawaggi[2], H. Busobozi[2], C. Amulen[2], K. Suggu[1], A. Musoke[2], C. Katureebe[3]
[1]Clinton Health Access Initiative, eMTCT and Pediatric HIV, New York, United States, [2]Clinton Health Access Initiative, eMTCT and Pediatric HIV, Kampala, Uganda, [3]Ministry of Health, Pediatric HIV Coordinator, Kampala, Uganda

Background: Among the 193,500 children living with HIV in Uganda in 2014, only 27% were on treatment, compared to 52% of adults. Efforts needed to be accelerated to improve pediatric coverage, balancing resource availability and prioritizing areas with the greatest gaps. However, there was a lack of peds surveillance data, with 2005 AIDS Indicator Survey (AIS) data being the most up to date information available.
Description: Using available ART data, a district prioritization exercise was conducted to determine districts and facilities with the highest pediatric scale-up potential, defined as the number of children needed to be put on ART to reach parity with adult coverage rates. The underlying hypothesis was that HIV-positive children were likely to be where HIV-positive adults lived, and we could maximize early impact by focusing on the districts with high adult coverage and relatively low pediatric coverage rates. A target proportion of pediatric patients relative to adult patients was determined based on the underlying goal of scaling up pediatric coverage to adult levels. For each district and facility, the current proportion was calculated, and if below target, scale-up potential was determined, and districts were ranked from largest to smallest potential.
Lessons learned: The district prioritization exercise revealed that 30 of Uganda's 112 districts held 75% of the total pediatric treatment scale-up potential of 51,000 children, with 19 districts holding 53% and the remaining 11 districts holding 22%. 15 out of Uganda's 1,061 facilities with active pediatric patients held 25% of the total scale-up potential alone, suggesting the opportunity for a targeted and prioritized approach. Based on these findings, Ministry and partners agreed to prioritize facilities in 19 districts accounting for 53% of the scale-up potential, representing 26,694 children.
Conclusions/Next steps: This approach shows that targeting and prioritization can be used to improve resource allocation of funding in resource-limited settings and have high impact. This consortium has been funded by ELMA Philanthropies, and has moved from contributing to 35% of national pediatric identifications in Q3 2015 to contributing 41% of pediatric identifications as of Q3 2017.

WEPEE607

How many are eligible for PrEP? Implementing New Zealand's new publicly funded and targeted PrEP policy

P. Saxton[1], S. McAllister[2]
[1]University of Auckland, Gay Men's Sexual Health Research Group, Dept of Social and Community Health, Auckland, New Zealand, [2]University of Otago, AIDS Epidemiology Group, Dunedin, New Zealand

Background: New Zealand (NZ) will be among the first countries internationally to launch a publicly funded PrEP programme in March 2018. Eligibility focuses on gay and bisexual men (GBM) with a recent history of condomless anal intercourse with casual partners, rectal bacterial sexually transmitted infection and methamphetamine use (criteria 1), and regular sexual partners of people with diagnosed but untreated or unsuppressed HIV (criteria 2).
PrEP could have a substantial population-level impact on HIV transmission and be cost effective if targeted and scaled-up rapidly but a key question is the size of the eligible population.
Methods: We drew on nine sources to estimate the PrEP-eligible population:
(i) Statistics NZ data;
(ii) PHARMAC data on the number of adults receiving funded ART;
(iii) expert advice;
(iv) estimates of the HIV Care Cascade;
(v) active surveillance of diagnosed and undiagnosed HIV in a community sample of GBM;
(vi) passive surveillance of new HIV diagnoses;
(vii) NZ Health Survey data;
(viii) HIV behavioural surveillance among GBM;
(ix) behavioural data among people living with HIV from the HIV Futures NZ study.
From these we derived three estimates relating to
(a) GBM (criteria 1 and 2);
(b) non-GBM (criteria 2);
(c) total eligible.
Results: We estimated that 17.9% of currently sexually active HIV negative GBM would be eligible for PrEP in New Zealand under criteria 1 or 2, equating to 5,816 individuals. We estimated that 31 non-GBM individuals would be eligible under criteria 2. In total 5,847 individuals would be eligible for PrEP, comprising 99% GBM and 1% non-GBM. A number of data sources were imperfect, including poor information on transgender populations potentially eligible.
Conclusions: The estimated PrEP-eligible population in New Zealand is modest. Public health actors can apply estimates of the PrEP-eligible population to make a number of strategic decisions. Policy makers can utilise enumeration to monitor the speed, scale and gaps in coverage once implementation begins. Sexual health and primary care services can apply enumeration to forecast anticipated demand for PrEP and plan accordingly. The process of enumeration also identifies knowledge gaps that can subsequently be addressed to improve accuracy.

WEPEE608

HIV-positive women have higher risk of precancerous lesions and cervical cancer: Results from an integrated HIV and cervical cancer screening program in Zambia

G. Mburu[1], Y. Mulenga[2], P. Koni[2]
[1]PCI Global, HIV/AIDS Programs, Washington DC, United States, [2]PCI, Programs, Lusaka, Zambia

Background: Screening of cervical cancer is recommended for women of reproductive age.
Precise method of screening may include varied combinations of HPV test, pap test, cytology, or visual inspection with acetic (VIA), based on resource availability. In Zambia, where prevalence of HIV among adult women 15-49 is 15% and health resources limited, we integrated VIA within HIV services, using screen and treat approach. This abstract documents the results of this screening.

Description: Retrospective analysis of program data was conducted. Participant characteristics and results of integrated HIV testing and VIA were summarized. Association between HIV status and outcomes of cervical cancer screening were explored using SPSS.
Lessons learned: Overall, 6,527 women were screened for cervical cancer between October 2016 and September 2017. Their mean age was 33 years (Range 14-88 years). Overall, 39.5 % (n=2,577) were aged below 30 years, 49.5 % (3,228) were aged 30-49 years, and 11.0 % (n=715) were aged 50 and above. Of the total screened, 3.6% (n=234) were found to have positive findings (mild, moderate or severe dysplasia) on unaided VIA, while 96.4% did not have any abnormalities. A total of 11 women had precancerous lesions (CIN II, CIN III, carcinoma in situ) or cervical cancer. Additionally, 12 women had benign lesions including cervicitis (n=2), condyloma acuminata (n=5), warts (n=1), herpes (n=1), and Nabothian cysts (n=1) and follicles (n=2). Access to treatment was moderate, with 58.5% of those with positive findings on VIA, benign lesions, precancerous lesions, or cervical cancer accessing treatment within the 12-months period analyzed. Furthermore, 17.9% (n=1166) of the 6,527 screened women were HIV positive. HIV positive status was associated with positive findings on VIA (OR=1.206, 95% CI: 2.552-4.375, p< 0.001), and with precancerous lesions and cervical cancer (OR=1.913, 95% CI: 1.825-25.128, p< 0.001).
Conclusions/Next steps: Cervical cancer screening using VIA reached a large number of women when offered through integrated HIV services. Given the higher risk of dysplasia, precancerous and cervical cancer among HIV positive women, the integration VIA within HIV services model is a promising strategy for cervical cancer prevention, which can be enhanced with cytology, HPV or pap tests in future.

WEPEE609

Combining online and offline strategies: 15 years of lessons learned from the hepatitis B vaccination program for Dutch men who have sex with men and sex workers

K. Vermey[1], A. Urbanus[2], T. Stewart[1], W. Zuilhof[1], A. Meiberg[2]
[1]Aidsfonds - Soa Aids Nederland, Amsterdam, Netherlands, [2]National Institute for Public Health and the Environment, Bilthoven, Netherlands

Background: Men who have sex with men (MSM) and female, male and transgender sex workers (SW) are at increased risk for sexual transmission of hepatitis B in the Netherlands. Subsequent to a successful pilot, national partners have been collaborating with local public health services to provide a targeted hepatitis B vaccination program (HBV) among SW and MSM since 2002.
Description: Public health services offer vaccination free of charge during consultations hours and community outreach activities (at saunas, festivals, brothels etc). To increase vaccination coverage and adherence, targeted campaigns are conducted each year via social media, online dating platforms and commercial sex websites. These campaigns refer to websites with sexual health information, tailored advice and an online module to directly schedule vaccination appointments. Nurses and volunteers conduct online outreach on dating platforms for MSM and commercial sex websites to promote vaccination.
Lessons learned: To improve the program, qualitative research into motivations and barriers, cost effectiveness studies and process evaluations were conducted. In 15 years' time, the HBV program reached over 58,000 MSM and 22,000 SW with a combination of offline and online strategies. Acute hepatitis B infection rates dropped significantly while vaccination coverage increased. Reaching MSM and SW during physical outreach became less effective and more costly. The opportunities for online service provision strongly increased however. In 2017, approximately 10% of the first vaccinations among MSM was facilitated by the online appointment module. The shift from offline towards online promotion activities necessitated new funding allocation procedures and the valorization of online counseling skills in professionals' competency frameworks.
Conclusions/Next steps: In 2011, universal hepatitis B vaccination of Dutch newborns was implemented. Until this first cohort turns sexually active around 2030, a combination of targeted strategies to promote HBV among MSM and SW will remain necessary. This applies especially to groups with the lowest vaccination rates, including young MSM, SW working from home and migrant MSM and SW. To reduce costs and improve effectiveness in the coming years, the HBV program will place more emphasis on service provision in online communities and a more effective interplay between campaigns, outreach and direct vaccination.

WEPEE610

A ten-year trend analysis of inpatient utilization between 2007 and 2016 for New York State among those diagnosed with both HIV and hepatitis C

D. Tsui, C. Gonzalez, I. Feldman, F. Laufer, W. Levey
New York State Department of Health, AIDS Institute, Albany, United States

Background: As part of New York State Governor's Ending the AIDS Epidemic initiative, reducing HCV-related morbidity and mortality among those co-diagnosed with HIV/HCV is a priority. The current analysis was undertaken in an effort to examine the effectiveness of this priority.
Methods: The hospitalized HIV/HCV co-diagnosed population was identified utilizing diagnosis codes from the New York State Statewide Planning and Research Cooperative System (SPARCS) data. Utilization and mortality trends of adult emergency department (ED) and inpatient (≥ age 18) discharges between 2007 and 2016 were reviewed. Multivariate regression was then applied to predict the likelihood of inpatient mortality. Zero-order correlations were applied between two variables to calculate the confidence levels.
Results: Results showed the individuals co-diagnosed with HIV/HCV infections with inpatient hospitalizations significantly decreased from 6,077 to 3,843 (36.8%, *p*< 0.0001) during the decade under review. Inpatient admissions via the ED decreased from 3,380 to 2,957 (12.5% *p*< 0.0001). Co-diagnosed patients expiring during hospitalization also gradually declined from 221 to 138. After controlling for patients who expired during hospitalization, the average length of hospital stays (ALOS) decreased from 10.3 days in 2007 to 7.6 days in 2016. The decrease in ALOS of those ≥60 year of age decreased from 14.4 days to 8.2 days, while the 18- to 29-year-old cohort increased from 7.6 days to 10.1 days. The multivariate result showed HIV/HCV co-diagnosed patients are 1.5 times more likely to be admitted to New York City (NYC) hospitals than hospitals outside NYC (odds ratio 1.520; 95% confidence level 1.618-1.698, *p*< 0.0001).
Conclusions: Ongoing trend analysis is needed to identify if the hospital utilization patterns reflect effective HCV cure rates or changes in demographic trends in HIV/HCV co-diagnosed patients.

WEPEE611

Comparative yield of community active tuberculosis case finding approaches in Zimbabwe

R. Ncube[1], C. Zishiri[1], M. Mapfurira[2], S. Machekera[1], C. Sandy[2]
[1]International Union Against TB and Lung Disease, TB HIV, Harare, Zimbabwe, [2]Ministry of Health Child Care, National TB Program, Harare, Zimbabwe

Background: Zimbabwe is ranked among the top 30 high burden countries for TB, TB-HIV and drug-resistant TB, with estimated treatment coverage at 81% in 2016. As part of efforts to find missed cases within the framework of the post 2015 end TB agenda, the country has adopted innovative active case finding approaches.
Description: In 2017, The Union in collaboration with the Ministry of Health and Child Care supported three models of active case finding namely; 1) Targeted active case finding among high risk communities using a mobile X-ray van 2) Intensified contact investigation using community health workers (CWHs) on motorcycles in two high burden districts and 3) Door to door screening for TB through a network of CHWs in two rural districts. We set out to compare the yield of the different active case finding approaches.
Lessons learned: For the period February-December 2017, 60,807 clients were screened for TB through the X-ray van and 1,080 diagnosed with TB. The number needed to screen (NNS) was 56 at a cost of $781 per case diagnosed. Through contact investigation for the period August

2016-June 2017, 1,443 contacts were screened from 604 index cases. A total, 31 were diagnosed TB and the NNS was 53, at a cost of $647 per case diagnosed. Between January-December 2017, the door to door case finding approach screened 54,332 for TB, among whom 177 were diagnosed with TB. The number needed to screen was 307, at a cost of $1,534 per case diagnosed.

Conclusions/Next steps: The yield or NNS was comparable for the X-ray van and contact investigation approach, though the later was much cheaper per case diagnosed. In comparison, the yield was much lower and more expensive for each case diagnosed using the door to door approach. These findings bring to focus the need for more comprehensive cost-effectiveness analysis to inform future scale-up.

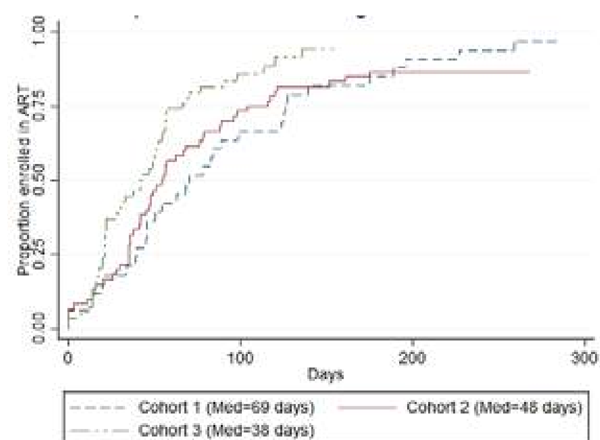
WEPEE612

Rates of ART initiation and time from HIV diagnosis to ART initiation in selected Namibian health facilities one year before the national rollout of Namibia´s Treat All guidelines

J.B. Zieman[1], J. Mdala[2], L. Stoman[3], N. Hamunime[4], P. Kamilugogo[2], A. Zegeye[5], S. Geibel[1], L. Vu[1]
[1]Population Council, Project SOAR, Washington, United States, [2]IntraHealth International, Windhoek, Namibia, [3]Survey Warehouse, Windhoek, Namibia, [4]Ministry of Health and Social Services, Windhoek, Namibia, [5]USAID/Namibia, Windhoek, Namibia

Background: Research shows that reducing the time between a confirmed HIV diagnosis and subsequent ART initiation can expedite viral suppression and reduce loss to follow-up for people living with HIV (PLHIV). This abstract describes current trends in time-to-initiation based on data collected from HIV clinics in Northern Namibia as part of a larger study assessing the effects of the national implementation of Treat All guidelines—under which all PLHIV are immediately eligible to begin ART.

Methods: We conducted a secondary analysis of routine health records from 10 purposefully-selected ART clinics, supported by the USAID HIV Clinical Services Technical Assistance Project (UTAP). The dataset contains patient demographics, dates of HIV diagnosis and ART initiation, and longitudinal data on clinic visits during the 12-months preceding the national introduction of Treat All: 1 April 2016-31 March 2017. We examined a subset of 147 PLHIV whose diagnosis occurred between 1 April 1-31 December 2016. To assess how changes to ART guidelines and practices affected time-to-initiation, we stratified the records into three 90-day cohorts by HIV diagnosis date: 1 April-30 June (n=33), 1 July-30 September (n=54), and 1 October-31 December (n=60). Using Kaplan-Meier and log-rank analyses, we describe and visualize trends across the three cohorts.



[Time elapsed between HIV diagnosis and ART Initiation]

Results: Of the records analyzed, 61% (n=89) were women, median age was 34 years. On average, patients transitioned onto ART within 72 days of HIV diagnosis; half started ART within 51 days, and 7% started within one week. Neither sex nor age were associated with ART initiation or time-to-initiation. Nearly 90% of patients in all three cohorts initiated treatment by 31 March 2017 (p=0.269),and median time-to-initiation decreased sequentially (Chart 1). The log-rank test indicates this trend is significant (chi^2=159.6; p< 0.0001).

Conclusions: High treatment initiation rates and the decreasing trend in time-to-initiation suggest that the facilities surveyed are making progress toward ensuring that 90% of all diagnosed PLHIV are linked to treatment. Factors influencing this trend may include UTAP's continuing technical support, ART service decentralization, expanding CD4-based ART eligibility from 350 to 500 (cells/mm^3), and preparations for Treat All. We will repeat this analysis using data collected after the first 12-months of Treat All implementation.

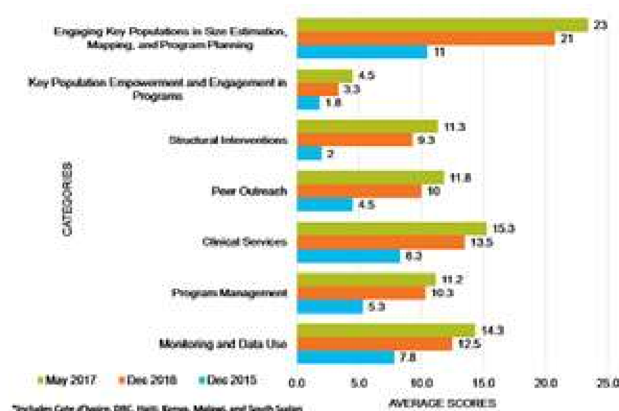
WEPEE613

Accelerating implementation and scale-up of comprehensive programs for HIV prevention, diagnosis, treatment and care for key populations: Critical to HIV epidemic impact

M. DiCarlo[1], P. Bhattacharjee[2]
[1]FHI 360, Washington, United States, [2]University of Manitoba, Nairobi, Kenya

Background: Key populations (KP) face disproportionate barriers to accessing services compared to other populations and have the highest incidence of HIV infection. To achieve epidemic control, national program coverage of KP must be accelerated to ensure HIV transmission is stopped and KP PLHIV are identified, and initiate and remain on treatment. Scaling quality KP programming is thus essential and means must be in place to accelerate the impact of those programs on the HIV epidemic.

Description: In late 2015, the USAID- and PEPFAR-supported LINKAGES project developed a method for accelerating the scaled delivery of quality interventions for KP in 17 countries in Africa and the Caribbean. This included development of a common core KP program and implementation guide that covered size estimation, mapping, KP engagement, structural interventions, peer outreach, clinical services, program management, and monitoring/data use. The step-by-step guide, designed to be adaptable at country level, served as the basis for development of country operational plans, as well as training, technical assistance (TA) and monitoring and evaluation. Frequent, rapid, and targeted TA was provided to countries to support implementation of the common core program. A technical checklist aligned with the guide allowed for frequent evaluation of progress.



[Figure 1. Average scores on quality KP program implementation in the seven core program areas]*

Lessons learned: The common core ensured that a standardized package of essential KP services could be delivered consistently in each country, while allowing for adaptation to various settings. The method promoted constant course adjustments to respond to changing KP locations and denominators, differentiated service delivery models that could be adjusted by location/population type, constant community engagement, and a culture of data use at site level to track individuals

throughout the HIV cascade. Implementation quality was assessed using the checklist linked to the common core. In a sample of 6 countries, quality implementation scores improved in all seven areas of the common core, from an average score of 40.7 in December 2015 to 91.4 in May 2017.
Conclusions/Next steps: The described method and standard package have been successful at improving and scaling KP services across multiple country contexts and can be used and adapted anywhere for similar results. These lessons could also be transferred to other health and development challenges.

WEPEE614

A ten-year trend analysis of inpatient diagnoses of cellulitis, endocarditis, osteomyelitis and pneumonia for intravenous drug users between 2006 and 2015

C. Gonzalez[1], D. Tsui[2], I. Feldman[2], F. Laufer[2], W. Levey[2]
[1]New York State Department of Health, AIDS Institute, New York, United States, [2]New York State Department of Health, AIDS Institute, Albany, United States

Background: The re-use of syringes in the context of persons who inject drugs has an increased risk for the development of soft tissue, endovascular, bone and pulmonary infections. Since 1992, the New York State (NYS) Department of Health's AIDS Institute has implemented the harm reduction strategy of expanded syringe access. We analyzed the global impact of syringe access on emergency department (ED) and hospital inpatient utilization for the aforementioned infections.
Methods: Reviewing the New York State Statewide Planning and Research Cooperative System (SPARCS) data, we examined trends of adult (≥18 years old) ED and hospital inpatient utilization and mortality between 2006 and 2015 for soft tissue, endovascular, bone and pulmonary infections among persons who inject drugs. Multivariate regression was then applied to predict the likelihood of inpatient mortality. Zero-order correlations were applied between two variables to calculate the confidence levels.
Results: From 2006 to 2015, the number of discharges among persons who inject drugs decreased 22.4% (from 123,624 to 95,872, $p< 0.0001$). Among patients who use injection drugs, cellulitis-related to injection drug discharges also significantly decreased from 5,254 to 4,526 (13.9%, $p< 0.0001$) during this period. The mortality rate for persons who inject drugs-related discharges increased from 793 to 822. Expired patients who inject drugs had the highest average length of stay (ALOS), but they also declined from 13.6 to 11.2 days.
When controlling for patients expiring during hospitalization, the ALOS averaged 6.9 days through the decade. As expected, no significant changes were noted in aspiration pneumonia rates. Osteomyelitis maintained the highest ALOS of 16.3 days in 2006 to 12.7 days in 2015. The multivariate result showed patients who inject drugs with endocarditis are 1.4 times more likely to be admitted to inpatient through emergency department (odds ratio 1.434; 95% confidence level 1.399-1.469, $p< 0.0001$).
Conclusions: The expanded syringe access harm reduction strategy has health care impact beyond decreasing HIV and HCV transmission dynamics.

WEPEE615

Implementation of the community adolescents treatment supporters programme with Africaid

T. Chigadza[1], P. Matyanga[1], A. Ricotta[2]
[1]Africaid, Programmes, Harare, Zimbabwe, [2]Africaid, Technical Support Team, Harare, Zimbabwe

Background: World Health Organization (WHO) in 2015 recommended that HIV treatment to children, adolescents and young people (CAYPLHIV) should be started regardless of CD4 cell count or disease stage 'Treat All' approach has been adopted by the Zimbabwe Ministry of Health and Child Care and has been cascaded to Goromonzi district in Mashonaland East Province.
Methods: 'Treat all' is anticipated to increase the number of CAYP enrolled in HIV treatment and care. HIV programs in high prevalence areas are overstretched and seek efficient ways to deliver care and treatment that meet clients' diverse needs and lower barriers to care while optimizing efficiency. The 2015 Africaid operations research in rural Zimbabwe measured the effectiveness of the peer-led model and community approach to strengthening adherence and retention. Compared adherence and retention among those receiving standard of care and the Africaid supported clients receiving standard of care plus Community Adolescents Treatment Supporters (CATS) services showed improved adherence in the latter. From these results, the model was cascaded to Goromonzi District and has been implemented from October 2016 to date.
Results: 32 CATS were trained, mentored and have provided differentiated services to 2,378 CAYPLHIV below 24 years. The CATS model has resulted in 856 newly diagnosed CAYPLHIV and 70% were linked into care under 'treat all' initiative. Improved adherence as evidenced by viral load (VL) was witnessed among those receiving CATS services. 81.7% of 2,378 have had a viral load, 1,927 which amount to 81% have a VL below 1000 copies/mm and 15 have a VL above 1000 copies/mm which is 0.77%. Then 64.8% of 2,378 having been referred for services thus improving retention. CATS are well integrated with strong systems so that they can refer their peers who are in need of further support including mental health.
Conclusions: Working with CATS programs, MoHCC recommended to work with more expert clients to ensure timely linkages of CAYPLHIV for this has shown a greater improvement especially on adherence. This also works best for differentiated care implementation. Linkage to care was significantly associated with the period of engaging expert clients in the project.

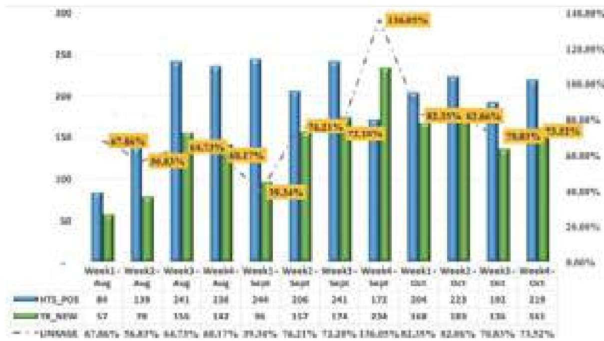
WEPEE616

The benefits and utility of surge strategies with HIV-positive patient tracing exercises: The Zomba, Malawi experience

M. Marco[1], P. Mwala[1], S. Zungu[1], D. Malema[2], B. Mpila[1], J. Theu[3], M. Jagriti[3], J. Moorman[2], T. Xulu[1], I. Sanne[1],
Right to Care - EQUIP, Centutrion South Africa
[1]Right to Care - EQUIP, Centurion, South Africa, [2]Right to Care - EQUIP, Lilongwe, Malawi, [3]Dignitas Interternational, Zomba, Malawi

Background: Meeting the UNAIDS/PEPFAR 90-90-90 targets are necessary but often difficult to achieve for HIV treatment and care sites in resource-limited countries like Malawi. The USAID-sponsored EQUIP consortium, with its implementing partners (IP), currently provide comprehensive rapid scale-up of antiretroviral therapy (ART) services across 245 health facilities in Malawi. EQUIP's IP, Dignitas International (DI), provides direct service delivery in Zomba and Machinga districts of south-east Malawi.
Description: In July 2017, EQUIP placed 17 of DI's 28 Zomba health facilities under remediation based on gaps in specific indicators of the cascade, namely < 75% of those testing HIV-positive were not initiated on ART. Between 13-30 September 2017, EQIUP Central's technical team joined members of EQUIP Malawi and DI representatives in Zomba to implement a surge strategy to delineate how many HIV-positive patients from site registers had not been ART initiated. This information was used to commence with a tracing exercise from 23-29 September to bring those not initiated and lost to follow-up (LTFU) back into treatment.
Lessons learned: Of the 1,057 patients from 17 facilities needing tracing, HIV diagnostic assistants (HDAs) were able to actively trace 1,028 (96.3%) patients in 7 days. From the 1,028 traced patients, 400 (38.9%) were already on ART at their initial site or another one nearby. From the remaining 520 traced patients who were physically locatable, 130 (25%) returned to the clinic and initiated ART. These 130 (92.9%) patients were from the group of the 140 patients who told their HDA that they definitively would come back to the clinic for treatment, and thus did so. From onset of the surge through the tracing exercise, sites' linkage and ART initiation rates were markedly higher than in previous months.
Conclusions/Next steps: Our expert HDAs knew their catchment areas and were quickly and efficiently able to trace >95% of LTFU patients. The tracing exercise further revealed data challenges, specifically incom-

pleteness of patient data registers, client tracking processes, and patient referral systems. This necessitated mentoring on ART data collection tools and enhanced monitoring and evaluation training to reconcile HIV-positive and ART registers to ensure that all sites adhere to WHO's test and treat strategy.



[HTS_TST_POS to TX_NEW from 17 Zomba, Malawi Remediation Sites by Week: 1 Aug - 30 Oct 2017]

WEPEE617

Key populations leading the way: Innovative strategies for increasing HIV testing yield in high risk communities in Guyana

T. Hendricks[1], L. Thompson[1], S. Maher[2], M. Duffy[2], W. Proper[2]
[1]Advancing Partners & Communities - Guyana, Georgetown, Guyana, [2]John Snow, Inc., Washington DC, United States

Background: Guyana's 2014 Biological and Behavioural Surveillance Survey reports significantly higher HIV prevalence among KPs compared to 1.6% in general population. Transgender persons prevalence rate at 8.4%, sex workers at 5.5%, and men who have sex with men at 4.9%. There are persistent programmatic challenges to reaching and testing most at-risk KPs due to high levels of stigma and discrimination. Consequential, is low uptake of HIV testing services (HTS) and treatment services among KPs. This threatens Guyana's ability to help its people and achieve UNAIDS 90/90/90 targets.

Description: To address challenges, Advancing Partners and Communities (APC) Project in Guyana, a USAID funded programme led by JSI, introduced a personalized KP social network strategy. APC-supported peer educators, themselves KPs, belonging to social networks of most at-risk KPs reach them individually to encourage testing and linkage to treatment. KP peer educators provide HIV education in high risk communities for the most at-risk from their social networks and refer for HTS provided by KP-led NGOs. Efforts to improve HIV testing yield include personalized HTS and those testing HIV-positive are referred to a treatment site and accompanied if they choose.

Lessons learned: Identification of most at risk KPs, testing them and their partners, and linking positives to HIV care and treatment services yields the best outcomes. HTS quarter one results between 2017 and 2018 show a decrease of testing by 18% but an increase in HIV positive diagnosis by 14.2%. The results directly correlates to APC's strategy. In quarter one of 2017, 14.3% of newly diagnosed KPs linked to HIV treatment - 7% female sex workers (FSW), 7% men who have sex with men (MSM). In quarter one 2018, 43.8% KPs linked (12.5% FSW, 25% MSM & 6.3% transgender).

Conclusions/Next steps: The concept of a personalized approach for peer-led HTS and linkage is labour intensive but effective. Working in conjunction with KPs to develop tailored and flexible approaches that nimbly respond to challenges can lead to innovative strategies which achieve the best results to locate, diagnose and link most at-risk KPs.

WEPEE618

Community task forces making a difference: Increasing TB case notification rates through community-led TB campaigns (TBC) in 11 regions in Tanzania

G. Asuquo[1], Y. Ferguson[2], K. Achebe[3], M. Imran[3]
[1]Save the Children USA, Dar es Salaam, Tanzania, United Republic of, [2]Save the Children, Dar es Salaam, Tanzania, United Republic of, [3]Save the Children US, Washington, United States

Background: Tanzania ranks 15th among 22 TB high-burden countries and 6th in Africa. Since April 2016 Save the Children Tanzania has been implementing a Global Fund-supported TB /HIV program in partnership with four local sub-recipients in 14 high TB/HIV-burden regions. Despite reaching DoTs coverage of 100% and treatment success rate of 89%, TB case detection remains at 33%. Two thirds of people estimated to have TB are not reached by the health system. Challenges include poorly equipped diagnostic facilities; Low community awareness; distance from communities to diagnostic centres; break down in the referral supply chain with no mechanisms for escorted referrals. The program supports the Government of Tanzania's goals of increasing TB case detection efforts and reducing the incidence of TB by 25% and mortality by 50% of TB and Leprosy by 2020.

Description: A key intervention undertaken to achieve these goals are community-led TB Campaigns modelled along Combination HIV Prevention Campaigns aimed at increasing community TB awareness, strengthening active case-finding and community uptake of TB/HIV collaborative services. Using a campaign slogan dubbed, "I am a TB Case Hunter: How about you", 11 one-day TB campaigns were conducted from 14th November to 16th December 2017. This consists of community-friendly social mobilisation strategies and campaign actions including public education through mass-media, folk-media/theatre to mobilise communities to campaign grounds to receive TB Health Education, TB-screening and on-site sputum examination of presumptive cases in collaboration with District Laboratory technicians.

Lessons learned: In the 11 one-day campaign events, 2766 community members were screened for TB; specimens of 1298 (46%) presumptive TB cases were processed on-site; 376 (29%) were confirmed as TB cases. The results show that delivering TB services through community-taskforces using community-friendly campaign-actions generates community-demand for services and increases TB case-notification by combining leadership engagement/advocacy with service-delivery at community-doorsteps in a fun environment.

Conclusions/Next steps: By leveraging the visible participation/involvement of a broad spectrum of community stakeholders including Health-Care workers, EX-TB patients, CSOs and PLWHIV Networks, the TB campaigns validated the Engage-TB model. A targeted scale-up of this approach therefore has significant promise in ending the TB epidemic in Tanzania.

WEPEE619

The uptake of the PrePex and Shang Ring male circumcision devices among adolescent and adult males in sub-Saharan Africa, a systematic review

R. Kakaire[1,2]
[1]University of Cape Town, Public Health and Family Medicine, Cape Town, South Africa, [2]Clinton Health Access Initiative, Maseru, Lesotho

Background: Voluntary medical male circumcision (VMMC) programs have been implemented in fourteen countries in sub-Saharan Africa since 2007. The uptake of services has been suboptimal in some of these countries. Circumcision using device methods was postulated to increase the uptake of services. We conducted a systematic review to establish the uptake and acceptability of the PrePex and Shang Ring male circumcision devices in VMMC program countries.

Methods: A comprehensive literature search was carried out to identify studies reporting uptake or acceptability of either the PrePex or Shang Ring device methods. The search was limited to English language articles of studies among adolescents and adults in VMMC implementing

countries. Two reviewers independently reviewed and abstracted data from each article. Uptake was defined as selection of a device, either the PrePex or Shang Ring, when offered a choice between the device and another method of circumcision. Uptake estimates were pooled in a meta-analysis and stratified by device method and participant age. Acceptability of device methods among recipients was summarized using four criteria and presented as proportions.
Results: Of the 391 total articles retrieved, 25 studies met the inclusion criteria. Of these, 7 articles reported uptake of device method. The pooled uptake estimate was 75% (95% CI 62% to 89%). Prepex uptake was estimated to be 73% while the Shang ring estimates were 82%. By age group, uptake of device methods among adolescents was 82% compared to 72% by adults. Majority (21) of the studies reported at least one criteria used to assess acceptability. Acceptability of the two device methods was high: 95% of participants reported satisfaction with a device procedure. The devices were not associated with lengthy periods from work. Almost all (97%) participants circumcised with the device methods indicated they would recommend a device procedure to a friend or relative.
Conclusions: Our findings showed a high uptake and acceptability of the two circumcision devices methods that have been prequalified by WHO for use among adolescents and adults.
These findings support the likelihood that circumcision uptake could be assisted by introduction of the two device methods in countries where coverage remains suboptimal.

WEPEE620

From tokenism to concrete practice- the story of lived realities of PLHIV through MIPA forums in Zimbabwe

T. Magure[1], R. Yekeye[2], A. Mpofu[3], S. Mpofu[4]
[1]National AIDS Council (NAC), CEO, Harare, Zimbabwe, [2]National AIDS Council (NAC), Operations, Harare, Zimbabwe, [3]National AIDS Council (NAC), M&E, Harare, Zimbabwe, [4]National AIDS Council (NAC), Harare, Zimbabwe

Background: The 1994 Paris Declaration, the UNGASS Declarations of 2001, 2012 and 2015 all had a common thread that (PLHIV) are critical to an ethical response to HIV and AIDS and they should be meaningfully Involved in the HIV response. Greater/Meaningful Involvement of People Living with HIV and AIDS (GIPA/MIPA) was considered to be important because:

- HIV+ people bring a unique perspectives of their personal experiences, to the development and implementation of HIV and AIDS programmes.
- Reaffirms the protection and promotion of the rights of PLHIV to participate freely, without discrimination, in the development process.
- Helps to reduce stigma and discrimination, as they challenge the myths and misconceptions about HIV and AIDS.

Zimbabwe is one of the Countries that took this concept seriously and established a MIPA desk within the National AIDS Council. It is through this desk that MIPA Forums were stablished.
Description: MIPA Forums were established at districts, provincial and National levels. For and by PLHIV and meet quarterly to discuss issues affecting PLHIV such as availability of medicines, access to services and programmes and impacts of certain policies on PLHIV. The national MIPA Forum brings together PLHIV from Women, Adolescents, Religious Leaders , Key Populations and representatives who sit on national, International boards and Government officials to discuss how to achieve the three 90s.
Lessons learned:
· There is a very strong voice of PLHIV community from all sections of PLHIV guiding the planning of the national response at all levels.
· PLHIV have been empowered and have represented the country and region at various international boards.
· The health outcomes for PLHIV have greatly improved as indicated by 90% Viral Suppression at 12 months and 87,7% adults ART retention by December 2017.
· There has been mutual exchange of Information between PLHIV and key service providers

Conclusions/Next steps: PLHIV are critical in shaping the national response as they bring on board their lived experiences. MIPA Forums have proved to be the best vehicle of harnessing the knowledge and skill of PLHIV to shape the national response and they need to be strengthened to achieve the 90-90-90 goals.

WEPEE621

National mentorship to improve testing uptake for HIV-exposed children in Malawi

C. Stillson[1], G. Nyirenda[2], N. Nyambi[1], L. Berman[1], C. Banda[1], S. Jaidev[3], D. Midiani[4], M. Eliya[4], R. Nyirenda[4], A. Gunda[1]
[1]Clinton Health Access Initiative, Lilongwe, Malawi, [2]Right to Care, Lilongwe, Malawi, [3]Clinton Health Access Initiative, New York City, United States, [4]Ministry of Health, Dept of HIV/AIDS, Lilongwe, Malawi

Background: Malawi adopted Option B+ for the prevention of mother-to-child transmission (PMTCT) of HIV in 2011. Without treatment, fewer than half of HIV-positive children survive past two years, making early identification critical to reducing mortality. As such, known HIV-exposed children are routinely tested at 2 months, 12 months, and 24 months. However, by 2015 testing uptake for HIV-exposed children in Malawi was less than 50% at each of these milestones. In April 2016, the Malawi Department of HIV/AIDS and Clinton Health Access Initiative developed a half-day in-service guided mentorship for PMTCT service providers.
Methods: Mentorship focused on reviewing and strengthening patient flow, testing procedures, and documentation practices. Existing national PMTCT mentors were oriented to a mentorship checklist and deployed to public health facilities in teams of three. In addition to the checklist, mentors were provided with facility-specific data sheets to identify areas for improvement. The mentorship model was first piloted in 5 districts in southern Malawi, with 80 facilities receiving 2 rounds of mentorship over 6 months. In February 2017, this model was scaled nationally, reaching more than 400 facilities that collectively accounted for 95% of all exposed infant testing volume. National mentorship continued quarterly through 2017 and is expected to continue through Q2 of 2018.
Results: Compared to testing uptake prior to mentorship (Q1 2016), the most recently available data (Q3 2017) indicates that uptake increased substantially across exposed-child testing milestones. Uptake at 2 months increased by 100% (35% to 70%), uptake at 12 months increased by 38% (53% to 73%), and uptake at 24 months increased by 18% (56% to 66%).
Conclusions: The national mentorship program contributed to a substantial improvement in uptake across exposed-child testing milestones. This demonstrates that periodic on-site mentorship of PMTCT providers can be an effective, scalable means of improving testing uptake at key milestones. However, retaining mothers and children to the end of the testing cascade remains a challenge.
Additional efforts are needed to ensure that HIV-exposed children remain HIV-free, including efforts to retain HIV-positive mothers on treatment throughout breastfeeding and follow up with mothers and children who miss testing milestones.

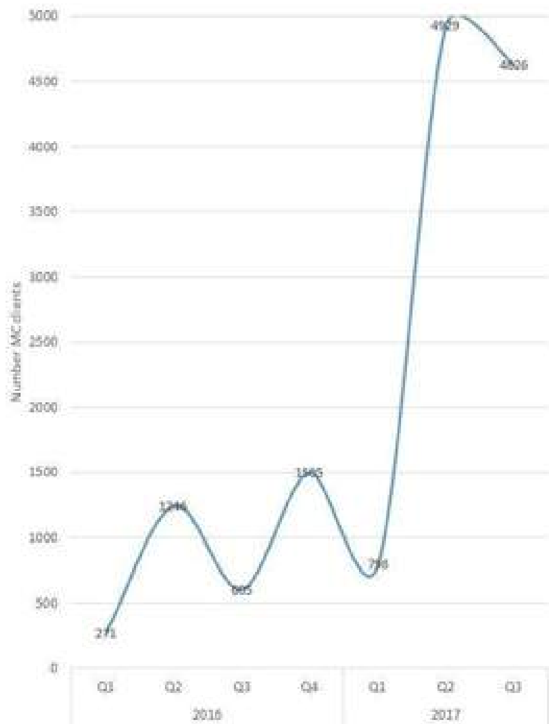
WEPEE622

Scaling up voluntary medical male circumcision services in Lusaka District of Zambia

H. Shasulwe[1], J. Banda[2], L. Aladesanmi[2], O. Chituwo[3], H. Chirwa[2], N. Kasonka[2], A. Chipukuma[2], F. Mulala[4], J. Zulu[4], K. Asiedu[2], Nashiol Nyirongo[1]
[1]Jhpiego - an affiliate of Johns Hopkins University, Health, Lusaka, Zambia, [2]Jhpiego - an affiliate of Johns Hopkins University, Lusaka, Zambia, [3]Centre for Disease Control, Lusaka, Zambia, [4]Ministry of Health Zambia, Lusaka, Zambia

Background: Male circumcision (MC) prevalence in Lusaka Province is 23% and HIV prevalence is 16%; the highest in the country. 80% of the population of the province reside in Lusaka District and has thus become a target for the scale up of HIV prevention services including MC. Historically MCs in Lusaka District have been dismal in comparison to its large population with only 33% of the annual target achieved in 2016.

Description: Jhpiego is implementing a 5-year CDC funded project under PEPFAR; providing MC services to reduce HIV transmission, thereby contributing to the control of the epidemic. The project plans to increase MC coverage to 80% in its supported districts which includes Lusaka. Services were scaled up through restructuring demand creation and service delivery strategies in 2017; this included: targeted demand creation using GIS mapping data; engagement of resident community mobilizers and facility environmental technician cadres; decentralization of services to health posts through regular outreaches; a roaster of service delivery providers for continuous deployment; as well as daily MC monitoring by program managers.
Lessons learned: This approach resulted in continuous client flows and seamless service provision. A review of MC uptake in Lusaka district from routine program data shows a dramatic improvement with over 4000 MCs done quarterly since April 2017 when this approach was implemented as compared to about 1000 MCs in the previous 5 quarters of the project. The project has contributed 15.3% of the MOH annual target for Lusaka district (67,566) after 3 quarters in 2017 as compared to only a 5.5% contribution in 2016. The project also exceeded its annual COP target by 15%.
Conclusions/Next steps: The project is now consolidating the principles of this approach as part of its standard implementation procedures and scaling this approach to its other districts of operation. These successes will also be shared with relevant stakeholder groups i.e. MOH, TWGs and other implementing partners for potential use across the country.



[Scaling up Voluntary Male Medical Circumcision in Lusaka District of zambia]

WEPEE623

Striking multiple ends: Access and use of female condoms reduce multiple reproductive health risks among female sex workers in an urban slum in Kampala City, Uganda

K. Buyinza[1], P. Ghaali[2]
[1]*Reproductive Health Uganda (RHU), Programs, Kampala, Uganda,*
[2]*Reproductive Health Uganda, Kampala, Uganda*

Background: With a prevalence of 7.3% in the general population, HIV/AIDS remains an important public health problem in Uganda, where the burden of HIV is higher among urban (8.5%) than the rural (6.5%) populations and much higher among sex workers (33%). However, access to comprehensive SRHR/HIV/AIDS information/services among sex workers and sexual minorities is still limited, associated with high mobility of key populations; a generally unfriendly SRHR service-delivery environment; and high levels social stigma/discrimination against SRHR for young people as well as sex-workers/sexual minorities. The above situation is compounded by the restrictive laws that limit commercial sex work, safe abortion and adolescent contraceptive use, resulting into many sex workers/sexual minorities operating *´under-cover´*; often abused (82%); and significantly excluded from critical SRHR services. As a result, sex workers face limitations in accessing appropriate information and services for their SRHR needs, which exposes them to disproportionately higher SRH risks e.g. HIV /AIDS (37%), STIs (42%), unsafe abortions 86%.
Description: Program Interventions: RHU/ IPPF implemented a peer-led SRHR program targeting FSWs and sexual minorities in urban slums of Kampala City; aimed at increased availability/access to quality rights-based SRHR information/services among vulnerable and often excluded young women/girls in urban slums of Kampala City.
Strategy/activities: Peer leaders were selected/trained as community-based SRHR agents, who in turn conducted targeted peer-to-peer mobilization, health education, provision of condoms, lubricants and FP methods; and referrals to health posts for services. Health facility capacities were enhanced to offer youth-friendly SRHR services, especially to SWs; and implementation of monthly integrated SRHR/HIV service outreaches in targeted sex-worker hot-spots.
Results: 1,530 FSWs were reached in two years (2016-2017); general condom use increased by >50%, while female-condom use increased by >39%; use of modern FP increased by >50%; STIs reduced by 59.5%%; while abortion-related cases reduced by >70%.
Lessons learned:

- The peer-to-peer approach and integration of HIV/AIDS and SRHR/FP interventions are effective for highly mobile KPs in resource-limited settings.
- Effective use of the female condom, empowers women and reduces multiple SRH risks.

Conclusions/Next steps: Participatory community-facility mechanisms should be designed, specifically target and collaborate with KPs to address the persistent SRH/HIV risks in resource-limited countries.

Methods to improve service quality, support and tailoring of services

WEPEE624

Implementing the Test and Treat policy: Increasing access to quality HIV care services at 11 USAID / Strengthening Uganda's Systems for Treating AIDS Nationally (SUSTAIN) supported hospitals

P. Donggo, G. Tugume, H. Alima, B. Tumusiime, M. Arinaitwe
URC University Research Co., LLC, Kampala, Uganda

Background: Uganda adopted the UNAIDS 90-90-90 strategy in 2015. The second and third 90s stipulate that 90% of people with diagnosed HIV infection should receive sustained antiretroviral therapy (ART), and 90% of these should achieve viral load suppression. However, only 46% of the 36.7 million people living with HIV (PLHIV) had received ART (World Health Organization [WHO] 2015), the majority initiating treatment with advanced HIV infection. Uganda's *Consolidated Guidelines for Prevention and Treatment of HIV (2016) recommend* that every HIV positive person should be started on lifelong ART despite their WHO clinical stage or CD4 count- "The Test and Treat" policy. Contrary to this guidance, staff at health facilities countrywide including 11 USAID SUSTAIN supported hospitals were not trained on the new guidelines. By December 2016 3,271 PLHIV in care were not on ART (pre-ART) at the 11 hospitals. Other barriers included *low ART stocks, poor client flow and low staff - patient ratio.*
Description: In February 2017 USAID SUSTAIN and the Ministry of health conducted a training of trainers followed by 3-day hospital-based trainings of medical, laboratory and data personnel, counselors, community

linkage coordinators, clinic volunteers and peer patients. We oriented them on the guidelines and gave them desk job aids, guideline booklets and standard operating procedures. We supported the ART clinic staff to establish quality improvement (QI) projects and assign roles to the QI team to implement the "Test and Treat" policy. Using a Ministry of health assessment tool, we reviewed implementation of the guidelines at one month and conducted mentorship and follow on assessments at three months post-training. We checked progress, identified gaps and made action plans to address them in the following month. Table 1 highlights these QI changes.

A multi-disciplinary team selected and assigned roles to accelerate new ART enrollment including conducting pre-ART counselling, forecasting and ordering adequate Anti retro-viral drugs for both new and old clients.
Continued Medical Education for all ART providers on the Test and Treat policy.
Generating a list of clients eligible for ART using the Uganda electronic medical records system.
Labeling HIV patient files with colored stickers that notify clinicians of clients who are not yet initiated on ART.
Data review meetings to assess progress on enrollment of pre- ART clients on ART
Daily health education sessions for clients on Test and Treat policy and referral of clients for adherence counselling.

[Table 1: Changes tested to increase initiation of HIV positive clients on ART at 11 USAID SUSTAIN supported sites]

[Chart 1: Total no. of adults and children receiving ART vs pre-ART at 11 SUSTAIN supported sites Oct'16 - Sept'17]

Lessons learned: Training and engagement of multidisciplinary teams increased enrollment on ART.
Post-training mentorships support adaptation to policy change.
Conclusions/Next steps: Systematic, implementation of quality improvement approaches through multidisciplinary teams enabled hospital teams to implement the Test and Treat policy.

WEPEE625

Modern response to modern living - addressing HIV service needs in spa and massage parlors for men having sex with men (MSM) in India

D. Kumar
India HIV/AIDS Alliance, Social Work, Noida, India

Background: HIV prevalence among MSM in India reported is at 4.3% in 2016. Despite of strategic HIV interventions from National AIDS Control Organisation (NACO), the prevalence among MSM remains significantly high. Punitive laws on homosexuality, stigma and taboo associated with MSM creates larger challenge on reaching to hidden MSM across India. The traditional sex sites have disappeared over times and the physical contacts have shifted to virtual contacts and sexual encounters are secretly done during spas and massage parlors in many countries including India.
Description: Samarth, (meaning 'empowered' in Indian language) is a programme based on the principle of 'test-treat-adhere-prevent' cascade for MSM and transgender population in India. The model aspires to establish strategies to support hard to reach clients for early testing to treatment linkages (after confirmatory test) for reactive clients and to repeat tests for people with negative results in every six months. Health camp approach has been taken to reach out to spas and parlors where MSM get door step services for HIV screening. People with positive screening results are then counseled and accompanied to government HIV testing centers and linked to treatment facilities if confirmed HIV positive.
Lessons learned: Confidentiality is extremely important for the population, they engaged in sex work as masseur. The Samarth clinic outreach is 'peer-base' and distributes condoms for safe sex and conducts health camps in nearby areas for them to access HIV services without apprehension. The spa owners and landlords of the rented space are the major stakeholders in the HIV prevention intervention.
Results: Samarth conducted 77 HIV screening tests in the intervention areas in three months. Nine people were screened positive, confirmatory test provide all nine positive who were then linked to treatment. Strategic events and activities needs to be planned on regular basis to engage these newly identified outreach sites for MSM activities.
Conclusions/Next steps: Samarth clinics have taken health camp approach by addressing HIV testing needs of the MSM community. Accompanied referrals were provided to test HIV is very important. Samarth is developing spa and massage parlor based male sex workers outreach guidelines to complement national HIV programme.

WEPEE626

Institutionalizing pharmacovigilance in an HIV treatment centre: Lessons from Baylor-Uganda

R. Sekabira, W. Mutabaazi, J. Tikabibamu, M. Kisekka, A. Kekitiinwa
Baylor College of Medicine Children's Foundation Uganda, Kampala, Uganda

Background: Pharmacovigilance augments patient safety and rational use of medications. Almost 50% of hospitalized patients in Uganda are prone to experience adverse drug reactions (ADR). The rate of ADR reporting to the national pharmacovigilance Centre is still low. This study aimed to assess interventions which would enhance and sustain ADR reporting in an HIV treatment Centre.
Description: The study took a Pharmacovigilance scope as prescribed by WHO; with emphasis on medication errors, ADRS and misuse of medicines.
To track medication errors, the facility established a quality control (QC) and Quality assurance (QA) in the pharmacy. Prior to medicine dispensation, a QC process was applied at recording of consumption, packing of prescribed medicines and medicine counselling all by different staff. QA or final review of both medicines and prescription was also done by a pharmacist or delegated staff. Identified errors were categorized, documented and client recalled for rectification if necessary.
For ADRs, a system to collect, report and effect preliminary analysis was established at the health facility. All filled Pharmacovigilance forms were collected by a focal person; who made submission to the Pharmacovigilance National Centre. Periodic feedback about individual Healthcare Provider (HCP) reporting rate was provided and response monitored overtime.
A perspective of product design was taken to assess *misuse of medication*. Piloting the capacity of HCP and clients to distinguish medicines with similar colour and packaging material in an HIV treatment centre.
Lessons learned: Between January and June 2017, the QC and QA unit averted 50% (2/4) errors due to sudden regimen switch, 79% (15/19) due to wrong doses and 61% (11/18) due to less or excess pills.
ADR reports increased from 7(2013) to 32(2014) and from 12 (2016) to 26(2017), all associated to HCP feedback. Product design contributed to 36% and 70% of medication misuse among HCP and clients respectively.
Conclusions/Next steps: A deliberate effort to strengthen pharmacovigilance among HIV treatment facilities is required because it will inform clinical practice and improve patient outcomes. Pharmaceutical manufacturers should also standardize their products in terms of color and packaging to mitigate medication misuse associated with product design.

WEPEE627

Advantages and challenges in providing medical & mentoring services through the pediatric HIV telemedicine initiative: A qualitative research

M.V. Manglani[1], M.M. Lala[1], Y. Gabhale[1], S. Balakrishnan[2], K. Bhuyan[2], B.B. Rewari[3], P. Singh[4], I. Kundan[4], M.S. Setia[5]
[1]Pediatric Center of Excellence for HIV Care, Lokamanya Tilak Municipal Medical College & General Hospital, Department of Pediatrics, Mumbai, India, [2]UNICEF, Mumbai, India, [3]NACO, New Delhi, India, [4]Maharashtra State AIDS Control Society, Mumbai, India, [5]The Pediatric Center of Excellence for HIV Care, Lokamanya Tilak Municipal Medical College & General Hospital, Epidemiology, Mumbai, India

Background: In October 2013, a pilot Pediatric-HIV Telemedicine Initiative was started at the Pediatric-Centre-of-Excellence-for-HIV-Care (PCoE) of Maharashtra state to provide video-linked delivery of expert medical and mentoring services as adjunct to existing services at peripheral ART-centers, as most are not manned by pediatricians/ HIV-specialists. Complicated patients are referred, but often do not reach higher centers due to several constraints. We assessed acceptability and feasibility of Telemedicine in patients, their caregivers & health-care providers.
Description: Scheduled and Need-based real-time video-conferences [VC] are conducted with patients, their caretakers along with the treating team at the Telemedicine-linked peripheral ART centers, so also mentoring sessions and mortality reviews for overall capacity building. The study period was October 2013 through June 2015.
We conducted 6 Focused-Group-Discussions [FGD] (48 participants) and 18 In-Depth-Interviews [IDI] with medical officers, counselors and pharmacists in 6 selected ART centers (3 Linked and 3 Non-linked).
Overall experience about care, problems faced, possible solutions were discussed; at Linked-centres, specifically about acceptability and challenges of telemedicine; at Non-linked centres, if telemedicine would be acceptable and beneficial, and if so, how. The data was analyzed using thematic frame work approach using NVivo software.
Lessons learned: Children and caregivers were comfortable communicating and found the technological aspects attractive; some reported it was as satisfying as being seen by a doctor in person. The reported advantages were: prompt consultation without having to travel to other cities saving time, money and effort. The challenges reported were: additional time spent and technical difficulties. The healthcare providers found it to be very useful.
The ´group counseling´ sessions wherein several children and caregivers interact, learn and motivate each other were particularly advantageous. Patients and healthcare-providers at Non-linked centres were aware of telemedicine from various sources and were eager to have it at their centres as well.
Conclusions/Next steps: We found that teleconsultation improved geographical and financial access to paediatric HIV care and was an effective, feasible, acceptable and desirable adjunct approach for patients, their caregivers as well as their healthcare providers. Healthcare providers wanted these services to not only continue in their centers, but also be initiated in the Non-linked centers.

WEPEE628

Differentiated service delivery: Harnessing the reach of faith-based organizations to deliver quality HIV services in Zambia

E. Mwila[1], K. Mwanda[1], M. Chikuba[1], P. Chungulo[1], I. Waddle[2], N. Daka[3]
[1]JSI Research & Training, Inc., International Division, Lusaka, Zambia, [2]United Church of Zambia (UCZ), Lusaka, Zambia, [3]Community Based TB/HIV/AIDS Organisation (CBTO), Lusaka, Zambia

Background: Zambia aims to reach HIV epidemic control by 2020, using the 90-90-90 yardstick[1]. However, the health system is currently over-extended with long wait-times for clients accessing HIV treatment services. In order to absorb and provide quality care for over 970,000 PLHIV who will be on ART for epidemic control, the country must institute differentiated service (DSD) to decongest the public sector.
Description: The USAID-funded USAID DISCOVER-Health Project implemented by JSI partners with the Ministry of Health (MOH) to take integrated HIV, reproductive health, family planning, and maternal and child health services into high-density under-served communities. The Project decongests over-burdened higher-level facilities through a network of 124 community-based newly established ART facilities. Finding the space to establish services was a big challenge - faith-based organizations offered their space, networks and reach, presenting a highly successful partnership, trusted by beneficiaries.
Through this partnership, services are provided through 32 newly-established prefabricated clinics at community level in Church grounds, offering free public-sector services. The Project also provides services through MOH health posts and community-based organizations for a total of 104 operational sites.
Lessons learned: A retrospective review of selected HIV indicators including quality of care indicators from inception of the project in 2015 to December 2017, revealed the following: Active clients 8,646 (90%), mortality 0.3%, LTFU 6.9%, Trans-outs 3.8%, viral suppression 90%. These indicators are better than the national mortality, LTFU and viral suppression estimates of 1.9%, 20%, and 77%, respectively. Strong church and community networks and partnerships (social capital) strongly facilitate service coverage and uptake, and influence good adherence to ART, and ultimately good health outcomes.
Conclusions/Next steps: DSD through leveraging faith-based platforms that have strong influence on and are trusted by community-members, has shown demonstrable effectiveness in addressing key barriers to accessing ART and other services.
Such partnerships take quality services where people live and respond to the expectations and needs of clients by reducing opportunity costs - distance, transport costs and travel-time. Importantly, this reduces the burden on higher-level facilities and contributes to quality HIV epidemic control.

WEPEE629

Responding to real needs - experiences from Wajood programme in India

S. Shaikh[1], A. Aher[2], S. Kundaswamy[2], V. Arumugam[2], H. Singh[2], S. Mehta[2]
[1]India HIV AIDS Alliance, Program and Policy, New Delhi, India, [2]India HIV AIDS Alliance, New Delhi, India

Background: In India, HIV prevalence among transgenders and hijras (TGH) is around 7.5% (NACO, 2016) which is manifold higher than the HIV prevalence among the general population (0.26%) (NACO 2016). While some progress has been made in responding to HIV in this population, a key issue for transgender women (TGW) still remains lack of sexual health services and enabling environment. India HIV/AIDS Alliance implemented "Wajood" programme in 5 states of India to increase the access to sexual health, violence mitigation and social welfare among transgender women and hijras.
Methods: Qualitative impact assessment study was conducted under Wajood programme and data were collected in 5 states where the programme was implemented. 12 focal group discussions (FGDs) (2 per site) and 10 in-depth interviews (IDIs) were conducted in these sites. Respondents for the study were selected purposively to maximise the validity and transferability of the data. Each FGD had 8-10 TGHs. The baseline survey was carried out in 2015 in the same states. Comparative content analyses were carried out using baseline and endline findings on the selected theme.
Results: Increased awareness on sexual and reproductive health (SRH) services including sex reassignment surgery (SRS) and availability of the SRH services in the Wajood implemented sites was seen.
Conclusions: Based on the findings from both qualitative study and secondary data analysis, Wajood is doing a commendable job of supporting the TGH community, however formulation of specific HIV guidelines or policy paper need to be developed for the community. Preparation of national clinical guidelines on gender transition and provision of services, especially SRS and hormonal therapy in government hospitals and provision of information and counselling on gender transition could be included through HIV prevention intervention.

Theme	Baseline	Midline
Crisis/ violence	- Extreme violence faced by TGHs verbally, physically and emotionally by family, police, community, clients, employers, partners and doctors. - Beating by police and goons was one of the frequently mentioned forms of violence. - Lack of help when faced with violence	- Violence is still there but reduced to a great extent. - There is more support from police who were one of the major perpetuators earlier. - They were confident of the support from Wajood who immediately came to rescue or resolve issues.
Human rights	- Faced insensitivity from everywhere - work, community, legal system, hospitals etc. - Not aware of identity documents even Aadhar card before Wajood - No support from police and lawyers to fight for the rights	- Wajood made lot of efforts to sensitize the society and organizations to help the TGH community access their rights - Very happy about the documents received due to Wajood - aware of their rights and could demand support from police and lawyers
SH services knowledge	- STIs and HIV were increasing because of unprotected sex work and other sexual violence. - Most seemed to opt only for castration and emasculation procedures through quacks. Not aware of SRS.	- Due to awareness and counselling from Wajood, they were very aware about the issues, prevention and treatments. - Aware of SRS and received counselling
SH services availability and accessibility	- Not aware about where to go and also hesitant to go due to stigma	- Aware of the options, increased availability to sexual health supplies from Wajood centers, camps by Wajood and linking with hospitals

[Theme , Base Line , Mid line]

WEPEE630

Supporting antiretroviral therapy multi-month scripting and dispensing at facilities in Zimbabwe: Effect on supply chain management

T.T. Fusire[1], M. Zvavahera[1], S. Murangandi[2], G. Fatti[3], N. Ngorima-Mabhena[4]
[1]Khethimpilo Aids Free Living, Programs, Harare, Zimbabwe, [2]Khethimpilo Aids Free Living, Programs, Bulawayo, Zimbabwe, [3]Khethimpilo Aids Free Living, Research, Cape Town, South Africa, [4]Khethimpilo Aids Free Living, Technical, Harare, Zimbabwe

Background: Treatment scale up has led to health facility congestion in high HIV burden countries due to monthly dispensing requiring frequent clinic visits. This practice has resulted in treatment interruptions and/or complete disengagement from care. Extending antiretroviral (ART) medicine refill intervals has successfully reduced frequency of clinic visits, in many settings.
The goal of multi-month scripting and dispensing (MMSD) is to reduce healthcare worker workload, improve long-term retention in care and enhance ART clients' participation in their health. This results in improved adherence and retention required to realize the benefits of ART which include optimum individual health and reduced transmission. Adequate medicine supply is a prerequisite for MMSD program scale up. The effect of strengthened support for MMSD on ART supply chain management was observed in Zimbabwe.
Description: Strengthened support was part of a cluster-randomized trial to assess the effectiveness of differentiated models of ART delivery for stable ART clients in 5 USAID-priority districts. MMSD was supported in 30 selected facilities from July-December 2017 to reduce congestion on the over-burdened facilities. MMSD was offered to stable clients who had been on treatment for more than six months, were free of opportunistic infections or serious drug side effects and responding well to therapy. Implementation was done in a systematic approach to ensure uninterrupted supply of ART. Quantification, forecasting, use of the pull system of ordering and stock control systems were strengthened to support ART MMSD.
Lessons learned: Through efficient medication quantification and stock forecasting, procurement was improved. Strengthening facilities on the use of the pull system of ordering resulted in improved stock management. The average stock levels of first-line ART in the facilities increased from 2.5 months' to above 3.6 months'. Frequent stock outs of second line ARVs observed before the support were eliminated. The proportion of clients on MMSD increased from 59%-76%. The biggest increase was observed in the proportion of clients receiving 6-month supply from 0.075%-3.4%.

Conclusions/Next steps: Strengthening of ART MMSD implementation resulted in an improved supply chain management system in the supported facilities. Systematic implementation of MMSD did not result in any medication stock-out but improved stock holding of the facilities.

WEPEE631

The use of the Clinical Monitoring System as a tool for monitoring the treatment gap in the State of Rio de Janeiro

J. Rebello Gomes, D. Ribeiro Franqueira Pires, P. Maria Sampaio Terra Monteiro, A. Vieira Tavares, J. Rodrigues Fagundes Neto, J. Maria Villas Bôas de Andrade, M. Maria Correia Zelaya, K. Regina Valente de Lemos
STD/AIDS Management, State of Rio de Janeiro Health Secretariat, Rio de Janeiro, Brazil

Background: The Clinical Monitoring System (SIMC) is an electronic tool built to cross-reference data from two databanks: the Laboratory Examination Control System (SISCEL), responsible for the storage of viral load test results and CD4 and CD8 T lymphocyte counts, and the Drug Logistic Control System (SICLOM), where antiretroviral drug dispensing is registered. The SIMC lists people who have already been linked to a public health service and have undergone HIV follow-up exams but have not started antiretroviral therapy.
The SIMC is a system for viewing and monitoring: 1. Treatment gap - people living with HIV (PLHA) who have not yet started antiretroviral therapy; 2. People who had their antiretroviral therapy (ART) initiated or modified 6 or more months prior and have detectable viral load; 3.People who abandoned treatment.
Methods: From the treatment gap list it is possible to identify people who could be in ART, subsequently look for them and offer treatment.
In July 2016, the STD/AIDS Management of the State of Rio de Janeiro in partnership with the Ministry of Health began monitoring the municipalities with the highest treatment gap.
The monitoring was initiated in partnership with the 08 municipalities that concentrated 82.2% of the treatment gap in the state.
During this period, municipalities were encouraged to use SIMC as a tool to improve the quality of care.
Each municipality designated a qualified professional to issue a SIMC treatment gap report with subsequent search for patients for ART initiation.
Results: The chart below shows the systematic reduction of GAP treatment that in the 18-month interval was about 50% of the number of people.

[GAP Treatment]

Conclusions: The data show a significant reduction of the treatment gap after the use of the tool. The next step is to expand its use to monitor treatment withdrawal and detectable viral load after 6 months of treatment.SIMC can contribute in a relevant way to and have a positive impact on the quality of life of PLWHA and AIDS mortality rate.

WEPEE632

Improvement collaboratives led by ministries of health to achieve global 90-90-90 targets: Examples from Namibia and Zimbabwe

B. Agins[1], A. Basenero[2], B. Khabo[3], D. Ikeda[4]
[1]University of California San Francisco, San Francisco, United States, [2]Ministry of Health and Social Services, Windhoek, Namibia, [3]Ministry of Health and Child Care, Harare, Zimbabwe, [4]HEALTHQUAL/UCSF, San Francisco, United States

Background: HEALTHQUAL with Ministries of Health (MOH) in Namibia and Zimbabwe have launched Quality Improvement (QI) collaboratives to improve gaps in the HIV treatment cascade to achieve 90-90-90 targets. Collaboratives are embedded within national MOH, and supported and co-led by local government. Each collaborative is led by MOH and layered onto existing structures, activities and programs, integrating into existing public health services.

Description:

1) a collaborative topic is selected;

2) a Design Meeting is convened to define collaborative aim, measures for monthly submission to track performance in run charts, select sites, draft the driver diagram, compile change ideas, define a timeline;

3) Pre-work is conducted to develop a readiness assessment tool, finalize data collection strategy, conduct site visits, identify site QI teams and focal people, finalize terms of reference, collect baseline data, finalize the driver diagram, and construct storyboards;

4) 3 Learning sessions (LS) occur during a 15-month collaborative each over 2-3 days, where teams share QI work.

5) During action periods, teams implement tests of change and submit data on Collaborative measures. Coaching is delivered by the QI team to guide and accelerate QI work.

6) After the final LS, summary work of the Collaborative is documented, shared with leadership, and disseminated.

Lessons learned: Improvements in HIV care and treatment outcomes have been achieved though QI Collaboratives. In Namibia, rates of viral load (VL) monitoring increased by 21%, rates of VL suppression increased by 8%, and loss to follow up rates decreased by 7% in 24 facilities over 7 months. In Zimbabwe, February to September 2017, the aggregate proportion of new-to-care clients who were initiated on ART on the same day of diagnosis increased by 13%; the proportion of previously-in-care clients who were initiated on ART on the same day of being brought back to care increased by 9%. A cumulative 1,238 previously-in-care clients were brought back to care across all of the 27 Collaborative sites, and 89% were initiated on ART on the same day.

Conclusions/Next steps: QI Collaboratives offer a fast-paced paradigm from which Ministries of Health can improve gaps in the HIV treatment cascade and achieve patient outcomes aligned with 90-90-90 targets.

WEPEE633

The continuum of HIV prevention and care among MSM and TW in Lima, Peru

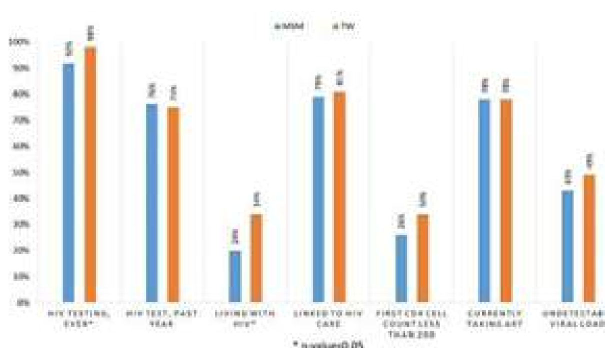
K. Konda[1,2], A. Maiorana[3], G.M. Calvo[2], A. Silva-Santiesteban[2], X. Salazar[2], E. Lugo[2], A. Nuñez-Curto Sifuentes[2], A. Motta[2], L. Price[3], P. Gonzales[4], C.F. Caceres[2], S. Kegeles[3]
[1]UCLA, Division of Medicine, Lima, Peru, [2]Center for Interdisciplinary Studies in Sexuality, AIDS and Society, Universidad Peruana Cayetano Heredia, Lima, Peru, [3]University of California San Francisco, Medicine, San Francisco, United States, [4]Hospital Maria Auxiliadora, HIV Program, Lima, Peru

Background: Key populations continue to face barriers (e.g. low access, stigma) that hinder their retention in various stages of the continuum of HIV prevention and care. Herein we explore this continuum among MSM and transgender women in Lima, Peru.

Methods: We conducted a survey with MSM/TW recruited via long chain peer referral; participation of individuals living with HIV was encouraged. HIV testing history was assessed among all participants, while those living with HIV were asked about engagement in care, quality of care, and experiences in care. Descriptive statistics are reported herein; differences between MSM and TW were explored using chi-square, t-tests and Wilcoxon ranksum tests, as required.

Results: Although significantly more TW reported living with HIV, the populations were similar in other aspects of the continuum of care. Both groups reported high rates of ever testing before, but only 75% tested in the last year. Many MSM/TW were diagnosed when they had low CD4 counts, and TW with HIV reach care with a greater delay, with 34% having CD4< 200 upon diagnosis vs. 26% among MSM; however, this figure was only available for a subset of the population as 20% did not know this information. Although 78% of both groups reported currently taking ART, there was only moderate adherence with 35% of MSM and 29% of TW reporting no missed doses of ART in the past 6 month. An undetectable viral load was found in less than 50% in both groups. Barriers to care were similar for MSM and TW, such as not having medical insurance, self-efficacy for ART use, interference of treatment with life, and burden of HIV treatment (all t-test p-values>0.05). Patient-provider communication with regard to HIV was slightly, though not significantly higher among MSM (median 26.5 vs. 21.0, p-value= 0.121).

Conclusions: The continuum of HIV prevention and care among MSM and TW in Peru remains far from the 90-90-90 goals, although figures were better than former estimates. Programs tailored to these key population groups could help increase testing, improve access to/engagement in care, understanding of HIV treatment, and adherence to ART.



[Cascade of HIV prevention and care Among MSM and TW in Lima, Peru]

WEPEE634

Feasibility of improving access to antiretroviral therapy (ART) through community pharmacies in Mozambique

A. Maranga[1], E. Seni[1], S. Chicuecue[2], E. Oliveras[2], I. Libombo[3], S. Chalufo[3]
[1]Howard University International Mozambique, Maputo, Mozambique, [2]Family Health International (FHI 360) Mozambique, Maputo, Mozambique, [3]Central de Medicamentos e Artigos Médicos (CMAM), Maputo, Mozambique

Background: High patient volume and human resource constraints affect the quality of care and services available to patients on ART especially those newly initiated on treatment or with treatment challenges. Long waiting times have social and economic effects on patients and affect their adherence and retention. Decongesting public ART facilities enables health providers to focus their time and effort on patients with the greatest need and subsequently contributes to improved quality of care. Community pharmacies present potential ARV dispensing sites that can help reduce public facility workloads and waiting time, contributing to better quality of care, and improved adherence and patient retention.

This study sought to establish the willingness of stable patients to pick up their ARV refills from community pharmacies while still accessing clinical care at public health facilities.

Methods: A cross-sectional study was conducted in four high volume urban health facilities providing ART in four provinces in Mozambique between October and November 2017. Structured interviews were conducted with 406 (254 male and 152 female) patients who had been on treatment for at least six months and were collecting their medicines from the health facility pharmacy; for patients under 5 years, the caregiver was interviewed. Descriptive data analysis was conducted using STATA; correlations were assessed using Fisher's exact tests.

Results: Most (84%) expressed willingness to pick up medicines from a community pharmacy. Willingness increased with education (Primary-47.6%; Secondary-59.0%; Tertiary-78.1%) and females were marginally more likely to express willingness to use community pharmacies than males (89.5% vs 81.1%). Although 69.2% of patients reported that the health facility pharmacy services were good, those who did not expressed higher willingness to use a community pharmacy (66.4% vs 52.0%). The leading reasons patients gave for willingness to use community pharmacies were saving time (32%) and increased flexibility (31%).
Conclusions: The acceptability of community pharmacies suggests that with the necessary infrastructural and policy support, they may be an effective strategy to decongest public ART facilities, provide information, and improve access to and quality of HIV treatment services. This study will be followed by a pilot of community pharmacy distribution to test their efficacy.

WEPEE635

Methadone dispensing systems in Medically Assisted Therapy for drug use harm reduction and linkage to HIV treatment and counselling: A case for secure, accurate and automated methadone dispensing

A.C. Kang'ethe[1], S. Abdallah[2], F. Sulliman[2], H. Manji[2], M. Hassan[3], M. Oloo[4], J. Njau[4], P. Ochieng[4], K. Shikely[5], F. Ibrahim[6], H. Musyoki[7], A.A. Baghazal[5], E. Mwamburi[8]
[1]*Jomo Kenyatta University of Agriculture and Technology, Mombasa, Kenya,* [2]*United Nations Office on Drugs and Crime, Nairobi, Kenya,* [3]*Kisauni MAT Clinic, Mombasa, Kenya,* [4]*Malindi Sub-County Hospital, Malindi, Kenya,* [5]*Mombasa County Health, Mombasa, Kenya,* [6]*Kilifi County Health, Malindi, Kenya,* [7]*National AIDS & STI Control Program (NASCOP), Nairobi, Kenya,* [8]*USAID, Nairobi, Kenya*

Background: Evidence shows Medically Assisted Therapy (MAT) is effective in reducing illicit drug use and HIV transmission among opioid dependent persons. However, the need to dispense methadone (a controlled drug) via observation daily to growing queues of clients on long term treatment is challenging for countries with human resource constraints. A user-friendly, affordable, efficient and secure automated dispensing system is essential for accurate dispensing since a wrong dose to a wrong patient may be fatal.
Description: Methameasure is a methadone dispensing system developed in the UK and piloted in UK, Canada and Australia. However, no country rolling out MAT in Africa has used Methameasure. Kenya rolled out MAT since 2014 in 4 counties, with support of UNODC, University of Maryland and ICAP. By mid-2017 six MAT sites had adopted Methameasure machines with variable ways of patient verification (Biometrics in Nairobi: 2, Kisumu: 1; Photo in Mombasa: 2, Malindi: 1). At least 2 pharmacy staff are trained on use at installation.
Lessons learned: By mid-June 2017 over 1900 clients were accessing methadone through Methameasure dispensing systems daily (Kisumu-50; Malindi-609; Mombasa-569; Nairobi-about 680). All sites confirm patient safety, ease of use, speed and precision in individual dispensing and MethaMeasure recording.
However, a key issue with the system is absence of standard specifications to assure smooth functionality amidst rising client load. Once the system records over 150,000 daily doses, dispensing time triples from 20 to 60 seconds/client or 5.5 to 8 hours per 500 clients, long queues, escalate conflict and stress among clients and staff.
Other challenges with Methameasure scale up include: high cost ($20,000 to $30,000 per machine); different software versions; partial bio-data; inaccurate missed dose alerts; deficient monthly reporting, calibrating for different methadone formulations, post-dated prescription entry; documentation for special days/Ramadhan dispensing; inconsistent data back-up; no integration with other electronic medical recording systems; internet and power outages; no decision-support.
Conclusions/Next steps: Urgent need for Kenya MAT implementers in Kenya to develop regulations and standards for a harmonised methadone dispensing system, that is open-source, integrates data with existing electronic medical record systems and generates the requisite reports for effective treatment monitoring, with consistent back up at subsidized cost.

WEPEE636

Strengthening linkage between the clinical, social and community sectors: Contribution of OVC collaborative platforms to an integrated offer of quality services to OVC and their families in Côte d´Ivoire

M.A.F. Ankotché Ahui[1], K.R. Koffi[1], T.S. N'guessan[2,3], C. Koua Diézou[4], M.A. Dohou Koulaté[5], S. Améthier[1]
[1]*PN-OEV (National OVC Program), Coordination, Abidjan, Cote D'Ivoire,* [2]*Université Nangui Abrogoua, UFR des Sciences de Gestion de l'Environnement, Abidjan, Cote D'Ivoire,* [3]*Centre Suisse de Recherche Scientifique (CSRS), Abidjan, Cote D'Ivoire,* [4]*PN-OEV (National OVC Program), Suivi Evaluation et Recherche Opérationelle, Abidjan, Cote D'Ivoire,* [5]*PN-OEV (National OVC Program), Formation, Abidjan, Cote D'Ivoire*

Background: In 2016, Côte d´Ivoire estimated 476,391 Orphans and other Vulnerable Children affected by HIV and AIDS (OVC). The national response has often remained sectoral, only partially covering the needs of OVC and their families. In order to facilitate a holistic offer of quality services, the OVC National Program (PN-OEV) joined forces with various public and community stakeholders to build OVC Collaborative Platform (PFC) strategy in 2005.
Description: Built around the Social Center (SC), PFC allows constructive interactions among local actors (public, private, and community) involved in the fight against HIV and for children's protection. Two approaches were adopted: (i) decentralization which led to a communal organization and facilitated the coordination of interventions, and (ii) multi-sectorality (all actors working in children protection field) for ownership of the policy. End of November 2017, 1,984 public structures (40 health districts, 1,592 educational structures, and 350 local authorities), 10 international organizations, and about 350 community organizations implemented 57 PFCs. To assess the effect of PFCs, a literature review was conducted, in addition to the primary data collected using individual interviews with the 56[HJ(1] PFCs (SC, member organizations) from February to December 2017.
Lessons learned:
- Linkage between sectors has been strengthened: improvement of the reference and counter-reference system between community actors and public sector (clinical and social) has optimized service delivery for OVC and their families.
- National tools developed under PN-OEV leadership have been integrated in organizations practices.
- Collaboration between public and community sectors helped recover cases of OVC and their mothers lost to follow-up in the Prevention of Mother-to-Child Transmission programs.
- PFC has contributed to the regular participation of SCs in Health District Team meetings thus facilitating the strengthening of linkage between social and health sectors.

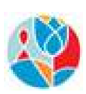
Conclusions/Next steps:
- Multi-sectoral approach and linkage between social, clinical, and community actors have made it possible to analyze the bottlenecks and provide an efficient and effective response to problems OVC and their families face.
- Extension of PFCs to other SCs, and strengthening of existing ones will help for better ownership and sustainability of a quality and sustainable response to the needs of OVC and their families.

WEPEE637

Exploring factors affecting the linkage to care of HIV positive young men who have sex with men in Hong Kong using focus group interview

T.F. Tong[1], S.P.Y. Ho[2], K. Chan[1], T.K.H. Lai[1]
[1]*Hong Kong Polytechnic University, School of Nursing, Hong Kong, Hong Kong,* [2]*Community Health Organisation for Intervention, Care and Empowerment, Hong Kong, Hong Kong*

Background: The HIV epidemics among men who have sex with men was not halted in the past decade with a growing number of Young men who have sex with men (YMSM) is infected in Hong Kong and neighboring cities in Shenzhen and Guangzhou.



Methods: YMSM and People living with HIV and AIDS (PLWHA) are marginalised and hidden population that is hard to reach. The understanding of the linkage to care will enable to success in the HIV care continuum. In-depth interview is used with a semi-structured questionnaires developed by an expert panel. 20 YMSM diagnosed with HIV were recruited using snowball sampling from drop in centre, HIV clinic and MSM communities of the social media. The interview was transcribed into verbatim and analyzed.

Results: YMSM were lost to follow up if they were not engaged to treatment after the initial testing. Various types of HIV test including self-test are available at present. The biggest leak was noted to be the testing of HIV status among high-risk population and the linkage to care in Hong Kong. YMSM failed to perform the test and to engage in the care continuum. The situation was worsen if they were tested at home or referred by general practitioners not familiarise with the HIV care and referral process. YMSM were more engaged in care if they attended a gay friendly non-government organisation for testing. The immediate psychosocial concerns in dealing with the diagnosis and treatment must be addressed in order to promote engagement of care. Prompt referral and shortening of the confirmation procedures would facilitate the engagement with treatment. As Hong Kong is providing free treatment to all PLWHA, the cost of the drug is less a concern. However, the HIV status may affect the employment and personal health insurance that deter some PLWHA fearing of disclosure of HIV status. More study is needed to review the structural barriers and its solutions.

Conclusions: To achieve the 90-90-90 goal treatment target to end the AIDS Epidemics by 2020. More efforts are needed to strengthen the treatment cascade through understanding the leakage.

WEPEE638

Implementing a performance based incentive system for outreach workers in a community based HIV care and treatment project in Zimbabwe

T. Tafuma[1], N. Mahachi[1], P. Mawora[1], T. Moga[1], T. Zulu[1], A. Muchedzi[1], T. Nyagura[2], M. Mpofu[3]

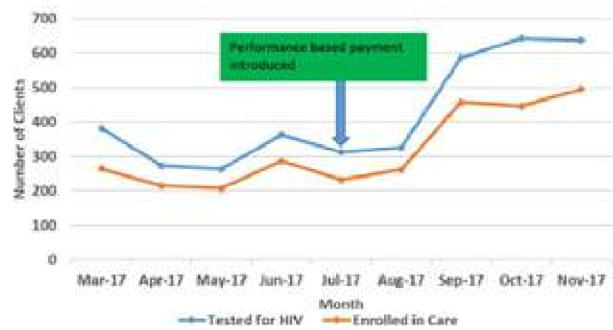
[1]FHI 360, Technical, Harare, Zimbabwe, [2]USAID, Technical, Harare, Zimbabwe, [3]FHI 360, Technical, Gaborone, Botswana

Background: FHI360-Zimbabwe's HIV Care and Treatment project implemented in 10 districts relies strongly on support from stable HIV patients on treatment called outreach workers (OWs) to identify index cases at facilities, obtain consent for home visit and peer support to linkage newly identified HIV positive clients. OWs are typically provided fixed monthly stipends ($25.00) for supporting the project. With the aim of increasing the number of newly identified HIV positive clients and linked to care, we report findings from a pilot of a performance-based payment initiative designed for OWs in two districts of Midlands, Zimbabwe for the period July to November 2017.

Description: The performance-based payment initiative was piloted in two high target districts namely Kwekwe and Gokwe South after sensitizing OWs. The performance of the system was assessed starting July 2017. During the pilot, an amount of $15 was paid to the OWs for index cases identified, and OWs received an additional $0.50 per every household tested that resulted in a newly identified person living with HIV, and an additional $1 for linking that client to care. Data was collected and analysed weekly, and monthly performance trends were produced for the two districts.

Lessons learned: A total of 51 outreach workers supported the districts. The project almost doubled the number of new positives identified from 312 to 586 in July and September, respectively reaching a peak of 642 in October. Performance was generally higher in sites located in urban areas than rural areas. District leads reported that rural areas have poor phone networks, bad roads and long distances resulting in some index cases not being reachable.

Conclusions/Next steps: Performance-based payment has demonstrated potential in increasing the number of HIV positives identified through the ZHCT project by motivating OWs. We recommend the project to roll-out this initiative while paying attention to area specific limitations such as transport and other communication constraints.



[Figure 1: Number of newly diagnosed HIV positive clients identified and Linked to care by month]

WEPEE639

Making a pivot to maximize impact: Age of clients at PEPFAR-supported voluntary medical male circumcision programs for HIV prevention, 2017

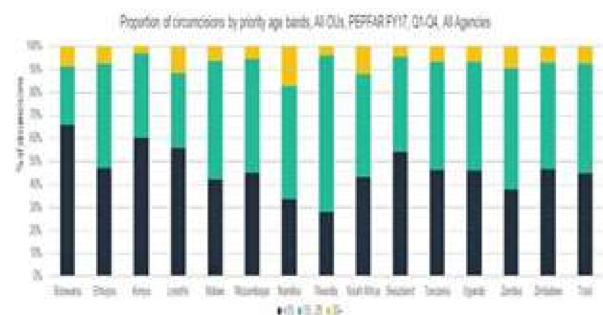
C. Toledo[1], S. Davis[2], A. Thomas[3], V. Kiggundu[4], C. Cooney[5], D.H. Watts[5]

[1]US Centers for Disease Control and Prevention (CDC), Atlanta, United States, [2]US CDC, Atlanta, United States, [3]US Department of Defense, Naval Health Research Center, San Diego, United States, [4]United States Agency for International Development, Washington, DC, United States, [5]Office of the US Global AIDS Coordinator, Washington, DC, United States

Background: Targeting voluntary medical male circumcision (VMMC) to males 15-29 years of age maximizes immediate HIV incidence reduction. Since 2016, PEPFAR has prioritized this age group for VMMC for HIV prevention in 14 southern and eastern African countries. However, uptake has historically been higher among 10-14-year-olds, and the new age focus has raised feasibility concerns.

Description: All PEPFAR-supported programs report numbers of men circumcised by standard age bands. Data are collapsed to less than 15, 15-29, and above 30 years of age.

Lessons learned: In 2017, over 3.4 million PEPFAR-supported VMMCs were conducted. Globally, 55% of clients were over the age of 15 (see Figure 1). Of these, 87% were aged 15-29 years. Rwanda had the greatest proportion of men over 15 years (73%) while Botswana had the lowest (26%). Tanzania conducted the highest number of VMMCs among men over 15 years (373,516 VMMCs). Globally, comparing 2017 to 2016, programs increased from 1.4 million to over 1.5 million clients aged 15-29 years; ten countries saw increases. Of these, four made considerable progress in increasing this age band in comparison to 2016; 5-10% more clients were aged 15-29 years in Malawi, South Africa, Swaziland and Tanzania. Seven countries had decreases in proportion 15-29 years of age, between 5 and 34% (absolute). Trend variations were noted between implementing partners operating in the same country.



[Proportion of Circumcisions by Priority Age Bands, PEPFAR, 2017]

Conclusions/Next steps: While some countries and implementing partners have successfully targeted and reached increasing absolute numbers of men in the 15-29 age group, many countries saw decreases in the proportion of priority men being circumcised in comparison to 2016. Successful strategies for reaching these males within and across country programs should be broadly shared as they may be valuable

to other HIV prevention interventions. As VMMC continues to scale up, countries with VMMC coverage gaps among men over 15 years will need to implement effective strategies to target these men, while countries with high coverage among this group will need to continue a shift towards younger men to maintain gains in VMMC coverage.

WEPEE640

Is MSM population effectively covered by HIV prevention services in high burden townships of Myanmar: Findings from programmatic mapping?

S. Hone[1], H.L. Oo[2], S. Phyu[3], Y.T.N. Oo[4], K.M. Htun[5], K.K.K. Nyunt[6], A.M. Soe[7], N.N. Myint[2], S.H. Aung[8]
[1]National AIDS Program, Department of Public Health, Yangon, Myanmar, [2]Alliance, Yangon, Myanmar, [3]UNAIDS, Yangon, Myanmar, [4]Department of Medical Research, Yangon, Myanmar, [5]ICAP, Yangon, Myanmar, [6]National AIDS Program, Department of Public Health, Nay Pyi Taw, Myanmar, [7]World Health Organization, Yangon, Myanmar, [8]FHI 360, Yangon, Myanmar

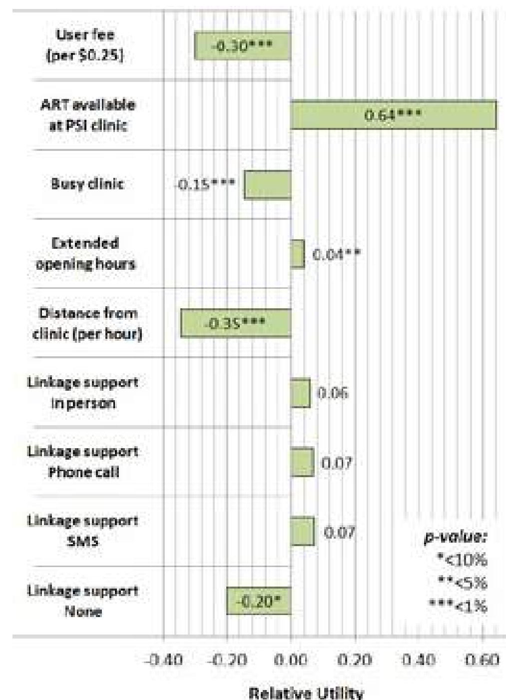
Background: In line with the Myanmar's National Strategic Plan for HIV/AIDS, programmatic mapping was conducted for men who have sex with men (MSM) to identify the characteristics of hotspots, barriers to access, service delivery gaps, and social networks in 46 high priority townships in 2016 to inform HIV prevention programming at sub-national level.
Methods: In each township, data collection was done through a field team consisting mainly of local MSM peers. It started with a list of known hotspots compiled with inputs from stakeholders, service providers and MSM representatives. On-site structured interviews, in-depth interviews and focus-group discussions with key informants were conducted.
Results: Hotspots were grouped into six categories: public spots, beauty salons, restaurants, entertainment sites, socializing spots and others. Of the total 1,538 MSM hotspots mapped: the largest proportions were beauty salons (27%), public spots (28%) and social spots (25%). Largest proportions of MSM were found in public spots (32%), social spots (23%) and beauty salons (21%). Most beauty salons were gathering sites for all MSM types, and owners of beauty salons were leaders in MSM communities/sub-communities. Sex took place in 45% of all hotspots. Outreach services covered 51% of all hotspots within one month before the mapping. Condoms were available at 62% of all hotspots. Prominent MSM community leaders, many of them respected by local MSM communities, were identified. The use of information technology for socializing and finding sex partners was common and growing, especially among hidden MSM. The most popular platforms were Beetalk, Facebook, Viber, Grindr and WeChat. There were exclusive MSM groups and local groupings on social media for easy networking among local MSM.
Conclusions: Findings highlighted the urgent needs to improve prevention service coverage and to design interventions deploying information technology. Service delivery modality channeling through less stigmatizing health programs and through networking with MSM community leaders should be considered in program design. In addition, prevention programs targeting specific hidden MSM subgroups, drama artists and migrants, should be established.

WEPEE641

Preferences for HIV self-testing distribution and linkage to care models: Results from discrete choice experiments in Zimbabwe

E. Sibanda[1], M. d'Elbée[2], G. Maringwa[1], N. Ruhode[1], M. Tumushime[1], C. Madanhire[1], P. Indravudh[3], C. Watadzaushe[1], C. Johnson[4], K. Hatzold[5], M. Taegtmeyer[6], J. Hargreaves[2], L. Corbett[2,3], F. Cowan[1,6], F. Terris-Presthol[2]
[1]Centre for Sexual Health & HIV AIDS Research, Harare, Zimbabwe, [2]London School of Hygiene & Tropical Medicine, London, United Kingdom, [3]Malawi-Liverpool Wellcome Trust Clinical Research Programme, Blantyre, Malawi, [4]World Health Organization, Geneva, Switzerland, [5]Population Services International, Johannesburg, South Africa, [6]Liverpool School of Tropical Medicine, Liverpool, United Kingdom

Background: New HIV testing strategies are needed to reach the UN's 90-90-90 target. HIV self-testing (HIVST) can increase uptake, but users' perspectives on optimal models of distribution and linkage to post-test services are uncertain. We explored preferences in rural Zimbabwe using discrete choice experiments (DCE).
Methods: DCEs are a quantitative survey method that present respondents with repeated choices between packages of service characteristics and allow the relative strength of preferences for each service characteristic to be estimated. Embedded within a population-based survey following door-to-door HIVST kits distribution by community volunteers (CVs) in Mazowe and Mberengwa districts, we administered two DCEs: one on distribution preferences and another on post-test/confirmatory testing preferences. Using the DCE, we simulated changes to confirmatory testing uptake at local public hospitals and Population Services International (PSI) outreach clinics attributable to hypothetical changes to service characteristics. Analysis among the general population and key groups used multinomial logit to identify subgroup heterogeneity in preferences.
Results: The distribution and linkage DCEs surveyed 296 and 496 participants, respectively, with 43% and 38% men in each. Free kits distribution by local CVs, and provision of multiple kits to whole households were strongest preferred attributes particularly relative to low user-fee (US$0.25 cents) and mobile clinic distribution. Men significantly preferred individual rather than whole household kit distribution. Testing support options (in-person or telephone) were less important, although never-testers valued phone helpline.
The strongest linkage preferences were for free services, within a short walking distance, with HIV treatment immediately available (Figure 1).



[Figure 1. "Linkage to care" DCE results. Service characteristics with a positive utility were preferred; those with a negative utility were disliked.]

Men reported higher willingness to link than women. Aversion to service fees increased with age.
Simulations suggested that antiretroviral therapy (ART) availability at PSI outreach clinics would increase linkage at this location, with lesser effects from extended opening hours and reduced congestion. Negative effects of service fees were strongest among men and the never-tested group.
Conclusions: Community-based approaches incorporating free distribution of HIVST by local volunteers, and convenient ART access were the strongest relative preferences identified. Accommodating linkage preferences to reach "resistant testers" with HIVST may maximise uptake of post-test services. Ensuring consistent ART at mobile PSI outreach clinics is likely to increase initial linkage rates.

WEPEE642

Bringing HIV care close to people, the experience of decentralization in Norilsk, Russia

I. Mukhratova[1], E. Tsareva[2], K. Kandlen[3], N. Mironova[4], A. Zacowicz[5], A. Chuykov[5]
[1]Norilsk State hospital #2, Norilsk, Russian Federation, [2]Norilsk State Hospital #2, Norilsk, Russian Federation, [3]AHF Russia, Moscow, Russian Federation, [4]AHF Russia, St.Petersburg, Russian Federation, [5]AHF Europe, Amsterdam, Netherlands

Background: Norilsk is a city with high HIV prevalence located far beyond the Arctic Circle. The most remote city districts, Kayerkan and Talnakh are located 30 and 40 kilometers from the AIDS clinic. Harsh weather conditions and remote location make medical services inaccessible for patients, leading to lower rates of HIV testing, challenges with retention in care and treatment adherence. The program intends to optimize service delivery by establishing access to HIV care at local clinics.
Methods: In 2015, AHF's program supported Norilsk hospital in their efforts to arrange the regular presence of HIV physicians at 2 local outpatient clinics in Talknakh and Kaierkan. The decentralization model includes onsite provision of ARV's by nurses, utilizing task shifting, providing social services such as patient follow up, bi-weekly blood sample collection, quick initiation of ARV treatment within 14 days from confirmation of eligibility. The analysis compares the situation prior to decentralization in 2015 with December 2017.
Results: The number of clients grew four times from 237 in 2015 to 840 in 2017 in both sites. Talnakh increased its number of patients to 597 and Kaierkan to 243 patients in December 2017. HIV treatment coverage increased from 30 clients in Talnakh in 2015 to 298 clients in 2017. Similar increase was noted in Kaierkan from 30 clients to 63. 169 clients who previously refused or interrupted treatment were returned to care by the social teams in Talnakh and Kaierkan. The number of patients who initiated ART in 14 days increased from 13 clients in 2015 to 161 in 2017. CD4 level at ART initiation increased from 230 in 2015, to 289 in 2017. Average travel time to the clinics reduced from 90 minutes to 10 minutes.
Conclusions: The approach of decentralization of HIV service delivery resulted in providing easy access to HIV services. The approach led to an increase of the number of patients who are using HIV treatment services, who started HIV treatment and helped with earlier ART initiation. The intervention has a potential to be used as an effective HIV service delivery model in remote locations.

WEPEE643

Improving HIV testing services at selected USAID-funded sites in Haiti: Strategies, lessons learned and implications for the National AIDS Control Program results from EQUIP

M.L. Excellent[1,2], D. Lauture[1], F. Jean Louis[1], E. Emmanuel[1], J.W. Domercant[1]
[1]EQUIP-MatCH Haiti, Petion-Ville, Haiti, [2]University of North Carolina at Chapel Hill, Public Health Leadership Programme (PHLP), Chapel Hill, United States

Background: *Targeting* high-risk populations for HIV testing services (HTS) can potentially increase yield. *Provider-initiated testing and counseling (PITC)* can foster uptake of HTS and facilitates access to HIV services. Barriers to *PITC program success,* include lack of training and mentorship for healthcare providers, and monitoring and evaluation. In Haiti, HTS are primarily reported as voluntary counseling and testing (VCT); PITC is underreported and capacity for data disaggregation by testing modalities is limited.
EQUIP-Haiti details the outcome of its combined interventions aiming at improving HTS yield at selected sites in support to Haitian Ministry of Health (MOH).
Description: EQUIP-Haiti assisted the MOH in revising the national HTS algorithm and in updating registers for data disaggregation into different HTS modalities: VCT, index case testing, and PITC. EQUIP-Haiti conducted a training needs assessment at 39 sites nationwide. The core competencies to strengthen included, standardized filling of registers, pre- and post-HIV test counseling; standardized filling of notification card, and a comprehensive HTS training package was developed. Two HTS training sessions were conducted for 54 providers and were innovative because HTS providers were never trained before on HIV national guidelines and registers' filling. Following the HTS trainings, EQUIP-Haiti conducted regular mentoring visits to enhance providers' skills and improve HTS data quality.
Lessons learned: The need assessment helped tailor HTS training package to provider's training needs. The revision of the national HTS algorithm and data collection tools facilitates monitoring and supervision. Training sessions to strengthen providers' competencies reported 30% increase of median score, which represented a milestone, while onsite mentoring is critical for standardized HTS implementation. Revision of HTS registers to integrate testing modalities led to improved data disaggregation.
The following results observed after the interventions were: VCT=37%, PITC=54%, and index case contacts testing=9% compared to 63%, 35% and 2%, respectively before the interventions. HTS yield increased as evidenced by a positivity rate of 4.10% compared to 3.23% before the interventions.

[Improvement in the implementation of all three categories of modalities for HIV Testing Services(HTS) reported by USAID funded health facilities(n=69)]

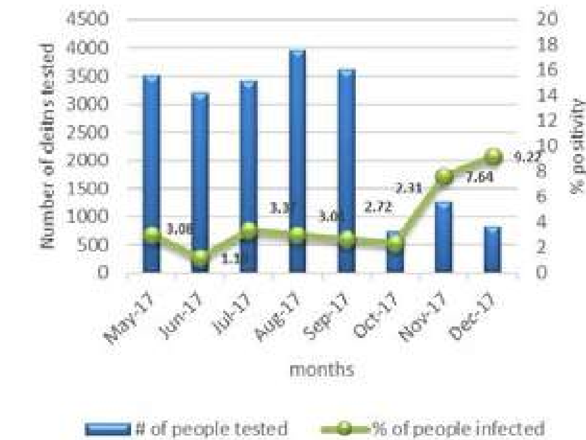
Conclusions/Next steps: Tailored trainings and on-site mentoring of providers markedly improved HTS yield. Improving HTS data quality and reporting will help the MOH in HTS strategic and programmatic decisions towards reaching the goal of testing 90% of people living with HIV in Haiti.

WEPEE644

Reaching the un-reached for achieving First 90 in the 90-90-90 cascade, family testing approach from Maharashtra, India

P. Deoraj[1], P. Singh[1], A. Phalake[1], H. Patel[2], K. Yewale[3], M.S. Setia[4]
[1]Maharashtra State AIDS Control Society, State Public Health Department, Mumbai, India, [2]World Health Organization (WHO), Strategic Information, Delhi, India, [3]World Health Organization (WHO), Strategic Information, Mumbai, India, [4]Consultant, Mumbai, India

Background: Disclosure of HIV status to the family members is a slow process. Though, the focus was on the individual client in the National programmes initially, since 2012, there is a greater emphasis on partner/spouse counselling and testing. Due to this about 85% of partners/spouses have been tested since 2012 at the testing centers; however, there was a backlog in testing of partners/spouses prior to 2012.
Thus, we initiated a community based programme to identify and test the spouses and children (in whom the female partner was found to be infected) in April 2017 in Maharashtra, India.
Description: The staff at the anti-retroviral treatment (ART) centres with support from PLHIV groups reviewed the records to identify family members that have not been tested. The data manager from each centre provided the list to the counsellor and the outreach workers (ORWs). The ORWs identified the PLHIV in the community and the counsellors counseled the index PLHIV about spouse testing. All the spouses came to the ART centre were counseled and tested for HIV. If the spouse was found to be positive, then the couple was counseled for child testing. The data manager maintained a record of the number of family members eligible and those who were tested. The doctor at each site monitored the progress every month and reported it to the State AIDS Control Society.
Lessons learned: We found that 125,621 family members (spouses/children) were eligible for HIV testing as of May 2017. Of these, 84,597 (67%) were already tested; thus, 41,024 family members needed to be counseled and tested. We had tested 20,527 (50%) of these till December 2017. Of these, 669 (3.3%) were found to be HIV infected (figure 1). From May to December 2017, we had successfully increased the family testing from 67% to 84% (p< 0.001).
Conclusions/Next steps: Intensive family tracking, counselling, and testing has helped in identifying and reaching out to individuals who are at-risk but have never been tested for HIV. Thus, these programme should be institutionalized in the existing ART programmes to reach out to the first 90 in the 90-90-90 cascade.



[Month wise testing Vs Positive in the family testing Drive]

WEPEE645

User-friendliness, accessibility, and confidentiality and privacy: How an interplay between these quality domains affects client satisfaction with HIV/AIDS services in Ukraine

A. Latypov[1], M.B. Hailemeskal[2], Y. Sereda[3], R. Dierst-Davies[4], T. Kiriazova[5], I. Pykalo[5], M. Duda[1], N. Avaliani[1]
[1]Deloitte Consulting LLP, The USAID HIV Reform in Action Project, Kyiv, Ukraine, [2]Deloitte Consulting LLP, Dallas, United States, [3]Independent Consultant, Kyiv, Ukraine, [4]Deloitte Consulting LLP, San Francisco, United States, [5]Ukrainian Institute on Public Health Policy, Kyiv, Ukraine

Background: Ukraine has one of the most severe HIV epidemics in Europe and Central Asia, with an estimated 238,000 infected persons (population prevalence ~1.0%) in 2017. Globally, Ukraine is among 30 fast-track-strategy countries that generated more than 89% of new HIV infections in 2014. As retention in HIV care is related to client satisfaction with services, we evaluated the perceived quality of HIV services across three regions of Ukraine: Mykolayiv, Poltava, and Zhytomyr.
Methods: A mixed-methods proportional to size, cross-sectional design was used to recruit participants. In total 649 persons participated in an exit survey from across 47 health facilities in the three study regions. The study examined quality of HIV services along five domains:
(1) accessibility of services,
(2) user-friendliness,
(3) confidentiality and privacy,
(4) comprehensiveness of HIV testing and ARV treatment services, and
(5) overall client satisfaction.
Linkages between quality domains were measured by confirmatory factor analysis and structural equation modeling.
Results: Majority of participants were male (62%), unemployed or under-employed (60%), had low income (60%), and had a history of injecting drug use (68%). Overall, client satisfaction with HIV services was high (above 0.79 on a 0-1 scale), with clients from NGOs reporting the highest average satisfaction score of 0.93, while AIDS Center clients reported an average score of 0.73. Scores for the comprehensiveness of HIV counseling and testing and ART services were relatively low (0.64 and 0.77 respectively). Structural Equation Modeling revealed that satisfaction was both directly (=0.438; p< 0.001) and indirectly (=0.515; p< 0.001) positively related to user-friendliness. Accessibility (=0.213; p< 0.001) was directly associated with overall satisfaction, while confidentiality and privacy had indirect associations.
Conclusions: Results indicate that user-friendliness is the strongest predictor of client satisfaction, which in turn is primarily determined by perceptions of confidentiality and privacy, and overall quality of interaction with health providers. While training should be implemented to improve health providers' interactions with clients, task-shifting, staff augmentation, and innovative performance incentives should also be considered to improve client satisfaction. Decentralizing HIV services from AIDS Centers to primary healthcare facilities may also improve client access and satisfaction.

WEPEE646

Switching from the forceps-guided to the dorsal slit technique in a Voluntary Medical Male Circumcision (VMMC) program: Experience from Tanzania

A. Hellar[1], A. Christensen[1], J. Reed[2], A. Kapula[1], S. Mkungume[1], M. Machaku[1], K. Curran[2], P. Luvanda[3], G. Lija[4], E. Mlanga[5]
[1]Jhpiego, AIDSFree/VMMC, Dar es Salaam, Tanzania, United Republic of, [2]Jhpiego, HIV ID Unit, Washington DC, United States, [3]President's Office Regional Authority and Local Goverment, Iringa RHMT, Iringa, Tanzania, United Republic of, [4]Ministry of Health Community Development Gender Elderly and Children, National AIDS Control Program (NACP), Dar es Salaam, Tanzania, United Republic of, [5]USAID, USAID/Tanzania, Dar es Salaam, Tanzania, United Republic of

Background: Prior to 2014, forceps-guided (FG) technique was the main method used in the scale-up of VMMC due to its time efficiency compared to sleeve resection (SR) or dorsal slit (DS) circumcision techniques. In July 2014, WHO recommended discontinuation of the FG technique among young adolescents due to an associated inherent risk of glans injury. Beginning in August 2014, the Strengthening High Impact Interventions for an AIDS-Free Generation (AIDSFree) Project, funded by PEPFAR and USAID, stopped using FG among those under 15 years and gradually phased out the FG technique among all VMMC clients. This action necessitated refresher training for all VMMC providers to ensure they had adequate skills to perform DS or SR techniques. We analyzed the impact of this change on client numbers and trends in reported adverse events (AEs).

Methods: De-identified VMMC client-level data were examined from October 2013 until September 2016. We analyzed the data according to the circumcision technique performed by age group each fiscal year and any adverse events during or following the procedure.

Results: There was a progressive switch to the DS technique, with a gradually higher proportion of clients circumcised by the DS technique at the end of fiscal year 2016 (Table 1). While FG was the most common technique used earlier in the program, DS became the method of choice for those under 15 beginning in 2014-2015, and the most frequently performed technique among all clients in 2015-2016. The moderate and severe AE rate per 100,000 procedures also declined across the analysis period from 5.3 in 2013-2014, 2 in 2014-2015, and 1.3 in 2015-2016. There were 2, 1, and zero instances of glans injuries in 2013-2014, 2014-2015, and 2015-2016, respectively.

VMMC Method	Oct 2013-Sept 2014				Oct 2014-Sept 2015				Oct 2015-Sept 2016			
	<15		15+		<15		15+		<15		15+	
	n	%	n	%	n	%	n	%	n	%	n	%
FG	76987	98.44	71075	97.95	372	0.70	41452	91.96	9	0.02	5239	13.01
DS	1164	1.49	470	0.65	53109	99.30	3618	8.03	38484	99.98	35044	86.99
SR	59	0.08	48	0.07	2	0.00	4	0.01	0	0.00	0	0.00
Total VMMCs	78210	100	72561	100	53483	100	45074	100	38493	100	40283	100

[Table 1: Analysis of VMMC techniques by Client Age from October 2013 to September 2016 in Tanzania]

Conclusions: The VMMC program in Tanzania has successfully transitioned from using the FG to the DS circumcision technique since the 2014 WHO recommendations. The data demonstrate that, with proper training, it is possible to completely change the surgical technique to enhance safety of the VMMC procedure. The reported number of AEs continued to decline over time, demonstrating increasing safety and quality of VMMC services.

WEPEE647

Lessons learned on improving the cascade of quality HIV/AIDS care through community and health system strengthening in Cambodia

S. Vanthuon[1], B.H. Leng[2], C. Sarath[1]
[1]AHF Cambodia, Phnom Penh, Cambodia, [2]National Center for HIV/AIDS, Dermatology and STD, Phnom Penh, Cambodia

Background: To extend and sustain a comprehensive continuum of care through correct adherence and compliance at both public and community healthcare facilities, we began providing four key interventions: building technical capacity, supporting quality assurance, supporting infrastructure and systems, and creating a community-enabling environment.

Methods: A qualitative method was used with different designs, a desk review and in-depth interviews with 15 key informants.

Results: Overall, more than 90% of clients who test positive for HIV within one month from any Voluntary Confidential Counselling and HIV testing (VCCT) site, had access to an ART site for continuum of care. All (100%) eligible clients with CD4 below 500/mm³ were initiated on ART. The ART coverage trend increased from 94% in 2011 to 99% in 2017. The proportion of clients who had a CD4 test in the past six months and the proportion with a viral load (VL) test was >90% and >95% respectively. Noticeably, the rate of undetectable VL increased from 91.7% in 2013 to 93.9% in 2017. Most importantly, the ART site returned on average 94% clients per month to care through the active mobilization of community participation and support.

Conclusions: The continuum of care and treatment for PLHIV at the sites we support appears to be successful in its effectiveness towards the goals and objectives (>90% of HIV positive receive ART, >90% have correct compliance and adherence, >90% have an undetectable viral load) and exceeds the set benchmark. Therefore, it is a good model for providing high-quality HIV/AIDS care to improve quality of life of PLHIV in Cambodia and could be replicated with significant confidence of meeting the "Three Zeros" in Cambodia by 2025.

WEPEE648

HIV performance measurement in correctional centres using a quality score: An example from Sierra Leone

W. Ameyan[1], J. Manley[2], E. Bunduka[3], M. Dumbuya[3], S. Diallo[4]
[1]Therapeutic Solidarity and Initiatives for Health (SOLTHIS), Freetown, Sierra Leone, [2]Male Correctional Centre, Regional Health Officer Wester Area, Freetown, Sierra Leone, [3]Male Correctional Centre, Freetown, Sierra Leone, [4]Therapeutic Solidarity and Initiatives for Health (SOLTHIS), Paris, France

Background: HIV service delivery in correctional facilities is an important part of the AIDS response in concentrated or mixed epidemics with under prioritized populations. Correctional services are often overlooked in performance monitoring, supervision and oversight. Part of the problems is generic as the criteria for performance measurement is often lacking. Solthis' Empower project in Sierra Leone devised and used a template to follow up the performance of critical process indicators in HIV service delivery to inmates at the main correctional facility in Sierra Leone to promote rights based services for inmates, while supporting health workers in adhering to processes that facilitate this right.

Methods: We implemented a HIV quality of care (QOC) score at a male correctional service with an inmate capacity of about 1,904. Project interventions included participatory needs assessments involving management staff, health workers and inmates; trainings and clinical mentoring. The QOC score comprises 15 indicators to monitor the quality of ART service delivery at the correctional facility and consists of the indicators, how indicator is to be measured and source of verification. The indicators include: Prescription of non-recommended ARV regimens; start of ART in line with national guidelines; CD4 monitoring before ART; clinical staging; use of registers; timely reporting; documentation; adherence assessment; TB screening; and retention in care. Each indicator is given a score of 0, 0.5 or 1 based on a defined criterion of measurement.

Results: The QOC score improved from 7% to 50% in the first 6 months. By the end of the second year, it had improved to 60%. Lack of resources in correctional facilities means that access to services like Hb, CD4 and viral load monitoring is still problematic for inmates. Privacy, stigma and confidentiality remain valid concerns affecting service delivery at correctional centres.

Conclusions: HIV service delivery at correctional facilities need an approach that combines results based monitoring with process supervision. Performance monitoring should include indicators that are context specific, easily measurable and verifiable. A HIV QOC score could be a valuable instrument in settings with similar contexts to highlight and fill gaps related to access and quality.

WEPEE649

Institutionalizing sustainable comprehensive sexuality education in a resource-limited setting: Lessons learned from teachers' sensitization

H. Bukola Yahaya[1], Y. Falola-Anoemuah[2], Y. Olaifa[3], T. Tokunyori Oladele[1], B. Olakunde[3], H. Aboki[1], A. Oluwatosin Ajiboye[1], E. Chime[4], N. Ifeayichukwu[5]
[1]National Agency for the Control of AIDS, Community Prevention, Treatment and Care Services, Abuja, Nigeria, [2]National Agency for the Control AIDS, Gender, Human Right and Care, Abuja, Nigeria, [3]National Agency for the Control of AIDS, NACA Project Implementation Unit, Abuja, Nigeria, [4]Federal Ministry of Education, Education Support Services Department, HIV/AIDS Unit, Abuja, Nigeria, [5]National Agency for the Contol of AIDS, Performance Management and Resources Mobilization, Abuja, Nigeria

Background: Comprehensive Sexuality Education (CSE) otherwise known as Family life and HIV/AIDS education (FLHE) programme was introduced in 2003 by the Nigerian Government to equip in-school youths with the requisite knowledge, values and skills to improve their reproductive health practices and prevent HIV. Though FLHE topics have been mainstreamed into school curriculum in the Federal Government Colleges (FGCs), the coverage of the programme were not being tracked by the teachers. Lack of adequate orientation of teachers on the delivery of CSE, its data capturing and reporting were identified as responsible.
Description: The World Bank HIV Prevention Development Project (HPDP II) through National agency of the Control of AIDS (NACA) supported the Federal Ministry of Education (FMoE) to scale up implementation of FLHE.
Teachers including vice principals, guidance and counsellors across 104 Federal Government Colleges were sensitized on FLHE for the 2015/2016 academic session. They were sensitized on the modalities for FLHE implementation such as curricular (classroom delivery), community awareness (modalities for central delivery of assembly talk) and peer education (songs, drama, dance) as well as data collation and reporting. Step down sensitization workshops were held for minimum of 18 Teachers and 2 Management staff in each school in order to dessemi-nate and deliberate on FLHE implementation strategies.
Lessons learned: **4,554** teachers and management staff (male: **2,261** and female: **2,293**) were sensitized. School managements adopted the FLHE implementation strategies and the use of school registers for reporting. About **97%** of the FGCs started reporting after sensitization workshop. **104,329** students (**37,752** male, **66,587** female) were reached with FLHE in the academic session.
Orientation is important for effective implementation, coordination and reporting of FLHE. The programme provided school management and teachers with understanding that FLHE can be implemented without additional resources for monitoring and record keeping.
Conclusions/Next steps: Strengthening FMoE for effective coordination FLHE implementation, data management on Education Management Information System and linkage with the National Health Management Information System. Advocacy to relevant stakeholders towards institutionalizing FLHE in Colleges of Education training curricula.

Prep: lessons learned from delivery

WEPEE650

Knowledge, attitudes and practices toward PrEP from MSM and transwomen in the largest suburban HIV epidemic in the United States

A.J. Santella[1], S.C. Cooper[2], A. Spieldenner[3], K. Rosales[4], H.E. Jones[4]
[1]Hofstra University, Health Professions, Hempstead, United States, [2]City University of New York School of Public Health, Community Health and Social Sciences, New York, United States, [3]Califrnia State University San Marcos, Communications, San Marcos, United States, [4]City University of New York School of Public Health, Epidemiology and Biostatistics, New York, United States

Background: Nassau and Suffolk Counties, home to 40% of New York State residents (subsequently referred to as Long Island), has the largest suburban HIV epidemic in the United States. Long Island, with its dense geography, inadequate public transportation, and racial segregation, is leaving vulnerable populations such as men who have sex with men (MSM) and transwomen isolated in poor communities with inadequate HIV prevention resources. HIV pre-exposure prophylaxis (PrEP) initiatives on Long Island have focused on MSM and transwomen as primary targets for prevention efforts.
Methods: We conducted a cross-sectional, online survey of MSM and transwomen between August and November 2017. Community members were recruited via medical and social service providers, LGBTQ community-based organizations, universities, social media, and word-of-mouth. The survey assessed knowledge, attitudes, and practices about PrEP. We present descriptive statistics on participants self-reports.
Results: 201 individuals who self-reported being HIV-negative participated in the survey. The sample was mostly MSM (90%), White (80%), with at least a high school diploma (97%): slightly over half were Hispanic (56%). Many reported both condomless insertive (80%) and receptive (72%) anal sex, being high or drunk during sex (70%), history of a sexually transmitted infection (59%), and diagnosis of depression (52%). While the majority had heard of PrEP (90%), only 87 (44%) persons had ever taken it. Participants indicated they strongly agreed/agreed on the following as main reasons for not taking PrEP: needing PrEP to be free/covered by insurance (95%) and not knowing how to obtain a PrEP prescription (82%). Many had sex partners (82%) and friends (77%) who had taken PrEP. 55% of those with concern about side effects versus 13% of those with no concern reported not being willing to take PrEP every day if they thought it worked ($p< 0.001$).
Conclusions: This data demonstrates that PrEP guidelines may need different strategies to increase uptake and usage among MSM and trans+ communities; especially those residing in suburban areas where there may be less PrEP providers. Additionally, addressing barriers by promoting patient assistance programs and building a larger network of PrEP providers may prove beneficial in increasing uptake.

WEPEE651

"*Now that PrEP reduces risk of transmission of HIV, why do you still insist that we use condoms?*" The condom quandary among PrEP users and health care providers in Kenya

E. Irungu[1], K. Ngure[2,3], K. Mugwanya[3], M. Awuor[1], A. Dollah[1], F. Ongolly[1], N. Mugo[1,3], E.A. Bukusi[1,3], E. Wamoni[1], J. Odoyo[1], J.F. Morton[3], G. Barnabee[3], J. Baeten[3], G. O'Malley[3], for the Partners Scale Up Project
[1]Kenya Medical Research Institute, Nairobi, Kenya, [2]Jomo Kenyatta University of Agriculture and Technology, Juja, Kenya, [3]University of Washington, Seattle, United States

Background: For decades, condoms have been the mainstay for HIV prevention. However, in 2015, the World Health Organization issued guidelines recommending use of pre-exposure prophylaxis (PrEP) by people with substantial HIV risk, in combination with other prevention interventions. With wide-scale implementation of PrEP, messaging on condom use by health care providers (HCP) is not well understood.

Methods: The Partners Scale-up Project is catalyzing PrEP delivery for HIV serodiscordant couples in HIV care clinics in Western and Central Kenya. We conducted in-depth interviews with 31 PrEP users and 37 HCPs to understand PrEP delivery processes. We used a combination of inductive and deductive approaches to identify themes relating to condom messaging and PrEP uptake.
Results: HCPs reported counseling PrEP initiators to use both PrEP and condoms in order to prevent unintended pregnancies and sexually transmitted infections. They counseled that PrEP would provide additional HIV protection if a condom breaks. HCPs asked PrEP users to be consistent with condom use especially during their first week of using PrEP. Few HCPs reported counseling that PrEP users could stop using condoms, outside of cases where conception was desired. However, HCPs were aware that many of their clients had did not use condoms consistently, either before or after starting PrEP.
Although all PrEP clients knew that condoms could prevent HIV before they started PrEP, many reported using condoms inconsistently due to desires for increased sexual pleasure, intimacy and conception. Some women also reported not using condoms to avoid conflict associated with asking their male partners to use them. Clients frequently reported starting PrEP as a welcome alternative to using condoms. However, some PrEP users reported getting confused by HCP insistence on continued condom use, in spite of the purported HIV protective factor of PrEP.
Conclusions: While HCP counseling on condom use in combination with PrEP sought to maximize prevention of all STIs, many PrEP users saw PrEP as an alternative to condoms. HCP insistence on continued condom use while taking PrEP may frustrate and discourage PrEP uptake amongst potential users. There is need for innovative ways to tailor messages around condom use in the context of PrEP use.

WEPEE652

Fewer than 1 in 6 gay/bisexual PrEP users receive comprehensive PrEP monitoring

J. Parsons[1], S. John[2], A. Talan[2], T. Whitfield[2], H.J. Rendina[1]
[1]Hunter College-CUNY, Psychology, New York, United States, [2]Center for HIV Educational Studies and Training, New York, United States

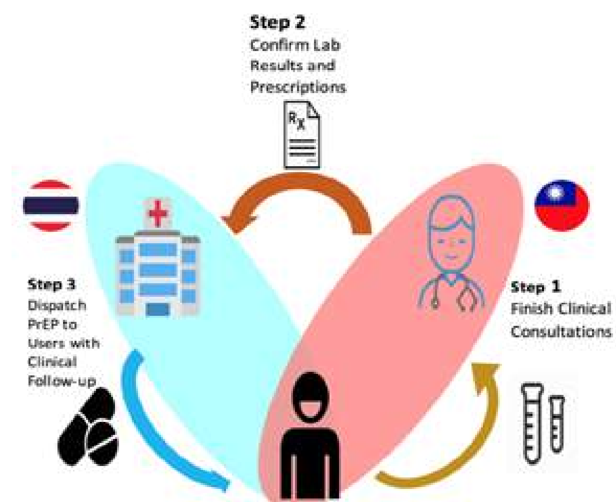
Background: Bacterial sexually transmitted infections (STIs) associated with decreasing condom use among PrEP users are a growing concern. In the US, guidelines for clinical follow-up and monitoring of PrEP users recommend ongoing STI screening every 6 months, with newer evidence suggesting every 3 months. In addition, quarterly HIV testing and assessment of sexual risk behaviors is recommended. Little, however, is known regarding fidelity to such comprehensive PrEP monitoring among GBM.
Methods: A US national sample of PrEP-using GBM (n=362; M_{age}=32.9 years; 53.4% White) were asked about their last PrEP visit. Comprehensive PrEP monitoring was defined as 1) blood-based testing for HIV and syphilis; 2) screening for chlamydia and gonorrhea via urine, rectal swab, and throat swab; and 3) assessment of sexual behavior and STI symptoms. Demographics (age, race/ethnicity, education, income, and health insurance status), any condomless anal sex (CAS; past 3 months), and healthcare provider type (specialty care/clinic versus primary care provider (PCP)) were regressed on having received comprehensive PrEP monitoring using fully-adjusted binary logistic regression.
Results: The majority of GBM had insurance (90.6%) and received PrEP-related care from a PCP (62.4%). Only 15.5% received comprehensive PrEP monitoring at their last visit. The majority (66.9%) reported being asked about sexual behavior, and 48.1% were asked about STI symptoms. Most (89.5%) received an HIV test, compared to only 47.8% who received a syphilis test. Urine, rectal, and throat STI testing were reported by 58.3%, 35.4%, and 35.4% of men, respectively. GBM who reported no CAS (AOR=3.81; 1.41-10.29, 95% CI) and those who received care from a specialty clinic/provider (AOR=3.51; 1.87-6.58, 95% CI) had higher odds of receiving comprehensive PrEP monitoring. There were no significant racial/ethnic differences in the adjusted model.
Conclusions: While most men had an HIV test and some discussion of sexual behavior at their last PrEP visit, most were not asked about STI symptoms, and only one-third reported rectal and pharyngeal STI testing. Fewer than one in six GBM received comprehensive PrEP monitoring at their last visit. Results indicate further efforts are needed to prepare healthcare providers, particularly PCPs, for managing patients on PrEP.

WEPEE653

Bridging the gap in accessing PrEP in Asia: Experience in the provider-assisted PrEP access (PrEP-PAPA) model in Taiwan

Y.-H. Chu[1], N. Yaemim[2], P. Phiphatkhunarnon[3], A. Charoen[3], W. Pumpradit[4], V.W. Tan[5], P. Huang[6], P.-C. Huang[7,8], F.-M. Jan[7], F. Hickson[1], S.W.-W. Ku[8,9]
[1]London School of Hygiene and Tropical Medicine, Department of Social and Environmental Health Research, London, United Kingdom, [2]Pulse Clinic, Bangkok, Thailand, [3]Love Foundation, Chiangmai, Thailand, [4]Bangkok Health Hub, Bangkok, Thailand, [5]Preptaiwan.org, Vensure Medical, Singapore, Singapore, [6]University of California San Diego, Department of Communication, San Diego, United States, [7]Taipei Veterans General Hospital, Division of Infectious Diseases, Department of Medicine, Taipei, Taiwan, Province of China, [8]Taipei Veterans General Hospital Hsinchu Branch, Division of Infectious Diseases, Department of Medicine, Hsinchu, Taiwan, Province of China, [9]HIV Education and Research Taiwan (HEART) Association, Taipei, Taiwan, Province of China

Background: Medication cost has been the main barrier to PrEP access for men who have sex with men (MSM) in Taiwan, where 77% are unable or unwilling to pay 340 USD per month for branded Truvada®. Similarly, one third of participants withdrew from Taiwan CDC's PrEP demonstration project because they could not afford the Truvada® they needed beyond the 105 tablets per year provided by the project. We present a provider-assisted model of PrEP delivery that aims to increase accessibility and affordability of PrEP among potential users in Taiwan.
Description: Since August 2017, the PrEP-PAPA model has been implemented through international collaborations between physicians in one public hospital providing PrEP in Taiwan (Taipei) and three private clinics in Thailand (two in Bangkok and one in Chiang Mai). Firstly, potential Taiwanese users visited PrEP providers in Taiwan for consultation and on-site laboratory tests (as per Taiwan National PrEP Guidelines). Next, Taiwanese PrEP providers confirmed users' eligibility and electronically sent prescriptions and laboratory results to private clinics in Thailand. Subsequently, Thai private clinics verified data and then delivered generic PrEP through online orders made by Taiwanese PrEP users at www.prepfirst.org/tw or www.preptaiwan.org. Taiwanese providers clinically monitored PrEP users every three months.
Lessons learned: By 17 January 2018, the PrEP-PAPA model had serviced 65 PrEP users. Pill costs were 14% of those in Taiwan CDC's demonstration project (NTD 1150 versus NTD 8110 monthly for daily regimen). 46% of users were formerly enrolled in the CDC demo project and continued to purchase generic PrEP after their subsidy ended. No participants were newly diagnosed with HIV infection after enrolment. 19% made orders within one week of consultations and 29% did not order PrEP online until three months after consultation.



[Figure 1. Process of the PrEP Provider-assisted PrEP Access (PrEP-PAPA Project)]

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Type of enrolment	Number	Percentage (%)
Originally registered to the PrEP-PAPA	35	54
Continued from the governmental project	30	46
Time from consultation to online pharmacy	**Number**	**Percentage (%)**
Same day	3	5
One day to one week	11	17
One week to one month	17	26
One to three months	15	23
More than three months	19	29

[Table 1. Characteristics of participants of the PrEP-PAPA Model (N=65)]

Conclusions/Next steps: The PrEP-PAPA model increased affordability, drug quality assurance and convenience. It is a feasible alternative to escalate PrEP delivery in countries where generics are not yet available. Community-based education and raising awareness of PrEP services are necessary to increase the efficiency of provider-assisted PrEP services.

WEPEE654

Improving PrEP implementation through multilevel interventions: A synthesis of the literature

R. Pinto[1], K. Berringer[1], R. Meléndez[2]
[1]University of Michigan, Ann Arbor, United States, [2]San Francisco State University, San Francisco, United States

Background: Much research has emerged in the past decade on the myriad challenges to PrEP implementation worldwide. In the United States (US), this research has focused on barriers to effective PrEP implementation in communities disproportionately affected by HIV/AIDS, including gay and bisexual men and transgender women of color. While there is some agreement about what constitutes PrEP implementation challenges, this literature is disjointed and solutions to implementation challenges have been imprecise. This paper provides a comprehensive review of literature on PrEP implementation in the US and an analysis to support matching known challenges with precise solutions.
Methods: This integrative review summarizes research on PrEP implementation in the US between 2007-2017. Grounded in a socioecological framework, this review aims to identify and match patient-, provider-, and systems-level barriers to PrEP implementation with corresponding solutions. The review is focused on US-generated findings, but its analysis can inform PrEP implementation worldwide.
Results: Of 294 articles identified, 47 met our inclusion criteria. These papers reported barriers at three distinct domains: healthcare providers, individual patients, and the healthcare system. At the individual provider- and patient-level, articles frequently identified cognitive variables -- knowledge, attitudes and beliefs -- as barriers to effective PrEP implementation. At the healthcare systems-level, reported barriers included communication & awareness, funding, capacity & access, pharmaceutical barriers, and population-specific barriers & stigma. We found that proposed interventions in the literature often do not correspond to identified barriers. For instance, while a number of papers (n=18) focused exclusively on provider-level barriers, these papers often offered solutions exclusively targeting patient behavior. Moreover, frequently cited barriers to PrEP implementation often cut across all three levels, as in the case of the so-called "purview paradox" (i.e. the challenge that neither HIV specialists nor primary care providers consider PrEP implementation to be within their clinical domain) and structural barriers (e.g. patient mistrust based on historical legacies of structural racism and transphobia).
Conclusions: Given the interconnected nature of the barriers identified in the literature, we recommend that future interventions employ a unified approach that does not target providers, patients, and healthcare systems in isolation, but rather matches interventions to specific barriers across socioecological domains.

WEPEE655

Tracking oral PrEP globally: Using initiation trend data to inform product introduction

L. Fitch[1], J. Clancy[1], E. Donaldson[1], E. Gardiner[1], J. Reid[2], S. Jenkins[2], K. Callahan[2], M. Warren[1]
[1]AVAC, New York, United States, [2]Clinton Health Access Initiative, Boston, United States

Background: Oral pre-exposure prophylaxis (PrEP) has gained acceptability as a major tool for prevention since it was approved by the United States FDA in 2012. To date, 48 countries have begun offering PrEP through demonstration projects, implementation initiatives, and national programs. However, the decentralized nature of PrEP initiation data has proven detrimental for tracking progress. In order to address this challenge, AVAC began tracking global PrEP initiation in 2014 to generate new insights for product implementation and to inform advocacy efforts.
Methods: The global PrEP tracker includes a comprehensive database of information on ongoing and planned PrEP demonstration projects, implementation initiatives and national programs. Data is collected from projects through the dissemination of a quarterly survey covering PrEP initiation numbers, demographics, geography, funding, service delivery settings, program types, tools created and resistance testing. Regular updates from manufacturers and government partners are compiled to determine the number of individuals accessing PrEP through national health systems.
Results: December 2017 data indicates the number of people initiated on PrEP increased by more than 35% over the past year to total 189,170 globally. North America and sub-Saharan Africa currently have the highest overall number of initiations, accounting for 75% and 13% of the total number of users respectively. Regionally, Asia, Oceania and sub-Saharan Africa saw the greatest increases in PrEP initiation in 2017, with South America seeing the only regional decrease in initiations. Of the programs that disaggregate by population, the majority of reported enrollees are men who have sex with men, followed by female sex workers and adolescent girls and young women. These findings are estimated based on available data and may not include updated or disaggregated information from every project. Studies without confirmed initiation numbers were excluded.
Conclusions: The ability to track PrEP uptake globally is crucial for advocates, implementers and funders to discern where gaps exist and identify national, regional and global trends. The global PrEP tracker provides a baseline estimate for PrEP initiations and allows for dynamic assessment of initiation data. Increasing the visibility of this tracker and refining the data collection methods will increase the accuracy of the estimates and deliver actionable insights.

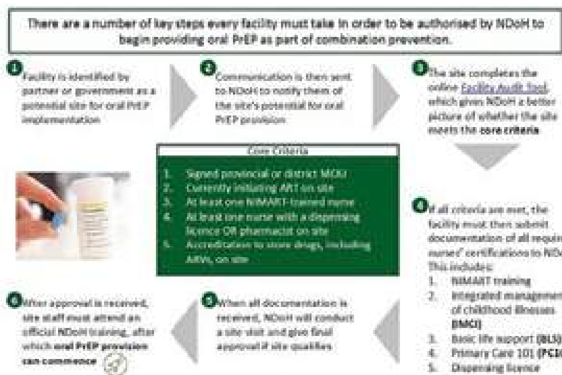
WEPEE656

Site-level process to oral PrEP implementation

N. Shoko[1], S.Y. Jenkins[1], S. Mullick[2], H. Subedar[3], Y. Pillay[3]
[1]Clinton Health Access Initiative, Pretoria, South Africa, [2]Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [3]National Department of Health, Pretoria, South Africa

Background: The South African National Department of Health (NDoH) began a phased implementation of oral PrEP in 2016. Through partner and stakeholder engagement, implementation tools were developed to facilitate roll-out. A standardized approach to assessing and preparing implementation sites is a key component of this approach. This paper describes the implementation process of site readiness tools and discusses lessons learnt.
Description: A site assessment tool was designed through a consultative process led by NDoH and the National PrEP Technical Working Group (TWG) to assist with assessment of potential implementation sites. The assessment is a semi-structured tool consisting of closed- and open-ended questions on the following service delivery domains: human resources, drug and commodities procurement and supply chain, services delivered, including laboratory services and community engagement, and data management. The tool was administered through facility observations and interviews with clinic management staff.

Lessons learned: The tool was completed for 62 sites with a variety of target populations from March 2016 to December 2017. As of December 2017, 31 of the 62 (50%) assessed sites successfully fulfilled the criteria outlined and, following additional engagement, the sites began implementing oral PrEP. Eighteen sites are undergoing assessment. Sites assessed and not yet ready to implement are missing key assessment components. Of the 62 assessed sites, four (6%) lacked NIMART trained nurses and nine (15%) lacked professional nurses with dispensing licenses. Thirteen (21%) sites did not provide antiretroviral therapy (ART) on-site and twelve (19%) did not have signed Memorandums of Understanding (MOUs) with their respective Provinces and Districts.
Conclusions/Next steps: The assessment tool ensures a standardized readiness baseline, including services, personnel, systems, and funding, and clear understanding and expectations from NDoH for implementing and non-implementing partners engaged in oral PrEP implementation. The assessment tool allows for easy identification of potential implementation challenges, allowing for the development of tailored support plans and ongoing monitoring. Further, as additional HIV prevention options become available, NDoH can adapt the tool to ensure continued consistency for implementation readiness across varying sites.



[Figure 1 Steps to oral PrEP implementation]

WEPEE657

PrEP'ed for success? Lessons learned in PrEP implementation in New South Wales

J. Holden[1], C. Selvey[2], A. McNulty[3], R. Guy[4], H.-M. Schmidt[1], K. Price[5], D. Smith[6], B. Yeung[4], D. Halliday[1], G. Cabrera[4], E. Ogilvie[4], A. Grulich[4]
[1]NSW Ministry of Health, North Sydney, Australia, [2]Health Protection NSW, North Sydney, Australia, [3]Sydney Sexual Health Centre, Sydney, Australia, [4]The Kirby Institute, University of NSW, Kensington, Australia, [5]ACON, Surry Hills, Australia, [6]Lismore Sexual Health Centre, Lismore, Australia

Background: When New South Wales, Australia's most populous state, launched a HIV Strategy in 2012 government, community, clinicians and researchers reinvigorated their joint efforts to reduce HIV. The focus was on condom promotion, increased testing for earlier diagnosis and early treatment initiation to prevent transmission. By end 2015, testing had increased and 80% of people diagnosed with HIV were on treatment within six months of diagnosis. However, condomless anal intercourse among gay and bisexual men (GBM), the group at highest risk of HIV, had not declined. HIV diagnoses remained steady.
Description: In March 2016, a state-wide pre-exposure prophylaxis (PrEP) trial was implemented to rapidly achieve high PrEP coverage in GBM at high risk of HIV. It was anticipated that HIV incidence would fall within 12 months of enrolling around 4,000 participants. Nineteen publically funded, free sexual health clinics and three large HIV specialist general practices delivered PrEP free of charge to the client. Data were collected mainly through an existing system of automatic extraction of de-identified patient information from electronic medical records.
Lessons learned: Providing PrEP to over 8,000 people within existing services is achievable with clinical guidelines and streamlined models of care. This includes nurse-led counselling, care and dispensing, SMS messaging to confirm negative HIV and normal renal function test results to allow commencement of PrEP, and the use of peer educators. Creation of community demand via on-going social media and other platforms was very effective for Australian-born gay identified men, but less so for overseas-born men. Three-monthly STI screening resulted in large numbers of diagnosed STIs requiring efficient processes for recall and management. In parallel, condomless anal intercourse in GBM increased in the community, increasing the size of the target group for PrEP.
Conclusions/Next steps: Diagnoses of HIV with evidence of infection within 12 months of diagnosis have fallen in Australian-born men; but not in overseas-born GBM indicating the need for culturally appropriate strategies to engage this group. Federal funding of PrEP is expected, moving PrEP prescription to general practitioners (GPs) and necessitating rapid education of GPs about PrEP and effective STI management, targeted awareness campaigns for less engaged populations, and ongoing monitoring.

Testing and treatment at scale: issues and lessons

WEPEE658

Who does HIV viral load testing reach first? Lessons from Tanzania's first year of scaling up HIV viral load accessibility

G. Antelman[1], R. van de Ven[1], M. Mukaminega[1], D. Haule[1], J. van' t Pad Bosch[1], G. Somi[2]
[1]Elizabeth Glaser Pediatric AIDS Foundation, Dar es Salaam, Tanzania, United Republic of, [2]Ministry of Health, Community Development, Gender, Elderly and Children, National AIDS Control Programme, Dar es Salaam, Tanzania, United Republic of

Background: Tanzania scaled-up HIV viral load (HVL) testing in 2016 through expanding laboratory capacity and specimen transport to processing hubs, with policies stating all ART patients should have HVL at 6, 12 and every 12 months after antiretroviral (ART) initiation. This analysis examines factors associated with HVL testing among eligible patients during early scale-up.
Methods: Electronic medical records from the national care/treatment database (n=198 clinics, six regions) were analyzed descriptively, and with logistic regression. 86,260 patients on ART visiting a clinic that provided HVL testing from October 2016-September 2017, and who were retained at least six months, were analyzed. Patients with their first HVL test during the study period were compared to patients who did not receive an HVL test. Independent variables included age, pregnancy, sex, CD4, ART regimen and duration on ART.
Results: HVL testing reached 22% of eligible ART patients overall: 17% of youth (15-24 years) received HVL testing, significantly less than the 23% in children < 15 and 22% in adults 25+ (p< .0001). Women recently or currently pregnant were more likely (33%, p< .0001) to receive HVL testing compared to non-pregnant women (22%) or men (21%). Patients with an unknown baseline CD4 were more likely to have an HVL test (23%), while patients with low baseline (< 200) CD4 were less likely (16%, p< .0001). HVL testing was more likely among patients on ART for more than one year (1-3 years: 19%, 4+ years: 26%) compared to those on ART 6-12 months only (14%; p< .0001), and patients on 2nd line ART were more likely to be tested (33%) compared to 1st line (22%). Selected adjusted odds ratios and 95% confidence intervals are presented in Table 1.
Conclusions: With HVL services still being scaled-up in Tanzania, these results describe how clinicians currently prioritize certain patients for HVL testing, such as those with a recent or current pregnancy, no baseline CD4 measure, on ART for longer, or on 2nd line ART already. As the program continues to scale-up, emphasis should be on ensuring adequate program support and clinician education to increase timely HVL monitoring for all eligible patients.

Variable	Category	Number HVL tested	%	p-value	Adjusted Odds Ratio	95% CI, lower	95% CI, upper
Recent or current pregnancy (<12m prior HVL)	no	12,696	22%	p<.0001	1.00		
	yes	772	33%		2.47	2.08	2.94
	male	5,498	21%		0.89	0.85	0.93
Baseline CD4 (ART imitation)	unknown	15,973	23%	p<.0001	1.16	1.07	1.24
	<200	762	16%		0.84	0.73	0.96
	200+	2,231	19%		1.00		
Duration on ART	6-12 mo	905	14%	p<.0001	1.00		
	1-3 yr	7109	19%		1.57	1.38	1.77
	4+ yr	10952	26%		2.04	1.74	2.40

[Table 1: Factors associated with HVL testing among eligible patients]

WEPEE659

A digital application for optimizing key population mobile testing in Jakarta's Fast-Track response

A. Human[1], S. Saifuddin[1], I. Afriyanto[1], M. Setyawan[1], E.R. Aditya[1], C. Francis[1], R. Ningsih[2]
[1]FHI 360, Jakarta, Indonesia, [2]Pact Inc, Jakarta, Indonesia

Background: Jakarta's Provincial Health Office articulated ambitious testing targets to reach a 2017 goal of diagnosing 9,292 people living with HIV (PLHIV). With more than 50 percent of new infections occurring among key populations (KP), impactful testing amplification strategies were needed to accelerate testing uptake among men who have sex with men, female sex workers, transgender women, and people who inject drugs. Test and triage modalities, including lay and self-testing, have not yet been integrated into Government policy and could not be comprehensively utilized to enhance coverage. Uptake of static voluntary testing and counseling (VCT) services has been constrained by restricted operating hours and human resources limitations, within a deteriorating political environment for KP programming. A Fast-Track approach for optimizing HIV testing across Jakarta was required.
Description: The USAID- and PEPFAR-supported LINKAGES Indonesia Project introduced DOKLING, an electronic HIV testing scheduler and tracking platform, in April 2017. Through a mobile phone or web browser, KP civil society organizations (CSOs) can directly request mobile testing visits from health facilities and receive immediate confirmation. Health facilities can plan for amplified testing coverage and dedicate appropriate technical, human and administrative resources for scale up purposes. When counseling resources are limited, facilities can use DOKLING to request counselors directly from CSOs. Mobile testing visit schedules can be shared with KP clients in advance - and across projects - to facilitate uptake. Fast-Track implementers can review DOKLING-generated encrypted testing data to assess testing coverage and case finding performance by CSO, facility, district and key sub-populations. Geo-location case-finding maps identify priority geographic areas for placement of impactful testing services.
Lessons learned: HIV testing among key populations increased by 86 percent between April and December with the introduction of DOKLING, and constituted 66 percent of VCT conducted at 21 facilities serving key populations. Reach-to-test ratios increased from 16% to 61% among three-quarters of PEPFAR-supported CSOs. Overall case finding rates averaged 590 KP PLHIV identified per quarter.
Conclusions/Next steps: Scalability of impactful interventions is aided by solutions that are easy to use, capitalize on the resources of diverse implementers, and use data for evidence-based planning and implementation.

WEPEE660

The surge: A targeted, multi-strategy approach to accelerate HIV case finding in Malawi

K. Simon[1,2], M. Hartig[1], E. Wetzel[1], E. Chester[1], C. Chembezi[1], A. Kabwinja[1], Z. Nkhono[1], E. Kavuta[1], R. Nyirenda[3], P. Kazembe[1,2], S. Ahmed[1,2], M. Kim[1,2]
[1]Baylor College of Medicine Children's Foundation-Malawi, Lilongwe, Malawi, [2]Baylor College of Medicine International Pediatric AIDS Initiative, Houston, United States, [3]Malawi Ministry of Health, Lilongwe, Malawi

Background: The WHO recommends a strategic combination of community- and facility-based HIV testing and Counseling (HTC) service models to improve the identification of people living with HIV (PLHIV). However, there is a paucity of literature describing the impact of an approach that simultaneously implements multiple HIV case finding strategies within routine program delivery. This study describes the impact of "The Surge", a targeted multi-strategy testing approach on HIV case finding in Malawi; where 27.3% of PLHIV are unaware of their status.
Methods: The Surge was a simultaneous implementation of six HTC strategies (enhanced outpatient department screening, index case testing, extended testing hours on weekends and evenings, testing during mobile outreach clinics, targeted community testing events, and scaled-up facility-based provider initiated testing) over a 6 week period at 19 health facilities in Malawi. The Surge also included increased supervision, infrastructural enhancements to provide additional testing space, and creation of a data feedback loop that provided weekly performance reports to facilitate real-time programming adjustments. Routinely collected, de-identified data from Ministry of Health HTC registers were used to determine number of tests performed and positive cases identified.
Results: In total, 29,533 HIV tests were conducted; 1,051 (3.6%) were positive. Of total tests conducted, 69.6% were amongst women and 77.0% were amongst those greater than 15 years. Yield was 3.3% amongst women, 4.2% amongst men, 1.5% amongst those 15 or younger, and 4.2% amongst those older than 15. The average weekly number of tests performed increased 51.6% during the surge from 3,337 to 6,896 (p=0.002). The average weekly number of positive cases identified increased 34.3% during the surge from 157.6 to 240.0 (p=0.017). The testing strategy resulting in highest yield was index case testing (5.7%). The strategy with the lowest yield was extended evening facility testing hours (1.2%). Yield for all strategies except index case testing was highest in adult men.
Conclusions: This study shows that a multi-strategy approach to HTC can be an effective means of accelerating HIV case finding; index case testing is particularly effective. Additionally, increased supervision, enhanced infrastructure, and real-time data feedback are critical factors in the success of a surge testing initiative.

WEPEE661

Can we achieve universal and annual HIV testing with home-based campaigns? Results from the ANRS 12249 TasP trial

M. Plazy[1], M.H. Diallo[2], M. Inghels[2], C. Iwuji[3,4,5], N. McGrath[4,6,7], D. Pillay[3,8], F. Dabis[1], J. Orne-Gliemann[1], J. Larmarange[2,3], ANRS 12249 TasP Trial
[1]Bordeaux University, School of Public Health (ISPED), Inserm, Bordeaux Population Health Research Center, UMR 1219, Bordeaux, France, [2]Centre Population et Développement, Institut de Recherche pour le Développement, Université Paris Descartes, Inserm, Paris, France, [3]Africa Health Research Institute, KwaZulu-Natal, Durban, South Africa, [4]Research Department of Infection and Population Health, University College London, London, United Kingdom, [5]Department of Global Health & Infection, Brighton and Sussex Medical School, Falmer, Brighton, United Kingdom, [6]Africa Health Research Institute, University of KwaZulu-Natal, School of Nursing and Public Health, KwaZulu-Natal, Durban, South Africa, [7]Academic Unit of Primary Care and Population sciences, and the Department of Social Statistics and Demography, University of Southampton, Southampton, United Kingdom, [8]University College London, Division of Infection and Immunity, London, United Kingdom

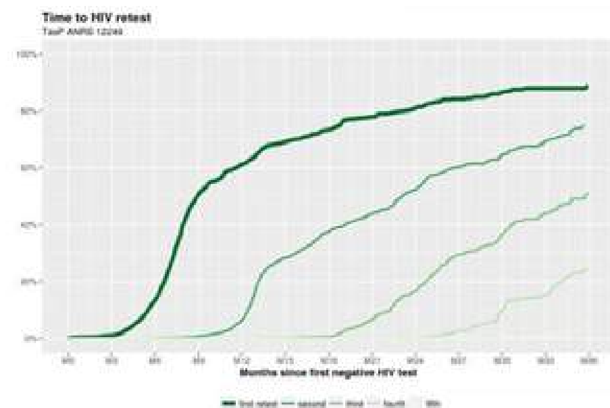
Background: Universal and regular HIV testing for early HIV-diagnosis is critical to reduce HIV incidence. Home-based HIV counselling and testing campaigns (HBHCT) have been shown acceptable and successful in high HIV prevalence setting, but little is known about the capacity of

such strategy to re-test people regularly. We aimed to describe time to, and factors associated with, repeat HIV testing through HBHCT in rural South Africa.

Methods: From March 2012 to June 2016, the ANRS 12249 TasP cluster-randomized trial aimed at evaluating the impact of a Universal Test and Treat (UTT) approach on population-based HIV incidence in a rural area of KwaZulu-Natal with about 30% HIV prevalence. In both arms, rapid HIV testing was offered at home every six month to all resident members aged ≥16 years old (about 1,000 individuals/cluster). Individuals who tested HIV-negative at first contact with TasP fieldworkers were included in the analysis. Times to HIV-retests since first HIV-negative test were described using Kaplan-Meier curves, with right censoring at the first positive rapid test, death, out-migration and end of observation. Factors associated with first HIV-retest were identified using Cox regression with time-dependant variables, and taking account of cluster effect.

Results: 16,372 individuals with a first HIV-negative test were included in the analysis. From the first HIV-negative test, the probability of one repeat HIV test after one year was 61.2%, the probability of two repeat HIV tests after two years and three repeat HIV tests after three years were 52.3% and 51.4%, respectively (Figure 1). Factors associated with first repeat HIV testing were female gender (HR=1.23; 95%CI=1.18-1.29), being 30-59 years old (HR=1.12; 95%CI=1.05-1.18) or >60 years old (HR=1.18, 95%CI=1.07-1.29) versus < 30 years old, being engaged but not married versus never engaged (HR=1.13; 95%CI=1.05-1.23), having low educational level (HR=1.20; 95%CI=1.12-1.28).

Conclusions: Home-based HIV testing campaigns could contribute to achieve the target of universal HIV testing and ultimately UTT but may not be sufficient considering the assumptions of the Granich's mathematical modelling (Lancet 2009). A combination of clinic-based and community-based strategies will be needed to maximise HIV testing coverage and specially reach men and youngest individuals.



[Time to HIV restest from first HIV-negative test in the ANRS 12249 TasP trial]

WEPEE662

How health workers motivated people living with HIV (PLHIV) to initiate antiretroviral treatment (ART) at high CD4 counts in three HPTN 071 (PopART) health facilities, Western Cape, South Africa

N. Peton[1], D. Wademan[2], P. Hendricks[2], C. Mubekapi-Musadaidzwa[2], G. Carolus[2], R. Mbaezue[3], G. Hoddinott[2], HPTN 071 (PopART)
[1]Western Cape Department of Health, Health, Cape Town, South Africa, [2]Stellenbosch University, Pediatrics and Child Health, Cape Town, South Africa, [3]City of Cape Town, Health, Cape Town, South Africa

Background: In 2016 South Africa adopted WHO recommendations of ART regardless of CD4 count for PLHIV. In 2016, ART coverage in South Africa was estimated at 56%. A shift toward increased uptake of ART at higher CD4 counts is required. Historically, health-messaging about starting ART have highlighted side effects, risks of acquired resistance, and triage of available treatment. CD4-count eligibility criteria and pre-ART counselling has reinforced a perception that PLHIV must be 'sick enough' to initiate ART. A shift in messaging is critical to increase uptake and ensure adherence. The study provides insight on ART messaging pre-national ART policy shift. How can we explain this policy shift to PLHIV and motivate them to initiate?

Methods: HPTN 071 (PopART) was a community-randomised trial in Zambia and South Africa. Patients at three health facilities in one arm of the trial in the Western Cape Province, were eligible for ART regardless of CD4 count outside of guidelines between June 2014 and September 2016. We conducted 134 randomly selected clinical patient folder reviews to characterise the sociodemographic profile of ART initiators under these conditions. We interviewed key informants (nurses, counsellors, post basic pharmacist assistants, data capturers and health management staff; n=12) about their experiences explaining initiating ART at high CD4 counts. The evaluation design was exploratory through case descriptions.

Results: The mean age of patients initiating ART at CD4 count >500 was 34.6 (range: 17-65; SD = 9.13) and most were women (74.7%), married (65.3%), and employed (42%). These sociodemographic characteristics were very similar to patients initiating ART at CD4 counts ≤500. Key informants indicated no radical shift was necessary to explain ART regardless of CD4 count. Rather, they (i) used a variety of metaphors to emphasize the importance of building a strong foundation and not waiting until HIV weakened the body, (ii) reiterated that ART prevents opportunistic infections, and (iii) emphasized that management of HIV through ART is comparable to other chronic diseases.

Conclusions: Motivating patients to initiate ART at high CD4 counts is possible even in high burden settings. Messaging about reduced risk of onward transmission was not a core component of health workers' narratives.

WEPEE663

Barriers and facilitators to improve antiretroviral therapy initiation among men who have sex with men and transgender women in Thailand

P. Saenyakul[1], C. Gregory[2], K. Sirisup[1], M. Avery[1], R. Vannakit[3]
[1]Family Health International 360, LINKAGES-Thailand, Bangkok, Thailand, [2]Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [3]United States Agency for International Development Regional Development Asia, Bangkok, Thailand

Background: There remain numerous policy, provider, and client barriers to immediate antiretroviral therapy (ART) uptake following HIV diagnosis in multiple countries. Thailand is no exception. Although between 2014 and 2017 ART coverage increased from 49 to 60 percent, many people living with HIV (PLHIV) have not received ART or received it long after diagnosis. In response to this challenge, the aim of this study was to collect PLHIV client experiences and perceptions about ART initiation and barriers to treatment uptake in both key population-led health services (KPLHS) and mainstream health services where clients are referred for ART.

Methods: The study was conducted in seven KPLHS in the four provinces in Thailand with the highest HIV burden among key populations (Bangkok, Chiang Mai, Chonburi and Songkhla). Focus group discussions (FGDs) and in-depth interviews (IDIs) were conducted from March to April 2017. A total of 40 PLHIV clients (28 on ART, 12 HIV treatment naïve) provided informed consent to participate in the IDIs (n=16 clients) and FGDs (n=24 clients).

Results: Barriers to ART initiation and retention in HIV care and treatment services included:
(a) service concerns, e.g., lack of privacy and confidentiality and readiness to disclose;
(b) concerns about health benefits, e.g., how to access universal ART;
(c) concerns about ART, e.g., antiretroviral side effects and ability to adhere to treatment;
(d) concerns about stigma and discrimination; and
(e) treatment literacy.
Facilitators to HIV care and treatment services identified included good provider-patient communication; high treatment literacy; guided referral to treatment services, including assistance in the transfer of treatment benefits; counseling on disclosure of HIV status; and effective interventions to reduce stigma.

Conclusions: Study results contribute to quality improvement of KPLHS by informing training of KPLHS staff on the importance of having trusting provider-patient relationships to help promote effective interventions to minimize stigma, improve self-efficacy, and promote adherence. These interventions are essential to reduce gaps in the HIV testing and treatment cascade and to maximize the individual and substantial public health benefits of universal ART in Thailand.

WEPEE664

Successful strategies to increase HIV case identification at public health facilities among males in Botswana

M. Ledikwe[1,2], N. Majingo[3], C. Petlo[3], O. Bakae[1], L. Tau[1], L. Seckel[2], S. Mawandia[1,2]
[1]International Training and Education Center for Health, Gaborone, Botswana, [2]University of Washington, Seattle, United States, [3]Botswana Ministry of Health, HIV Testing Services Unit, Gaborone, Botswana

Background: It is estimated that males account for a disproportionately high percentage of the undiagnosed HIV-positive individuals in Botswana. To achieve the UNAIDS 90-90-90 targets and reach epidemic control, innovative strategies are needed to increase HIV case identification among this priority population.

Description: Two strategies were employed to increase HIV case identification amongst men at 26 public health facilities in Botswana: extended hours testing, and use of a warm-line for scheduling testing appointments. Extended hours included evenings and weekends. The warmline was promoted through various traditional and social media outlets.

Lessons learned: Between June-December 2017, 73,258 HIV tests were administered, with 4,542 HIV cases identified in the supported facilities for a yield of 6.2%. The majority of tests (66,203, 90%) and cases (3,907, 86%) were identified during traditional facility hours (yield=5.9%). During extended hours, 7,055 tests were conducted with 635 cases identified (yield=9%). The percentage of males identified during extended hours testing was 63% compared to 37% during traditional testing hours. There were 642 HIV tests conducted following appointments through the warmline, with 86 HIV cases identified (Yield= 13.4%). Sixty percent were male. During standard-hours, it took approximately 20.6 Health Care Assistant (HCA)-hours to identify 1 HIV case. This increased to 31.3 HCA-hours per case during the weekend. This doubled to 62.8 HCA-hours per case during after-hours testing.

Conclusions/Next steps: Innovative strategies such as afterhours and weekend testing and implementation of a warmline are effective at increasing overall HIV case identification as well as case identification among males. While the absolute number of cases identified through these modalities were lower in comparison to HIV testing conducted during traditional hours, these modalities resulted in higher yield and a higher proportion of male cases. These data support the use of extended HIV testing hours and a warmline to supplement HIV testing services during traditional health facility working hours. Attention to linkage to care is a critical consideration for extended hours testing.

WEPEE665

Monthly baseline CD4 count trends of newly diagnosed HIV patients from 'test and treat' demonstration sites in Namibia

L. Bikinesi, A. Mengistu, N. Hamunime, S. Natanael, M. Kakubu, J. Kamangu, S. Mpariwa
Ministry of Health and Social Services, Special Programs, Windhoek, Namibia

Background: Before the fifth edition of the ART Guidelines was launched in November 2016 by the Ministry of Health and Social Services of Namibia, patients were initiated using a CD4 count threshold of below 500. An initial phase of 'test and treat' demonstration project was conducted where all HIV-infected individuals presenting to the selected ART sites were immediately offered treatment with TDF/XTC/EFV600 (tenofovir + [lamivudine or emtricitabine] + efavirenz 600mg) regardless of their CD4 cell counts or WHO clinical stages. The objectives included determining acceptability amongst patients and health care workers as well as evaluating the baseline CD4 count trends of newly diagnosed patients.

Description: 11 HIV care and treatment sites in three regions of Khomas, Ohangwena and Zambezi, were selected to implement this strategy. Patients were offered HIV treatment immediately after testing positive and comprehensive adherence counselling offered. Routine pre-treatment including baseline CD4 count data was collected from July 2016 to June 2017 using the electronic Patient Monitoring System (ePMS). This data was extracted from the ePMS, exported to excel and analysed using SPSS statistical software. Except for the immediate initiation of ART, the test and treat patients received the same standard of care that's being provided for all other patients in care and treatment in Namibia.

Lessons learned: There were a total of 2787 newly diagnosed HIV patients who were initiated on ART during the test and treat demonstration period of July 2016-June 2017 in all the 11 selected sites. The mean baseline CD4 count of the patients was 435.6 over the entire period. The mean CD4 count is lower than the 500 cut off used in the previous guidelines with no test and treat. Patients are still presenting themselves late for testing and treatment as demonstrated by low CD4 counts. The table below shows month on month mean baseline CD4 counts.

September 16	October 16	November 16	December 16	January 17	February 17	March 17	April 17	May 17	June 17
433.4	440.8	419.4	394.0	438.4	424.5	390.4	475.7	484.5	360.5

[Trends of Mean CD4 by month]

Conclusions/Next steps: 'Test and treat' alone will not result in patients being initiated at higher CD4 counts. Health education and routine HIV testing should be enhanced in order to diagnose HIV earlier thus initiate patients with CD4 counts higher than previous guidelines.

WEPEE666

Implementing the HIV "Treat All" Guidelines in Namibia: Patient and health provider perspectives

S. Tsang[1,2], B. Zieman[1], L. Stoman[3], L. Siluka[3], L. Vu[1]
[1]Population Council, Washington, United States, [2]Johns Hopkins Bloomberg School of Public Health, Health, Behavior and Society, Baltimore, United States, [3]Survey Warehouse, Windhoek, Namibia

Background: In April 2017, the government of Namibia began a nationwide implementation of the World Health Organization's Treat All guidelines, which recommends immediate antiretroviral treatment (ART) for anyone who tests positive for HIV. This study sought to understand the perspectives of clients and providers regarding ART service delivery during the first three months of Namibia's implementation of the Treat All guidelines.

Methods: Three months after Treat All rollout began, research staff conducted 25 in-depth interviews with ART clients at ten health facilities in Northern Namibia. The team also facilitated six focus group discussions with 18 ART providers at these facilities. We double-coded and analyzed the IDIs and FGDs using ATLAS.ti 7 software.

Results: Most ART clients were satisfied with the knowledge of, interaction with, and treatment received from their main health provider. However, some expressed concern that their health provider was overburdened with a large case load. ART providers also commented that facility staff were generally overworked. Pharmacies, in particular, were a critical bottleneck. Although most ART clients were satisfied with individual interactions with pharmacists, many thought the pharmacies at their health clinic were significantly understaffed and caused long delays while clients waited for medication. Some clients suggested that facilities provide extended drug supplies to offset this problem.
Insufficient logistical support was also a concern among many health facility staff, who noticed shortages in HIV testing kits and medication. Most ART providers expressed a need for better job-specific training, more staff, and proper compensation—particularly with the additional workload that some facilities reported following the Treat All rollout. Finally, both ART clients and providers identified client transportation costs—including monetary costs and time—as a potential barrier to ART appointment attendance.

Conclusions: Although existing ART services provide a solid foundation for the rollout of the Treat All guidelines, numerous existing barriers may be exacerbated by expected increases in client load. As such, we recommend the following: expand implementation of community-level ART services, provide extended drug supplies to stable ART clients, evaluate the effects of the Treat All guidelines to understand implications for provider workloads and resource consumption, and expand human resources for health.

WEPEE667

Taking ART to the community to improve linkage to care of newly diagnosed HIV positive clients in a community based care and treatment project in Zimbabwe

P.W. Mawora[1], T.A. Tafuma[1], T. Zulu[1], T. Moga[2], L. Mangena[2], B. Basopo[1], A. Muchedzi[2], N. Mahachi[2]
[1]Family Health International (FHI 360), Monitoring and Evaluation, Harare, Zimbabwe, [2]Family Health International (FHI 360), Programs, HIV Care and Treatment, Harare, Zimbabwe

Background: The main challenge facing community-based HIV interventions is linkage to care for newly diagnosed HIV positive clients. By December 2016, 10 months into FHI360 Zimbabwe's 5-year USAID-funded HIV care and treatment project, month to month ART initiation rates averaged 53% against an 85% benchmark. Data from a linkage database introduced by the project in March 2016 cited time constraints and distance to the health facility as the two main reasons why clients were failing to initiate treatment in time.
Description: Starting in February 2017, the project piloted a new approach in Makoni District designed to increase diagnosis and treatment initiation in community settings. This was done in collaboration with facility based partners; Ministry of Health and Child Care and OPHID. The approach entailed transporting drugs to participating community locations, either on the day of testing to ensure same day initiation or on subsequent days based on appointments made with newly-diagnosed HIV positive clients. A WhatsApp platform was created to enhance coordination among partners. Clients initiated in the community were followed up for three months to ensure retention and adherence to treatment.
Lessons learned: · Community ART initiation is important towards plugging leakages in linkage to care for newly diagnosed HIV positive clients. The ART initiation rate in the project rose from 43.18% in February 2017 to 80% in March 2017 when community ART was rolled out. This was sustained such that by September 2017, the rate had reached 122%, which was a result of a mop up exercise done in the community to identify and initiate all clients with a pending initiation status from the previous months.
· 55% (444/805) of clients initiated on ART in the period February to December 2017 was through community ART initiation.
Conclusions/Next steps: · Community ART initiation improves linkage rates in community-based HIV interventions by addressing challenges faced by newly diagnosed HIV positive clients, including lack of time and long distances to health facilities for ART initiation.
· Scaling up community ART initiation to all project areas will help close leakages in linkage to care of newly diagnosed HIV positive clients.

[Figure 1 FHI360's improved ART initiation rates in Makoni District between February 2017 and December 2017]

WEPEE668

Impact of a universal test and treat strategy on retention in a public sector health system setting: Swaziland's *Max*ART trial, 2014-2017

S. Khan[1], D. Spiegelman[2], F. Walsh[3], S. Mazibuko[4], M. Pasi[4], B. Chai[2], E. Mafara[1], A. Hettema[1], C. Lejeune[1], T. Bärnighausen[2,5], V. Okello[4]
[1]Clinton Health Access Initiative (CHAI), Mbabane, Swaziland, [2]Harvard T.H. Chan School of Public Health, Boston, United States, [3]Clinton Health Access Initiative (CHAI), Boston, United States, [4]Ministry of Health, Mbabane, Swaziland, [5]Heidelberg Institute of Public Health, University of Heidelberg, Heidelberg, Germany

Background: The World Health Organization (WHO) recommends offering antiretroviral treatment (ART) to all HIV-positive individuals regardless of CD4 count or disease stage, known as "universal test and treat" (UTT). In 2014, Swaziland launched the *Max*ART Early Access to ART for All trial to determine the "real world" implications of introducing UTT in its public sector health system. We report the retention outcomes from this health systems implementation trial.
Methods: We conducted a stepped-wedge trial from September 2014-August 2017 in fourteen public sector clinics in Swaziland. Clinics were paired and randomly assigned to transition from the current national guidelines (standard of care or SOC) to a UTT strategy (intervention) stage at each four-month step. All ART-naïve clients >18 years old who were not pregnant or breastfeeding were eligible for enrollment. Multivariable-adjusted Cox proportional models were used to compare retention at study completion. We carried out two analyses. In the first, patient assignment to the delay time until UTT access was fixed at the time of enrollment, depending on the clinic's intervention status at the time of the first patient visit, and the causal impact of the randomly assigned delay time was evaluated. In the second, exposure status varied according to the randomly assigned exposure sequence of the clinic at the first visit.
Results: A total of 3405 eligible clients were enrolled during the study period, of whom 1225 were ART-ineligible based on SOC at enrollment. The median age at enrollment was 33 years (IQR: 27-40) and 63% of the clients were women. For every additional six months of delay to UTT access, retention rates causally decreased by 7% (95% CI: 0.84-1.03, p=0.15). Similarly, when we treated the intervention as a time-varying exposure, clients enrolled in UTT were 60% more likely to be retained than those in SOC (RR 1.60, 95% CI: 1.20-2.14, p=0.001).
Conclusions: Retention in care was better among clients enrolled under a UTT strategy than under the standard of care. These results suggest UTT may have a beneficial impact on the overall performance of public sector ART programs.

WEPEE669

Tuberculosis preventive therapy in PEPFAR countries

J. Cavanaugh, J. Brown, A. Sanicki, H. Meri, G. Siberry
Office of the Global AIDS Coordinator, US State Department, Washington, United States

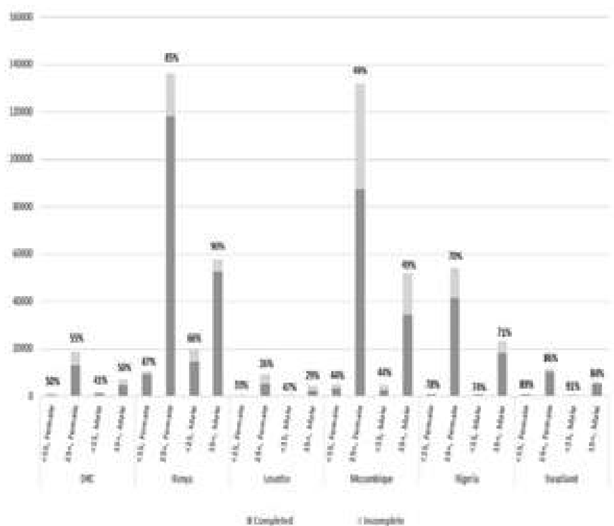
Background: TB preventive therapy (TPT) lowers mortality in persons living with HIV (PLHIV) and has long been a key WHO recommendation. Programmatic uptake has been limited, but data to inform programming are sparse and frequency of use of alternative regimens are largely unknown. We reviewed PEPFAR data to document programmatic uptake and completion of TPT, disaggregated by age and gender, and use of new regimens.
Methods: We conducted descriptive analyses of the number of PLHIV initiated on and scheduled to complete a course of TPT (or at least 6 months of isoniazid) and the number of people who completed such a course disaggregated by sex, age (< 15 vs 15+ years), and type of TPT. We restricted our analyses to PEPFAR-supported countries that reported TPT initiation in more than 5% of all PLHIV currently on antiretroviral therapy (ART).
Results: Eight countries reported initiating TPT in over 5% of the total number of PLHIV on ART; four countries reported TPT initiation in more than 10% (Table 1). Among those, TPT completion rates were highly variable, from 28% in Lesotho to 85% in Kenya and Swaziland. Democratic

Republic of Congo, Kenya and Mozambique initiated TPT in the highest proportions of PLHIV on ART; treatment completion rates, however, were reported as 53%, 85% and 49%, respectively. Use of alternative regimens was extremely limited, but continuous isoniazid preventive therapy was used in 15% of TPT in Mozambique (Table 1). Completion rates varied by age and gender and country, but there were no clear patterns in variability (Figure 1).

Conclusions: TPT was low across PEPFAR-supported countries. Completion rates were highly variable but there were no consistent differences by age or sex. Though completeness of reporting could not be verified, these data suggest gross underutilization and poor completion of TPT in many countries. PEPFAR has recently altered its indicator requirements to better track program progress in TPT initiation and completion. In countries which have a policy of one-time TPT, it will be most helpful to follow progress by tracking the clinical cascade, from screening to initiation and completion of TPT, in newly enrolling patients.

Country	TB Preventive Therapy Completion, % (numerator/ denominator)*	Number of PLHIV on ART	Proportion of PLHIV on ART that initiated TPT	Initiated Alternative Regimen	Initiated Continuous Isoniazid
Democratic Republic of the Congo	53% (10466/19845)	57704	34%	1	0
Haiti	67% (5082/7562)	85195	9%	0	0
Kenya	85% (165914/195319)	1011712	19%	2	678
Lesotho	28% (2324/8368)	140658	6%	0	0
Mozambique	49% (62503/128223)	909929	14%	36	18913
Nigeria	71% (43193/61161)	720272	8%	0	4
Swaziland	85% (13976/16381)	145891	11%	0	0
Vietnam	61% (2186/3590)	60113	6%	0	292

[Table 1. TB Preventive Therapy in Selected PEPFAR Countries]



[Figure 1. Numbers of patients who initiated B preventive therapy, with completion rates, by age, gender and country.]

WEPEE670

Are previously diagnosed HIV-positive patients returning to the clinic to initiate ART under UTT guidelines? A case study of ART management in the context of UTT

D. Onoya[1], C. Hendrickson[1], T. Sineke[1], M. Maskew[1], L. Long[1,2], M.P. Fox[1,2,3]
[1]*University of the Witwatersrand, Health Economics and Epidemiology Research Office, Johannesburg, South Africa,* [2]*Boston University, Department of Global Health, Boston, United States,* [3]*Boston University, Department of Epidemiology, Boston, South Africa*

Background: South Africa has adopted Universal Test-and-Treat (UTT) guidelines in order to reach the 90-90-90 targets set by UNAIDS. To achieve this, in addition to increasing HIV testing, all previously ineligible HIV-positive patients and those lost to follow up must be reengaged with care. We examine whether UTT implementation resulted in initiation of previously lost or pre-ART patients.

Methods: We conducted a prospective cohort study, enrolling newly diagnosed HIV-positive adults (≥18 years), regardless of CD4 count, at two primary health clinics in Johannesburg, South Africa between April and November 2015 while ART eligibility criteria were at CD4 < 500 cells/ mm³. Clinical information was collected from medical records up to 24 months following enrolment. We aimed to follow lost and previously ineligible HIV-positive patients through UTT implementation to assess whether these patients returned to initiate ART.

Results: We enrolled 148 adults (61.1% female) with a median age of 32.9 years (IQR: 27.4-37.8) at HIV diagnosis. Among those eligible for analysis (n=141), 27 (19.1%) did not return to receive their CD4 results, while 15 (10.6%) who received their CD4 results and were eligible were lost prior to ART initiation (Figure). Furthermore, 12 (8.5%) were not yet eligible to initiate ART and were considered to be in pre-ART care. Of those eligible and in care, 85.3% initiated treatment prior to UTT implementation, meaning that 54 (38.3%) were lost or ineligible by the time UTT was initiated in September 2016. Six months after removing the CD4 eligibility criteria, none of the pre-ART patients or previously lost had returned for ART initiation at these clinics and an additional 30 patients had been lost or transferred, resulting in an overall loss of 59.6%.

Conclusions: These results highlight a substantial gap in UTT policy implementation and the challenge to the 90-90-90 goals. This in-depth pilot study demonstrates that patients in the then pre-ART program or lost prior to ART initiation, are not returning for care at their diagnostic clinic under the new UTT guidelines. To achieve program success and the desired reduction in HIV transmission, it will be crucial to re-link this population to HIV care and treatment.

WEPEE671

Impact of universal test and treat policy on ART initiation among HIV positive patients in Johannesburg, South Africa

D. Onoya[1], T. Sineke[1], C. Hendrickson[1], M. Maskew[1], L. Long[1,2], M.P. Fox[1,2,3]
[1]*University of the Witwatersrand, Health Economics and Epidemiology Research Office, Johannesburg, South Africa,* [2]*Boston University, Department of Global Health, Boston, United States,* [3]*Boston University, Department of Epidemiology, Boston, South Africa*

Background: South Africa implemented Universal Test & Treat (UTT) guidelines in September 2016, eliminating the CD4< 500 cells/µl antiretroviral therapy (ART) eligibility threshold. We compare time to ART initiation pre- and post-UTT and examine predictors of ART initiation within 30 days of HIV diagnosis.

Methods: We conducted a prospective cohort study, enrolling newly diagnosed HIV-positive adults (≥18 years) at two primary health clinics in Johannesburg, South Africa. A baseline questionnaire on demographics and health seeking behaviour was administered at HIV diagnosis. Clinical information was collected from medical records up to 30 days after HIV diagnosis. We present crude risk ratios (cRR) for predictors of ART initiation within 30 days of HIV diagnosis, comparing patients diagnosed under the CD4≤500 cells/µl ART eligibility threshold to UTT using log-binomial regression.

Results: This analysis includes 258 adults (61.2% female; median age 32.9 years (IQR: 27.9-38.7) enrolled at HIV diagnosis, of which 115 (45.0%) enrolled under UTT. Overall, 166 (64.0%) initiated ART within 30 days (58.8% pre-UTT vs. 98.7% under UTT). The median time to ART initiation declined from 25 days (IQR: 17-37) to 8 days (IQR: 5-16) under UTT. UTT patients were 3.7 times more likely to initiate ART in the first month (RR 3.7; 95% CI: 2.7-5.2) compared with pre-UTT (Table 1). Compared to patients with CD4 count < 350cells/ul, patients with a CD4 count ≥500cells/ul were 40% less likely to initiate ART within 30 days (RR 0.6, 95% CI: 0.3-1.1). Among those who did initiate ART within 30 days, having a CD4 count >500 cells/ul increased the likelihood of ART initiation under UTT (cRR 26.3, 95%CI: 3.5-199.7) (Table 2). Patients living with parents/ relatives were 53% less likely to initiate ART under UTT compared with those living alone (cRR 0.5; 95% CI: 0.2 - 0.1) However, living with one additional adult in the household resulted in a 2.5 times increase in ART initiation under UTT compared with pre-UTT (cRR 2.5; 95% CI: 1.1 - 5.8).

Conclusions: We highlight a reduction in time to ART initiation after UTT implementation. However, our findings also identify important variables for further examination to close gaps in linkage to ART.

WEPEE672

Mobile and home testing identifies previously diagnosed HIV infected men and women who are not taking ART in Botswana

M. Roland[1], L. Block[2], P. Bachanas[2], M.G. Alwano[1], S. Lockman[3], W. Abrams[1], T. Gaolathe[4], E. Kadima[4], J. Makhema[4], S. El-Halabi[5], J. Moore[2]
[1]Centers for Disease Control & Prevention, Gaborone, Botswana, [2]Centers for Disease Control & Prevention, Division of Global HIV/AIDS & TB, Atlanta, United States, [3]Harvard T.H. Chan School of Public Health, Boston, United States, [4]Botswana Harvard Partnership, Gaborone, Botswana, [5]World Health Organization, Geneva, Switzerland

Background: Testing programs focus on identifying undiagnosed HIV positive individuals. Identifying and offering antiretroviral therapy (ART) to previously diagnosed individuals not on treatment ("legacy positives") may accelerate epidemic control.
Methods: The Botswana Combination Prevention Project (BCCP) is a randomized controlled trial in 30 matched rural or semi-urban communities. We describe legacy positive community residents by age, sex and testing strategy in the 15 intervention communities where mobile and home testing strategies were employed between October 2013 and September 2017.
Results: Among 61,129 participants whose HIV and ART status were assessed (documented results in prior 3 months or tested), BCPP identified 11,637 (19.0%) HIV positives, 3,252 (27.9%) of whom were not currently on ART. Of these, 1,874 (57.6%) were newly diagnosed and 1,378 (42.4%) were legacy positives. Of the legacy positives, 492 (35.7%) had previously taken ART (365 [74.2%] females). More female than male legacy positives, 960 and 418 respectively, were identified, with the majority identified with home testing (Table 1, Panel A). A larger proportion of female than male positives not on ART were legacy positives in all age bands and for both testing strategies (Panel B). Within the legacy positives (Panel C), the oldest age categories represented the largest proportion of legacy positives for both sexes. While fewer male legacy positives were identified, the oldest age group represented over two-thirds of the males identified with both mobile and home testing.

Panel A. Age and Sex of Legacy Positives

Sex	Age (years)			
	16-24	25-34	35-64	
	Number (percent)			Total
Female	124 (12.9)	350 (36.5)	486 (50.6)	960
Male	19 (4.5)	114 (27.3)	285 (68.2)	418

Panel B. Proportion of Total Positives not on ART that are Legacy Positives, Identified by Testing Modality

Testing Modality	Sex	Age (years)			
		16-24	25-34	35-64	Total
		Number Legacy/Total Positive (percent)			(percent)
Home	Female	80/179 (44.7)	249/390 (63.8)	379/605 (62.6)	708/1174 (60.3)
	Male	14/49 (28.6)	61/187 (32.6)	161/403 (40.0)	236/639 (36.9)
Mobile	Female	44/244 (18.0)	101/268 (37.7)	107/248 (43.1)	252/740 (34.1)
	Male	5/61 (8.2)	53/261 (20.3)	124/373 (33.2)	182/695 (26.2)

Panel C. Age and Sex Distribution of Legacy Positives Identified by Testing Modality

Testing Modality	Sex	Age (years)			
		16-24	25-34	35-64	
		Number Legacy/Total Legacy (percent)			Total
Home	Female	80/708 (11.3)	249/708 (35.2)	379/708 (53.5)	708
	Male	14/236 (5.9)	61/236 (25.8)	161/236 (68.2)	236
Mobile	Female	44/252 (17.5)	101/252 (40.1)	107/252 (42.5)	252
	Male	5/182 (2.7)	53/182 (29.1)	124/182 (68.1)	182

[Table 1. Legacy Positive Individuals Identified in 15 Rural and Semi-Urban Botswana Communities]

Conclusions: Legacy positives represented over 40% of HIV-infected individuals not on ART and are an important population to identify and support to initiate ART. Consistent with the HIV epidemiology in Botswana, more female than male legacy positives were identified and identification rates increased with age. Women represented a large proportion of participants who had previously taken ART, likely due to the pre-Option B+ PMTCT era. Home and mobile testing identified previously-diagnosed older men in need of ART in rural and peri-urban Botswana. Older men are drivers of HIV transmission and more difficult to identify and initiate on ART throughout Africa. Linkage to ART strategies for legacy positives should be implemented in all testing programs to support epidemic control goals.

WEPEE673

HIV-indexing: Identifying and linking children living with HIV to treatment through a community-based model in Zambia

K. Mwanda[1], M. Chikuba[1], H. O'Bra[2], E. Mwila[1], J. Chilongoshi[1], P. Chungulo[1], K. Chibesakunda[1], D. Phiri[1], D. Chikondi[1]
[1]JSI Research & Training, Inc., International Division, Lusaka, Zambia, [2]USAID/Zambia, Lusaka, Zambia

Background: In Zambia, HIV testing among children remains low. The Ministry of Health estimated that about 52% of the infected children 0-14 years were on ART, as compared with 67% of adults. Identifying children living with HIV (CLHIV) with traditional HTS strategies like VCT gives very low positivity yields at 1.7% and linkage ART and care are equally low at 81%.
Description: In order to address these disparities, the USAID-funded USAID DISCOVER-Health Project implemented by JSI introduced indexing and notification in Project-supported HIV treatment sites that offer community-based integrated HIV, reproductive health, family planning, and maternal and child health services, in August, 2017. The Project trained 237 experienced psychosocial counsellors from 58 ART sites to conduct targeted indexing, including eliciting information from adults on ART about biological children or OVC under their care aged 0-12 years, who had not had an HIV test. All adults on ART were targeted for indexing to identify CLHIV. Through their guardians, non-biological children on ART were equally treated as an indexing link to siblings under the age of 12 years.
Lessons learned: Between August and December 2017, 745 potentially HIV-exposed children under the age of 12 years were identified through their 861 female adult ART clients and 73 siblings on ART. Of the 745, 46 tested HIV positive for a positivity yield of 6%. Among the 318 males, the yield was 6.3%, while among the 427 females the yield was 5.9%. Linkage to ART was 91%.
Conclusions/Next steps: HIV indexing is an effective strategy for ensuring higher HTS yields and higher linkage rates to ART among CLHIV. Therefore, through this approach, children living with HIV have a better chance at diagnosis and linkage to treatment and most importantly a healthy life. The Project has since scaled-up this approach to 102 of its 124 community-based ART sites.

WEPEE674

Successes in the rapid implementation of the HIV test and treat approach in a high burden setting - a view from Nairobi, Kenya

M. Njagi[1], D. Nyukuri[2], S. Orina[1], D. Wendo[1], T. Simiyu[1], S. Byrne[3], S. Duberstein[3], C. Bennett[3]
[1]IMA World Health, Nairobi, Kenya, [2]The Christian Health Association of Kenya, Nairobi, Kenya, [3]IMA World Health, Washington, United States

Background: With a population of over 4 million and contributing over 11% of the country's HIV burden, the USAID-funded Afya Jijini program works in collaboration with the Nairobi City County Health Management Team to strengthen access to quality HIV services with an emphasis on health facilities located in Nairobi's informal settlements. Since 2016 the program has supported Nairobi County to roll-out Kenya's newly adopted Test and Treat guidelines, moving the country closer to achieving 90-90-90 treatment goals.
Description: From October-December 2016, Afya Jijini supported 22 high-volume facilities with over 500 clients on HIV treatment. A treatment preparation system and adherence counselors were trained and placed in facilities to ensure newly diagnosed patients were linked to treatment and provided with adherence and psychosocial support.

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Newly diagnosed HIV clients were counseled on the importance of early ART initiation and where possible, immediately enrolled on ARTs on the same day. For individuals not ready to enroll, support was provided for initiation within 2 weeks. Standard operating procedures and quality improvement teams were established to identify gaps in adopting the new guidelines. The project also provided on-the-job training to staff to adopt the new guidelines, including promotion of the differentiated care model to fast-track stable ART patients.

Lessons learned: Data from 9 facilities found 519 clients were enrolled on treatment. 417 (80%) were initiated on treatment on the same day as their positive diagnosis, 51 (10%) were enrolled after one day but less than two weeks and 51 (10%) enrolled after 2 weeks. 12-month retention rates were higher with same day enrollment (90%) compared to those enrolled after 2 weeks (71%), a 19% difference, (95% CI 7.8847-32.8029; P≤0.0001). There was no statistically significant difference in 12-month retention rates in clients enrolled on the same day (90%) and those enrolled between one day and less than two weeks (86%), a 4% difference, (95% CI 3.7211-16.3067; P=0.3783).

Conclusions/Next steps: Same day initiation on treatment was associated with a higher number of patients retained on treatment at 12 months. These lessons can be applied to other countries seeking to rapidly adopt these new guidelines.

WEPEE675

A comparative analysis of expanded HIV testing and linkage interventions in PEPFAR pivot areas in Mozambique, Tanzania, and Zimbabwe from 2015-2017

L. Bonanno, K. Clark
United States Department of State, Office of the Global AIDS Coordinator and Health Diplomacy, Washington, DC, United States

Background: To assist host governments to achieve epidemic control, PEPFAR programs must find undiagnosed people living with HIV/AIDS (PLHIV), in order to provide HIV testing services and link PLHIV to health facilities for antiretroviral treatment (ART). Understanding data down to the facility level is essential, to make programmatic adjustments. In Mozambique, Tanzania, and Zimbabwe, there are defined geographic areas with large ART coverage gaps with large volumes of undiagnosed PLHIV. Additional efforts were needed in these areas to further progress toward epidemic control, specifically for testing and linkages. Interventions included provision of additional health care providers, increase of community based testing programs, and renewed programmatic focus on identification and linkages.

Description: Quarterly programmatic data for HIV testing services and enrollment onto ART were analyzed for Zambezia province, the city Dar es Salaam, and the city of Harare from September 2015 until September 2017.

Lessons learned: Zambezia, Dar es Salaam, and Harare all observed improvements in the numbers of people tested, PLHIV identified, and initiation onto ART, with variations among the different interventions and time periods. In Harare and Dar es Salaam, the additional interventions began in late 2015, and after a year of implementation, the percentage increases is more evident compared to the baseline.

The implementation of the interventions in Zambezia began in earnest in the last two quarters of 2017(April-September 2017). When comparing to the end of 2016, the improvements are much more apparent.

From 2015 to 2017, Harare saw a continuous improvement in linkage to treatment from testing positive, and Zambezia and Dar es Salaam both showed an uptick in linkage to treatment in the middle of 2017.

	Testing			Testing Positive			Treatment New		
	October 2015 to September 2017	October 2016 to September 2017	Q1 to Q4 2017	October 2015 to September 2017	October 2016 to September 2017	Q1 to Q4 2017	October 2015 to September 2017	October 2016 to September 2017	Q1 to Q4 2017
Zambezia Province	0.10%	49.49%	28.12%	-37.34%	-12.49%	199.41%	56.94%	35.68%	45.18%
City of Dar es Salaam	170.12%	53.94%	51.81%		69.78%	45.18%	88.15%	50.80%	24.78%
City of Harare	111.30%	32.57%	-4.92%	68.43%	17.84%	-14.79%	123.13%	43.43%	22.59%

[Percentage differences for testing, identification, and enrollment]

Conclusions/Next steps: Partnerships with the governments of Mozambique, Tanzania, and Zimbabwe were critical in the success of interventions to expand testing and linkages and focus resources where the HIV epidemic is greatest. National implementation of universal treatment policies was vital in ensuring that any PLHIV who was tested at the facility could receive ART. Even before additional financial and programmatic resources were made available, renewed urgency and emphasis on effective programmatic implementation can show dramatic improvements.

WEPEE676

Towards achieving the first and second 90 for children newly-diagnosed with HIV in North-Central Nigeria: Intensified case-finding and quality improvement collaborative approaches

R.I. Okonkwo[1], T.L. Jasper[1], J. Peterside[1], B. Adeyemo[2], F. Ifejika[2], O. Oriaku[2], R. Ejekam[3], N. Torbunde[3], A. Attah[1], E. Aiyenigba[4], D. Ikeda[5], B. Agins[5], N.A. Sam-Agudu[3,6]
[1]Institute of Human Virology Nigeria, Applied Health and Quality, Abuja, Nigeria, [2]Institute of Human Virology Nigeria, Abuja, Nigeria, [3]Institute of Human Virology Nigeria, Pediatric and Adolescent HIV Program, Abuja, Nigeria, [4]Institute for Health Improvement, Abuja, Nigeria, [5]University of Calfifornia, HEALTHQUAL, Institute for Global Health Sciences, San Francisco, United States, [6]University of Maryland School of Medicine, Institute of Human Virology, Baltimore, United States

Background: ART coverage for Nigeria´s estimated 270,000 children living with HIV (CLHIV) is only 21%, and identification of CLHIV in this relatively low HIV-prevalence (2.9%) setting has been challenging. We implemented pediatric intensified case-finding (PICF) and quality improvement collaborative (QIC) initiatives to improve numbers of CLHIV identified and linked to care in North-Central Nigeria.

Description: We piloted the initiatives at 15 primary, secondary and tertiary facilities in 5 peri-urban and rural communities in North-Central Nigeria. The PICF initiative established/expanded rapid HIV testing points at/to key points of service in each facility including tuberculosis, emergency, ART and inpatient units. Under the QIC, QI coaches guided Healthcare Workers (HCWs) to develop and share change ideas implemented in Plan-Do-Study-Act cycles. The pilot was implemented in April-December 2017; the first 3 months (April-June) and latter 6 months (July-December) were baseline and testing periods, respectively.

Lessons learned: During the pilot, 11,636 children 0-14 years old were tested, with testing coverage increasing from 25% to 93%. Compared to 1.1% at baseline, 0.9% (105 children) were found HIV-positive in the testing period. The highest-yield service delivery points were TB (3.6%), family index testing (1.6%) via ART clinic and inpatient wards (1.3%). Immunization (0.0%) and outpatient clinics (0.7%) had the lowest yields in spite of large numbers of children tested (1,152 and 8,044 respectively). ART linkage improved from 23% to 81%. The most impactful change ideas for linkage were treatment referral escorts from primary to higher-level care, reorganization of clinic for better testing point-to-ART clinic transfer, and sensitization of HCWs to provide prompt ART. Nearly 40% (38/105) of newly-diagnosed children were identified at rural primary facilities.

Conclusions/Next steps: Overall, the PICF and QIC strategies tested were effective for identifying and linking CLHIV to ART. However, positivity yield was essentially unchanged. As testing is scaled up to more facilities, innovative and efficient strategies are needed to continue targeting most at risk children in order to maximize yield. The most impactful and high-yield change ideas should be refined and scaled up, including at primary healthcare facilities in rural areas that have proven to be robust sources of as-yet unidentified CLHIV.

WEPEE677

Challenges in transitioning donor-supported health workers to build resilient local capacity for sustainable epidemic control in Uganda

V. Oketcho[1], A. Agaba[1], C. Brokenshire-Scott[2], J. Wesson[2]
[1]IntraHealth International, Kampala, Uganda, [2]IntraHealth International, Chapel Hill, United States

Background: PEPFAR has supported Uganda's gains in addressing HIV/AIDS through significant investments in hiring human resources for health (HRH) to reduce staff shortages in numbers and cadres. The increased workforce has contributed to improved outcomes—Government of Uganda (GOU) data show HIV prevalence declined to 6% (2016) from 7.3% (2011) and the number of children born with HIV declined by 86% between 2011-2015. However, the sustainability of the HRH investment faces challenges.
Description: With USAID funding, IntraHealth International conducted a longitudinal analysis using quantitative and qualitative methodologies to document HRH investments, absorption rates, retention rates, HIV service coverage and utilization trends.
IntraHealth deployed an online human resources information system (HRIS) to track, manage, deploy, and budget for absorption of PEPFAR-supported health workers. HRIS data were used to negotiate government absorption of critical PEPFAR-funded staff starting in 2015.
Of 3,154 health workers hired between 2012-2017; 693 (22%) have been absorbed. PEPFAR HRH recruitment was premised on GOU commitment to prioritize absorption of the workers but ensure gradual transition so services are not disrupted.
Lessons learned:

- One bottleneck impeding absorption is mismatch in salaries, with some PEPFAR contract staff earning four times more than GOU counterparts; 36% of non-absorbed PEPFAR staff have salaries not matched to GOU salary structure.
- Multi-stakeholder engagement within an accountability framework is critical to accelerate transition of contract staff to government. This outlines the roles and responsibilities of each party, transition targets and timelines, budget required for absorption and a framework to monitor progress of commitments.
- Alignment of cadres and job titles for health workers involved in HIV/AIDS services but not in existing government structures (e.g., sample transporters) is a key barrier and requires policy decisions for such cadres to be absorbed.
- Increase in wage budget allocation by government is critical to accelerate absorption of donor-supported HRH
- Transition of donor-supported HRH has potential to disrupt services and requires analysis of local capacity to sustain service provision after transition.

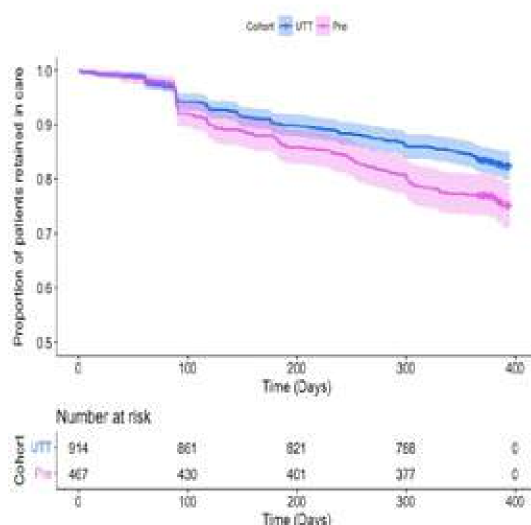
Conclusions/Next steps: Donor investments in HRH have had impact on AIDS epidemic control; however, it is difficult to sustain these gains if local capacity is not built through mainstreaming HRH into government.

WEPEE678

Retention on ART during Universal Test and Treat implementation in Zomba District, Malawi

M. Al Haj Mohammad[1,2,3], A. Amberbir[1,2], E. Singogo[2], V. Banda[2], M. van Lettow[2], A. Matengeni[2], G. Kawalazira[4], J. Theu[2], M. Raj Jagriti[2], A. K. Chan[2,5], J. J van Oosterhout[2,6]
[1]University of Toronto, Dalla Lana School of Public Health, Toronto, Canada, [2]Dignitas International, Zomba, Malawi, [3]Canada International Scientific Exchange Program (CISEPO), Toronto, Canada, [4]Zomba District Health Office, Zomba, Malawi, [5]University of Toronto, Sunnybrook Health Sciences Centre, Division of Infectious Diseases, Toronto, Canada, [6]University of Malawi, College of Medicine, Blantyre, Malawi

Background: The national HIV programme in Malawi adopted Universal Test and Treat (UTT) in 2016: all persons who test HIV positive are immediately referred for initiation of antiretroviral therapy (ART).
Although there is strong evidence from clinical trials that early initiation of ART is associated with reduced morbidity and mortality, the impact of UTT on retention on ART in operational settings is not yet known.
Methods: We conducted a retrospective cohort study in 32 health facilities in Zomba district, Malawi. We compared standard programme outcomes of patients aged 10 years and older starting ART under the 2016 guidelines (UTT) to those prior to UTT roll out (Pre-UTT), with a follow up period of 12 months. Attrition from ART (the inverse of retention) was the composite of death, stop ART and lost to follow up. Patients who transferred to another clinic were excluded from the analysis. Multivariable Cox proportional hazards modeling was used to determine factors associated with attrition from ART at 12-months.
Results: Among 1,492 patients (mean age 34.4 years, 933 females, 63%) who initiated ART during the study period, 501 were in the Pre-UTT cohort, and 911 in the UTT cohort. At 12 months, retention on ART was 83.0% (95% CI: 81.0-85.0%) during UTT, significantly higher than in the Pre-UTT cohort 76.2% (95% CI 73.9-78.5%; p=0.002). Kaplan Meier analysis shows that the probability of attrition from ART was significantly higher in the Pre-UTT cohort than during UTT (figure). Younger age group (age 20-24; aHR 1.91, 95% CI 1.09-3.35) and being pregnant or breastfeeding when starting ART (aHR 1.86, 95% CI 1.30-2.66), but not BMI, TB status at ART initiation, or health facility type (urban/rural), were associated with attrition from ART in both cohorts.
Conclusions: Retention on ART may improve during implementation of UTT in Malawi. New retention strategies for young adults and pregnant and breastfeeding women are needed to achieve the UNAIDS 90-90-90 targets. Larger and longer studies using national and regional cohorts will be required to determine the full impact of UTT on clinical outcomes in real-life circumstances.



[Survival plots based on Kaplan Meier estimates comparing retention in-care in pre-UTT (pink) vs UTT (blue) cohorts. Shaded area represents the 95% CI]

WEPEE679

Identifying hard-to-reach men who have sex with men (MSM) for HIV services in Ghana: The use of social media

J.K. Ochill[1,2]
[1]CEPEHRG, Accra, Ghana, [2]Interfaith Diversity Network of West Africa, Accra, Ghana

Background: The use of social media platforms has become increasingly common in recent times among different populations. This has particularly been the case among MSM providing them with borderless communication and allowing them to keep their stigmatized behaviours hidden. Although targeted programmes provide services to MSM in Ghana, identifying and reaching MSM with targeted HIV services using conventional strategies remain a challenge.
I describe a social media approach, implemented by CEPEHRG under the USAID-funded Ghana Care Continuum Project/JSI, aiming to reach MSM who might particularly be concerned about being stigmatized when they access services.

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Description: A social media platform using the WhatsApp group application for smart phones was created by a peer educator (PE) in Greater Accra to reach hidden MSM for HIV testing services (HTS). WhatsApp groups deliver instant messaging to a group of people, and members can remain anonymous. Seeking full consent, members were recruited into the platform using their telephone numbers which were previously obtained by a PE. Additional MSM joined the group via the PE and existing members. Educational HIV information and issues were posted on the platform daily to encourage MSM to access HTS. Members could ask questions and prompt responses were given.
Lessons learned: The WhatsApp platform substantially helped in reaching MSM who may particularly be concerned about being stigmatized within a short period of time. The number of MSM reached over a 3-month period increased from an initial 45 to 82 members; 38 of these members tested for HIV over the period. Creating a virtual space for hard-to-reach MSM where they are comfortable to share their stories with other MSM and get tailored responses to their questions almost instantaneously has been key to the high uptake of HTS. Members most commonly asked questions related to HIV and STI prevention. If this approach can be scaled up, there is potential to reach a high number of MSM with HTS.
Conclusions/Next steps: Peer education programing should utilize innovative communication strategies using social media as a way of reaching or involving hard-to-reach MSM. There is potential to not only increase HIV testing but also linkage to care.

HIV self-testing for HIV and linkages to prevention and care

WEPEE680

Successful implementation of HIV self-testing in the rural Shiselweni region of Swaziland

L. Pasipamire[1], L. Dube[2], E. Mabhena[1], M. Nzima[1], P. Lopez[3], M.L. Tombo[1], L.G. Abrego[1], S. Mthetwa[1], M. Dhlamini[1], R. Nesbitt[1], M. Pasipamire[2], S.M. Kabore[3], R. De la Tour[4], N. Lukhele[2], J. Goiri[4], I. Ciglenecki[4], B. Kerschberger[3]
[1]Medecins Sans Frontieres, Nhlangano, Swaziland, [2]Swaziland National AIDS Programme, Mbabane, Swaziland, [3]Medecins Sans Frontieres, Mbabane, Swaziland, [4]Medecins Sans Frontieres, Geneva, Switzerland

Background: Current healthcare worker led HIV testing approaches are failing to reach all people in need for HIV testing such as men, and young people. Although WHO recommends HIV self-testing (HIVST) as a complementary testing strategy, it is rarely applied in the public health sector.
Thus, Medecins Sans Frontieres (MSF) and the Ministry of Health (MOH) of Swaziland aimed to demonstrate the feasibility of HIVST as an innovative testing strategy under routine conditions.
Methods: From May to October 2017, HIVST kits have been provided through different targeted testing strategies at 9 government health facilities and at community sites in the rural Shiselweni region of Swaziland. In supervised HIVST, clients performed and interpreted the test in the presence of a health worker whilst in unsupervised HIVST, clients took 1-2 HIVST kits home for testing. We also provided tailored HIVST education and information material, established a toll-free hotline and performed structured follow-up calls to monitor possible adverse events, guide clients on interpreting the test results and advice on HIV services. Frequency statistics and proportions were used to describe the outcomes.
Results: A total of 1462 people (681 (47%) males, median age 29 (IQR 24-35) years) were reached through HIVST. 1817 HIVST kits (averaging 1.2 test kits per client) were distributed through 6 strategies (mutually not exclusive): 810(45%) at workplaces, 582(32%) and 191(11%) at targeted event-based testing for young people and men, 64(4%) in facility-based for pregnant/lactating women, 41(2%) at safe spaces for key populations, and 129(7%) undefined. Overall, 1615(89%) of tests were unsupervised and 202(11%) were supervised. Of 750(41%) HIVST results reported, 24(3%) were HIV-positive of whom 12(50%) had a confirmatory follow-up standard test done. All clients 12(100%) had concordant HIVST and standard HIV rapid test results, and 11(92%) were enrolled into HIV care. No adverse events were reported through 521 routine follow-up calls. The telephone hotline was used 167 times, mainly to disclose results and more often by men 95 (57%).
Conclusions: Implementation of HIVST was feasible in public health sector in rural Swaziland. This pilot informed national health policy and led to the adoption of HIVST as an additional national testing strategy in Swaziland.

WEPEE681

Distributing HIV self-testing kit through internet-based pay-at-pickup at convenient stores: Experiences in Taiwan

Y.-F. Huang, H.-Y. Huang, H.-Y. Lo, C.-C. Lee
Centers for Disease Control, Taipei

Background: HIV self-testing is a novel and confidential way to help people know their HIV status. However, traditional venue-based access and delivery have limited its scale-up among vulnerable populations at risk. With permission of Taiwan Food and Drug Administration, Taiwan Centers for Disease Control launched a program to distribute self-testing kits through internet-based pay-at-pickup services provided by convenient stores and evaluate its acceptability.
Methods: The program was started on 11TH April, 2017, with collaborations of major chained convenient stores to deliver up to 7,000 HIV self-testing kits at pay-at- pickup services. Clients only needed to log their nickname, mobile phone number and designate which convenient store to pick up the testing kit. Then the contracted delivery company would deliver the HIV self-testing kit to the designated store. After the designated store received the package, its system would send text message to notify the client. At the counter of convenient stores, clients only need to tell the clerk the last 3 digit of phone number and paid 7 US dollars to get the kit. Clients could receive full redeem after logging their test results online, furthermore, they could join a lottery activity for coupons (3 US dollars) after completing questionnaires on testing experiences and about HIV self-testing.
Results: The kits were so popular that Taiwan CDC had to execute "one person one kit "policy and limit its max supply on every day, most of the time, the kits were booked out within 3 hours, then sold out in three months. In total, 6,863 kits were distributed through pay-at- pickup services provided by chained convenient stores. Of 3,121 (45.5%) who logged their test results anonymously on the website, 33 (1.1%) of respondents reported being newly tested HIV-positive. Of 1,986 who completed the questionnaire, 664(33.4%) reported that this was their first time to do HIV testing. Compared with the homosexuals (21.4%), the bisexual (31.8%) and the heterosexual (55.1%) are with higher percentage of never testing for HIV.
Conclusions: The novel delivery services with confidential assurance and providing through about 5,000 chained convenient stores around Taiwan were well-accepted and led to a substantial proportion of first-ever HIV testing.

WEPEE682

Facility-based HIV self-testing in Malawi: An assessment of characteristics and concerns among clients who opt-out of testing

F. Shaba[1], K.T. Balakasi[1], O.A. Offorjebe[2,3], M. Nyirenda[1], R. Hoffman[1,2], K. Dovel[1,2], EQUIP Innovation for Health
[1]Partners in Hope, Research, Lilongwe, Malawi, [2]University of California, Los Angeles, United States, [3]Charles R. Drew University of Medicine and Science, Los Angeles, United States

Background: HIV testing must increase to achieve UN 90/90/90 targets in sub-Saharan Africa. A recent cluster randomized trial demonstrates that facility-based HIV self-testing (HIVST) among outpatient clients dramatically increases testing. However, a portion of clients offered facility-based HIVST still opted-out of testing. To improve HIVST strategies, pro-

grams will require a greater understanding of why individuals refuse to test. We examined characteristics and concerns of outpatient clients in the trial who were offered and opted-out of HIVST in Malawi.

Methods: Exit surveys were conducted with outpatients ≥15 years at 15 facilities in Central/Southern Malawi. Surveys included sociodemographic information and reasons for opting-out of HIVST. We analyze survey data from clients who were offered HIVST and eligible for HIV testing (not tested HIV-positive and tested ≤ 3 months ago). Multivariate logistic regression models were used to assess factors associated with opt-out. We then explore the primary concerns listed by clients who opted-out of facility-based HIVST.

Results: A total of 1,418 outpatients were offered HIVST. Among those offered, 218 (15%) tested < 3 months ago and 81 (6%) previously tested HIV-positive. Both groups were excluded from analyses. Among those eligible for testing, 454 (34%) opted-out of facility-based HIVST (median age 29 and 39% men). Men (OR:1.41, p-value=0.004) and adolescents (OR:1.32, p-value=0.05) were more likely to refuse HIVST compared to women and adults, respectively. Among men, having fewer sexual partners was associated with opting-out of HIVST (OR:0.82, p-value 0.01). Primary reasons for opting-out were perceived low-risk of HIV-infection (42%), feeling unprepared to test (30%), not seeing the HIVST demonstration (14 %), and being too busy (9 %). Less than 2% did not understand HIVST instructions and only 1% wanted more privacy to preform HIVST. Men were more likely than women to report being too busy to use HIVST (OR:2.1, p=0.03).

Conclusions: Facility-based HIVST is largely acceptable - primary concerns are not related to characteristics of the intervention. Concerns regarding facility-based HIVST are similar to concerns for other testing strategies. Future testing strategies should include extensive community sensitization to increase client preparedness for testing and their awareness of HIV-risk. Targeted HIVST strategies for men and adolescents may be warranted.

	Total n (%)	Male n (%)	Female n (%)	p-value*
Among those offered HIVST				
Median age in years (IQR)	29 (21-41)	29 (21-44)	29 (21-40)	
Tested for HIV<12 months	560 (42)	183 (37)	377 (45)	0.010
Opted out	454 (34)	191 (39)	263 (31)	0.004
Among those who opted-out of HIVST:				
Median age in years (IQR)	27 (20-40)	28 (21-42)	26 (20-38)	
Tested for HIV<12months	199 (44)	71 (37)	128 (49)	0.020
Primary reasons for opting out of HIVST				
Low risk of HIV infection	192 (42)	83 (43)	109 (57)	0.670
Unprepared to test	136 (30)	51 (38)	85 (63)	0.200
Not seeing HIVST demonstration	62 (14)	23 (37)	39 (67)	0.400
Too busy	39 (9)	23 (59)	16 (41)	0.030
Did not understand HIVST demonstration	9 (2)	3 (33)	6 (67)	0.600
Lack of privacy to conduct test	5 (1)	2 (40)	3 (60)	0.930

*p-value calculated using independent t-test

[Table. Sociodemographic factors and concerns among clients who were offered and opted-out of facility-based HIV self-testing in Malawi]

WEPEE683

Partner-delivered HIV self-testing increases the perceived acceptability of index partner testing among HIV-positive clients in Malawi

O.A. Offorjebe[1,2], F. Shaba[3], K. Balakasi[3], M. Nyrienda[3], R. Hoffman[1,3], K. Dovel[1,3], EQUIP Innovation for Health

[1]University of California, Los Angeles, United States, [2]Charles R. Drew University of Medicine and Science, Los Angeles, United States, [3]Partners in Hope, Lilongwe, Malawi

Background: Index partner testing is critical for reaching UN 90-90-90 goals. Partner referral slip (PRS) is the primary strategy for testing partners throughout sub-Saharan Africa, however, index testing remains low. HIV self-testing (HIVST) may overcome barriers to testing, however, there are no data on whether HIV-positive clients would be comfortable delivering HIVST kits to their partners. We examined HIV-positive clients' perceived acceptability of HIVST as a strategy for index partner testing in Malawi.

Methods: The study was nested within a cluster randomized trial examining HIVST distribution to outpatient clients within health-facilities. Exit surveys were conducted with outpatient clients ≥15 years of age at 15 facilities in Central/Southern Malawi. Clients who self-reported previously testing HIV-positive and having a sexual partner in the past 12-months completed a separate survey module on client perceptions of index partner testing strategies.

Results: 452 clients (8% of RCT participants) completed the index testing module. Clients' willingness to deliver index testing materials to partners increased by 11% when presented with the option to deliver HIVST kits over PRS. Overall, 65% of clients preferred delivering HIVST kits over PRS. Among those uncomfortable to deliver HIVST, common reasons include fear of partner responses (men:62%, women:60%) and feeling uncomfortable explaining HIVST to partners (men:24%, women:33%). When asked whether clients believed their partner would actually test for HIV through index testing, HIVST was associated with an 18% increase in anticipated testing compared to PRS. Overall, 69% of clients believed their partner would prefer testing with HIVST over PRS. HIVST was believed to decrease disparities in testing for male partners. HIV-positive women were less comfortable delivering PRS to their partners than HIV-positive men (AOR:1.86, p=0.03), however this gender-difference becomes insignificant when introducing HIVST (AOR:1.72, p=0.14). Similarly, male partners were believed to be less likely than female partners to actually test through PRS (AOR:1.60, p=0.04), and again, this gender-difference becomes insignificant when introducing HIVST (AOR:1.23, p=0.41).

Conclusions: Delivery of HIVST kits to sexual partners was perceived as acceptable among HIV-positive clients in Malawi. Importantly, HIVST may close gender-specific gaps in male partner testing. Additional studies are needed to assess actual use and linkage to care.

	Total	Men	Women	p-value*
Mean age, years (IQR)	37 (30-44)	42 (34-50)	36 (27-40)	<0.001
Mean number of children at home (IQR)	3.4 (2-5)	4.0 (2-5)	3 (2-4)	<0.001
Mean number of sexual partners (IQR)	1.8 (1-2)	2 (1-2)	1.7 (1-1)	0.37
Diagnosed HIV+ <3 months (%)	61 (14)	22 (13)	39 (14)	0.85
Comfortable distributing HIVST kit (%)	405 (90)	155 (92)	250 (88)	0.12
Comfortable distributing PRS (%)	366 (81)	147 (88)	219 (77)	0.007
Prefer distributing HIVST over PRS for index testing (%)	292 (65)	106 (63)	186 (66)	0.61
Believe partner would use HIVST (%)	348 (77)	133 (79)	215 (76)	0.4
Believe partner would use PRS (%)	295 (65)	122 (73)	173 (61)	0.01
Believe partner would prefer using HIVST over PRS for index testing (%)	277 (69)	110 (72)	167 (67)	0.29
Total (%)	**452**	**168 (37)**	**284 (63)**	-

*p-value calculated using independent t-tests

[Table. Characteristics of HIV-positive participants and their perceived acceptability of partner-delivered HIV self-test kits in Malawi]

WEPEE684

Performance and usability of OraQuick® oral fluid-based rapid HIV self-test among key populations in Vietnam

B. Vu Ngoc[1], M. Tran Hung[2], K. Green[1]
[1]PATH, Mekong Regional Program, Hanoi, Vietnam, [2]Center for Creative Initiatives in Health and Population, Hanoi, Vietnam

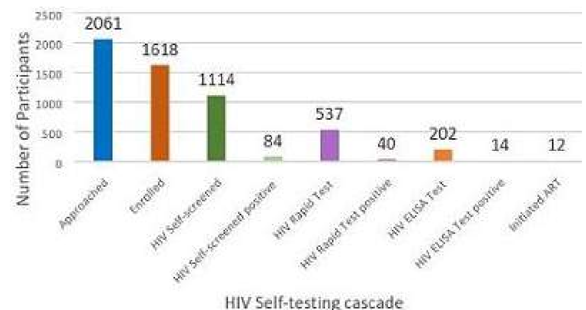
Background: Self-testing provides an opportunity to increase uptake of HIV testing, particularly among never or infrequent HIV testers. Studies in Vietnam have demonstrated interest in and acceptability of oral fluid-based self-testing, however the usability of an oral fluid HIV self-test by lay populations is unknown.
Methods: The practicability of HIV self-testing was assessed using OraQuick® Rapid HIV Self-Test, an oral fluid-based rapid HIVST, in 200 adults living in Hanoi and Ho Chi Minh City in Vietnam. The participants were inexperienced lay users from key populations including men who have sex with men, transgender women, female sex workers, and people who inject drugs, as defined by self-reported risk behaviors. Participants were observed performing the test, however, they did not report their results to site staff; they were provided mock devices to interpret a range of results. A post-test interview was conducted with participants to assess comprehension of the instructions and ease of use of the test.
Results: Nearly all participants (98.5%) read the instructions for use (IFU) and 100% were able to complete the test and read the result. Among those, 52% collected the sample correctly, and 79% waited for the appropriate time period prior to reading their test results. With the use of mock devices, 94% of participants correctly interpret a strong reactive test result, 55% correctly identified a weak reactive test result, 89.5% accurately identified a non-reactive test result and 43% incorrectly interpreted a weak reactive test result as non-reactive. Most participants (93.5%) understood the IFU, and 95.5% felt confident they would be able to perform this test again.
Conclusions: Participants read the IFU with ease, but were not able to correctly use the swab, or read the result within the recommended timeframe. Participants demonstrated strong confidence and acceptance of the OraQuick® self-test, indicating they would use it when available in the market, and would introduce it to others. The IFU can be improved to: stress the correct result read time; emphasize the correct sampling method, taking care not to swab the gums too many times; clearly denote differences between weak reactive and non-reactive test results.

WEPEE685

Assessing the feasibility of HIV self-screening in South Africa

L. Lebina[1], M. Milovanovic[1], N. Seatllholo[1], N. Taruberekera[2], M. Radebe[2], A. Kinghorn[1], T. Meyer[2], M. Mhazo[2], K. Otwombe[1], K. Hlongwane[1], A. Ringane[1], N. Koloane[1], M. Nkuta[1], N. Masihleho[3], V. Wong[3], N. Nkhwashu[4], T. Farirai[4], P. Kweza[4], S. Shamu[4], T. Chidarikire[5], T. Kufa-Chakezha[6], A. Puren[6], N. Martinson[1,7,8]
[1]Perinatal HIV Research Unit - Wits, Wits Health Consortium, Johannesburg, South Africa, [2]Society for Family Life, Johannesburg, South Africa, [3]USAID, South Africa, Pretoria, South Africa, [4]Foundation for Professional Development, Pretoria, South Africa, [5]National Department of Health, HIV and AIDS Cluster, Pretoria, South Africa, [6]National Institute for Communicable Diseases, Johannesburg, South Africa, [7]Johns Hopkins University, Centre for TB Research, Baltimore, United States, [8]SA MRC, Soweto Matlosana Collaborating Center for HIV/AIDS and TB, Johannesburg, South Africa

Background: HIV diagnosis is a critical step to linking HIV-infected individuals to care and treatment. However, HIV testing remains low in South Africa. The OraQuick HIV self-screening kit has been pre-qualified by the World Health Organization and recommended as one of the strategies to increase access to, and uptake of, HIV testing. This study aimed to evaluate the feasibility of HIV self-screening and obtain data to inform the HIV self-screening implementation programme in South Africa.
Methods: Mixed methods study involving prospective enrolment of participants from May-July 2017 in two townships in Johannesburg Metro: Diepsloot and Alexandra. Four recruitment strategies were used: home-based outreach, mobile site, workplace and sex worker programmes (SWP). Participants were offered three methods of administering the screening test: supervised clinician did the self-screen, semi-supervised clinician advised while participant did the self-screen, and unsupervised. Confirmatory HIV testing was done according to national guidelines and some participants received a laboratory based HIV ELISA test. Follow-ups were scheduled for linkages to care and confirmatory tests.
Results: In total, 2061 people were approached to receive information of which 78.5% (1618/2061) were enrolled and 68.8% (1114/1618) HIV self-screened. Median age was 28 (IQR:23-33) years with an even gender distribution. Across the four recruitment strategies: 43.0% (696/1618) were homebased outreach, 42.5% (687/1618) mobile sites, 7.3% (118/1618) workplace and 7.2% (117/1618) SWP. Unsupervised HIV self-screening was preferred across recruitment strategies, gender and age categorisation. Overall, HIV prevalence using the HIV self-screening kit was 7.6% (84/1109). Services accessed following HIV self-screening included counselling (5.8%, 94/1618), and for HIV infected: CD4 testing (3.6%, 3/84), initiation on HIV treatment (14.3%, 12/84). When compared to the confirmatory rapid test and laboratory ELISA the HIV self-screen sensitivity and specificity were 100% and 99.8%, 85.7% and 98.9% respectively.
Conclusions: HIV self-screening was feasible through homebased, mobile site, workplace and sex work programmes and unsupervised was the most preferred and utilised HIV self-screening method. Linkages to confirmatory testing and further care were low. Potential approaches to scale-up and acceleration of HIV self-screening integration need to consider distribution methods, increasing awareness, and strengthening linkages to confirmatory testing and further care.



[Figure 1. HIV self-screening cascade - Assessing the feasibility of HIV self-screening in South Africa]

WEPEE686

Characterizing implementation measures of HIV-self testing among people at risk for HIV to evaluate the potential impact of increasing HIV testing coverage in Senegal

C. Lyons[1], K. Coly[2], B. Liestman[2], D. Diouf[3], D. Castor[4], V. Wong[5], S. Geibel[6], O. Olawore[1], G. Turpin-Nunez[1], R. Amrita[1], S. Ketende[1], S. Baral[1]
[1]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [2]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Dakar, Senegal, [3]Enda Sante, Dakar, Senegal, [4]United States Agency for International Development, Crystal City, United States, [5]United States Agency for International Development, USAID Global Health Bureau; Office of HIV/AIDS - Prevention, Care and Treatment Division, Crystal City, United States, [6]Population Council, Washington, United States

Background: HIV Self Testing(HIVST) aims to address gaps in HIV testing coverage among people at risk, and can facilitate reaching the UNAIDS 90-90-90 targets. In Senegal, key populations bear a disproportionate burden of HIV, and report limited uptake of HIV testing given pervasive stigma and criminalization. In these contexts, HIVST provides a complimentary approach to reach populations reporting barriers to engagement with existing and routine HIV testing services.
Methods: OraQuick HIVST kits were distributed to 680 individuals in Dakar and Ziguinchor, Senegal through venue and network-based distribution. Pre-(N=680) and post-test(N=399) structured instruments were

administered to capture HIV risk behaviors, HIV testing history, motivation for testing, and acceptability of HIVST. Pretests were conducted at the distribution site, and post-test questionnaires were conducted two weeks after distribution.

Results: Of 680 participants, 68.1%(462/680) were from Ziguinchor and 32.0%(218/680) from Dakar. Mean age was 31.6 years(IQR:18-35) and 48.6%(330/679) of participants were male. Approximately 23.3%(77/330) of participants were men with a history of anal or oral sex with another man; 13.0%(81/625) reported engagement in sex work; and 3.7%(25/668) reported history of injection drug use. Overall, 45.3%(306/676) were first time testers. The main reason reported for HIVST was engagement in recent risky behavior(31.0%;197/636) and 78.8%(458/581) reported being worried about HIV. Among post-test survey respondents, 90.4%(358/396) used the HIVST and 80.2%(287/356) used it within 2 days. Majority(72.4%;259/358) used the HIVST at home compared to onsite; thought their friend/family would use the HIVST(92.7%;352/381); and would recommend HIVST to others(95.3%;341/357). In total, 3.7%(13/350) tested positive, and 3.7%(13/350) reported an invalid result. Since receiving the HIV self-tests, 32.5%(123/378) discussed HIV testing with a sexual partner or friend. 79.5%(283/356) reported feeling comfortable taking the HIVST; 62.7%(316/355) reported the HIVST was easy to use; and 87.9%(313/356) reported the instructions were easy to follow.

Conclusions: These data suggest the potential impact that HIVST could have in complementing existing HIV testing services by reaching a diverse group of first-time HIV-testers in Senegal. This small-scale implementation further suggested the importance of leveraging existing structures and programs for distribution, and sustained engagement with government and stakeholders are needed to strategize the implementation and scale-up of HIVST in Senegal.

Post-test Results (N=399)		%	n/N
Reported use of HIVST			
	Yes	90.4	358/396
	No	9.6	38/396
Place of HIVST use			
	Home	72.8	259/356
	At distribution site	27.0	96/356
Time of use after distribution			
	<2 days	80.2	287/356
	>2 days	19.8	69/356
Result of HIVST			
	Negative	92.6	324/350
	Positive	3.7	13/350
	Invalid	3.7	13/350
Would you recommend self-testing to others?			
	Yes	95.5	341/357
	No	4.5	16/357
Do you think your friends and/or family would use an HIVST?			
	Yes	92.7	352/381
	No	7.6	28/381
Since you receive the HIV self-tests, did you discuss HIV testing with any of your sexual partners or friends?			
	Yes	32.5	123/378
	No	67.5	255/378

[Table 1. Use and acceptability of HIVST among individuals in Dakar and Ziguinchor, Senegal]

Ensuring continuity of services for mobile populations

WEPEE687

Ensuring continuation of antiretroviral treatment in a Test & Treat programme in a rural conflict affected area of South Sudan, the experience of MSF Spain

C. Ferreyra[1], L. Moreto[2], B. Alonso[3], F. Temessadouno[4], A.J. Nyniyal[5], A. Harouna[6], M. Eltom[7]

[1]Médecins sans Frontières, Barcelona, Spain, [2]Médecins sans Frontières, Medical Department, Barcelona, Spain, [3]Mèdedins sans Frontières, Juba, South Sudan, [4]Médecins sans Frontières, Dakar, Senegal, [5]Ministry of Health Republic of South Sudan, HIV /AIDS STI, Juba, South Sudan, [6]Médecins sans Frontières, Juba, South Sudan, [7]Médecins sans Frontières, Nairobi, Kenya

Background: Access to antiretroviral treatment (ART) is limited in conflict affected settings, particularly in rural areas. In Yambio, ART coverage is estimated to be 10%. Innovative strategies are needed in these settings in order to increase access to HIV services while ensuring continuation of ART in case of security deterioration. Few data on the outcomes of HIV programs in security situations are available.

Description: In July 2015, MSF launched a Test & Treat (T&T) Pilot Project in rural areas of Yambio where the mobile teams provide HIV counselling and testing (HCT) and ART initiation at the same day. A contingency plan to continue these activities in case of security situations was developed including mapping of patients, key messages about "what to do in case of crisis" during counselling sessions, provision of a phone number to contact our team in case of drugs shortage and coordination with community health workers (CHW's) and PLWHA associations to provide ART refill for 2 month and "run-away bags" with 3 months of ART in case security context deteriorates to a higher level. Data on retention in care and viral load suppression was regularly recorded for patients affected by conflict situations.

Lessons learned: From September 2015 to December 2017, 8 security situations have affected Yambio area by limiting the access of our mobile clinics for drugs refilling and clinical follow up. The contingency plan was activated in every situation and a total of 90 patients in 6 different locations received drugs refill through contingency. Among them, 71 (79%) were active by January 2018, 2 (2.2%) were transferred out, 1 (1.1%) died and 15 (16.7%) defaulted. Among the active patients, 58 (81.7%) had a suppressed viral load.

Conclusions/Next steps: High rates of retention in care and virological suppression of patients affected by security situations show that community based Test & Treat services are feasible and suitable for conflict affected population when contingency plan is developed in advance.

Approaches to viral load monitoring at scale

WEPEE688

Analysis and proposals of strategies to reduce the turnaround time (TAT) of viral load samples in Nampula Province

J. Reis[1], M. Buene[2], M. Muloiua[3], I. Pinto[4], J. Massorel[2], M. de Freitas[2], B.G. Chilundo[5], E.P. de Gusmão[6], R. Sutton[7]

[1]ICAP at Columbia University, Maputo, Mozambique, [2]ICAP at Columbia University Mozambique, Maputo, Mozambique, [3]Nampula Central Hospital, DPS Nampula, Nampula, Mozambique, [4]Laboratory Central Department, Ministry of Health, Mozambique, Maputo, Mozambique, [5]ICAP at Columbia University Mozambique, Strategic Information, Maputo, Mozambique, [6]ICAP at Columbia University NY, New York, United States, [7]ICAP at Columbia University NY, SI Unit, new york, United States

Background: Mozambique implemented viral load (VL) testing in June 2015, with five referral laboratories serving 11 provinces. In December 2015, VL testing expanded nationwide to all health facilities (HF) through the creation of a sample referral network. This critical expansion of services increased demand for routine VL testing, but laboratory-processing capacity did not expand at the same rate. From January 2016 - September 2016, there was a backlog of 6,000 VL samples to be processed by the Nampula referral laboratory, with the mean TAT increasing from 28 to 43 days. To address this challenge, ICAP analyzed the existing systems within this laboratory to identify gaps and design strategies to reduce TAT and increase sustainability of VL testing services.

Description: Based on the results of a TAT analysis, ICAP in coordination with the Health Authorities and the VL laboratory at Nampula Central Hospital implemented the following interventions in January 2017: 1) creation of convergence points or "hubs" for samples and results at 10 high volume HF; 2) procurement of three motorbikes to strengthen sample referral network; 3) addition of four new data clerk positions to support data entry into the laboratory information system (DISA*LAB); and 4) increased length of shifts from two to four hours for lab technicians, with associated payment for additional hours worked. Turnaround time and laboratory processing capacity were analyzed before and after implementation of the strategies to evaluate the impact of these interventions.

Lessons learned: The synergistic implementation of these strategies contributed to improvements in VL sample processing. Following implementation, TAT for VL samples was reduced from 43 to 15 days, despite a 248% increase in the number of samples processed on a quarterly basis during that same time period (Oct - Dec 2016 = 3,654, Jan - Mar 2017 = 11,262, Apr- Jun 2017 = 12,715).

Conclusions/Next steps: Through analysis of the factors affecting TAT, ICAP was able to identify and implement a series of strategies, in conjunction with regular technical support, which significantly reduced VL sample TAT. However, challenges to prompt processing of VL testing remain, including the need to further increase the number of technical staff at referral laboratories.

WEPEE689

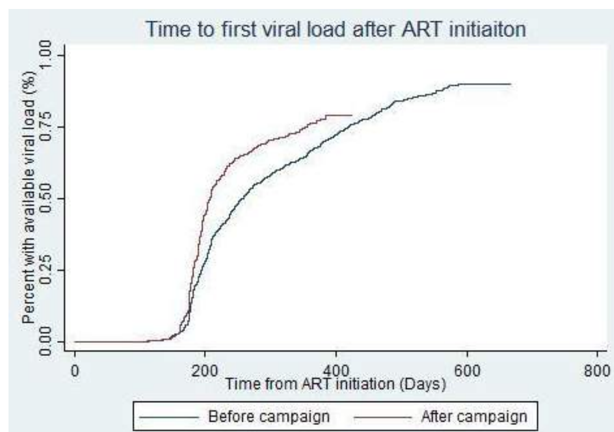
"Know your viral load": Impact of viral load demand creation on viral load monitoring in Swaziland

S. Khan[1], A. Hettema[1], K. Mngomezulu[1], B. Minsi[1], N. Ntshalintshali[1], G. Maphalala[2], N. Lukhele[2], D. Spiegelman[3], C. Lejeune[1], V. Okello[2], T. Bärnighausen[3,4]
[1]Clinton Health Access Initiative (CHAI), Mbabane, Swaziland, [2]Ministry of Health, Mbabane, Swaziland, [3]Harvard T.H. Chan School of Public Health, Boston, United States, [4]Heidelberg Institute of Public Health, University of Heidelberg, Heidelberg, Germany

Background: There is an ongoing effort from National ART Programs in low- middle-income countries to scale up access to viral load (VL) to determine the effectiveness of ART and improve early identification of VL failure. Access to VL, however, is being challenged by inefficiencies across the VL testing cascade resulting in delayed timing of first VL. Here we describe the impact of "Know your Viral Load" campaign launched in Swaziland on July 2016 to educate clients to actively demand VL testing—the first step in cascade of VL testing.

Methods: From September 2014-August 2017, 3,068 clients initiated ART under *Max*ART Universal Test and Treat (UTT) step-wedge implementation trial in 14 health facilities in Swaziland's public health sector. The "Know your VL" campaign in July 2016 included messaging on the importance of and time frame for VL monitoring for clients in order to create demand Reminder stickers were placed in appointment booklets, recording the expected month for repeat VL, actual test date, and VL results. This intervention was in addition to routine provider trainings. Secondary analysis was done to determine median times to first VL after 16 weeks on ART using Kaplan-Meier curves. The intervention effect was measured using a Cox proportional regression model with time-varying covariates.

Results: In clients initiating ART, median age was 34 years (IQR: 28-42) with 62% female. During the study follow-up, median time to first VL from ART initiation was significantly lower for the group exposed to the campaign than in control, 208 days (95% CI: 203-212) compared to 257 days (95% CI: 248-266). After adjusting for covariates at ART initiation, the hazard ratio for receiving first monitoring VL earlier in campaign group was 2.92 (95% CI: 1.62-5.27, p< 0.0001).



[Time to first viral load for clients before and after "Know your Viral Load" campaign]

Conclusions: There has been an increased effort to scale up the laboratory system capacity of Swaziland to provide VL, however, clients have not always had the information and encouragement needed to demand their VL. Empowering clients to demand VL monitoring in addition to routine provider trainings leads to earlier access to VL monitoring. Therefore, achieving the UNAIDS 90-90-90 targets would also require an informed and engaged patient.

WEPEE690

Routine viral load testing and enhanced adherence counseling for ART monitoring at a public ART centre in Mumbai, India

C. Laxmeshwar[1], S. Acharya[2], M. Das[1], P. Keskar[2], A. Pazare[3], N. Ingole[4], P. Mehta[4], M. Arago Galindo[1], P. Gori[5], H. Mansoor[1], S. Kalon[1], P. Isaakidis[6]
[1]Médecins Sans Frontières/Doctors Without Borders, Mumbai, India, [2]Mumbai Districts AIDS Control Society, Mumbai, India, [3]KEM Hospital and Seth GS Medical College, Department of Medicine, Mumbai, India, [4]KEM Hospital and Seth GS Medical College, Department of Microbiology, Mumbai, India, [5]KEM Hospital, ART Center, Mumbai, India, [6]Southern Africa Medical Unit, Médecins Sans Frontières, Cape Town, South Africa

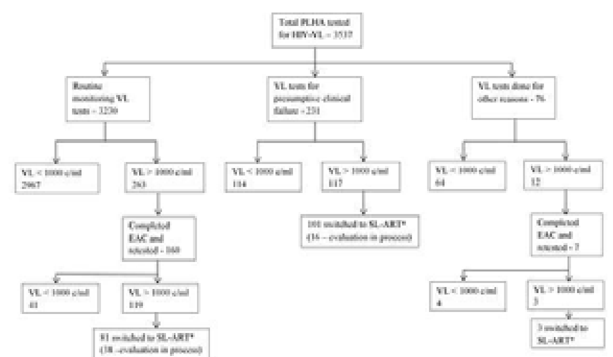
Background: WHO recommends viral-load (VL) testing as the preferred approach to monitor response to ART and diagnose treatment failure. However, India is yet to implement routine VL testing for people living with HIV/AIDS (PLHA). India being home to the third largest PLHA population in the world, urgently needs to initiate routine VL monitoring to achieve 90% VL-suppression as per UNAIDS 90-90-90 targets. Médecins Sans Frontières and Mumbai Districts AIDS Control Society are providing VL monitoring along with enhanced adherence counseling (EAC) for PLHA on ART at KEM hospital, Mumbai. This report documents findings of first Indian experience of routine VL monitoring and EAC in a high burden public ART-center.

Methods: This is a descriptive study of PLHA on ART who received routine HIV-VL testing and EAC during October 2016-December 2017. Logistic regression was used to identify factors associated with VL suppression (VL< 1000c/ml).

Results: Among 3537 PLHA who underwent VL testing, 1484 (42%) were female and median age was 42 years (IQR: 35-48). Of those tested, 3369 (95%) were on first-line ART, 32 (1%) were on alternate first-line ART and 136 (4%) were on second-line ART. Majority were referred for routine testing (3230 (91%)) and clinical failure (231 (7%)) (Figure).

Among 3230 tested for routine monitoring, 2967(92%) had VL suppressed. Of 263 with VL>1000c/ml, 160 completed EAC during the study period and after repeat VL 41 (26%) had VL< 1000c/ml. Among 119 with VL>1000c/ml, 81 were switched to 2nd line ART. Among 231 referred for clinical failure, 117 (51%) had VL>1000c/ml and 101 have been switched to second-line ART.

In unadjusted analysis using chi-square test, detectable VL was significantly associated with age (p< 0.001), duration on ART (p< 0.001) and CD4 count (p< 0.001). Overall, CD4 count < 500 (aOR 5.2 [95%CI 3.9-6.9]), on ART for< 5 years (aOR 1.4 [1.1-1.9]) and age < 45 years (aOR 1.5 [1.2-1.9]) were associated with VL>1000c/ml.



[Viral load cascade for PLHA tested at KEM Hospital ART Centre, Mumbai, India]

Conclusions: Results from the first routine VL program in public sector in India are encouraging and in line with UNAIDS 90-90-90 targets. Routine VL monitoring resulted in earlier switching to second line ART while preventing unnecessary switching. Use of routine VL for ART monitoring should be scaled up in India.

WEPEE691

Efficacy of intensive adherence counselling in reversing virologically-defined treatment failure in HIV-infected patients on long-term antiretroviral therapy in rural Uganda

R.S.A. Mazzola[1], J. Byawaka[2], J. Birungi[2], J.E. Sproule[1], M. Nanfuka[2], K. Mugisha[2], D. Kagimu[2], M. Etukoit[2], D.M. Moore[1,3]
[1]University of British Columbia, Faculty of Medicine, Vancouver, Canada, [2]The AIDS Support Organization (TASO), Mulago Hospital Complex, Kampala, Uganda, [3]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada

Background: The WHO currently recommends patients with a viral load (VL) ≥1,000 copies/mL undergo three monthly intensive adherence counselling (IAC) sessions, before repeat VL testing can direct changes to therapy. We examined the efficacy of IAC among HIV positive adults receiving ART for ≥4 years without prior VL testing.

Methods: We conducted a retrospective cohort analysis on data collected from patient charts at seven centres of The AIDS Support Organization (TASO). Our sample included adults (>18 years) on ART for ≥4 years with a measured VL ≥1,000 copies/mL recorded between January 2014 and June 2016, without previous VL testing. Participants attended three IAC sessions and underwent repeat VL testing within 3-6 months of the initial test. Multivariate logistic regression analysis was used to ascertain independent factors associated with suppression.

Results: A total of 634 patients, 411(64.8%) women and 223(35.2%) men, had VLs ≥1,000 copies/mL during the study period. The mean age was 41.4 years (SD 11.8 years) and the mean duration on ART was 6.8 years (SD 2.3 years). Two hundred forty-nine (39.3%) patients achieved a VL of < 1,000 copies/mL on repeat testing, after IAC. Participants with baseline VLs of 1,000-10,000 copies/mL were more likely to achieve suppression than those with >10,000 copies/mL (49.0% vs. 30.8%; p< 0.01). Multivariate analysis confirmed that baseline VLs of 10,001-40,000 copies/mL (AOR=0.61, 95% CI[0.40-0.93]) or >40,000 copies/mL (AOR=0.60, 95% CI[0.39-0.91]) were associated with a reduced likelihood of suppression. Patients having adherence < 85% (AOR=0.05, 95% CI[0.03-0.08]) or 85-94% (AOR=0.27, 95% CI[0.17-0.43]) following IAC were less likely to suppress compared to those with ≥95% adherence. Being widowed increased likelihood of suppression (AOR=1.83, 95% CI[1.00-3.35]) relative to being divorced, while receiving HIV care at TASO Soroti (AOR=0.12, 95% CI[0.05-0.25]) or Masaka (AOR= 0.26, 95% CI[0.13-0.51]) decreased likelihood of suppression.

Conclusions: Only 40% of participants who were on ART for ≥4 years without prior VL monitoring and who received IAC were able to reverse virologically-defined treatment failure. Lower baseline VLs and higher adherence after IAC predicted suppression. Outcome variability between TASO centres suggests programmatic differences at sites with lower reversal rates may improve outcomes.

WEPEE692

Moving from CD4 counts to Viral load measures; policy, practice and patient experiences in rural Tanzania and Malawi: A mixed-methods case study

J. Songo[1], J. Renju[2], F. Hasan[3], E. McLean[1], A. Dube[1], T. Kalua[4], E. Geubbels[3], J. Todd[5], A. Crampin[1], A. Wringe[6]
[1]Malawi Epidemiology and Intervention Research Unit, Lilongwe, Malawi, [2]London School of Hygine and Tropical Medicine, Moshi, Tanzania, United Republic of, [3]Ifakara Health Institute, Dar es Salaam, Tanzania, United Republic of, [4]Malawi Ministry of Health, HIV & AIDS Department, Lilongwe, Malawi, [5]London School of Hygine and Tropical Medicine, Mwanza, Tanzania, United Republic of, [6]London School of Hygine and Tropical Medicine, London, Malawi

Background: In 2014 the WHO suggested a changing role for CD4 monitoring in clinical care, recommending routine viral loads (VL) to monitor adherence, and using CD4 counts to screen for opportunistic infections. However, roll-out VL testing has been slow in many settings and little is known about how the switch from CD4 counts to VL monitoring is taking place in practice. We used mixed methods in Tanzania and Malawi to i) document the evolution of national policies, ii) assess health facility level implementation; and iii) understand health provider and patient perspectives on the utility of these tests.

Methods: Guidance on the use of CD4 and VL were extracted from National HIV policies covering the period 2013-17. A facility survey was conducted in 2017 in health facilities in Malawi (n=5) and Tanzania (n=11) within two health and demographic surveillance sites (HDSS). Eight indicators on CD4 counts and VL testing were extracted. In-depth interviews with 3-6 health workers and 7-11 PLHIV across countries explored understanding and experience of the tests. Interviews were recorded and transcribed. Thematic analysis was conducted and findings compared across settings.

Results: Unlike Tanzania, Malawi did not adopt a policy requiring CD4 testing for ART eligibility. However both countries adopted VL testing in 2014 (Malawi) and 2015 (Tanzania). The frequency for VL testing was well aligned with national policy. Turnaround times for VL testing were longer than government recommendations in both countries (30 days).
(Figure 1).
In-depth interviews suggested that health workers were aware of the guidance for VL testing and recognised its utility to give a "*better picture of the health of our patients*". However, in Tanzania health workers preferred CD4 counts, where available, reporting that the turnaround time was quicker. In both countries PLHIV that recalled having undergone tests generally referred to CD4 counts and valued it as a measure of their health status.

Conclusions: Although CD4 counts are being phased out, the coverage of VL testing has not matched national policy. The slow scale up of VL testing and corresponding health worker training and delays in processing test results may undermine PLHIV engagement in HIV care.

	Tanzania n (%)	Malawi n (%)
Facility details		
Number of facilities serving the HDSS	11	5
Size of facility		
Hospital/Large health facility	8 (72%)	2 (40%)
Dispensary/Small health centre	3 (38%)	3 (60%)
Management of facility		
Government	10 (91%)	3 (60%)
NGO/Faith based/Private	1 (8%)	2 (40%)
CD4 count testing		
Health facilities offering CD4 testing on site	2 (18%)	0 (0%)
Health facilities offering CD4 testing through referral to another site	2 (18%)	0 (0%)
Viral load testing		
Health facilities offering VL testing on site	2 (18%)	1 (20%)
Health facilities offering VL testing but through referral to another site	9 (82%)	4 (80%)
Number of days that VL testing available at the facility (average [range])	3 [1-5 days]	5 [1-6 days]
Number of days that it takes before VL results come back from the laboratory (average [range])	32 [2-60 days]	45 [30-60 days]
Reasons for conducting viral load testing		
At six months after ART initiation	11 (100%)	5 (100%)
If first line tx failure suspected	6 (55%)	4 (80%)
If second line tx failure suspected	2 (18%)	2 (40%)
Number of months that a VL test is repeated after a patient has been found with a detectable viral load (average [range])	4 [1-6 months]	6 [3-18 months]

[Figure 1: Implementation of viral load and CD testing in health facilities serving two health and demographic surveillance sites in Tanzania and Malaw]

WEPEE693

Can adult peer educators (Expert PLHIV) be utilized in HVL sample transportation to scale up HIV viral load testing in resource limited countries? THPS experience in Tanzania

H. Mwizanduru, I. Mtafya, A. Mwakyusa
THPS, Program, Dar es Salaam, Tanzania, United Republic of

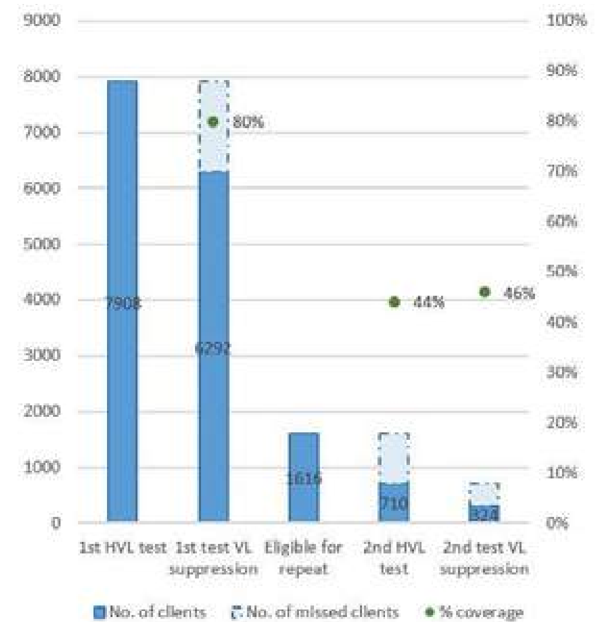
Background: HVL test remains the gold standard for monitoring patients on antiretroviral treatment. However paucity of HVL laboratories, human resource shortage and logistical challenges (sample storage and transportation) continue to be a barrier to access of HVL monitoring.
In addressing the above challenges THPS embarked on meaningfully engaging PLHIV in HVL sample transportation in all its catchment regions.PLHIV engaged also empowered to serve as Volunteers in supporting non-clinical tasks at care and treatment clinics e.g. counseling, group/individual education sessions, and facilitating disclosure and referrals of newly diagnosed PLHIV.
Description: In 2016 (123:72 female and 51 male) peer educators received three days training including practical's on sample management, documentation, biosafety issues and results feedback. Out of 123 Peer educators 102 (68 female and 34 Male) qualified and competent selected, provided with special ID cards, uniform and given the task of transporting samples using public Transport. National HVL monitoring tools were used in sample management. Data analysis conducted on weekly basis in the first month on total sample collected and transported, tested, rejected, results turnaround time and number of Peer Educators involved in sample logistics.
Lessons learned: A total of 14,534 HVL samples collected and transported between October2016 to Sept 2017 which made an achievement of 80% towards achieving the set target of 17588 HVL tests FY2016/2017. It was found that almost all rejected samples were due to technical operational/machine error. No rejections directly related to sample transportation. This proved that engaging expert PLHIV in sample transportation will fasten to reach UNAIDS third target before 2020.
Conclusions/Next steps: Trained PLHIV are capable of facilitating smooth running of HVL programs. And allows health providers to dedicate their time on clinical care; and because these Peer Educators are directly related with the consequence for this monitoring tests they serve as reliable agents. Adopting this practice in resource settings with limited numbers of HVL testing labs will facilitate scale up of HVL testing and hence reaching the UNAIDS global 3rd 90.

WEPEE694

Lessons from scaling-up HIV viral load testing in Tanzania: The importance of monitoring the HIV viral load cascade

R. van de Ven, G. Antelman, D. Haule, J. van 't Pad Bosch
Elizabeth Glaser Pediatric AIDS Foundation, Dar es Salaam, Tanzania, United Republic of

Background: Access to HIV viral load (HVL) testing in Tanzania has risen steeply in 2017 with the scale-up of testing laboratories and expansion of the hub-and-spokes model to transport and process samples. Within the regions supported by the Elizabeth Glaser Pediatric AIDS Foundation, HVL testing has increased three-fold within six months; from 4,157 tests between October 2016-March 2017 to 12,159 tests between April-September 2017. While the focus on scale-up has been to ensure all HIV clients receive a HVL test, follow-up results along the HVL cascade is equally important.
Methods: This retrospective analysis evaluates the HVL cascade (figure 1). Data from electronic medical records from the national HIV database at 71 sites were analyzed, for factors associated with uptake of repeat HVL testing among those identified with high viral load (>1,000 RNA copies per ml). Variables included age, sex, treatment regimen, and facility level.
Results: From October 2015 till March 2017, 7,908 clients received a first routine HVL test, with a viral load suppression rate of 80%. Out of 1,616 clients with a high viral load, 710 (44%) received a repeat HVL test and 46% of these clients were then found virally suppressed. Likelihood of repeat test was higher among patients seen at hospitals (46%) compared to lower-level facilities (25%, p< .0001), and patients on 2nd line regimen (55%) compared to 1st line (42%, p=.001). Children and adolescents/youths under 25 years were more likely to receive a repeat test (54%) compared to older patients (40%, p< .0001). The likelihood of receiving a repeat HVL did not vary by sex (p=.106).



[Figure 1: The HVL cascade at 71 sites across six regions in Tanzania, October 2015 - March 2017]

Conclusions: While the scale-up of HVL in Tanzania has improved, the follow-up of clients with high viral load lags. As many differentiated service delivery models are implemented for stable clients, these findings call for stronger focus on models for clients with high viral load. Follow-up along the HVL cascade also requires more investments in monitoring and evaluation systems to be able to track these at-risk clients and document the outcome of enhanced adherence counseling and potential treatment switch.

WEPEE695

Reaching the third 90 with a simple viral load quality improvement program in health facilities in Malawi

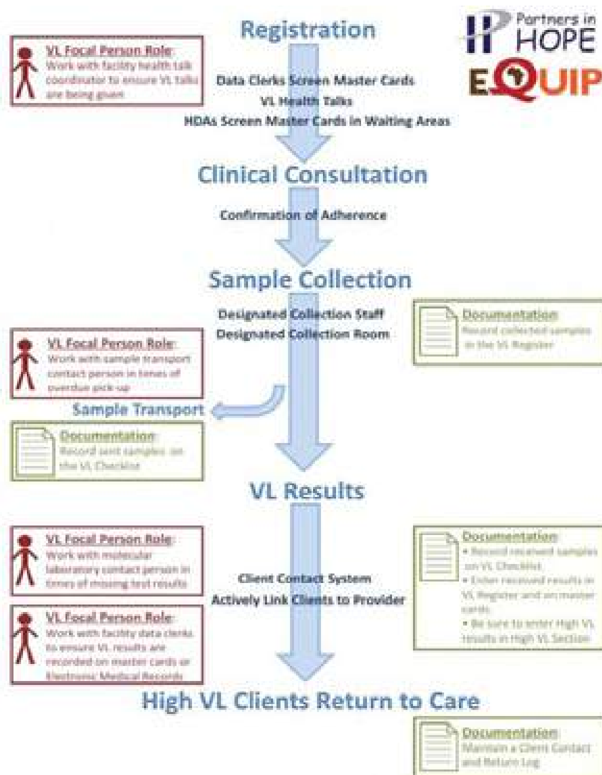
J. Hubbard[1,2], G. Kakwesa[3], J. Mwambene[4], K. Balakasi[2], T. Kalua[5], M. Nyirenda[3], K. Dovel[1,2], R. Hoffman[1,2], EQUIP Innovations for Health
[1]*University of California, Department of Medicine - Infectious Disease, Los Angeles, United States,* [2]*Partners in Hope-EQUIP, Research, Lilongwe, Malawi,* [3]*Partners in Hope-EQUIP, Technical Assistance, Lilongwe, Malawi,* [4]*Partners in Hope-EQUIP, Care and Treatment, Lilongwe, Malawi,* [5]*Ministry of Health, Department of HIV and AIDS, Lilongwe, Malawi*

Background: The UNAIDS 90-90-90 goals call for 90% of HIV-infected individuals on antiretroviral therapy (ART) to have a suppressed viral load (VL) by 2020. Scale-up efforts have largely focused on laboratory systems, with less attention on facility-level strengthening of staff who facilitate VL testing. To address this gap, we implemented a quality improvement (QI) program at 14 health facilities in Malawi supported by Partners in Hope-EQUIP, a PEPFAR/USAID mentorship program.
Description: In April 2016, we performed an assessment in health facilities in Central/Southern Malawi to identify facility-level barriers to VL testing. Findings informed the development of VL tools used in a QI program that focused on patient and provider VL knowledge and clarification of site-level roles and responsibilities, including the designation of a VL "Focal Person" to oversee all VL activities. Tools include: (1) standard operating procedures for VL testing that incorporate the Focal Person (Figure); (2) VL educational materials; and (3) job aids for the Focal Person. Orientations lasting 3-4 hours were conducted by clinical men-

tors in May 2017 in 14 health facilities representing both rural/urban hospitals and health centres. Monthly follow-up visits were preformed to provide mentoring. We compared the number of VL tests performed at these sites before (November 2016-April 2017) and after (May-November 2017) implementation of the QI program.

Lessons learned: The average number of VL tests performed significantly increased after implementation of the QI program (Table). Increased VL testing was sustained during the 6-months of follow-up. By mentoring facility staff on a monthly basis and appointing a Focal Person, VL procedures were optimized and streamlined, improving systems for client identification, sample collection, and results reporting. Increased education among patients allowed for "demand creation" while increased awareness among providers improved their ability to navigate the VL cascade.

Conclusions/Next steps: A simple QI program focused on improving VL knowledge among patients and providers and clarifying staff roles at a facility-level doubled VL testing over an extended period of time. Further investigation is needed on whether this program can be scaled in different settings across sub-Saharan Africa and on the duration of follow up required for sustained improvements in VL testing.



[Figure: Standard operating procedures for VL testing incorporating the Focal Person]

Facility Type	Mean number of monthly routine VL tests* before QI intervention (Nov 2016 -Apr 2017)	Mean number of monthly routine VL tests after QI intervention (May-Nov 2017)	**p-value
(n)	n(SD)	n(SD)	
District Hospitals (5)	96 (67)	187 (96)	<0.001
Mission Hospitals (4)	79 (31)	189 (86)	<0.001
Rural Hospitals (3)	71 (46)	168 (70)	<0.001
Health Centres (2)	23 (12)	90 (51)	<0.001
* Routine VL testing in Malawi is conducted 6 months after initiation, 24 months after initiation, and every 24 months thereafter			
** p-value calculated using t-tests			

[Table: Mean number of monthly routine viral loads taken before and after QI program, by facility type]

WEPEE696

Are adolescents and men the missing link? A review of viral suppression rates from a Kenya HIV program

M. Kitheka[1], S. Kelbert[2], S. Makunda[1], A. Gichangi[1], K. Curran[2]
[1]*Jhpiego, Nairobi, Kenya,* [2]*Jhpiego, Baltimore, United States*

Background: Kenya has made significant investments to fast track the 90:90:90 initiative towards HIV epidemic control. The Kenya AIDS Strategic Framework is the guiding policy document, and the country is investing heavily to achieve the 90:90:90 goals. The Ministry of Health has put in place an effective Viral Load (VL) surveillance system to monitor treatment success. The VLs are done for clients after 6 months and 12 months on ART then annually thereafter as per the national guidelines.

Description: APHIAPLUS KAMILI, a USAID funded project supports HIV care and treatment services in Eastern and Central Kenya since 2011. As of September 2017, there were 39,677 clients active on Antiretroviral Therapy (ART) across 140 sites. All clients on ART get at least one viral load test per year. The project has trained and mentored service providers on specimen collection, patient follow-up and assists on specimen referral through a lab networking system. Viral load results are posted online through a secure web system database and hard copies sent to facilities for client's clinical management. This review analyzed the viral load results database from all tests submitted from September 2016 to October 2017. Viral suppression is defined as VL results less than 1000 copies/ml.

Lessons learned: A total of 29,011 VL results were analyzed after all duplications and incomplete entries were removed. There were 23,973 (83%) clients who were virally suppressed. Viral suppression differed significantly by age, sex, region treatment regimen, and clinical indication on multivariate analysis. Male clients had lower viral suppression at 80% than female at 84% (P-value< 0.0001) and this was the same across most age groups. Adolescents had the lowest viral suppression across all counties. Viral suppression was at 90% (n=6,531) in age group 50 years+, with adolescents aged 15-19 (n=959) at 58% (P-value< 0.00001), 60% (n=1,280) in 10-14 years age band and 85 %(n=18,116) for 25-49 years.

Conclusions/Next steps: The region had made substantial progress in tracking viral suppression across regions and age groups. However, a lot needs to be done to improve viral suppression in adolescents and men. Close monitoring and adherence support is needed among these populations to improve treatment outcomes.

WEPEE697

"It helps us to help the patient earlier." A qualitative study from Zimbabwe exploring patient and health-care worker perceptions of receiving HIV viral load results by SMS

E. Venables[1,2], Z. Ndlovu[1], D. Munyaradzi[1], G. Martínez-Pérez[1,3], E. Mbofana[4], P. Nyika[5], H. Chidawanyika[6], D.B. Garone[4], H. Bygrave[1]
[1]*Medécins Sans Frontières, Southern Africa Medical Unit, Cape Town, South Africa,* [2]*University of Cape Town, Division of Social and Behavioural Sciences, School of Public Health and Family Medicine, Cape Town, South Africa,* [3]*African Women's Research Observatory, Barcelona, Spain,* [4]*Medécins Sans Frontières, Harare, Zimbabwe,* [5]*Ministry of Health and Child Care, Harare, Zimbabwe,* [6]*Research Triangle Institute International, Harare, Zimbabwe*

Background: HIV Viral Load monitoring is recommended by the WHO as a more accurate available measure of antiretroviral treatment response, and has been progressively adopted in many low and high HIV burden settings. Scale up of VL testing requires huge economic, laboratory and programmatic investments and significant challenges exist, including timely return of results to health facilities and patients; completion of adherence counselling and timeous switch to second line treatment for those eligible. Médecins Sans Frontières (MSF) introduced an mHealth intervention, where patients received a mobile phone SMS from the central laboratory to inform them that they should visit the clinic immediately to collect their VL results (if VL>1000copies/ml) or at their next scheduled visit (if VL< 1000copies/ml). The clinic received an SMS with the actual VL result.

Methods: A qualitative study was conducted in seven health-care facilities across the districts of Gutu and Buhera in rural Zimbabwe. In-depth interviews (n=32) and focus group discussions (n=5) were conducted to explore patient and health-care worker (HCW) perceptions and experiences of the mHealth SMS system intervention. Purposive sampling was used to select participants. Data were transcribed, coded and thematically analysed using NVivo.
Results: The VL SMS intervention was acceptable to patients and HCWs. HCWs perceived it to improve adherence and the well-being of patients by linking them to counselling services earlier and reducing the time taken to come to the clinic. Patients also appreciated the time they saved by not making unnecessary clinic visits. However, some participants were concerned about patient's challenges with understanding the purpose of the messages and the language of the SMSes. HCWs were more concerned about unintentional disclosure through the messages than patients were. Many participants believed future interventions could send the actual VL results to patients by SMS.
Conclusions: This was a unique and novel intervention in which an mHealth intervention was used to send SMSes to patients informing them about their VL results. Such interventions have the potential to empower patients and reduce unnecessary clinic visits, but need to be properly explained to patients before implementation, to ensure the purpose of the intervention is understood.

WEPEE698

Improving viral load test sample quality, coverage and suppression on antiretroviral therapy patients through quality improvement: A before-after study from south-western Uganda

A. Kwizera[1], J. Tumusiime[2], M. Namubiru[1], M. Walakira[3], E. Bitarakwate[3]
[1]*Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), Health Systems Strengthening, Kampala, Uganda,* [2]*Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), Knowledge Management, Kampala, Uganda,* [3]*Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), Kampala, Uganda*

Background: To reach the ´third 90´ of viral suppression (VS), it will be essential to scale-up access to routine, quality viral load (VL) tests. One strategy anticipated to increase coverage of VL is with dried blood spot (DBS) testing and the quality of VL sample is essential for accurate results. To assess the impact of a comprehensive quality improvement (QI) intervention, we analyzed secondary routine program data before and after the intervention. Trends assessed were VL sample rejection rates, VL coverage, and VS.
Methods: National VL database was reviewed for our 264 supported sites in Southwest (SW) Uganda on key VL testing outcomes, January-September 2016 (before) and January-September 2017 (after) following implementation of QI activities to improve VL testing. This included: 5-day training Healthcare workers (HCWs) using National harmonized VL training module between October-December 2017; targeted VL mentorships; availing VL kits; continuous QI projects on identified VL cascade gaps. Aggregated data on samples rejected (rejection reasons), tests completed, and results extracted from VL dashboard, entered into Microsoft Excel for data analysis using descriptive statistics and assessed by gender and age. VL coverage defined as proportion of active ART clients eligible for VL with a VL test and VS as number of clients with a VL test result ≤1,000 copies/ml, as per national VL algorithm.
Results: Before intervention, 8.0% (n=2,786) of total samples were rejected commonly due to incomplete forms 59.3%, (n=1,652); poor sample quality 27.3%, (n=761); and non-eligibility (13.4%, n=373). VL coverage was 69% (n=34,825), 92.5% VS (94% women, 91% men). VS in adults (age≥19 years) was 95%, children and adolescents (5-10 years 75%, 10-15 years 80%, 15-19 years 75%). After implementation, samples rejected decreased to 2.4% (n=2,669), VL coverage increased to 85.0% (n=111,224), 93.8% VS (95.1% women, 92.5% men). VS in adults (≥19 years) was 95.0%, children and adolescents (5-10 years 78.0%, 10-15 years 81.0%, 15-19 years 82.0%).
Conclusions: In SW Uganda, following a multi-pronged QI intervention, we observed a decrease in proportion of rejected samples and increased VL coverage and VS. Investing in continuous QI and HCWs training may be important to maximize the impact of existing technologies to support VS.

Innovations and lessons for supporting adherence

WEPEE699

Empty exam rooms: Partnering with HIV consumer advisory board to improve medical appointment adherence, a New Jersey community health center experience

L. Kudryashova-Hernandez
Neighborhood Health Services Corporation, Ancillary/HIV, Plainfield, United States

Background: NHSC, a private, non-profit urban community-based health center in Plainfield NJ, USA, provides HIV care/treatment to approximately 360 patients under the umbrella of Early Intervention Services. NHSC has an enthusiastic, well-established Consumer Advisory Board (CAB) to offer valuable patient prospective on the EIS program development, implementation and evaluation, including quality improvement. Based on 2016 year-end data, HIV patient appointment adherence rates were sub-optimal (60%). Poor appointment adherence can be directly linked to virological failure and disease progression. NHSC determined *80% as its acceptable internal quality indicator* for medical appointment adherence.
Description: EIS program and CAB designed a quality improvement project around sub-optimal medical appointment adherence:
1. *Appointment Adherence Self-Assessment* tool was designed and administered to all patients to ascertain reasons for non-adherence.
2. Self-assessment responses were collected, analyzed and presented to CAB, EIS staff and leadership.
3. A 90-day **PDSA (Plan-Do-Study-Act)** cycle was developed to design a *process change* based on patients responses: a) Medical Case Managers (MCM) to make confidential reminder calls prior to appointments; b) MCM to identify barriers to appointment adherence (e.g. transportation) and make every efforts to resolve; c) MCM to provide patients with paper appointment slip and wall calendars to record appointments **(CAB suggestion)**, and d) MCM help patients schedule appointments of cell phone calendars **(CAB suggestion)**. Lists of missed appointments were generated weekly to contact patients on the same day to find out the reason for non-adherence and to reschedule.
4. Appointment adherence data was collected and analyzed on a monthly basis. It was further drilled down to identify specific patient sub-populations (gender, age, risk factor) that may require additional designated efforts to improve adherence.
Lessons learned: Based on the findings review/analysis at the end of the initial 90-days PDSA cycle: NHSC achieved 80% appointment adherence rate and was able **to sustain and surpass** it during the entire 2017. Furthermore, NHSC observed a 23% increase in viral suppression in previously unsuppressed patients.
Conclusions/Next steps: Implementation of a coordinated, patient-centered and patient-driven approach to appointment adherence monitoring and management allowed to achieve an overall *improvement of patient participation* in their care with the ultimate goal of achieving *sustained viral suppression*.

WEPEE700

"Qhubeka uthathe amapilisi": Solving the adherence challenge in antiretroviral treatment amongst women in the Ngqushwa district, Eastern Cape, South Africa. A user-developed programme

K. Pepper[1,2], N. Sibutha-Nodada[3]
[1]*University of KwaZulu Natal, College of Health Sciences, Durban, South Africa,* [2]*Ubunye Foundation, Health and Early Childhood Development, Grahamstown, South Africa,* [3]*Ubunye Foundation, Health, Grahamstown, South Africa*

Background: Blanket approaches to bolster ARV adherence have left significant gaps. An example is the case of newly-post-partum HIV+ women, whose ARV adherence shows a sharp drop after delivery.

Description: The objective of this programme is to address the challenge of long-term adherence by piloting a unique strategy: users become the researchers and programme developers, and photographs become the tools to achieve their goals.
Living in Nqushwa district, a rural, isolated region of the Eastern Cape of South Africa, ten women, newly post-partum, used photographs to record their struggles with ARV adherence after the birth of their baby. Taking photos of those barriers, they created a powerful portfolio of images. They then use this as a tool to communicate their challenges to local communities, health and social services, to open a discussion about their barriers, and to plan with these agencies how to manage their adherence together.
Lessons learned: This programme is on-going but already the photos are revealing a myriad of constantly-shifting barriers to adherence. These include: disparaging comments by relatives or friends; rumours around a local death; influence of bad spirits; physical and psychological impact of the drought; feelings of hopelessness and having 'paid' enough to have a child; purification by childbirth; exhaustion and a belief that others must take over.
Initial findings indicate that barriers to adherence are deeply personal, socially and culturally specific, and often related to the area in which people live. Using photos as tools, these women have been able to share a unique insight into their lives with others in their community. They are building an alliance between themselves and other community members and agencies to address these barriers together for the long term.
Conclusions/Next steps: This 'user-developed' programme - using photos as a vehicle - places the users in control of the collection, analysis and presentation of data, and puts them at the centre of support generated around them. In doing so it takes account of specific local and personal situations and resources, and ultimately moves adherence out of the medical sphere and away from a reliance on health services as the main support for those with HIV.

WEPEE701

Using peer-to-peer psychosocial support and active client follow-up to improve adherence: Lessons learnt from the mothers2mothers program in Southern Africa

M. Mbule[1], C. Hofmeyr[1], J. Igumbor[1,2], K. Schmitz[1]
[1]mothers2mothers, Cape Town, South Africa, [2]University of the Witwatersrand, Johannesburg, South Africa

Background: The ongoing scale-up of HIV treatment programs is undermined by poor treatment adherence challenges. Research has shown the use of reminders alone is not effective in promoting adherence and may even discourage clients who are struggling to adhere. mothers2mothers has developed an integrated service platform (ISP) that uses peer mentoring at both the health facility- and community-levels, combined with appointment-tracking and defaulter-tracing, to support women to stay on treatment during the first two years of her infant's life.
Description: mothers2mothers operates in urban and rural communities across eight southern and eastern African countries. The program employs lay health-workers, referred to as Mentor Mothers (MMs), to work in both facilities and their surrounding communities to deliver psychosocial support and education to pregnant women and new mothers. On a continuous basis, MMs track each client's ART pickups and follow up with text messages, phone calls and home visits when an appointment is missed. During each one-on-one interaction with a client, MMs conduct an adherence assessment as part of their standard package of services. Finally, when clients are identified to have poor adherence, MMs provide intensified education and support, and refer the client for additional social support services when appropriate.
Lessons learned: A multi-country internal evaluation of the mothers2mothers program conducted in 2017 revealed that the ISP model is associated with high rates of adherence. Measured as the number of days in the past week that the woman took her medication, 94.5% of the sample had an average adherence rate of >95% (n=326) over multiple measurements. In addition, over 95% displayed high levels of self-efficacy in remaining adherent. Low levels of adherence are often associated with lack of male partner support and partner violence.
Conclusions/Next steps: Rates of adherence in our evaluation did not vary significantly by country, suggesting that provision of peer support at both facility- and community-level in combination with appointment tracking is effective across different geographical and cultural settings. In order to address the challenges posed by minimal male partner engagement in remaining adherent, mothers2mothers is expanding the scope of the program to better include male partners in its package of services.

WEPEE702

Innovation & technology: Improving ARV access and adherence

F. Hendriksz
Right to Care, Right ePharmacy, Johannesburg, South Africa

Background: There are currently various initiatives in the South African health sector aimed at increasing patient access to medication and adherence. The most pioneering initiative is, an "ATM- like" innovation called a Pharmacy Dispensing Unit (PDU™) provides a differentiated and unconventional option for dispensing, counselling, and collection of medication. The pilot of this innovation in peri-urban communities in South Africa have uncovered benefits such as decongestion of overburdened facilities, freeing up healthcare practitioner capacity at primary healthcare facilities and the general quality of pharmaceutical services to patients.
Description: The PDU™ sites have been implemented in communities with high population densities, low Living Standard Measure (LSM) averages and located at community shopping centres which are within 15-minute travel time of the referring health facilities or clinics. PDUs™ provide the opportunity of alternate collection points for stable chronic outpatients; and convenience of accessibility, collection time flexibility as well as extended operating hours. PDUs™ utilises a cloud based dispensing software, barcode scanners, integrated medicine printer labellers, user interfaces and allows for tele-pharmacy access through audio-visual linking for remote counselling and dispensing capability.
Lessons learned: It is apparent that PDUs™ have the anticipated outcome of optimisation of limited pharmaceutical service resources through the increase in dispensing capacity and quality. The PDU™ sites allow patients to collect their medication at a time and location convenient to them; abating one of the common barriers to adherence in chronic stable patients. The most value derived comes from the trends identified from the analysis of demographic data and dispensing records. Other learning´s include referral health facility support, change management and continuous key stakeholder engagement.
Conclusions/Next steps: The success and challenges of this pilot implementation will be used to document "best practice standards" for this technology in the South African context., Opportunities will also be identified to optimize operations, inform policies and spread this solution locally and globally. Right ePharmacy intends to use its core competences in the domain of "Last Mile" dispensing and distribution technology to extend the application and functionality of the current technology to address other challenges in medicine access.

[AIDS 2018 PDU]

WEPEE703

A new patient-reported outcome measure to assess perceived barriers to antiretroviral therapy adherence: The PEDIA scale

C. Cardoso Almeida-Brasil, E. Nascimento, M. Rosa Silveira, P. Fátima Bonolo, M.D.G. Braga Ceccato
Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

Background: Perceived barriers are one of the strongest predictors of nonadherent behavior and a potentially modifiable construct. We sought to develop and validate a new patient-reported outcome measure to assess perceived barriers to antiretroviral therapy (ART) adherence.
Methods: Based on open-ended interview questions with HIV-infected adults from a national study, a pool of 47 items was created. After pilot-testing and content validity, scale revisions resulted in a 40-item version of the Perceived Barriers to Antiretroviral Therapy Adherence (PEDIA) scale. The PEDIA was administered to 415 HIV-infected adults receiving ART for a maximum of 180 days, recruited from three healthcare facilities that are a reference in HIV treatment in the city of Belo Horizonte, Brazil. Analyses included exploratory factor analysis, internal consistency, temporal stability, item response theory analysis, and criterion validity analysis.
Results: The final scale version contains 18 items distributed in three dimensions as follows: cognitive and routine problems (4 items); medication and health concerns (6 items); and patient`s fears and feelings (8 items). Results of the Cronbach's alpha (0.74) and temporal stability demonstrate that the PEDIA is internally consistent and yields stable scores over time. Test information functions suggested that the three dimensions were informative in assessing a broad range of the latent trait. Criterion validity was confirmed since a negative association was found between the total score of the PEDIA and adherence scores. Independently of other participants' characteristics, the odds of being non-adherent was significantly higher for participants who scored 1 point more in the total scale (aOR=1.18; 95%CI: 1.11, 1.23), and in each dimension: cognitive and routine problems (aOR=1.63; 95%CI: 1.40, 1.90); medication and health concerns (aOR=1.32; 95%CI: 1.15, 1.51); and patient`s fears and feelings (aOR=1.12; 95%CI: 1.05; 1.20).
Conclusions: Our findings suggest that the PEDIA is a psychometrically sound tool for evaluating perceived barriers in adult patients initiating ART. It can be utilized in both research and clinical practice settings for early identification of patients at risk for non-adherence and for the development of behavior change interventions. The PEDIA may ultimately narrow the gap between providers` and patients` realities and improve the quality of care from the patient's perspective.

WEPEE704

Improving HIV treatment uptake among HIV-positive female sex workers in Naivasha, Kenya

H. Nyongesa[1], C. Gathoni[2], L. Njeri[2], B.E. Ogwang'[1], N. Njuguna[1]
[1]*FHI 360, LINKAGES Program, Nairobi, Kenya,* [2]*Kenya National Outreach, Counselling and Training Program (K-NOTE), Naivasha DIC, Naivasha, Kenya*

Background: Stigma and discrimination (S&D), inadequate information on HIV treatment services, and inefficient key population (KP)-specific support mechanisms in the community negatively affect sex workers' ability and decision to access care and treatment services. To increase use of HIV treatment services, LINKAGES/Kenya — led by FHI 360 and supported by USAID and PEPFAR — implemented the *encounter initiative,* a personalized process for linking HIV-positive female sex workers (FSWs) to antiretroviral therapy (ART) in Naivasha, Kenya.
Description: The encounter initiative involves two strategies:
1) small, personalized group meetings dubbed *encounter groups* and
2) client feedback forums focused on addressing S&D against KPs living with HIV (KPLHIV).
Encounter groups comprise of three people: the client (a KPLHIV who has not begun or has stopped taking ART), a clinician, and a trained KPLHIV champion who has been on treatment for at least 24 months. Meetings involve talking with the client about benefits of treatment and factors that hinder their access to treatment, and formulating a plan to link them to care. Up to three encounter meetings are conducted. KPLHIV are linked to care at nearby government-run ART centers and supported by the KPLHIV champion. Feedback forums are held with the KPLHIV to understand if they face S&D at the ART centers; if stigma is reported, the clinician organizes a sensitization meeting at the facilities to highlight the importance of providing stigma-free services to KPs.
Lessons learned: In January 2017, there were 112 KPLHIV enrolled within the program, of whom 30 (27%) were on ART. From March to December 2017, 99 KPLHIV who were not yet on ART or had stopped treatment were engaged in encounter groups and followed up with feedback forums. Seventy (71%) of those KPLHIV initiated ART thus raising overall uptake to 100 (72%) (Figure 1). The most commonly cited reason (75%) for poor uptake of ART was S&D from healthcare workers. To address this, we conducted two sensitization meetings at two facilities commonly mentioned.
Conclusions/Next steps: Establishing community support for KPLHIV is key in their initiating antiretroviral therapy. Additionally, interventions to address S&D and accommodate KPs will encourage use of HIV treatment services by sex workers.

WEPEE705

Towards 95% completion rates of Isoniazid preventive therapy in resource limited setting; case of Amref Kibera community health centre, Nairobi, Kenya

Z. Muiruri Njogu[1], D. Wanyama[2], M. Mungai[2], S. Karanja[3], D. Dianga[1]
[1]*Amref Health Africa-Kenya, TB/HIV/Malaria Program, Nairobi, Kenya,* [2]*Amref Health Africa Kenya, TB/HIV Program, Nairobi, Kenya,* [3]*Amref Health Africa in Kenya, Country Programme, Nairobi, Kenya*

Background: Tuberculosis is the most frequent life-threatening opportunistic disease in people living with HIV (PLHIV). World Health Organization recommends the routine use of Isoniazid for 6 months to treat latent tuberculosis infection in PLHIV. Globally, many HIV programs have IPT completion rates lower than 90%. In year 2016, IPT completion rate was 84.72% among PLHIV attending Amref Kibera Community Health Centre. Failure to complete IPT was highly associated with Lost to follow up (5.09%) and self discontinuation (5.56%). This study aims to demonstrate how 6 months IPT completion rates can be improved through improvised pre-packing of Isoniazid and pyridoxine in resource limited setting in Amref Kibera Health centre.
Methods: This is a before and after study with PLHIV started on IPT before and after initiation of Isoniazid and pyridoxine pre-packaging intervention between December 2015 and May 2017. Baseline data on IPT completion rates was obtained from IPT register and generated into excel format. During intervention phase each client starting IPT was assigned a 6 months dose of IPT pre-pack. The number of drugs dispensed, date of collection and next refill date was documented on the packs. The packs were routinely monitored to detect treatment interruption. A customized tracking tool was used to document follow up outcomes. Prompt adherence counseling was done through phone calls and home visits. At the end of the 6 months therapy, all clients whose packs had drug remainders were traced back and interventions done as per the IPT national guidelines.

[Improvised IPT prepacks]

Outcome	Before Interventions (n=432) Number of patients	Rate	After Interventions (n=177) Number of patients	Rate
Completed IPT	366	84.72%	168	94.91%
Lost To Follow up	22	5.09%	2	1.13%
Died	5	1.16%	2	1.13%
Transferred out	13	3.01%	4	2.26%
Self discontinuation	24	5.56%	0	0.00%
Developed Adverse Drug Reaction (ADR)	2	0.46%	1	0.57%
Developed Active TB disease	0	0.00%	0	0.00%

[6 months Isoniazid Preventive Therapy (IPT) outcomes]

Results: During the intervention phase (September 2016 and May 2017), of the 177 patients started on IPT, 94.91% (168) successfully completed a full course of 6 months IPT in comparison to 84.72% (366) who completed IPT among 432 patients started on IPT between December 2015 and August 2016. The rate of self discontinuation and lost to follow up declined from 5.56% to 0% and 5.09% to 1.13% respectively.
Conclusions: IPT prepackaging offers individualized patient monitoring which significantly improved the 6 months IPT completion rates. We recommend for a global plan for IPT commodities to be pre-packed like the TB treatment drugs.

WEPEE706

Adherence patterns among patients enrolled in comprehensive HIV care programs in Kinshasa and Haut-Katanga provinces in the Democratic Republic of Congo

S. Dane[1], T. Tchissambou[2], A. Jha[3], F. Malele[2], D. Dibulundu[2], S. Matsumaini[2], B. Ngalamulume-Roberts[3], Y. Ilunga[2], J. Soares Linn[3]
[1]Columbia University Mailman School of Public Health, ICAP at Columbia University, New York, United States, [2]ICAP at Columbia University in DRC, Kinshasa, Congo, Democratic Republic of the, [3]ICAP at Columbia University, New York, United States

Background: The Democratic Republic of Congo (DRC) has committed to reaching 70% antiretroviral therapy (ART) coverage in 2018, but the effectiveness of lifesaving HIV treatment is dependent on patient adherence. Understanding adherence patterns, including sex differences, is critical to designing effective adherence support interventions as part of HIV treatment programs.
Methods: This analysis aimed to identify demographic and geographic correlates of ART adherence, and used aggregate data from 151 ICAP-supported sites in Kinshasa and Haut-Katanga provinces in DRC, collected from 2015-2017. The aggregate data was originally collected from ART registers at ICAP-supported sites. Adherence interventions in these facilities included adherence clubs, support groups, buddy systems using mobile apps, and adolescent groups that discuss barriers to adherence. Using logistic regression, we analyzed whether adherence is associated with sex, province, and age group in the first 12 months of treatment.
Results: Between January 1, 2015 and December 31, 2016, 7,346 adolescents (ages 15-19) and adults (ages 20 and over) newly initiated ART. Between March 1 2016 and December 31 2017, 4,405 (60%) patients had reached 12 months on treatment and self-reported as adherent. In an initial multivariable analysis, interaction was found between sex and province, and age group and province, so all further analyses were stratified by province. When controlling for age group, males in Kinshasa were less likely than females to be adherent in the first twelve months on treatment [adjusted odds ratio (AOR)=0.75, 95% CI=0.66-0.86)]. No difference was found between adolescents and adults (AOR=1.48, 95% CI=0.99-2.19). In Haut-Katanga, no difference was found between males and females (AOR=1.13, 95% CI=0.95-1.35). In Haut-Katanga, adolescents were more likely than adults to be adherent (AOR=4.58, 95% CI=2.22-9.47).
Conclusions: Differences between Haut-Katanga versus Kinshasa might be connected to overall higher socioeconomic status in Haut-Katanga, a result of the many precious stone mines in the region. Additionally, psychosocial support services targeted to adolescents in Haut-Katanga might explain age group differences in adherence. Option B+ for prevention of mother to child transmission of HIV provides an avenue for many newly initiated women to receive enhanced support, which might explain sex differences in Kinshasa.

Adolescent and youth programming

WEPEE708

Factors associated with transactional sex among adolescent girls and young women accessing community-based combination prevention services in Tanzania

G. Mbita[1], C. Casalini[2], A. Mwanamsangu[1], E. Esther Majani[2], T. Kipingili[3], A. Mongi[2], A. Akridge[4], W. Kafura[5], A. Komba[2], K. Curran[6]
[1]Jhpiego Tanzania, Monitoring Evaluation and Research, Dar es Salaam, Tanzania, United Republic of, [2]Jhpiego Tanzania, Program, Dar es Salaam, Tanzania, United Republic of, [3]PACT Tanzania, Program, Dar es Salaam, Tanzania, United Republic of, [4]USAID Tanzania, Program, Dar es Salaam, Tanzania, United Republic of, [5]Tanzania Commission for AIDS (TACAIDS), Program, Dar es Salaam, Tanzania, United Republic of, [6]Jhpiego USA, Program, Baltimore, United States

Background: Sauti is a PEPFAR/USAID-funded HIV combination prevention project serving key and vulnerable populations, including adolescent girls and young women (AGYW); however, sex workers' programming targets only females ages 18 and above who exchange sex for cash or goods as their primary source of income. Trained biomedical providers offer services in the community at hot spots, which are defined as areas of high HIV transmission, or at home and resource centers.
Methods: We describe the characteristics of a population of out-of-school AGYW engaging in transactional sex, defined as self-reported exchange of sex for cash or goods (not as a primary source of income); vulnerable AGYW are defined as ages 15-24 who are out of school and sexually active; the analysis covers 12 regions in Tanzania, from August 2015 to September 2017. Factors associated with AGYW engagement in transactional sex were determined using multivariate logistic regression analysis on routinely collected project data.

Predictors	Multivariable OR [95% CI]	P-value
Age group (years)		
15-19	**3.51[3.37-3.66]**	<0.001
20-24	1	
Marital status		
Single	1	
Marriage/cohabiting	1.33[1.28-1.38]	<0.001
Divorced/separated	**2.14[1.93-2.38]**	<0.001
Condom use last month		
No	1	
Yes	**4.41[4.23-4.59]**	<0.001
Alcohol use when had sex		
No	1	
Yes	**3.2[2.95-3.48]**	<0.001
Drugs use when had sex		
No	1	
Yes	1.5[1.31-1.73]	<0.001
FP method		
None	1	
Pills/Injectable	**3.86[3.72-4.01]**	<0.001
IUD/Implant	1.23[1.05-1.44]	0.012
Reported sexual GBV		
No	1	
Yes	**2.69[2.59-2.80]**	<0.001
HIV status		
Negative	1	
Positive	1.79[1.62-2.0]	<0.001

[Table 1. Multivariate logistic regression for transactional sex predictors among AGYW]

Results: Among 96,882 AGYW who accessed Sauti services over the 25-month period, 31.4% reported transactional sex. Among them: 64.6% were ages 15-19; 67.2% were single; 29.0% didn't use condom in the last month; 4.2% and 1.4% respectively used alcohol or drugs during sex within the last month; 56.9% didn't use a modern family planning method; 1.5% reported STI symptoms; 39.4% reported violence; and 2.5% tested HIV seropositive. At multivariate logistic regression, AGYW engaged in transactional sex were more likely to be young (OR 3.50 [3.36-3.65]; p< 0.001), married/cohabiting (OR 1.33[1.28-1.38]; p< 0.001) or divorced/sep-

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arated (OR 2.14[1.92-2.38]; p< 0.001), to use condoms (OR 5.41[4.23-4.59]; p< 0.001), to use alcohol or drugs during sex within the last month (OR 3.22[2.97-3.50]; p< 0.001; OR 1.50[1.31-1.72]; p< 0.001; respectively), to use short acting FP methods (OR 3.86[3.71-4.00]; p< 0.001), report violence (OR 2.70[2.60-2.81]; p< 0.001), and be HIV infected (OR 1.79[1.62-2.0]; p< 0.001).

Conclusions: report violence, the project should intensify its efforts in reaching them with FP services and violence screening. In addition to ongoing structural and behavioral interventions, other biomedical interventions packages such as community-based ART and Pre Exposure Prophylaxis that target vulnerable AGYW engaged in transactional sex is necessary.

WEPEE709

Drug use, HIV, HCV infections among young people who use drugs (YPUD) in 3 cities of Vietnam

L. Nguyen[1], O. Khuat[1], L. Mitchel[2], O. Phan[2,3], C. Pham[1]
[1]Center for Supporting Community Development Initiatives, Hanoi, Vietnam, [2]Centre Pierre Nicole, Paris, France, [3]Unité INSERM, U1018, Maison des Adolescents, Paris, France

Background: In South East Asia, including Vietnam, amphetamine-type stimulants (ATS) is replacing heroin as the most popular drug. HIV programs, targeting PWID have most clients in their 30s and 40s. Little is known about actual drug use behaviors and HIV/HCV risks among younger generations.

"*Saving the Future project*" (funded by the French's 5% Initiative) implements innovative HIV prevention strategies among YPUD in Vietnam (16 to 24 y/o), regardless of their drug of choice and mode of use. An initial survey was conducted to learn about drug use and HIV/HCV risks and findings were used to develop packages mitigating the risks.

Methods: An RDS survey was conducted in 2016/2017 in Hanoi, Haiphong and Ho Chi Minh, 3 Vietnam biggest cities. Participants aged 16-24 y/o and urine test positive to at least one of the 4 most popular drugs in Vietnam: Methamphetamine, Cannabis, Heroin, Ecstasy. Participants responded to a questionnaire on demography, family, drug use, sexual behaviors, dependence. Blood sample was collected for HIV/HCV sero-status data. Study protocol was approved by a national IRB.

Results: 584 YPUD were enrolled, 42.1% were 16-18 y/o. 19.9% female, 1.2% transgender people, 61 self-identified as MSM, 84 reported selling sex (33 were male).

Polydrug use is common: 31.8% tested positive to more than 1 drug. Methamphetamine use reported by 83%, 71% tested positive; Cannabis 69.2% and 43.2%; Heroin 25.3% and 18%. Only 11% reported injecting and almost exclusively Heroin. Methamphetamine injection is rare, occurred only when YPUD need to hide their drug use or as an experiment.

Overall HIV/HCV prevalence was 6.3% and 9.4% (see table for details).

70.5% of YPUD reported ever had sex (80% reported at least one risky sex behaviors, 46% reported less likely using condom after consuming methamphetamine).

YPUD characteristics (n= 584, Hanoi: 168, Hai Phong: 213, HCMC: 203)	HIV prevalence	HCV prevalence
All participants	6.3%	9.4%
Methamphetamine user, never inject	5.9%	6.6%
Current heroin injector	17.8%	35%
Cannabis smoking only	0	0
MSM, never inject	16.4%	2%
Age 16 - 18	0.7%	0.7%
Age 19 - 22	6.5%	5.9%
Age 23 - 24	9.5%	14%

[HIV, HCV prevalence among YPUD in 3 cities in Vietnam by characteristics]

Conclusions: Methamphetamine is the most popular drug for YPUD, associated with HIV and HCV infection. Injecting is unpopular but associated with greatest risk for HIV and HCV. Being an MSM using drug is also associated with high HIV prevalence. Intervention should be differentiated for each segment of this population.

WEPEE710

Raising awareness of HIV status among learners through school-based testing in King Cetshwayo district, KwaZulu-Natal

E. Ford-Kamara[1], J. Hill[2], K. Duncan[2], G. Ngidi[1], R. Uenishi[2], N. Gcwensa[1], L. Ohler[1], A. Shroufi[2], S.J. Steele[2]
[1]Medecins Sans Frontieres - South Africa, Eshowe, South Africa, [2]Medecins Sans Frontieres - South Africa, Cape Town, South Africa

Background: Since 2011, Médecins Sans Frontières (MSF) has partnered with the Department of Health (DoH) in wards 1-14, uMlalazi, King Cetshwayo District, KwaZulu-Natal, to decrease HIV-related mortality and morbidity. A 2013 population survey by MSF estimated that new HIV infections were highest among those aged 15-29, with incidence among young women reaching a peak of 6.2% at age 19. To reach part of this population, MSF began working with the Department of Basic Education (DBE) in 2012 to provide health services at secondary schools.

Description: MSF conducts annual visits for grade 8-12 learners in 32 secondary schools commencing with DBE-approved age-appropriate health education sessions promoting behaviour which prevents HIV infection and the importance of knowing your HIV status. Following the education sessions voluntary HTS, pregnancy testing, condoms, and screening for STIs and TB are offered to learners in a mobile van. HIV-positive learners are referred to a DoH facility and linked to a Learner Support Agent or Life Orientation Educator, whom MSF has trained to be year-round focal points within schools. Additionally, young males are recruited for voluntary male medical circumcision.

Health promotion in schools has increased from reaching 11,088 learners in 2013 to 14,636 learners in 2017. Between 2013 and 2017, the number of HIV tests conducted increased from 4,474 to 6,591 while positivity rates declined (Figure 1). In 2017, 45% of learners (n=6591) accepted HTS, with 1% (n=65) testing positive. 71.4% (150/210) of HIV positive learners received a point of care CD4 between 2013-2015, with 58.0% being >500cells/μL, suggesting the program is accessing healthy HIV positive youth.

Lessons learned: Annual HTS with health promotion provides a safe space for learners to know their HIV status. HIV focal points in schools facilitate support and linkage to care for HIV-positive learners, and encourage healthy behavior.

Conclusions/Next steps: It is feasible to deliver these services in a mobile outreach model and a core element of implementing the National DBE policy should be that districts with high HIV burdens in South Africa should introduce annual HTS with Health Promotion on knowing HIV status, and train and establish HIV focal points among educators in schools.

[Figure 1: Numbers tested for HIV and proportion positive at schools, 2013-2017]

WEPEE711

Adolescent girls and young women as end users of HIV prevention in sub-Saharan Africa: Mapping ongoing and planned research along the HIV prevention journey to inform product introduction

E. Donaldson, A. Gomez, L. Fitch, E. Gardiner, M. Warren
AVAC, New York, United States

Background: New HIV prevention products are needed and existing ones need to be successfully introduced to address the disproportionate number of new infections among adolescent girls and young women (AGYW) in sub-Saharan Africa. For successful product introduction, a thorough understanding of factors that influence AGYW's awareness, acceptance, uptake, adherence and championing of HIV prevention is essential. The landscape of AGYW and HIV prevention research is highly saturated, and a mapping of research along the prevention journey framework is needed to discover what is known, will be known and what gaps exist.
Starting in 2017, the HIV Prevention Market Manager project began tracking ongoing and planned work. This mapping builds on a previously published analysis, identifying the full scope of work in this area and mapping research questions to the journey framework.
Methods: A review of ongoing and planned research on HIV prevention and AGYW ages 13-28 in sub-Saharan Africa was conducted. The review maps research by study type, country and questions along the prevention journey framework—awareness, acceptance, uptake, adherence and championing. Structured interviews with product developers, researchers, marketing agencies, program implementers and surveys informed the mapping.
Results: The review identifies 84 organizations working on 104 ongoing and planned projects in 18 countries across sub-Saharan Africa. Research focuses primarily on acceptability and adherence, with oral PrEP the main product under study. The mapping found that South Africa, Kenya and Zimbabwe are the primary locations for research. Only 14% of all projects in sub-Saharan Africa gather information on those who influence potential HIV prevention users, with 54% of these projects including a focus on male partners, and only 4% including a focus on the health provider as influencer.
Conclusions: The mapping brought to light several gaps in research on AGYW as end users of HIV prevention products, such as the lack of research focused on providers.
The mapping intends to be a living document, updated with new research on an ongoing basis, and can inform collaborations and act as a guide to funders and implementers when considering what is already happening, what gaps exist and what new work is needed to understand AGYW and HIV prevention.

WEPEE712

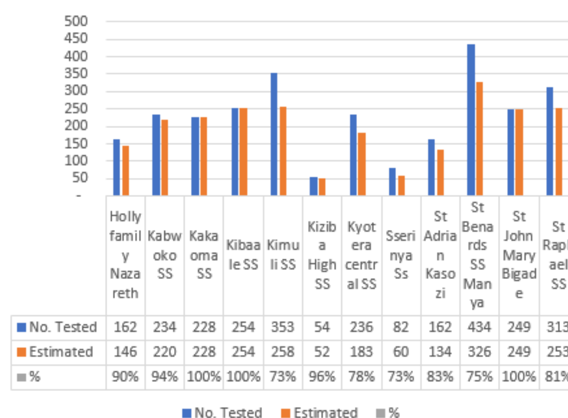
The SAGE-DREAMS project increases AGYW access to HIV testing services using school-based outreach: Evidence from Rakai district, Uganda

T. Odong[1], R. Laura Lulua[1], H. Achola[1], E. Omen[1], G. Ekpo[2], J. DeSoto[3,4], S. Waisswa[1]
[1]*World Vision, Kampala, Uganda,* [2]*World Vision, Washington, United States,* [3]*World Vision, Health, Program Quality and Impact, Washington, United States,* [4]*George Washington University School of Public Health, Washington, United States*

Background: Recent UNAIDS (2016) statistics indicate that in Uganda, 570 adolescent girls and young women (AGYW) aged 15-24 get infected with HIV each week. HIV prevalence is almost four times higher among AGYW than their male counterparts (UPHIA 2016-2017). The Strengthening School Community Accountability for Girls' Education (SAGE) is a two-year project (October 2016-September 2018) implemented by World Vision, Inc., funded by PEPFAR as part of the DREAMS Innovation Challenge, managed by John Snow, Inc. (JSI). It aims to keep 45,000 AGYW in 151 secondary schools across 10 districts in Uganda, which acts as a social vaccine to reduce new HIV infection.

Description: Rakai district in Uganda has one of the highest HIV prevalence (7.6%) compared to the national average (6%) (UPHIA 2016-2017). The SAGE-DREAMS addresses socio-economic risk factors for HIV infection among AGYW using adolescent girl-led school-community approaches.
To contribute to the national and UNAIDS 90-90-90 Global Strategy, the project adopted school-based HIV testing services (HTS) outreach strategies. The project mapped all health facilities providing HTS around target schools, supported health workers to conduct HTS in schools, and trained school administrators, teachers and adolescent girl leaders to mobilize students for HTS. After twelve school-based outreaches were conducted 2,363 out of the estimated 2,761 AGYW got tested for HIV and received their results, representing an 86% testing rate.
Lessons learned:
- School-based HTS enables AGYW to be reached in large numbers with support from the school administration, teachers and peer educators.
- Working with existing professional health workers eases the process of referral in case of AGYW found to be positive.
- School provides youth friendly spaces away from the health facilities as service points which reduces fear and encourages students to go for HTS.
- School-based HTS outreach approach strengthens relationships between health workers, schools and parents/caregivers.

Conclusions/Next steps: School-based outreach increases access to HTS for AGYW as per the findings in the twelve schools in the Rakai district in Uganda. The SAGE-DREAMS project will scale up this approach to reach more AGYW with HTS and these promising preliminary findings can be applied more broadly in Uganda and elsewhere.



	Holly family Nazareth	Kabwoko SS	Kakaoma SS	Kibaale SS	Kimuli SS	Kiziba High SS	Kyotera central SS	Sserinya Ss	St Adrian Kasozi	St Benards SS Manya	St John Mary Bigade	St Raphael SS
No. Tested	162	234	228	254	353	54	236	82	162	434	249	313
Estimated	146	220	228	254	258	52	183	60	134	326	249	253
%	90%	94%	100%	100%	73%	96%	78%	73%	83%	75%	100%	81%

[HTS uptake among AGYW 13 - 19 years at schools in Rakai, Uganda - Year 1]

WEPEE713

Strategies to identify and reach high risk young women with DREAMS services in Zimbabwe

S.T. Chabata[1], B. Hensen[2], T. Chiyaka[1], P. Mushati[1], R. Makandwa[1], S. Floyd[2], J. Busza[2], I. Birdthistle[2], J.R. Hargreaves[2], F.M. Cowan[1,3]
[1]*Centre for Sexual Health and HIV/AIDS Research (CeSHHAR) Zimbabwe, Harare, Zimbabwe,* [2]*London School of Hygiene and Tropical Medicine, London, United Kingdom,* [3]*Liverpool School of Tropical Medicine, Liverpool, United Kingdom*

Background: Adolescence and sex work are independent risk factors for HIV. In many countries, including Zimbabwe, young women who sell sex (YWSS) are doubly criminalised as sex work and having sex below the age of consent are illegal. Consequently, they are particularly hidden and hard to reach with HIV prevention and care services. The DREAMS Partnership aims to reduce risk of HIV acquisition among the most vulnerable adolescent girls and young women, including YWSS, in 10 sub-Saharan African countries. We describe two methods used to identify and refer YWSS for DREAMS services (DREAMS) in Zimbabwe.
Description: DREAMS funds a 'Core Package' of evidence-informed approaches that go beyond the health sector, addressing structural drivers that increase girls' HIV risk, including poverty, gender inequality, sexual

violence, and lack of education. In Zimbabwe, a component of the core package for YWSS is the offer of oral pre-exposure prophylaxis. We used two approaches to identify hard to reach YWSS: 1) respondent-driven sampling surveys (RDS) and 2) peer outreach. For the RDS, we conducted detailed mapping to understand sex work typology and geography then purposively selected 20 participants to initiate RDS recruitment. Once recruited, YWSS underwent survey procedures and were referred for DREAMS. For peer outreach, we initiated recruitment through 18 trained and age-matched, supported peer educators using youth tailored community mobilisation and as with RDS, YWSS were referred for DREAMS. In both approaches we used unique identifier codes (UIC) to track YWSS across services provided by different implementing partners.
Lessons learned: From April-July 2017, RDS referred 1204 YWSS and from August-November 2017, the peer educators referred 2461 YWSS; 426 (35%) and 378 (15%) reached DREAMS, respectively (Table 1). There were challenges tracking YWSS across implementing partners because some YWSS intentionally altered information used to generate their UIC when accessing different DREAMS services. Also with these strategies, we couldn't capture or collect information on YWSS who refused participation.
Conclusions/Next steps: Peer referral whether through RDS or peer outreach is able to identify high risk young women and refer them to services. There is need to use robust UIC and other systems to facilitate tracking of individuals and avoid double counting.

Characteristic		Referred through RDS (N=426)		Referred through peer outreach (N=378)	
		n	% (RDS-2 weighted)	n	%
Age	≤19	144	34.9	174	46.0
	20-24	282	65.1	204	54.0
Educational attainment	Primary school or less	37	6.6	21	6.4
	Some secondary school or more	389	93.4	309	93.6
HIV status	Negative	357	87.2	300	90.6
	Positive	67	12.8	31	9.4
Condom use at last sex with any partner	No	137	31.0	230	69.3
	Yes	289	69.0	102	30.7

[Characteristics of YWSS who reached the DREAMS services]

WEPEE714

Parenting programs a medium for addressing gender based violence and HIV risk reduction for DREAM girls

G.S. Nakabugo[1], C. Mungooma[2], F. Ayo[3], C. Agaba[4]
[1]TASO, Programs and Capacity Development, Kampala, Uganda, [2]TASO, Program Management and Capacity Development, Kampala, Uganda, [3]Catholic Relief Services, Program Management, Kampala, Uganda, [4]TASO, Research, Kampala, Uganda

Background: According to the Uganda Population Based HIV Impact Assessment (UPHIA 2016- 2017), the prevalence of HIV among adults aged 15 to 64 in Uganda is 6.2%: 7.6% among females and 4.7% among males. HIV prevalence is almost four times higher among females aged 15-24 years than their male counterparts. The AIDS Support Organization (TASO) is implementing a 2 year DREAMS (Determined, Resilient, Empowered, AIDS free, Mentored and Safe women) initiative targeting Adolescent Girls and Young women (AGYW) 10-24 years in three districts of Uganda. The goal is to reduce HIV incidence by 40% in two years. Strengthening families is one of the core packages offered through DREAMS. The interventions aim to strengthen the family economically as well as their ability to parent positively. Programs that involve parents and caregivers have shown to be effective in changing HIV related sexual behaviors among young people.
Description: The Sinovuyo Parenting intervention is a 14-week training program aimed at creating strong and positive relationships among teens and their caregivers. It helps families to get along better, reduces the risk of child abuse in families and helps teenagers to stay safe from HIV and AIDS. The teens who test HIV negative are enrolled into the program and those who test positive are linked to care. TASO has worked with the communities and formed 587 parenting groups composed of teens 10-17 years and their caregivers who meet in safe spaces. A total of 9,144 AGYW adolescent girls have benefited from the program.
Lessons learned: Risk reduction is evident; out of the 9,144 girls enrolled on the program and re tested; 99% are HIV negative and one (1) girl tested HIV + . Parenting interventions are addressing violence against children. Community facilitators have been empowered to support children report violence, 18 cases of abuse been reported and addressed. Community ownership of the program is crucial, all the 280 community safe spaces/ meeting spaces are provided by community members. Customization of the evidence based models is key in DREAMS implementation.
Conclusions/Next steps: DREAMS interventions have contributed to a decline in new infections among Adolescent Girls and empowered communities to address violence.

WEPEE715

A qualitative assessment of HIV risk and engagement in health services among adolescent girls who sell sex in Zimbabwe

S. Zitha[1], J. Busza[2], E. Fearon[3], F.M. Cowan[4], D. Hanisch[5], T. Mbengeranwa[6]
[1]CeSHHAR Zimbabwe, Key Populations, Harare, Zimbabwe, [2]WHO Ethiopia Country Office, Department of Population Health London School of Hygiene and Tropical Medicine, Addis Ababa, Ethiopia, [3]London School of Hygiene and Tropical Medicine, Department of Public Health, Environments and Society, London, United Kingdom, [4]CeSHHAR Zimbabwe, Research, Harare, Zimbabwe, [5]United Nations Population Fund, Technical Specialist HIV Prevention & SRH, Harare, Zimbabwe, [6]National Aids Council, Key Populations, Harare, Zimbabwe

Background: Adolescent girls and young women in Sub Saharan Africa remain at high risk of HIV. In Zimbabwe, little is known about adolescent girls (16-19 years) engaged in sex work, making it difficult to adapt programmes to meet the needs of this particularly vulnerable group. We conducted a study to understand the organisation of sex work among this age group and identify implications for targeted programming.
Methods: We collected qualitative data to understand how adolescent girls who sell sex (AGSS) operate, with whom they work, and the risks they face. In-depth interviews were conducted with 16 adolescent girls who self-reported having been actively involved in sex work in the last 30 days. Three focus group discussions were also conducted with 32 AGSS. Questions explored the AGSS' drivers of sex work, experiences, health knowledge and service use.
Results: AGSS reported financial shocks precipitated entry into sex work. Their stories indicated that poverty was a push factor, and most girls perceived their sex work to be temporary, something they were doing to cushion themselves during times of economic hardship. The girls lacked information on services available to them and were unaware of which sexual behaviours put them at risk of HIV. Even though respondents self-reported high and consistent condom use, they had all agreed to have unprotected sex at some point in their lives. AGSS reported being an insular group, preferring to remain in secrecy, which made them particularly vulnerable. They did not want to associate themselves with programmes already available for sex workers. AGSS reported they were in constant conflict with older sex workers for charging less and for their popularity with clients.
Conclusions: AGSS are vulnerable to HIV and lack important information on sexual and reproductive health and thus engage in behaviour detrimental to their general health. Programs tailored to their specific needs and vulnerabilities are required.

WEPEE716

State of the art diagnosis on the implementation of comprehensive sexuality education in the English and Dutch speaking Caribbean

M. Gunter, X. Edmund
United Nations Population Fund (UNFPA), HIV, Kingston, Jamaica

Background: While comprehensive Sexuality Education (CSE) is accepted as an effective strategy to control threats related to sexual and reproductive health of adolescents and youth and equip them with life skills which support healthy sexuality and inter-personal relationships, the concept of comprehensiveness, gives rise to differential implementation. A State of the Art Diagnosis was commissioned in an effort to generate evidence on the progress and effectiveness of CSE implementation in the Caribbean.
Methods: This 3 month mixed method study was conducted with 72 respondents from the Ministries of Education and Health in 8 countries. The study used evaluative research methodology to assess, determine and compare the strategies and factors influencing the effective implementation of CSE. The national programmes were assessed against good practice standards of UNFPA and UNESCO.
Results: The implementation of CSE programmes in the regions demonstrated varying levels of success as well as significant challenges in substance, form and delivery. The programme development stage was reported as the foremost predictor of implementation efficacy (83%). When assessed against the good practice standards using bidirectional bar-graphs, programme development and implementation was sub-optimum (-75%); Adherence to programme standards was moderate to low (-52%); Gender sensitive and rights-based approaches received the highest score (68%); Resourcing and resource mobilization the lowest (-77%); Acceptability and appropriateness standards received the highest favourable score (57%); and Fidelity and coverage the lowest (51%). Many respondents reported lack of evidence to support responses (34%) which may be tied to weak monitoring and evaluation frameworks. Specific weaknesses reported focused on supportive policy implementation, challenges with infusion and integration approaches, teacher preparation and instruction; and socio-religious influences on quality of delivery.
Conclusions: The study found that programme development and meso level issues were the main determinants of effective CSE implementation. The interrelationships between the macro, meso and micro levels of policy implementation, and the programme design and development phase are linchpins to realizing CSE implementation efficacy. Resulting action plans should aim to strengthen policy leadership and support, facilitate greater investment in CSE programme development and elevate capacity of CSE technicians to implement.

WEPEE717

PEPFAR partnership with girl effect; a branded approach to improving HIV outcomes among adolescent girls in Malawi

L. Marks[1], N. Bhandari[2], D. Jodrell[3], C. Gardner[3]
[1]Office of U.S. Global AIDS Coordinator and Health Diplomacy, Washington, United States, [2]Office of U.S. Global AIDS Coordinator and Health Diplomacy, G. Street, N.W. Suite #, United States, [3]Girl Effect, London, United Kingdom

Background: The power of brands to drive consumption and behaviour is widely recognised in the private sector. Leveraging its expertise in brand creation, Girl Effect launched Zathu in Malawi, a youth brand aiming to create behaviour change among adolescent girls and young women (AGYW) with regards to gender norms and HIV/AIDS prevention.
Description: As part of DREAMS, Girl Effect conducted extensive research which revealed that societal expectations of the relationship between boys and girls is a purely sexual one. This dynamic is unhealthy and puts girls at risk for HIV.
In response, Girl Effect created Zathu, a youth brand that encourages positive male-female relationships. Zathu uses the influence of music, radio, and drama to show positive platonic relationships, championing self-expression and challenging stereotypical gender roles. By improving the perceived value of girls, Zathu aims to help close the gender divide and in turn impact health and poverty indicators such as seeking out health services.
Almost 6.7 million Malawians aged 10 and over are aware of Zathu.
In the two DREAMS districts (Machinga and Zomba), there was an estimated 32% decrease in new HIV diagnoses among 15-24 year-old AGYW.
Lessons learned: This innovative partnership developed a measurement framework to demonstrate the influence of a youth brand for social change on improving girls' agency and driving health outcomes. PEPFAR provides the technical HIV expertise to inform programming and delivery; Girl Effect adds its technical expertise in girl-focused programmes, innovation, youth brands, and media to create perception change and improve the demand for health services. This partnership combines interventions that are effective when implemented individually and have the potential to be even more impactful when implemented as part of a package.
Conclusions/Next steps: Utilizing a partnership model where private sector expertise is adapted to solve social issues is effective. The impact of Zathu will be further evaluated, including how the brand affects relationships between boys and girls, and its impact on behaviour change with regards to HIV prevention. A baseline will be used to understand how Zathu is supporting the strides DREAMS has made in reducing HIV incidence among AGYW.

WEPEE718

Outcome evaluation of Grassroot Soccer-Zimbabwe SKILLZ for youth programmes (2011-2017)

C. Nombulelo Chaibva[1], F. Mantula[2], G. Mavondo[3], M. Mzingwane[4], C. Gwatiringa[1], C. Mapfumo[2], B. Moyo[5], P. Dube[5], H. Ncube[5], F. Govere[6]
[1]National University of Science and Technology, Department of Nursing and Midwifery Sciences, Faculty of Medicine, Bulawayo, Zimbabwe, [2]National University of Science and Technology, Faculty of Medicine, Bulawayo, Zimbabwe, [3]National University of Science and Technology, Pathology, Bulawayo, Zimbabwe, [4]National University of Science and Technology, Department of Pathology, Faculty of Medicine, Bulawayo, Zimbabwe, [5]Grassroot Soccer-Zimbabwe, Bulawayo, Zimbabwe, [6]Grassroot Soccer, Inc., Norwich, United States

Background: Zimbabwe is amongst the countries with the highest HIV infection rate. Young people continue being greatly affected by this epidemic with nearly 13.5% of young people aged 13-24 living with HIV in Zimbabwe. Grassroot Soccer, Zimbabwe (GRSZ) is an adolescent health organisation that leverages the power of soccer to educate, inspire and mobilize youth to overcome their greatest health challenges, live healthier, more productive lives and be agents of change in their communities. Since 2011, GRSZ in Bulawayo has been implementing three interventions in high schools which combine adolescent-friendly curricula, the power of soccer and local Coaches/Peer mentors to deliver HIV knowledge and prevention messages.
The purpose of the evaluation was to explore the outcomes of the three GRSZ SKILLZ Health programs; SKILLZ Generation, SKILLZ Holiday and SKILLZ Street. The evaluation was guided by specific elements that considered the scope and purpose of the evaluation namely; relevance, efficiency, effectiveness, utility and sustainability.
Description: The outcomes evaluation was conducted in Bulawayo, Zimbabwe from August 2017 to December 2017 for the three SKILLZ Health programmes implemented between 2011-2017. Quasi-experiment Design-Proxy Pre-Post Test design was used. Quantitative and qualitative data were collected using self-administered questionnaires on 392 randomly selected adolescents. Ten focus group discussions with adolescents and two with Coaches/Peer mentors were carried out while in-depth interviews were conducted with teachers, parents/guardians of the participants and partner organisations. Quantitative data was analysed using SPSS while qualitative analysis applied content analysis methods. Ethical approval was granted by the Medical Research Council of Zimbabwe (MRCZ).
Lessons learned: There was evidence of increased knowledge, behaviour change and attitudes on HIV and other reproductive health issues in both quantitative and qualitative analyses. Females scored 69.3% ("high")

on HIV and reproductive health knowledge when compared to males (30.7%). There was also a significant (p=< 0.001) increase in self-efficacy in resisting unwanted sex and negotiating for safer sex practices; 18.5% had had sex with 41.7% of them reporting male condom use in preventing STIs and pregnancy.
Conclusions/Next steps: Participation in GRSZ increased knowledge of HIV and self efficacy among adolescents suggesting that the programs/curricular are relevant, efficient, effective and sustainable.

WEPEE719

Reducing HIV vulnerability among adolescent girls and young women: Beneficiary and implementer perspectives of the DREAMS program in Zambia

M. Musheke[1], S. Mathur[2], N. Jani[2], L. Banda[1], D. Mulenga[1], J. Pulerwitz[2]
[1]Population Council, Lusaka, Zambia, [2]Population Council, Washington DC, United States

Background: The DREAMS program is being implemented in high-risk communities in Zambia, and aims to substantially reduce HIV-risk among adolescent girls and young women (AGYW). DREAMS' core intervention package, consists of a set of evidence-based interventions implemented by a range of implementing partners in each setting. We present beneficiary and implementing partner perspectives of the initiation and roll-out of this innovative comprehensive program in Zambia, and offer insights for strengthening program efforts.
Methods: In-depth interviews were conducted with 15-24 year old program beneficiaries (n=20) and DREAMS implementing partner staff (n=12), at 3 and 6 month intervals after program initiation in two sites in Lusaka and Ndola districts. Data was transcribed, coded and analyzed using thematic content analysis.
Results: Program implementation was initially characterized by delays due to weak coordination systems across program implementing partners. Poor understanding of the different roles of partners and how they complemented each other resulted in poor referral of AGYW among partners. Consequently, in part, this led to early loss of interest in the program by AGYW. Once the program was rolled-out, at beneficiary level, the program reportedly had a positive effect on HIV prevention knowledge and behaviors.
Some AGYW reported a reduction in the number of sexual partners, encouraging their partners to test for HIV, and insisting on condom use. For some girls, this assertiveness on HIV preventive behaviors even resulted in termination of relationships with non-yielding partners. AGYW also noted that joint parent-child sessions have helped break cultural sensitivities around discussions of sexual and reproductive health.
Other program components targeting structural risk factors, such as the loan and savings program, seemed to have had a tempered effect, due to limited access to the loan scheme and the inability by some girls to contribute funds hampered the intervention.
Conclusions: AGYW and their parents were actively engaged in HIV prevention efforts. Strong coordination systems, shared understanding of implementation roles, and frequent joint planning can support partners in implementing comprehensive programs. Additional targeted interventions to reach male partners of AGYW and structural efforts to alleviate household poverty may be needed to bolster AGYW in their HIV prevention efforts.

WEPEE720

Youth Care Clubs: Optimising clinic time, fostering peer support, improving adherence

M. Beery, R. Henwood, C.E. Martin, E. Dondolo, P. Ndlovu, M. Ngobeni, P. Onneile, T. Ziyane, S. Delany-Moretlwe, J. Imrie
Wits RHI, Research, Johannesburg, South Africa

Background: Long waiting times are common in South Africa's public health services. Peer support amongst adolescents living with HIV (ALHIV) positively effects emotional well-being and treatment adherence. We examined the efficiency gains, adherence and potential emotional benefits of a group model of ALHIV clinical and psychosocial care.
Methods: Wits RHI's USAID-funded Adolescent Innovations Project (AIP) implements 31 Youth Care Clubs (YCCs) in 18 clinics in two health sub-districts. YCCs are closed peer groups, comprising 20 ALHIV on antiretroviral therapy (ART). They are available to newly diagnosed, virally suppressed and un-suppressed patients. At each meeting, the club's facilitator conducts members' routine health screens (i.e. TB, STIs, nutrition, and psychosocial wellbeing), offers contraceptive services, facilitates an adolescent issues-focused conversation and distributes pre-packed ART. Coordinated annual viral load testing is conducted. Initially clubs meet monthly which fosters friendship development and encourages peer support. Club members keep in touch outside meetings through WhatsApp groups and online.
Time-motion observations were conducted assessing standard of care (SOC) clinic visits and YCCs. Retention and viral-load suppression data were extracted from YCC registers.
Results: Between August 2016 and December 2017, 542 ALHIV enroled in YCCs. Median age at enrolment was 18 years; 368 (68%) were female. Health screening was conducted at 96% of eligible in-person visits.
Retention in YCC care was 85% compared to 84% in SOC; 97% of YCC patients were virally suppressed after 12 months compared to 86% of patients in SOC. Each ALHIV attending an SOC visit spent an average of 86 minutes in the clinic of which 64 minutes was spent in "unengaged" waiting. YCC ALHIV spent 130 minutes for a YCC visit, however, "waiting" time was spent engaged in facilitated conversations with familiar peers and healthcare providers building supportive relationships. Despite overall longer clinic visits, YCCs reduced patients' total clinic visits by combining ART refills, contraceptive services and psychosocial support.
Conclusions: The YCC group model of clinical and psychosocial care provides efficient, comprehensive, convenient care for ALHIV without compromising retention or viral-load suppression, and fosters supportive social relationships between peers and healthcare workers.

WEPEE721

The power of peers: Multi-country analysis of adolescent viral suppression in sub-Saharan Africa

D. Mark[1,2], K. Bloch[1], L. Cluver[3,4], E. Toska[5], A. Ronan[1], L. Gittings[5], R. Hodes[5], S. Malunga[1], L. Hatane[1]
[1]PATA, Cape Town, South Africa, [2]University of Cape Town, Psychology, Cape Town, South Africa, [3]University of Oxford, Dept of Social Policy and Intervention, Oxford, United Kingdom, [4]University of Cape Town, Dept of Psychiatry and Mental Health, Cape Town, South Africa, [5]University of Cape Town, AIDS and Society Research Unit, Cape Town, South Africa

Background: UNAIDS fast-track targets require 90% of people on ART to be virally suppressed, but we are far from reaching this goal in adolescents and young people. Limited age-disaggregated data from sub-Saharan Africa reflect viral supression rates of 33-56% in these age groups. Health facility-based adolescent peer supporter programmes have gained recent attention as a promising scaleable intervention. However, we urgently need to examine their effectiveness in real-world settings in sub-Saharan Africa. This is the first known multi-country analysis of the impact of facility-based adolescent peer support on viral suppression.
Methods: In 2017, Paediatric-Adolescent Treatment Africa (PATA), a network of frontline health providers across sub-Saharan Africa, conducted cross-sectional surveys with 71 health facilities from 13 countries in Southern, Eastern, West and Central Africa to assess facility-level characteristics and past-year adolescent (10-19 years) viral suppression rates. Data were analysed using multivariate logistic regression to measure the impact of ≥1 facility-based adolescent peer supporter on adolescent viral suppression rate, controlling for: country, urban/rural location, public/private facility, level of facility (primary/secondary/tertiary) and physician/non-physician care. UNAIDS Eastern and Southern Africa (ESARO) 2017 data for all people living with HIV were used to define the regional viral suppression rate as 50%.
Results: Facility respondents were from Southern (35.2%), East (54.9%) and West/Central African (9.8%) regions. Two-thirds (74.7%) of facilities were urban/peri-urban and 57.8% public-only. Half (49.3%) provided primary care and 74.7% physican care. Controlling for these facility characteristics, provision of facility-based adolescent peer support was associated with an almost seven-fold increase in the likelihood of aggregate

adolescent viral suppression above that of the ESARO regional rate (adjusted OR 6.95, p=0.02, CI 1.28-37.59).
Conclusions: Findings suggest that peer support should be a key service component of the facility-based health response for adolescents living with HIV in sub-Saharan Africa, regardless of where facilities are located, their level of care or health provider profile. However, further operational research is needed to determine how best to implement and integrate peer support programmes. PATA will seek to identify a minimum package of peer-led services for low-resource settings to optimise the power of peers for the health and wellbeing of adolescents living with HIV.

WEPEE722

YouTube influencers support Dutch girls in making well informed, healthy SRHR choices

H. Roosjen[1], Y. Ohlrichs[2]
[1]Soa Aids Nederland, Amsterdam, Netherlands, [2]Rutgers, Utrecht, Netherlands

Background: Since 2009 Sense.info is the most frequently visited SRHR site for young people aged 12-25 in the Netherlands. In 2017 the website was visited more than 2 million times (the Netherlands has 17 million inhabitants).
In 2016 and 2017, 6 videos hosted by social influencer Britt Scholte were launched on Sense.info. These are the first vlogs in which Dutch social influencers cooperate with SRHR professionals. From previous projects we learned that social influencers are role models for teens. They speak each others language and share similar experiences using familiar references. Successful social influencers are trusted resources of information for a young audience. Therefore these vlogs are modern, unique and strong communication tools to reach teens.
Description: In each video, two Dutch social influencers (girls aged 17-23) discuss a particular contraceptive method. They exchange assumptions about and/or experiences with this method. As they realize that they have many questions the girls invite doctor Rosa in. She works at Sense, the Dutch SRHR center for young people. Doctor Rosa answers their questions and debunks popular myths about contraceptives.
Finally Britt and her guest invite viewers to anonymously share personal experiences with contraceptive use on Sense.info. All participating social influencers did likewise.
Within a year from the launch of the series the videos had more than 280.000 views.
Lessons learned: Cooperation with social influencers helped Sense.info to reach out effectively to a large audience of teens. With ease the vloggers translated SRHR messages in a language that appeals to a young audience. The videos come across as authentic, because the YouTubers have real questions themselves about contraceptives. It is very helpful to team with an agency that represents popular social influencers. This helped to find the most appealing spokespersons.
Conclusions/Next steps: Cooperation with social influencers on YouTube proves to be an effective strategy to empower young people in making well-informed decisions about their sexual and reproductive health. A good briefing of the influencers or involvement of an expert in the video is essential to avoid misinformation. Sense.info will continue this pioneering way of communicating to our audience.

[Social influencer Britt Scholte and Doctor Rosa]

WEPEE723

What role do public libraries play in the fight against HIV/AIDS?: Lessons from Lubuto Library Partners in Lusaka, Zambia

E. Giles, M. Kasukumya
Lubuto Library Partners, Lusaka, Zambia

Background: As public institutions highly responsive to the information and service needs of their communities, public libraries have an especially critical role to play in the fight against HIV/AIDS: reaching vulnerable demographic groups (street children, adolescent mothers, and youth with disabilities) who are excluded from settings where HIV prevention programs are typically delivered. In Lusaka, Zambia, public libraries have reached more than 1,020 vulnerable youth with innovative HIV prevention programs.
Description: Lubuto Library Partners (LLP) is a development organisation that builds the capacity of public libraries to provide equitable education and poverty reduction, receiving an average of 2,400 of visits/week at its 2 Lusaka libraries in 2017. Beyond literacy and traditional library services, LLP runs a role-model mentoring program under a DREAMS Innovation Challenge grant to equip adolescent girls and young women aged 15-24 with HIV/SRH knowledge and access to services, and foster their determination to achieve.
Lessons learned:
1) Offering HTC services in a non-traditional yet trusted, inclusive, non-stigmatizing environment. By partnering with health service providers to offer testing at public libraries, LLP has held 6 HTC sessions at which 496 girls have been tested, maintaining a constant 100% referral completion rate.
2) Implementing an effective strategy to combat poverty-driven pressure towards transactional sex. Many girls in the program engage in transactional sex to earn up to USD $5/monthly to purchase essential toiletries, leading LLP to provide a graduation package of toiletries that reduces this pressure. This measure led to an average enrollment increase of 45% at two sites between Cohorts 1 and 2.
3) The value of cross-sectoral partnerships to offer holistic support for adolescents. LLP has taken 168 girls on horizon-broadening field trips to meet female leaders at institutions such as Parliament, universities, technology companies: trips that are unique among HIV prevention programs in Zambia, and which significantly drive program enrollment.
Conclusions/Next steps: These lessons suggest that HIV prevention programs can 1) benefit from partnerships to provide HTC at non-traditional community sites, such as public libraries and 2) drive enrollment by addressing factors that influence behavior, including poverty and lack of exposure to diverse female role models.

WEPEE724

"I feel brave and positive": Feasibility and acceptability of financial incentives for improving retention in care and adherence to anti-retroviral therapy amongst adolescents living with HIV in Rwanda

M. Bontempo[1,2], M. Osman[2], M. Sharma[2,3], S.P. Niyonsenga[4], R. Hope[2]
[1]University of California, School of Public Health, Berkeley, United States, [2]YLabs, Oakland, United States, [3]Harvard T.H. Chan School of Public Health, Boston, United States, [4]Rwanda Biomedical Center, Kigali, Rwanda

Background: Although antiretroviral therapy (ART) has shown to be critical in the treatment of HIV by suppressing HIV viral load and sustaining immune function, its adherence has been poorest in adolescents, especially in Sub-Saharan Africa. Financial incentive-based programs have shown early promise in motivating healthy behaviors, however concerns around acceptability remain. This study evaluated the feasibility and acceptability of a multipronged intervention ART adherence and care retention amongst HIV+ adolescents in Rwanda, to adapt the model for scale-up and policy uptake.
Description: Study participants were 72 adolescents (35 female, 37 male, aged 12-19), recruited through random stratified sampling from an urban (n=50) and a rural (n=22) clinic in Rwanda. Inclusion criteria were

adolescents aware of their HIV-positive status, enrolled in care at one site for >1 year, and prescribed ART for >1 year. The intervention, called YBank, consisted of:
a) short-term and long-term financial incentives for clinic attendance and suppressed viral load;
b) monthly life-skills training for financial literacy, and;
c) peer support from older HIV+ youth.
Data collection included:
a) baseline and endline survey data on demographic characteristics, clinic attendance, and viral load;
b) historical clinical data, and;
c) semi-structured interviews (30 adolescents, 20 caregivers, and 4 healthcare workers).
Lessons learned: All interviewees found the intervention highly acceptable, and reported emotional benefits associated with the incentive. Key themes expressed by adolescents were feeling rewarded and enhanced future planning. Few caregivers expressed concerns about adolescents accessing mobile money accounts independently. Overall, savings increased and we observed no increase in risky spending behaviors. Although there was no statistically significant reduction in viral load, early results indicate that the intervention may have greater impact on historically vulnerable groups including very young and out of school youth.
Conclusions/Next steps: Financial incentives, combined with a supportive environment and adequate skills-training, shows promise in motivating health behavior change in adolescents. The intervention was deemed acceptable to adolescents and caregivers, however its feasibility was limited by operational challenges, like access to mobile money accounts. The study indicated a need for mixed-methods in designing youth-targeted financial services, and evaluating their efficacy over time using large multi-site RCTs.

[YBank Financial Incentives Card]

	BASELINE			
	suppressed	not suppressed		
female	18	17	35	
male	16	21	37	
TOTAL	34	38	72	p = 0.487
	ENDLINE			
	suppressed	not suppressed		
female	15	20	35	
male	14	23	37	
TOTAL	29	43	72	p = 0.664

[Viral Load Suppression by time point]

WEPEE725

Mothers Matter! Ensuring young adolescents living with HIV adhere to treatment for improved health and wellbeing in high HIV counties of Kenya

N. Otwoma[1], G. Kerubo[1], L. Wangeci[2]
[1]*NEPHAK, Coordination, Nairobi, Kenya,* [2]*NEPHAK, Programmes, Nairobi, Kenya*

Background: Younger Adolescents 10 to 15 years living with HIV in Kenya continue to suffer from AIDS related illnesses despite having been enrolled on HIV treatment. Latest estimate show that only 61% of adolescents on HIV treatment have achieved viral suppression against the 90% target. There is also evidence that young people in Kenya are failing on the first line treatment and being put on 2nd line with adverse implications.
Description: With support of CIFF and EGPAF, NEPHAK in partnership with the Ministry of health has been implementing targeted interventions aimed at ensuring that children and adolescents are not left behind in the fast track plan to deliver on the 90.90.90 HIV treatment targets. The interventions start with a baseline assessment carried out by the Ministry of health on the Viral Load of the target adolescents. The adolescents are then introduced to targeted community focused interventions with the aim of ensuring they attend all clinics and adhere to treatment as advised by the clinicians. A post-intervention assessment through laboratory Viral Load monitoring is then done after one year. This is repeated at the end of 2 years.
Lessons learned: Of the 478 adolescents followed over a period of 2 years, 322 (67%) recorded undetectable Viral Load and were thriving well on the first line treatment. On further analysis, 90% (289) of those that had achieved viral suppression are under the care of biological mothers. On the contrary, 48% of the adolescents who were presenting with health challenges during the project period were living with older siblings with 7 living in households headed by adolescents.Parents and especially mothers play a critical role in ensuring that children and adolescents living with HIV adhere to treatment and good health.
Conclusions/Next steps: Interventions targeting younger adolescents living with HIV need to be family-centered and to ensure engagement of mothers. Fathers and other family members also need to be incapacitated, mentored and engaged in the interventions targeting younger adolescents to ease the burden on the mothers. NEPHAK will continue to advocate for family-centred interventions to improve the health and well-being of adolescents living with HIV.

WEPEE726

Assessment of adolescent HIV service delivery in Kenya: The PHASE study

K. Beima-Sofie[1], I. Mutisya[2], E. Begnel[1], P. Kohler[3], J. Itindi[4], E. Nyaboe[4], J. Stern[1], C. McGrath[1], J. Kinuthia[5], T.-H. Chen[2], B. Singa[4], E. Ngugi[2], A. Katana[2], G. John-Stewart[1,6,7], L. Ng'ang'a[2]
[1]*University of Washington, Department of Global Health, Seattle, United States,* [2]*U.S. Centers for Disease Control and Prevention, Division of Global HIV/AIDS & Tuberculosis, Nairobi, Kenya,* [3]*University of Washington, Department of Nursing, Seattle, United States,* [4]*Kenya Medical Research Institute, Centre for Clinical Research, Nairobi, Kenya,* [5]*Kenyatta National Hospital, Department of Research and Programs, Nairobi, Kenya,* [6]*University of Washington, Department of Pediatrics, Seattle, United States,* [7]*University of Washington, Department of Epidemiology, Seattle, United States*

Background: Inadequate provision of accessible and acceptable HIV services has been cited as a barrier to engagement and retention in HIV care among adolescents. We assessed provision of adolescent services at HIV treatment facilities throughout Kenya.
Methods: We conducted a survey at 102 large (≥500 HIV-infected patients) facilities in Kenya randomly selected among clinics using electronic medical records. Interviews were conducted with healthcare providers between February-May 2017. Respondents provided information on provision of adolescent (ages 10-19 years) care including: adolescent-dedicated services, workforce training, HIV treatment practices, and reproductive health services.
Results: Facilities reported an average of 110 adolescents (Range: 4-1462) ever enrolled in care with an average of 62 (Range: 3-508) in active follow-up. Forty-four percent of clinics had dedicated pediatric and adolescent clinic staff. Fifty-seven percent saw adolescents only on specific adolescent days rather than integrated into days for adults (23%), children (15%) or combined adult/pediatric days (9%). Most (72%) clinics reported having received training in adolescent HIV service provision while 59%) reported receiving training in providing adolescent sexual and reproductive health services. Only 64% of clinics identified themselves as providing "adolescent friendly services."
Most (81%) clinics offered peer support groups or teen clubs. Adolescents were most often given one month (51%) or three months (22%) of medication. Fifty-one clinics (50%) reported varying medication delivery based

on school schedules and/or medication adherence. Almost all clinics (99%) allowed a proxy to pick up medication for adolescents. One-third (34%) required a parent or primary caregiver to be present when providing HIV care to adolescent minors (ages 10-17) while 47% listed specifications for when care could be provided in the absence of a caregiver, including adolescent maturity and disease severity. Median age for initiating transition from pediatric to adult care was 15 years (IQR: 12-18), and for planned completion of transition was 19 years (IQR: 18-20). Most clinics reported providing condoms (65%), family planning services (60%) and STI screening (67%) to adolescents.
Conclusions: This study demonstrates the implementation landscape for adolescent HIV services in Kenyan clinics. Continued training on adolescent HIV service provision can ensure uniformly high quality of care across regions and facilities.

WEPEE727

A global review of condom availability programs in high schools

E. Algur[1], H.S. Friedman[2], X. Wang[3], B. Deperthes[2]
[1]Harvard University, Cambridge, United States, [2]UNFPA, New York City, United States, [3]Yale University, New Haven, United States

Background: High levels of HIV, STIs, and pregnancy among adolescents has motivated some countries to consider the implementation of condom availability programs (CAP) in high schools. However, this has been met in some countries with significant opposition from parents, religious leaders, and community members.
Opponents of CAP argue that the program would encourage sex and increase promiscuity among adolescents. In this present study, we analyzed the impact of CAP on students´ sexual behaviors and health outcomes.
Methods: We conducted a systematic global literature review of peer-reviewed articles published between 1990 and 2017. Criteria for inclusion in the full-text review were: condom distribution, availability, provision at schools, and studies related to male condoms only (as most of the articles did not address female condom). We organize the results based on three broad categories: initial attitudes of the community to CAP prior to implementation, impact of CAP on students' sexual behaviors, and impact of CAP on sexual health outcomes.
Results: 29 articles from seven countries were included in this review. We found that CAP does not increase sexual activity, nor lead to a greater number of sexual partners, nor lower the age of sexual initiation. A majority of the studies reported an increase in condom uptake and use at last sex among students with CAP. All of the studies that examined STI found a decrease of STI symptoms and rates for students with CAP compared to the control group. The data on HIV rates was inconclusive. There was no difference in pregnancy rates associated with participation in CAP programs.
Conclusions: This global literature review showed that the fears surrounding CAP and promiscuity are unfounded. Once CAP is in place, students utilize it, and condom use increases, which translates to improved sexual health outcomes.

WEPEE728

Camp and the third 90: HIV+ adolescents attending camp in Mbeya, Tanzania experienced no differences in viral suppression, mortality, or lost-to-follow compared to HIV+ adolescents not attending camp

J. Bacha[1,2,3], B. Makamong'oko[3], R. Mgimba[3], M. Chodota[3], L. Campbell[1,2,3]
[1]Baylor College of Medicine International Pediatric AIDS Initiative at Texas Children's Hospital, Houston, United States, [2]Baylor College of Medicine, Houston, United States, [3]Baylor College of Medicine Children's Foundation - Tanzania, Pediatrics, Mbeya, Tanzania, United Republic of

Background: While camps for adolescents living with HIV (ALHIV) are well-received by adolescents and health care providers and have positive impact on psychosocial health, there is little literature examining impact of camp on virologic success and treatment outcomes. This abstracts compares HIV viral load results and treatment outcomes of ALHIV who attended "Salama Camp" in Mbeya, Tanzania to ALHIV not attending camp.
Methods: Salama Camp is a 5 day overnight camp targeting ALHIV ages 12-18yo, and aimed at improving psychosocial health, life skills, self care, and adherence to ART. Retrospective review was performed of Salama Camp reports and medical records of ALHIV who attended Salama Camp between 2012 and 2016. Most recent post-camp viral load and current chart status were extracted for all campers to determine virologic suppression (VL< 1000 copies/mL) and treatment outcomes. Age-matched ALHIV on ART at the HIV clinic between 2012 and 2016 who did not attend camp were used as a comparison group.
Results: 258 ALHIV attended Salama Camp, representing 39.2% (258/658) of all ALHIVs aged 12 to 18 years on ART at the clinic. 94.2% (243/258) Of those with post-camp VL results (94.2%, 243/258), 69.5% (169/243) had VL < 1000 copies/mL. Treatment outcomes of those who attended camp were 84.1% (217/258) active in care, 7.8% (20/258) transferred out, 4.3% (11/258) died, and 3.9% (10/258) LTFU.
In age-matched ALHIV on ART who did not attend camp (n=400): 72.5% (290/400) were virologically suppressed, 83.3% (333/400) active in care, 8.8% (35/400) transferred out, 4.5% (18/400) died, and 3.5% (14/400) LTFU.
There were no statistically significant difference in viral suppression (69.5% campers vs 72.5% non-campers, p=0.18), mortality rates (4.3% campers vs 4.5% non-campers, p=0.90), or LTFU rates (3.9% campers vs 3.5% non-campers, p=0.79) between the two groups.
Conclusions: No statistically differences in the key clinical outcomes of viral suppression, mortality, or LTFU were seen between ALHIV on ART attending camp and those not attending camp in Mbeya, Tanzania, despite the intensive and costly camp efforts. In resource limited settings, such resource intense programs must be continuously re-evaluated to ensure optimal use and maximal impact of scarce resources for ALHV.

WEPEE729

Youth participation: A way of achieving increased uptake of HIV prevention services among out-of school youths

A. Ajiboye[1], Y. Falola-Anoemuah[1], T. Oladele[1], H. Aboki[1], B. Olakunde[1], H. Yahaya[1], P. Odunlami[2], J. Garba[3], N. Ifeaiyichukwu[4]
[1]National Agency for the Control of AIDS, Community Prevention and Care Services, Abuja, Nigeria, [2]National Agency for the Control of AIDS, Strategic Knowledge and Monitoring, Abuja, Nigeria, [3]Federal Ministry of Youth and Social Development, Abuja, Nigeria, [4]National Agency for the Control of AIDS, Performance Management and Resource Mobilisation, Abuja, Nigeria

Background: In Nigeria, young people between 15-24 years make up 15% of the people living with HIV These young persons, which are either in-school or out-of-school account for about 36% of new HIV infection in Nigeria. While several HIV interventions such as family life and HIV/AIDS education, peer group sessions and anti HIV/AIDS club activities have targeted in-school youths, out of school youths are not adequately reached with HIV prevention programmes, largely because of their complex diversity and mobility. To address this gap, an outreach project was designed by Federal Ministry of Youth Social Development (FMYD) for out-of-school youths in Nigeria.
Description: The World Bank HIV Prevention Development Project (HPDP II), through National Agency for the Control of AIDS supported the FMYD to conduct HIV prevention outreaches in 12 states with high HIV prevalence in Nigeria. Youth-focused non-governmental organizations and community-based organizations working in each state were engaged to conduct HIV testing services (HTS) and distribute condoms to 2,000 out-of- school AYP per state. Furthermore, AYP living with HIV (AYPLHIV) from established support groups were also involved in the outreaches to facilitate linkage of positive persons to facilities for care. The venues of the outreaches included motor parks, automobile repair workshops, and markets. The out-of school youths targeted includes apprentices, artisans, food sellers, and street children (area boys).
Lessons learned: 31,000 out-of-school youths were reached with HIV prevention interventions across the states within 4 days. 260 HIV positive AYP were identified linked to care. Willingness to test for HIV is high among AYP out-of school youth. Young people's participation in plan-

ning and mobilization boosted the uptake of services. The presence of AYPLHIV provided immediate psychosocial support and ensured complete referrals. Engagement of AYPLHIV was critical for ensuring immediate psychosocial support and completed referrals. Workplace model for HIV service delivery favored out-of-school youth as most of them had little time to access facility based interventions.
Conclusions/Next steps: National Agency for the Control of AIDS (NACA) plans to develop guidelines for implementation of AYP focused HIV intervention in Nigeria. HIV programmes should be all inclusive to address specific needs of AYP in Nigeria including provision of mobile HTS.

WEPEE730

Addressing the needs of pregnant HIV-positive adolescent girls and young women: A growing need

E.A.J. Tumbare Machakaire, T. Lekhotsa, F. Mohai, V. Tukei, M. Mungati
Elizabeth Glaser Pediatric AIDS Foundation Lesotho, Technical, Maseru, Lesotho

Background: Lesotho's adult HIV prevalence is 25.7%. Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) is a clinical implementing partner that provides technical assistance to Lesotho's Ministry of Health (MOH) and direct, comprehensive HIV/TB service delivery in 120 health facilities in five districts. In January 2017, EGPAF established adolescent and youth-friendly clinics in the Lesotho districts of Maseru, Berea, and Leribe. This abstract describes data collected at these clinics to increase a greater understanding of health needs among a population in sub-Saharan Africa with growing HIV infection and HIV-related mortality rates.
Description: The established youth-friendly clinics are focused on scaling-up provision of quality, comprehensive TB/HIV services, sexual and reproductive health (SRH) services (including antenatal care [ANC] and PMTCT), and primary health care for adolescents and young people (AYP) aged 10 to 24 years. Services are provided by specially trained staff (adolescent health-focused pediatricians, nurses, social workers, psychologists, and youth ambassadors) during non-traditional hours and weekends. Data from these clinics are collected routinely through MOH registers and entered into EGPAF electronic data collection tools. Summary statistics are calculated monthly and quarterly. Data for pregnant adolescent girls and young women (AGYW) at these clinics between June and October 2017 were collected and analyzed.
Lessons learned: Between June and October 2017, 99 (12.5%) of the 789 pregnant AGYW attending ANC at these centers came in with known HIV-positive status. Of these, 96% (95/99) were already on ART. Uptake of HIV testing for those with unknown status was 98.7% (681/690). Of those tested for the first time in ANC, 7.6% (52/681) were HIV-positive. Overall positivity (including known positives) was high, at 19.4%. (151/789). Overall ART uptake was high at 96.4% (54/56).
Conclusions/Next steps: The high HIV prevalence among pregnant AGYW at these clinics poses new challenges for addressing the needs of this population and their new-born infants. Offering testing, diagnosis and treatment services in non-school hour settings to AYP by specialized staff is a clear need and such services should be more widely implemented. EGPAF is currently expanding training of clinicians at all 120 supported health facilities to provide AYP health services, including PrEP to enable better epidemic control.

Indicator	Berea Hospital	Maluti Hospital	Motebang Hospital	Queen II Hospital	LPPA HC	Totals (%)
New in ANC	221	83	211	233	41	789
Known to be HIV-positive at presentation to ANC	33	11	26	26	3	99(12.5%)
Already on ART at presentation to ANC	33	11	26	22	3	95(96%)
Tested for HIV in ANC	188	72	176	207	38	681 (98.7%)
Tested HIV-positive in ANC	13	10	5	20	4	52(7.6%)
New on ART in ANC (known positive not on ART plus new positives initiated)	13	8	5	24	4	54 (96.4%)
Total HIV-positive in ANC	46	21	31	46	7	151 (19.4%)

[Summary for youth aged 10-24 accessing PMTCT and SRH services at five EGPAF-supported adolescent-friendly clinics in Lesotho (June-October 2017)]

WEPEE731

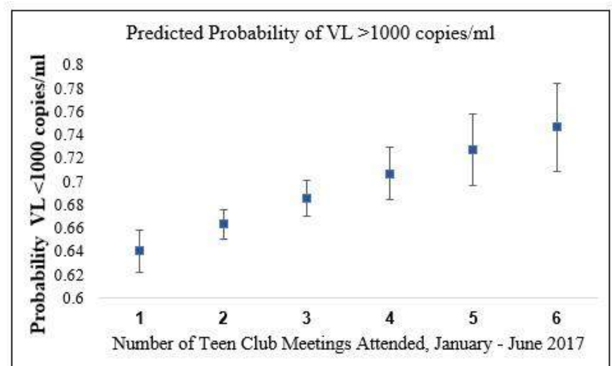
Teen Club uptake and viral load suppression among HIV-positive Malawian youth

K. McBride[1], J. Parent[2], K. Mmanga[2], M. Chivwala[2], M. Nyirenda[2], A. Schooley[2,3], J. Mwambene[2], K. Dovel[2,3], E. Lungu[2], K. Balakasi[2], R. Hoffman[3], C. Moucheraud[1], EQUIP Innovation for Health
[1]University of California, Fielding School of Public Health, Los Angeles, United States, [2]Partners In Hope, Lilongwe, Malawi, [3]University of California, David Geffen School of Medicine, Los Angeles, United States

Background: To improve outcomes among HIV-positive adolescents, the Malawi Ministry of Health is supporting scale-up of „Teen Clubs", a facility-based antiretroviral treatment (ART) delivery model. Teen Clubs are monthly ART clinics for youth that provide clinical services and peer psychosocial support.
We examined predictors of Teen Club uptake among youth, and factors associated with viral load suppression and adherence to ART among Teen Club participants.
Methods: We performed a retrospective analysis of medical records and Teen Club attendance data on 5,326 HIV-positive youth (10-19 years) at 21 PIH-EQUIP supported facilities across Malawi. In this sample, 1,175 youth were enrolled in Teen Club between January-June 2017. Multivariable logistic regression was performed to identify characteristics associated with Teen Club participation, and, among Teen Club enrollees with HIV viral load data (n=597), to identify factors associated with achieving suppressed viral load (< 1000 copies/ml). Predicted probabilities of being virologically suppressed were calculated. Multi-level logistic regression was used to explore moderating effects of ART adherence (≥95% based on pill count) among enrollees who attended at least 2 Teen Club meetings (n=589).
Results: Teen Club participants were younger than non-enrollees (p< 0.01) but there was no significant difference in uptake by sex (Table). Among participants, older adolescents (aged 15-19) were 38% less likely to achieve viral suppression compared to younger adolescents (aged 10-14) (adjusted odds ratio 0.62, 95% CI 0.39-0.98).The probability of viral suppression increased from 64% if participants attended 1 Teen Club meeting, to 74% if they attended 6 meetings (p< 0.05) (Figure).

	Enrolled in Teen Club	Not Enrolled in Teen Club	P-Value
	n=1,164	n=4,162	
Category			
Age, mean years (s.d)	13.8 (2.5)	14.2 (2.8)	p<0.001
Age, 10-14 years (%)	710 (61.0)	2256 (54.2)	p<0.001
15-19 years	454 (39.0)	1906 (45.8)	
Sex, male (%)	535 (45.9)	1956 (47.0)	p=0.532
Female	629 (54.4)	2206 (53.0)	
Two-sample t-tests for continuous variables and χ2 tests for categorical variables conducted to evaluate association between Teen Club status and covariates			

[Table: Characteristics of Sample by Teen Club Status; N= 5,326, 10-19 years]



Notes: Predicted probabilities of virologic suppression from logistic regression. Model adjusted for age, gender, number of meetings attended, district, and ART regimen. Estimates account for cluster-robust standard errors at the facility level.

[Figure: Predicted Probabilities of Viral Load (VL) < 1000 copies/ml with 95% CIs by Number of Monthly Teen Club Meetings Attended January - June 2017]

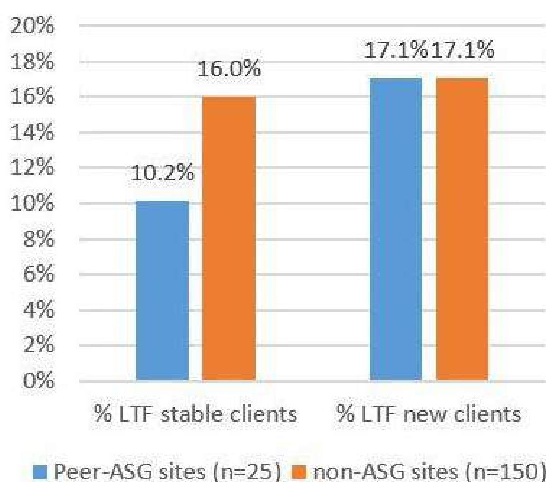
Males 15-19 years were 65% more likely to achieve ≥95% ART adherence (aOR 1.64, 95% CI 1.2-2.3) compared to younger (10-14 years) males.The moderated effect of age on adherence was smaller and not significant among females (aOR 1.36, 95% CI 0.96-1.9).
Conclusions: Youth with higher Teen Club attendance were more likely to achieve viral suppression compared to less-frequent attendees. Older Teen Club participants were less likely to achieve viral suppression, indicating the need for specialized programming for this group. Although our retrospective review found evidence in support of Teen Clubs, rigorously designed studies are needed to better characterize the benefits of Teen Club.

WEPEE732

Do peer-led adolescent support groups improve retention? Lessons learnt from Tanzania

R. van de Ven, G. Antelman, M. Mukaminega, C. Edward, J. van 't Pad Bosch
Elizabeth Glaser Pediatric AIDS Foundation, Dar es Salaam, Tanzania, United Republic of

Background: HIV-infected adolescents are a known risk group for poor antiretroviral therapy (ART) adherence and retention in care, which is one reason why programs have established various differentiated care models, including adolescent support groups (ASG). In Tanzania, the Elizabeth Glaser Pediatric AIDS Foundation established a unique model of peer-led adolescent clubs that combines psychosocial support led by peers with ART services on special Saturday clinic days.
Methods: This retrospective analysis was conducted to evaluate the role of peer-led adolescent clubs on the retention of adolescents (10-19 years) in HIV care. Data from electronic medical records from national HIV database at 175 sites were analyzed to measure the crude ART retention by September 2017 of adolescents already on ART for more than one year and adolescents newly initiated between October 2016 and September 2017, at health facilities with peer-led adolescent services (n=25) in comparison with facilities without any specific adolescent services (n=150).
Results: The overall crude retention rate by September 2017 was higher at clinics with peer-led adolescent clubs, 88% (1,623/1,845) versus 82% (1,233/1,501) (p< .0001); at sites with adolescent clubs, participation in the clubs was at 76% (1,238/1,623). The main improvement was seen among adolescent clients who were in care for longer than one year, with a significantly reduced lost-to-follow (LTF) rate; 10.2% compared to 16.0% (p< .0001). However, the LTF rate among new clients within the first year of ART did not show any difference, and remained high at 17.1% for both facilities with or without adolescent services (figure 1).



[Figure 1: Lost to follow rates by client type and service delivery model, October 2016 - September 2017]

Conclusions: Peer-led adolescent support services have a positive impact on retention. However, this was more pronounced for adolescents in care for more than one year; newly identified and ART-initiated clients still had a high LTF rate, comparable with sites without specific adolescent services. Adolescent clubs may benefit members, but in order to address the needs of newly identified adolescents living with HIV, a service delivery model with a more individualized role for adolescent peer educators, who could become involved as treatment supporter at ART initiation and offer follow-up at home as well, may be needed to achieve early adherence.

WEPEE733

Programmatic and treatment outcomes of HIV infected adolescents after transition into adult clinic in Myanmar

T. Htun[1], T.K. Aung[1], J. Moe[1], M.M. Oo[1], A.A. Mon[1], C.L. Htun[1], O. Mon[2], H.N. Oo[3]
[1]*International Union Against Tuberculosis and Lung Disease, HIV Unit, Mandalay, Myanmar,* [2]*Department of Medical Science, Ministry of Health and Sports, Mandalay, Myanmar,* [3]*National AIDS Programme, Ministry of Health and Sports, Naypyitaw, Myanmar*

Background: Since 2005, The Union, in collaboration with National AIDS Programme (NAP), is implementing Integrated HIV Care (IHC) Programme in 37 townships in Myanmar. Although transitional care for adolescents was started in May 2010, little is known on outcomes after transition to adult care. Primary objective of this study is to find out the post-transition outcomes of adolescents in adult clinics of IHC programme in Myanmar.
Methods: A Retrospective cohort study using routinely collected data among those adolescents who were transferred from pediatric to adult clinic between May 2010 and June 2016. Kaplan-Meier method was used to calculate the retention rate after transition and incidence rate of switch to second-line antiretroviral therapy (ART) after transition was estimated and described in 100 person-years (PYs). Poisson regression was used to assess risk factors for attrition (death and Loss-to-follow-up, LTFU) and switching to second line ART.
Results: Of 290 adolescents who were transitioned to adult clinics, 156 (53.7%) were female. Median age in years at transition was 14 [IQR, 12-15]. Retention rate in adult care at 12, 24 and 60 months after transition was 97.2%, 94.8%, 88.3% respectively. 24 (8%) adolescents undergo attrition in adult clinics. 12 (50%) patients died and the rest are LTFU. Eleven patients were switched to second line ART after transition and the rate of switching was 1.2 per 100 PYs. In multivariate analyses, the factors associated with attrition were those not taking ART and those taking second line ART at the time of transition. Transferring to facilities where both pediatric and adult services are not collocated was also found to be an independent risk factor for treatment failure.

	Total n (%)	Attrition n (%)	IRR (95% CI)	Switched to 2nd Line ART n (%)	IRR (95% CI)
Transferred Adult Clinic Type					
Same Area With Pediatric Clinic (collocated)	177 (61)	12 (50)	1	3 (27.3)	1
Different Area With Pediatric Clinic (Un-collocated)	113 (8.3)	12 (50)	1.1 (0.5-2.6)	8 (72.7)	***3.6 (1.3-13.4)***
Baseline CD4					
<200	118 (40.7)	13 (54.2)	1.6 (0.7-3.5)	7 (63.6)	1.8 (0.5-6.3)
>=200	168 (57.9)	10 (41.7)	1	4 (36.4)	1
Missing	4 (1.4)	1 (4.2)	0	0 (0)	
ART at Transfer Out					
Not on ART	27 (9.3)	5 (20.8)	***8.3 (1.8-20.7)***	0 (0)	0
1st Line	239 (82.4)	13 (54.2)	1	11 (100)	1
2nd Line	24 (8.3)	6 (25)	***3.4 (1.2-9.6)***	0 (0)	0
Gender					
Male	134 (46.2)	11 (45.8)	1	2 (18.2)	0.3 (0.1-1.3)
Female	156 (53.8)	13 (54.2)	1.2 (0.5-2.7)	9 (81.8)	1
Age Group					
<10	7 (2.4)	0 (0)		0 (0)	
>=10 and <12	35 (12.1)	1 (4.2)	0.4 (0.1-3.3)	1 (9.1)	0.5 (0.1-3.7)
>=12 and <15	155 (53.4)	12 (50)		8 (72.7)	1
>=15	93 (32.1)	11 (45.8)	0.8 (0.6-3.5)	2 (18.2)	0.7 (0.1-3.6)

[Risk Factors for attrition and switched to 2nd line ART. Statistically significant values are shown as bold and italic letters.]

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Conclusions: We found high retention rates among adolescents after transition into adult care in this setting. Counselling and LTFU tracing for adolescents with second line ART at the time of transition should be strengthen to reduce attrition among them. The study result suggests to consider initial transitional care in settings where both pediatric and adult services collocates. Strategies should be sought out to improve post transition outcomes by conducting qualitative studies in future.

WEPEE734

Using the power of football to get young people educated about and tested for HIV in rural Malawi

N. Khozomba[1], K. Kanjelo[1], J. Jere[1], E. Geoffroy[2], E. Schell[3,4], S. Miller[5], K. Nash[3]
[1]Global AIDS Interfaith Alliance, Blantyre, Malawi, [2]Global AIDS Interfaith Alliance, Marblehead, United States, [3]Global AIDS Interfaith Alliance, San Rafael, United States, [4]University of California, San Francisco, United States, [5]Grassroot Soccer, Cape Town, South Africa

Background: Grassroot Soccer (GRS) harnesses the power of football to connect adolescents with mentors and health information and services. In partnership with GRS, Global AIDS Interfaith Alliance (GAIA) has implemented "Skillz" programs in southern Malawi since 2015. Youth are particularly at risk with up to 50% of new HIV infections affecting youth 15-17, and adolescent (15-19) pregnancy rate of 35%, making prevention and access to services key to improving health.
Description: Through an evidence-based curriculum (Skillz GAIA and Skillz Girl), trained peer-educator "Coaches", and sports activities, the program provides sexual, reproductive and other health information as well as HIV testing. Skillz GAIA is a mixed-sex curricula, while Skillz Girl targets girls and adds empowerment and menstrual management information to the package. The program engages youth age 10-18 (mean participant age is 13). Children < 14 are offered testing with parental permission, while those 14-18 consent for themselves.
Lessons learned: From January 2014 through December 2017, nearly 14,000 youth were served and 2,028 at-risk youth and relatives have been tested for HIV. Twenty-three (1.1%) were HIV positive, including 10 children under 15. All HIV+ youth were linked to care, initiated on treatment, and offered adherence counseling, disclosure and peer support through HIV+ youth clubs. Staff reinforced the parent-child bonds that underlie successful treatment outcomes. Boys testing negative were referred for voluntary medical male circumcision and sexually active youth for contraception. The greatest changes from pre to post-implementation were related to youth's willingness to communicate about sensitive topics (26% increase for Skillz GAIA, 42% for Skillz Girl) and in HIV related stigma (25% improvement for Skillz GAIA, 42% for Skillz Girl).
Conclusions/Next steps: This program reaches youth with HIV prevention messages when they are becoming sexually active, and normalizes HIV testing. While HIV+ yields were low, youth found positive were linked to care and treatment early, increasing the likelihood of positive treatment outcomes. The program Coaches and HIV counselors helped HIV+ youth and their families cope with the diagnosis, linked them to care and strengthened family resilience. The opportunity to learn about and experience the testing process at an early age may reinforce life-long beneficial health seeking behaviors.

Delivering in services in and around conflict settings

WEPEE735

Community ART distribution center (*PODI*) as a differentiated service delivery measure in the Democratic Republic of Congo (DRC)

T. Tchissambou[1], A. Jha[2], S. Dane[2], D. Dibulundu[1], S. Matsumaini[1], C. Madevu-Matson[2], B. Ngalamulume-Roberts[2], Y. Ilunga[1], F. Malele[1], J. Soares Linn[2]
[1]ICAP at Columbia University in DRC, Kinshasa, Congo, Democratic Republic of the, [2]ICAP at Columbia University, Mailman School of Public Health, New York, United States

Background: Differentiated service delivery (DSD) is a patient-centered approach to HIV care that allows patients to receive services tailored to their individual needs. Aimed at increasing health systems efficiency, many DSD models let medically stable patients receive community-based healthcare services, reducing their need to travel to health facilities (HF). Since 2016, ICAP has supported DRC's National AIDS Control Program (NACP) in the scale-up of PODI, community-based ART distribution centers. The PODI model decentralizes ART refills to the community, separating refill visits from clinical appointments.
Description: In Kinshasa, ICAP has supported the establishment of two PODIs, PODI-East (January 2016) and PODI-West (July 2017). ICAP has trained and mentored to lay community health workers (CHW) responsible for the care of patients at PODIs. Eligible patients, those who are >15 years and on ART for 12 months and virally suppressed ("stable"), are referred to PODIs by providers at HFs where they receive care. Patients visit PODIs quarterly for ARV pickup and to receive adherence counselling, basic symptom screening, and index HIV testing for family members. Patients return to HFs annually for clinical check-ups and can be referred back to HFs if they require additional medical care.
Lessons learned: Since 2016, a total of 2,027 patients have enrolled at ICAP-supported PODIs. Of these, 80 (4.0%) were LTFU, which prompted tracing by CHW, 31 (1.5%) died, and 171 (8.0%) were referred back to a HF. Providing support to health care workers on eligibility criteria for PODIs and CHW for patient follow-up activities, and ensuring patients received adequate adherence counselling were critical to the success of this strategy.
Conclusions/Next steps: PODIs serve as a promising community-based model of care that addresses many of the health system challenges of providing lifelong treatment to stable HIV patients. Given that PODIs are co-located at community venues, patients are able to refill their ARVs close to home without having to visit a HF. Task-shifting ART monitoring and refilling to CHW allows providers at HF to spend more time with less stable patients. ICAP is working with NACP to expand the PODI model to Lubumbashi and plans to conduct an evaluation to inform the national scale-up plan.

WEPEE736

Implementing test & start program in a rural conflict affected area of South Sudan, the experience of MSF Spain

C. Ferreyra[1], L. Moreto[2], B. Alonso[3], F. Temessadouno[4], A.J. Nyniyal[5], A. Harouna[3], M. Eltom[6]
[1]Mèdedcins sans Frontières, Barcelona, Spain, [2]Médecins sans Frontières, Medical Department, Barcelona, Spain, [3]Médecins sans Frontières, Juba, South Sudan, [4]Médecins sans Frontières, Dakar, Senegal, [5]Ministry of Health Republic of South Sudan, HIV/AIDS/STI, Juba, South Sudan, [6]Médecins sans Frontières, Nairobi, Kenya

Background: Community-based HIV counselling and testing (CB-HCT) and early initiation of antiretroviral therapy (ART) can reduce HIV transmission and mortality. Access to HIV care in settings with low ART coverage and/or affected by conflict is still low; innovative strategies are needed to increase access and ensure continuation of ART in case of instability. Bringing HCT and ART closer to the community can be a suit-

able strategy in these settings. A pilot test and start project was implemented in rural areas of Yambio South Sudan, a chronically conflict-affected area. In a retrospective analysis, we aimed to determine the feasibility and acceptability of this pilot intervention.
Description: Programme data from July 2015 to December 2017 was analysed. The project involved five mobile teams offering HIV community sensitization, HCT and same day ART initiation at community level. A contingency plan including coordination with community health workers (CHWs) to distribute "run-away bags" with 3 months of ART was in place due to the setting.
Lessons learned: During the analysed period, 14800 people (31% of the population) were counselled and tested. 498 (3.3%) were found to be HIV positive and 395 (79.3%) accepted to start ART. 231 (61%) patients and 56 (15%) had CD4 count below 500cells/µl and 200 cells/µl, respectively. By December 2017, 95(24%) patients were loss of follow up, and 12 (3%) died. Retention in care at 6 and 12 months of follow up was respectively 283 (84%) and 241 (71%). 224 (out of 243) patients had an available VL at 12 months (92%) and in 179 (80%) it was suppressed. . At 30 months, 243 (71%) patients are still under follow up and on ART.
Conclusions/Next steps: Our program shows a high level of acceptance to HCT and early ART initiation despite of context. Results show rates of virological suppression comparable with HIV programs at clinic level and without security concerns, the same for retention in care at 6 and 12 months. We believe this strategy could be extrapolated to other similar contexts with low access to ART and where security situation is a concern.

WEPEE737

ART optimisation, plasma viral load and patient satisfaction in the conflict-affected setting of Donetsk, Ukraine

J. van der Meer[1], R. Malyuta[2], V. Pavlenko[3], T. Tarasova[4], N. Ferencic[5]
[1]PHESTA, Amsterdam, Netherlands, [2]United Nations Children Fund (UNICEF), Europe and Central Asia Regional Office Almaty Bureau, Almaty, Kazakhstan, [3]AIDS Centre Donetsk, Donetsk, Ukraine, [4]United Nations Children Fund (UNICEF), Ukraine Office, Kyiv, Ukraine, [5]UNICEF, CEE/CIS Regional Office, Almaty, Kazakhstan

Background: To what extent is it possible to maintain and improve antiretroviral treatment (ART) in settings affected by armed conflict? This study monitors an emergency delivery of ART to prevent stock rupture at the AIDS Centre in the city of Donetsk, a conflict-affected area in Eastern Ukraine, introducing a new regimen of a fixed-dose combination of tenofovir, emtricitabine and efavirenz (optimised regimen). The purpose of the study is to:

- Assess whether the change to optimised treatment in this setting was not harmful in terms of non-inferior outcomes compared to the prior treatment.
- Assess levels of satisfaction of patients on the optimised ART regimen compared to those on other regimens.

Methods: The monitoring study took place between April and June 2016. We took a random sample of 477 patients on ART at the Donetsk AIDS Centre and 13 surrounding ART sites. After consent, they filled out an ART patient satisfaction questionnaire, while their treating physician completed the medical details of the survey. We compared the patients put on optimised regimen (September 2015 - March 2016) with those who were not switched, with regards to plasma viral load (VL) and various patient satisfaction measures.
Results: There were 464 patients with complete data, 262 on optimised regimen and 212 patients who continued their previous regimen. In the optimised group 95.9% had an undetectable VL (< 40 copies/mm^3), in the non-optimised group this was 96.3%. Compared to non-optimised patients, a statistically significant (P< .05) higher proportion of patients on optimised ART reported effectiveness of their ART, were satisfied with requirements to adhere to ART, were satisfied about the timing to take their medication, they perceived less side-effects and discomfort of their medication, and a higher proportion planned to continue their treatment. Patterns among men and women were similar. There were no differences in self-reported adherence between the groups. Only 16 patients experienced treatment interruption.
Conclusions: Good viral suppression is possible in a conflict setting. It is possible to maintain and improve treatment quality and patient satisfaction in these settings. Humanitarian assistance can further improve the treatment cascade in conflict settings like those in Eastern Ukraine.

HIV service delivery in conflict affected and humanitarian settings

WEPEE738

Pediatric HIV care in conflict settings: Should we decentralize?

E. Vindu[1], J. Lusi[1], W. Bonane[1], D. Kamabu[1], J. Armas[2], J. Bress[2], G. Kashemwa Migabo[3]
[1]HEAL Africa, Goma, Congo, Democratic Republic of the, [2]Global Strategies, Albany, United States, [3]Global Strategies, Bukavu, Congo, Democratic Republic of the

Background: Current global policies advocate for integrating pediatric HIV care into primary maternal-child healthcare. This approach, while well-suited to high prevalence areas without major political instability, may not be the optimal strategy in low-prevalence conflict settings.
Description: The Children's AIDS Program at HEAL Africa Hospital is the only pediatric HIV center in the restive North Kivu Province of the Democratic Republic of Congo. The program was initiated in 2006 and provides care for 836 HIV-infected children. In this abstract, we describe an attempt to decentralize pediatric HIV care in North Kivu from our perspective as local leaders of a centralized pediatric HIV speciality center.
Lessons learned: Decentralization of pediatric HIV care out of speciality centers poses unique challenges in low HIV prevalence conflict settings. In North Kivu, lack of both maternal HIV care and early infant diagnosis leads to delayed recognition of HIV-infected children. As a result, care facilities must be able to treat life-threatening opportunistic infections and severe malnutrition. Active conflict can create inventory management crises, limit patient mobility and add safety risks for monitoring organizations. Low patient volumes at individual sites, coupled with interruptions in monitoring and evaluation, can reduce care quality. International non-governmental organizations are essential partners in providing pediatric HIV care in conflict settings. However, the high staff turnover and short grant cycles of international non-governmental organizations in conflict settings limit longitudinal planning, add artificial timelines that fail to account for dynamic field conditions and rarely allow for supporting recentralization efforts in the event that decentralization fails.
Conclusions/Next steps: Centers of excellence for pediatric HIV care, like pediatric oncology centers in developed settings, may be an acceptable short-term solution to treating HIV-infected children in politically unstable areas with low HIV prevalence. The same health system failures that lead to the continuous flow of newly infected children can stymie decentralization efforts, wasting precious energy and resources, while disrupting existing systems that provide pediatric HIV care in conflict settings.

WEPEE739

Can health be a bridge for peace? Health system convergence amid diversities: Lessons from prevention of mother to child transmission of HIV pilot services for equitable access

M.M. Khin[1], S.M. Lwin[2], S. Hone[3], B. Setiawan[2], H.N. Oo[3], E.M.M. Kyaw[4]
[1]UNICEF, Health and Nutrition Section, Hpa-an, Myanmar, [2]UNICEF, Health and Nutrition Section, Yangon, Myanmar, [3]Ministry of Health and Sports, Disease Control, Naypyitaw, Myanmar, [4]Karen Department of Health and Welfare, Health, Hpa-an, Myanmar

Background: Myanmar is ethnically diverse, perhaps one of the most diverse in the world. Ethnic health systems (EHS) - designed around ethnicity and the country's many ethnic groups for political reasons - have worked in parallel to the national system for a long time.

Description: The drive to eliminate mother-to-child transmission of HIV has served as an entry point to foster convergence of the two systems. It coalesces with the larger effort by the Ministry of Health and Sports (MoHS) to improve coordination mechanisms with EHS after the signing of the Nationwide Cease Fire Agreement in 2015.
The HIV sector also recognizes that this intervention will contribute to Myanmar's policy move towards Universal Health Coverage.
Lessons learned: HIV prevalence has been high among ethnic groups, especially among pregnant women and children who are, in general, the underserved population in HIV response. They are also the second largest group among those newly infected - 24% - followed by Injecting Drug Users (IDU), based on HIV transmission trend in 2016.
In Kayin State, 21% of pregnant women were not tested and only 64% of those detected HIV-positive received ARV prophylaxis treatment in 2014. The Karen Department of Health and Welfare (KDHW) has been responsible for the healthcare of approximately 450,000 Karen people, the largest ethnic minority group in this Kayin State, for over twenty years. Although KDHW provides health care to 12,150 pregnant women and 54,000 under-five children, PMTCT services are not fully scaled up.
A PMTCT convergence model was piloted in 15 villages between MoHS, the technical lead and KHDW, the implementer, with the support of UNICEF in March 2017. This convergence introduced standards, identity management and fostered greater data and resource sharing between the Ethnic Health Organization and MoHS. After 10 months of implementation, 89% of 568 underserved pregnant women from the pilot areas are being reached for PMTCT services, compared to none.
Conclusions/Next steps: The results yield important lessons in ensuring that no one is left behind, especially for the most deprived communities. Commitment and continued efforts from government and key stakeholders are essential for "Health as a bridge for peace".

Adapting HIV programmes to systems with severe resource constraints

WEPEE740

Nigeria ARV multimonth scripting: Impact on public health service delivery, infrastructure and supply chain management systems across "high volume" ART clinics

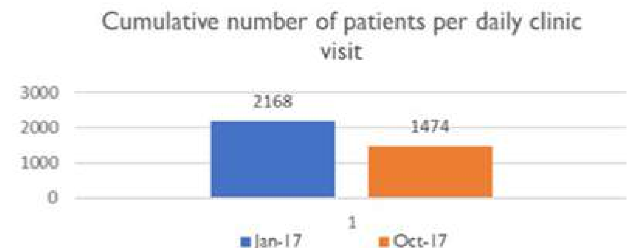
M. Attah[1], A. Mohammed[2], S. Hassan[1], F. Askederin[1], L. Osueke[3], I. Innocent[4], P.D. Haanongon[5], E. Esemokhai[6], V. Ajulo[2], M.L. Field-Nguer[7]
[1]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Deliver and Return, Abuja, Nigeria, [2]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Total Quality Management (Management Information Systems), Abuja, Nigeria, [3]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Field Logistics, Lagos, Nigeria, [4]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Supply Chain Operations, Abuja, Nigeria, [5]Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Deliver and Return, Makurdi, Nigeria, [6]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Deliver and Return, Benin City, Nigeria, [7]USAID Global Health Supply Chain Program - Procurement and Supply Management Project (GHSC-PSM), Task Order 1 HIV/AIDS, Arlington, United States

Background: Antiretroviral (ARV) multimonth scripting (MMS), which complements other antiretroviral therapy (ART) differentiated care, started January 2017 in Nigeria. Under MMS, stable ART patients receive at least three months of ARV refills and complete semiannual clinic visits. From research (Onwujekwe et al., 2016),
MMS can optimize service delivery and decongest clinics, resulting in improved patient care.
Description: MMS implementation required collaborative planning and implementation among stakeholders (program managers, clinicians, pharmacists, supply chain experts), including:

1. Eligibility and inclusion criteria for clinics and products
2. Quantification and supply of ARVs
3. Support to clinic personnel
4. Performance monitoring (stockout monitoring, patient per regimen numbers, provider feedback)

Clinic attendance records from nine high-volume clinics (>1,000 ART patients) were collected from January to October 2017. The records were analyzed to identify trends in ARV commodity dispensing and treatment numbers. The nine clinics support 12 percent of 414,000 patients on treatment across the 104 ART clinics implementing MMS in Nigeria. MMS is limited to adult first-line regimens of AZT/3TC/NVP 300/150/200mg and TDF/3TC/EFV 300/300/600mg, which make up 87 percent of the total regimens provided to ART clients in these clinics.
Lessons learned: Data from our analysis, and feedback from ART refill providers at the nine clinics, indicated reduced congestion with MMS implementation, as the number of patients per daily clinic visit dropped by 25 percent between January and October 2017. The drop was not related to attrition, as the total number of patients on treatment per period was consistent, averaging 42,000 and indicative of noninterruption of treatment with MMS.
The data did indicate that, at MMS initiation, the number of ARV issues to patients increased; these increased volumes resulted in a short-term supply risk that required a temporary slowdown in implementing MMS.
Conclusions/Next steps:

- MMS is an effective intervention to decongest clinics and optimize ART service delivery.
- Reduced workload resulting from MMS presents opportunities to expand service and enroll more ART patients.
- The convenience of decreased ARV refills and fewer clinic visits for stable patients reduces economic strain of multiple clinic visits.
- Collaborative planning prevents interruption of ARV supply during MMS implementation.



[Implementation of MMS results in reduced number of daily clinical visits]

WEPEE741

Mobilizing a multijurisdictional response to address alarming rates of HIV and Hepatitis C (HCV) in rural Saskatchewan (SK) Indigenous community (IC) in Canada

I. Mohammad Khan[1], D.S. Skinner[2], C.G. Cote[3], D. Bryant[3], A. Chhetri[4], B. Dow[5], L. Jagoe[5], A. Campbell[5], M. Andkhoie[5], D. Kupchanko[5], FNIHB, Infections Disease Dr Skinner and Cote First Nations Programs
[1]First Nations Inuit Health Branch, Department of Indigenous Service Canada, Regina, Canada, [2]University of Saskatchewan, Infectious Disease Department, Regina, Canada, [3]Cote First Nations, Regina, Canada, [4]Saskatchewan Health Authority, Yorkton, Canada, [5]FNIHB, Regina, Canada

Background: The Canadian Province of SK is roughly the size of France with the population of nearly 1.2 million. HIV and HCV rates in southern IC (108 and 323 per 100,000 in 2016 compared to Canadian HIV rates 6.4 respectively) are the highest in Canada. Kamsack is a rural town of approximately 2000 residents in Southeastern SK surrounded by three ICs (approximately 2000 population).
Description: An HIV outbreak relating to injection drug use was confirmed in the Kamsack area since mid 2016. 21 HIV cases diagnosed, over half of cases were new infections, 86% co infected with HCV, majority living in ICs. Poverty, homelessness, addictions, stigma and access to care were identified as major barriers to care. An integrated response

was initiated by a multidisciplinary team of federal, provincial and local partners. Majority of positive people were prescribed treatment and adhering to it. The mean time from diagnosis to treatment initiation was 14 days. HIV care was supported by IC leaders, First Nations Inuit Health Branch (FNIHB), Public health agency of Canada (PHAC), Saskatchewan Health Authority, laboratory, infectious disease docs, and local mental health / addiction programs. A new outreach center was established that provide food, transportation, family, referral and cultural support.
Lessons learned: Rapid mobilization of integrated response lead to timely, patient-centered and culturally safe care among all services that resulted in improved access to testing, care and treatment in rural communities. This has also established a precedence of delivering programs in rural setting (off reserve to IC) to people with the most complex socio economic and medical conditions.
Conclusions/Next steps: Similar efforts are needed to ensure response in other rural ICs in Canada to address the elevated rates of sexually transmitted blood born infections. Adding suboxone to the addiction program, access to Pre-Exposure Prophylaxis (PrEP) and more convenient ways of screening of at risk people.

WEPEE742

Test and start readiness evaluation: Phase 1 in Mozambique

A.M. Couto, N. Chicuecue, E. Paunde, J. Tique
Ministry of Health, STI/HIV National Program, Maputo, Mozambique

Background: The WHO guidelines on test and start have been adopted globally, which presents a significant context-specific challenge for developing countries. The strategy requires countries to ensure that a minimum of programmatic standards and criteria are in place before implementing test and start. Mozambique carried out an evaluation of health facilities to gauge their readiness for the implementation of test and start. The evaluation was carried out in June 2016 in the twelve districts (152 health facilities) with a high burden of HIV selected to be included in phase one of test and start roll out. The evaluation aimed to determine the readiness of the health facilities to implement test and start.
Methods: The evaluation measured readiness using a set of minimum criteria from the following thematic areas:
1. HIV Testing and Counselling (testing approaches, test kit management, linkage to care),
2. Care and Treatment (psychosocial support, positive prevention, retention),
3. Laboratorial monitoring (viral load),
4. Pharmacy (warehousing capacity, ARV drug management), and #
5. Human Resources (providers trained in testing and counselling, care and treatment, viral load, psychosocial support).
Weighted scores were calculated for each thematic area as follows: 0-65%= requires support in various areas, 66-85%= needs support on specific aspects, and >85%= prepared.
Results: The median score for the 152 health facilities evaluated was 55% overall, 64% for testing, 64% care and treatment, 50% lab monitoring, 60% pharmacy, and 59% human resources.
Conclusions: Mozambique faces substantial challenges in the transition to the WHO test and start policy recommendation, however, the country is working to overcome these challenges, recognizing the clinical and programmatic advantages of test and start. For developing countries such as Mozambique, we recommend a phased approach to the implementation of test and start, prioritizing high burden districts, while simultaneously carrying out baseline and follow-up readiness assessments to allow for programmatic adjustments during the implementation process.

Key populations in humanitarian settings and fragile contexts

WEPEE743

Right to health services

M.W. Mutonyi
Bar Hostess Empowerment and Support Programmes, Project Lead, Kitale, Kenya

Background: Kenya has made significant efforts towards achieving the UNAIDS 90 90 90 target. Despite this there is still high HIV prevalence among the key populations with the sex workers accounting for 29.3% than the general population of 5.9% (Kenya Aids Progress report 2013-2015).Stigma and discrimination and failure of integrating human rights norms and principles in health systems and programs designing, implementation, monitoring and evaluation have been identified as a major contributing factor to this.
Description: Bar Hostess Empowerment and Support Program, has more than 20 years of experience in working with the sex workers in Kenya. BHESP realized that the only way to achieve the 90 90 90 target and ending HIV pandemic by vision 2030 is through advocating for human right based approach in service delivery.
The organization has ensured this through creating awareness on human rights among the sex workers, influencing establishment of policies that are friendly to the sex workers at the national level, empowering the sex workers to take ownership and leadership of programs that targets them and participation in decision making process that is normally done by the national KP technical working groups.BHESP also monitors violation of human rights through conducting satisfaction surveys at service delivery point and documents findings and lesson learnt.
Lessons learned: It came out clearly that sex workers having gone through harsh terrains of discrimination and stigma, and human right violation they have solution for their own problems. In addition to this human right integration into service delivery and development strategies is key as it brings forth fully engagement sex workers and ownerships of this programs and finally Equality and freedom from stigma and discrimination is central, has benefits and no harms.
Conclusions/Next steps: Human right approaches should be adopted to ensure dignity and attention to the needs and rights of the key populations as this is the only way to ensure health services are available, acceptable, and accessible and of high quality just for them to enjoy services like any other human being. This will in deed avert HIV/STI.

WEPEE744

The role of AIDS councils in pushing the legal and human rights agenda for sex workers: Lessons from South Africa

K. Mangold, L. Malaka
SANAC, NSP Implementation, Pretoria, South Africa

Background: The South African Constitution protects its citizens from discrimination and safeguards their basic human rights. However, sex workers remain vulnerable to abuses including violence and exploitation, and secondary victimisation by police. The South African National AIDS Council (SANAC) developed the current sex worker HIV Plan and are uniquely placed to push for full implementation of the human rights package described therein.
Description: In 2017, SANAC spearheaded national efforts to connect with government on legal reform of sex work. SANAC partnered with a South African newspaper to host a critical dialogue on the decriminalisation of sex work. This was broadcast live and supplemented with a newspaper insert. SANAC advocated publicly for the decriminalisation of sex work and called for a holistic legal and human rights-based response to sex workers. SANAC further facilitated engagement between police and sex workers on the eve of World AIDS Day in the Eastern Cape in an effort to eliminate the police practice of using possession of condoms, lubricant, ARVs or any other legal commodity as evidence of sex work and grounds for confiscation or arrest.

Lessons learned: For the first time in South Africa, the National AIDS council is taking a lead in pushing the legal and human rights agenda for sex workers, with sex workers. SANAC's initiatives provide space for government officials, politicians and civil society to come together, engage and advocate for programme and policy change. This gives solid grounding to direct the legal and human rights agenda for sex workers in a way that is underlined by a national policy and which supports the public health response to HIV.
Conclusions/Next steps: The discussions facilitated by SANAC between civil society and government on legal and human rights of sex workers are critical to legitimise the influence of human rights violations on the country's HIV epidemic. SANAC leads by example in showing that even in a country where sex work is criminalised, a national AIDS council can take centre stage in the creation of an enabling environment to implement HIV programmes for sex workers.

WEPEE745

Utilisation of social media to reach key populations (men who have sex with men & transgender people) in challenging operating environments

I. Hove, P. Khambi
Right to Care, Johannesburg, South Africa

Background: Between 22% - 48% of HIV infections in South Africa are the result of men having sex with men and transgender people (MSM & TG) because of perceived barriers to health care, and sexual behaviours that facilitate transmission of HIV. Despite a progressive constitution, MSM & TG face high levels of social stigma and homophobic violence, thus find it difficult to disclose their sexuality to healthcare workers, limiting access to HIV services.
Description: The Global Fund against AIDS, TB and Malaria (GFATM) in partnership with Right to Care (RTC) and its sub-recipient (SR) community-based organisations are supporting implementation of combination prevention interventions for MSM & TG. RTC and SRs tested the use of social media to identify and link health services to unreached MSM & TG networks.
Social media sites like Facebook, Twitter, and Instagram were utilised in creating a platform to link clients to access primary health services between September - November 2017. A dedicated landing page was set up on the RTC website together with a booking form linked to sensitised partner clinics and SRs.
The content strategy was based on key messages and awareness objectives that promoted visits to linked centres and nearby sensitised clinics for regular HIV testing services, and any other primary health services.
The content strategy was based on key messages and awareness objectives that promoted visits to linked centres and nearby sensitised clinics for regular HIV testing services, support groups, and any other primary health services. A total of 298,917 users were reached. Out of these 379,850 impressions were recorded. 71,403 users engaged with the massages.In-post links to primary health service providers was generated by 1,926 users. The conversion rate was 3%.
Lessons learned: To effectively reach the targeted audience, social media messages should have a clear content strategy, careful planning of content calendar, targeted boosting of selected content and tailor the content to suit specific platforms (no one-size-fits-all approach).
Conclusions/Next steps: Social media is an important avenue for reaching MSM & TG not traditionally accessed by peer educators. It should be adopted as an integral outreach approach for HIV prevention interventions moving forward in challenging operating environments.

Integrating HIV and other health programming in migrant or refugee settings

WEPEE746

SANGJOG, a program for HIV vulnerable young key people in Cox's Bazar to address the emerging threat in the perspective of Rohingya influx in Bangladesh

M.M. Alam[1], N. Mohammad[1], S.T. Shimu[1], M.I. Hossain[2]
[1]*Population Services and Training Center (PSTC), Dhaka, Bangladesh,* [2]*Population Council, Dhaka, Bangladesh*

Background: The first HIV case was reported in Bangladesh in 1998, and since then till 2017 cumulatively 5,586 cases had been detected of whom 924 died. Among the general population of Bangladesh HIV prevalence is less than 0.01%. But the recent influx of Rohingya population and significant number (109) of HIV detected cases among them in a short period of time has become an emerging threat for Bangladesh.
Description: In this backdrop, SANGJOG program is initiated by Population Services and Training Center (PSTC) and funded through the Embassy of the Kingdom of the Netherlands in Bangladesh which focuses particularly on the needs of pavement dwellers, transport workers, floating sex workers, young people engaged in small trade and especially Rohingya Refugees in Balukhali and Kutupalang, Ukhiya, Cox's Bazar in Bangladesh.
SANGJOG increases knowledge of young key people vulnerable to HIV and AIDS through Peer Session on Comprehensive Sexuality Education. It provides health care services with counseling to the young people and increases the capacity of government's health services centers towards integration of sustainable SRH/HIV services and conducts advocacy with district level stakeholders and national decision makers to raise awareness and to promote monitoring and reporting of gender based violence.
Lessons learned: The Rohingya people, outnumbered the local people in Ukhia and Teknaf of Cox´s Bazar district. More than 0.4 million Bangladeshi people are living surrounding the Rohingya camps and its inhabitants now crosses 1 million and are connected with them also in different ways. Huge number of workers are traveling every day inside the camps to support the gigantic relief operations. There are evidences of sexual abuse and trafficking as common in any refugee situation. All these factors are influencing of HIV transmission among Rohingya Refugee as well as to the general people of Bangladesh.
Conclusions/Next steps: It is very much urgent to start comprehensive intervention targeting the Rohingya and Bangladeshi people living in Ukhia and Teknaf to prevent new HIV infections. And increasing program coverage and case detection, increased access to treatment, care and support services for the people living with HIV through a strengthened coordination mechanism will ensure to prevent further spread of HIV.

Delivering differentiated care

WEPEE747

Lessons learned from early implementation of the national adherence guidelines for HIV, TB and NCDs in South Africa

S. Pascoe[1], J. Murphy[1], A. Huber[1], M. Phokojoe[2], M. Gorgen[3], A. Moola[1], N. Scott[4], R. Fong[4], S. Rosen[4], D. Wilson[3], Y. Pillay[2], M. Fox[4], N. Fraser-Hurt[3]
[1]*University of Witwatersrand, Health Economics and Epidemiology Research Office, Johannesburg, South Africa,* [2]*National Department of Health, Pretoria, South Africa,* [3]*The World Bank Group, Washington DC, United States,* [4]*Boston University School of Public Health, Global Health, Boston, United States*

Background: As countries implement treatment for all, they are confronted with how to best initiate and retain patients in HIV care. Differentiated models of care have been proposed to better serve pa-

tient needs, reduce unnecessary burden on the health system, and improve outcomes. In 2015, South Africa's National Department of Health (DOH) introduced National Adherence Guidelines (AGL) for Chronic Diseases, including Fast Track Initiation Counselling for newly diagnosed patients, Adherence Clubs and Decentralized Medication Delivery for stable patients, and Enhanced Adherence Counselling and Early Tracing for patients with elevated viral loads or lost to follow-up.
Description: As part of an ongoing cluster-randomized evaluation of early AGL implementation in 24 health facilities in 4 provinces, we used qualitative methods to gain insight into how to support AGL rollout and improve outcomes. We report here on lessons learned and insights from 24 focus groups (FGDs) with patients, 48 in-depth interviews (IDI) with healthcare providers, and 16 IDIs with DOH and implementing partners.
Lessons learned: The IDIs, FGDs and observations elicited the following key insights:
· Training of sufficient and appropriate staff and mentorship is a prerequisite to successful implementation.
· For stable patients, patients and providers greatly appreciate repeat prescription strategies that allow patients to collect medications outside facilities or in Adherence Clubs.
· Data flow within facilities and between external medication pick-up points is critical for patient management and monitoring retention
· An electronic medical record system for chronic conditions that includes decentralized service delivery is essential for integration and management of adherence interventions
· Patient file management must be addressed to prevent loss of patient information; a one-patient-one-file system facilitates patient management
· Efficient patient tracing relies on strong coordination and information flow between providers at facilities and in the community.
Recommendations based on these lessons are provided in Table 1.
Conclusions/Next steps: As we progress towards final outcomes within the evaluation, we have already gained insights into how to improve AGL rollout on a national scale based on provider and patient preferences and our observations of the early phase. Implementation of these recommendations should help improve outcomes as AGL scale up continues.

Area	Recommendation
Patient care forms and registers	Review format and use of forms that have proved complex/confusing and ensure that appropriate registers are in place for monitoring all patient interactions, especially for repeat prescription strategy interventions (e.g. Adherence Clubs and Decentralized Medication Delivery) and patient tracing.
Clinic barriers	Ensure site readiness with sufficient resources and engage with stakeholders to ensure buy in from providers and implementers so they feel engaged and empowered to deliver AGL interventions.
Training of staff	Engage with staff and ensure appropriate cadres are trained; provide ongoing mentorship and refresher training and retraining in areas with high staff turnover.
Decentralized medication delivery and reporting	Scripting, staffing and data issues all need to be resolved to ensure patients receive their medication and to prevent further congestion at facilities. In early implementation, it is critical that data on medication pick-up at external pick up points be fed back into clinic data collection systems.
Issues related to blood draws for viral load monitoring	It is critical that patients in repeat prescription strategy interventions continue to receive timely viral load monitoring. One way to help ensure this is by putting patients into cohorts based on viral load due date (e.g. set up Adherence Clubs in which all patients have the same monitoring schedule) and marking patient files for patients all due their viral load in the same month.
Patient tracing	There must be greater clarity on which patients need tracing, in order to maximize tracing resources: Patients with an elevated viral load who are not successfully recalled, and patients who have missed an appointment for 5-90 days.

[Table 1 - Recommendations for Improving Implementation of the Adherence Guidelines]

WEPEE748

Implementation of differentiated care model in Kenya´s private sector

C. Kanari[1], L. Maikweki[2], G. Mogaka[3], J. Andugosi[4]
[1]PSKenya, HIV, Nairobi, Kenya, [2]Population Services Kenya, HIV/TB, Nairobi, Kenya, [3]Gold Star Network Kenya, HIV/TB, Nairobi, Kenya, [4]Gold Star Kenya, Nairobi, Kenya

Background: In 2015 WHO released a recommendation that all PLHIV initiate ART irrespective of CD4 cell count or clinical stage dubbed "test and Treat". Successful implementation of Test and Treat led to a substantially increase in the number of patients starting ART and patient volume at ART sites. Kenyan government recognized this and adapted differentiated care model (DCM) in its new guidelines in 2016 which was also in line with WHO guidance. This translates to a client centred approach rationalizing fewer clinic visits for stable clients and options for community based ART distribution. PS Kenya implements HIV services uniquely and purely in the private sector which is fee for service approach, therefore an adapted approach was necessary as reduced visits may be perceived as reduced income by providers.
Description: The program sensitized its providers on the DCM approach. A Baseline survey was carried out in 13 facilities after sensitization of providers. The survey revealed that providers were implementing fast-track model. Appointment dates were set for the refill in 3 months and the clinical appointment in 6 months, this was recorded in the Appointment Diary for ART Refills. However the clients on long appointments were mostly not categorized as stable or unstable.
To start implementation of DCM, all patients were categorized and flagged. Provider willingness to implement the approach was also a consideration. The main intervention strategies were Sensitization on categorization of clients into stable and unstable to the providers, Mentorship to the service providers, Joint Support supervision with the sub-county teams, and line-listing of clients who had been on treatment for more than 1 year.
Lessons learned: DCM is a feasible model for ART provision even for Private sector providers despite it meaning less clinic visits. Some providers have proceeded to offer the service via a courier system and charge the clients for drug deliveries. One provider successfully implemented a concierge approach that led to him delivering drugs to his stable clients and taking the viral load sample for a fee and at a location of the client's preference.
Conclusions/Next steps: Implementation of client centred approaches for clients on Art is a feasible and scalable approach.

WEPEE749

Impact of offering differentiated HIV care on treatment retention and health facility workload: Results from Kenya health zone in the Democratic Republic of Congo

D. Kamerhe[1], C. Tendo[1], R. Mwamba[1], I. Thior[2], D. Canagasabey[2], J.-C. Kiluba[1], L. Mueller Scott[2]
[1]PATH, Lubumbashi, Congo, Democratic Republic of the, [2]PATH, Washington, United States

Background: Implementation of test-and-treat in the Democratic Republic of Congo (DRC) has resulted in more people living with HIV (PLHIV) accessing treatment services at health facilities, overwhelming facility workforce and increasing wait times for PLHIV, leading to weaker retention of PLHIV in treatment. PATH, through the USAID-funded Integrated HIV/AIDS Project in the DRC, piloted three differentiated models of care (DMC). We conducted an analysis to evaluate the impact of DMC on antiretroviral treatment (ART) retention and health facility workload.
Methods: Beginning October 2016, three DMC were implemented to decongest the Kenya General Reference Hospital (HGR):
1. ART distribution during monthly meetings at six PLHIV support groups
2. Community-based point of ART distribution (PoDi+)
3. Fast-track ART refill circuit at Kenya HGR
Stable PLHIV (older than 18 years; no opportunistic infections; not preg-

nant; undetectable viral load for at least six months) enrolled in a DMC of their choice and received a three-month ART supply. We used descriptive statistics to analyze patient medical records data.
Results: From October 2016 to December 2017, 938 PLHIV from Kenya HGR enrolled in a DMC: 576 in a PoDi+; 313 in the fast-track circuit; and 49 in support groups. The six-month retention rate observed at each DMC was 96% at the PoDi+, 96% at the fast-track circuit, and 94% among support groups, compared to 60% at Kenya HGR for the same period. The only model with 12 months of data (see table), the PoDi+, achieved a 12-month retention rate of 98%, as 22 of the 28 dropped from the PoDi+ were transferred back to Kenya HGR for treatment services due to pregnancy or opportunistic infections. There was a 47% reduction in provider workload at Kenya HGR, from 404 PLHIV/provider before DMC to 217 PLHIV/provider after DMC, and a decrease in wait time at Kenya HGR from two hours to 45 minutes.
Conclusions: Our analysis demonstrated that DMC were successful strategies for improving retention in treatment and reducing provider workload and wait times at Kenya HGR. Results suggest DMC are critical to increasing PLHIV retention in ART to contribute to epidemic control in the DRC.

Month of enrollment	Patients newly enrolled at PoDi+	Number retained after six months	Retention rate at six months (%)	Number retained after twelve months	Retention rate at twelve months (%)
October 2016	125	115	92%	110	88%
November 2016	87	86	99%	81	93%
December 2016	74	73	99%	68	92%
January 2017	38	36	95%	37	97%
	324	310	96%	296	91%

[12-month retention of patients enrolled at Kenya PoDi+ from October 2016 to January 2017.]

WEPEE750

ART behind bars: Differentiated service delivery results in high viral load suppression among prisoners in Zambia

K. Mwanda, M. Chikuba, E. Mwila, Y. Lungu, D. Phiri, L. Kawanga, M. Banda, K. Chibesakunda, D. Chikondi, J. Jose
JSI Research & Training, Inc., International Division, Lusaka, Zambia

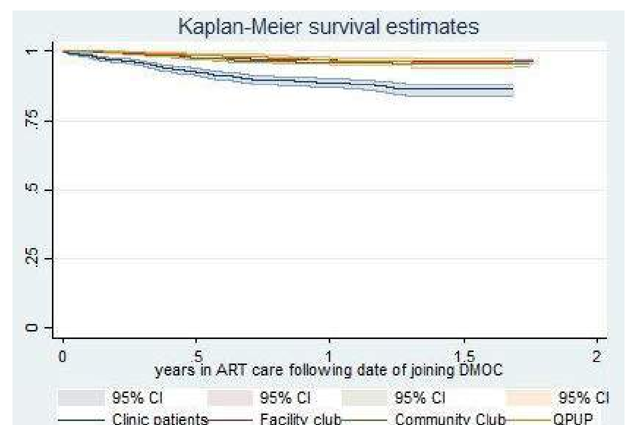
Background: HIV prevalence among prison inmates in Zambia is 27%, twice that of the general adult population. The Zambia Correctional Service (ZCS) refers prisoners on ART to public sectors facilities outside prison. However, due to transport and manpower shortages, prisoners are often not able to keep appointments, resulting in ART interruption, with risk of poor viral suppression, ART resistance, and poor health outcomes.
Prisoners with poorly treated HIV, particularly those temporarily imprisoned, are also liable to transmit resistant HIV upon release, with negative consequences for HIV epidemic control.
Description: The USAID-funded USAID DISCOVER-Health Project implemented by JSI partnered with ZCS to bring ART within prison walls, to address challenges of access to regular HIV treatment, to improve treatment outcomes.
From October 2016, eight large correctional facilities are visited by project teams comprising one clinician, two nurses, and a psychosocial counsellor who provide ART and other services once a week or twice a month, inside prison walls. High-volume facilities with over 50 clients are visited weekly, while those with 50 or less are visited every two weeks.
At each visit, ART services including TB screening are provided, in addition to laboratory monitoring. Viral load testing is done in line with national HIV treatment guidelines.
Lessons learned: Of the 241 prisoners (234 males and 7 females) who were eligible for viral load monitoring, 221 (92%) were virally suppressed. 185 (84%) of the prisoners who were virally suppressed were initiated on ART at the time of imprisonment. Viral suppression among prisoners benefiting from this DSD model (92%) is higher than the viral suppression rate (77%) in the national HIV treatment program.
Conclusions/Next steps: By providing ART behind bars we reduced the barriers to ART adherence among prison inmates in eight correctional facilities in Zambia. Similar DSD models should be instituted in all prisons to improve adherence and health outcomes for PLHIV prisoners.

WEPEE751

A “quick pick-up” differentiated model of ART delivery shows good retention in care

T. Cassidy[1,2], R. O'Connell[1], J. Euvrard[3], S. Ndlovu[1], L.T. Duran[1], S.J. Steele[4], J. Oba[1], S. Daho[1], A. Boulle[3], R. Gerstenhaber[4], T. Schulz[5]
[1]*Médecins Sans Frontières, Khayelitsha, Cape Town, South Africa,* [2]*University of Cape Town, Division of Public Health Medicine, School of Public Health and Family Medicine, Cape Town, South Africa,* [3]*University of Cape Town, CIDER, School of Public Health and Family Medicine, Cape Town, South Africa,* [4]*Médecins Sans Frontières, Cape Town, South Africa,* [5]*KESS, Western Cape Provincial Health Department, Cape Town, South Africa*

Background: In the context of ART scale-up, Differentiated Models of Care (DMOC) are a key strategy to improve efficiency and cater to patient needs. Available to clinic patients after confirmed viral suppression, DMOCs include facility- or community-based counselor-led adherence clubs. Since October 2015, a quick pick-up model (QPUP) has been running in one clinic in Khayelitsha, a low-income area in Cape Town, South Africa, with high HIV prevalence. QPUP, also known as fast-lane, allows patients to collect ART directly from pharmacy, without counselor review. All three DMOC models require an annual clinical visit and viral load. We describe patient characteristics and retention in QPUP, other DMOCs and those not in any DMOC.
Methods: We used routine clinical data of patients starting ART before July 2017 in three Khayelitsha clinics. QPUP patients are stable on ART prior to referral to QPUP. For comparability in terms of time on ART and viral suppression we matched each QPUP patient to two non-DMOC 'clinic' patients. Each QPUP patient was matched to two patients with the closest ART start date, from patients who were in care and virally suppressed at their last viral load when the QPUP patient joined QPUP. Follow-up time for both matched clinic patients began on the QPUP patient's QPUP start date. To compare QPUP with other DMOCs, only patients that joined facility or community clubs after QPUP began were included.
Results: Those in QPUP were more likely to initiate ART at WHO Stage 1(Table 1). A larger proportion of clinic patients are male but age is similar across groups. DMOC patients have higher retention in care compared to clinic patients (see also Figure 1) but a notable proportion return to clinic. At 12-months 96% of QPUP patients are still in ART care, but 85% remain in QPUP.
Conclusions: QPUP outcomes suggest that reduced healthcare contact time is feasible for stable patients, although return to clinic care is not uncommon across all differentiated models. A limitation of this data is incomplete viral load capturing and self-selection of DMOC patients. We aim to further develop the QPUP model, adapting to patient needs and health facility resources.



[Figure 1 Kaplan-Meier survival estimates of retention in any ART care of QPUP and Club patients compared to clinic controls]

	QPUP (N=976)	Clinic (N=1852)	Facility club (N=3138)	Community Club (N=3431)
median age (IQR)	37.3 (32.2-43)	38.3 (32.1-45.8)	36.3 (31-42.5)	39.6 (34.3-45)
Number male (%)	271 (28%)	641 (33%)	742 (24%)	926 (27%)
N (%) WHO stage 1 at initiation	451 (46%)	668 (34%)	1198 (38%)	889 (26%)
Median baseline CD4 Count (IQR)	208 (113-318)	204 (120-315.5)	224 (129-332)	181 (100-268)
Median months on ART at DMOC start* (IQR)	41.4 (21.6-70.4)	41.3 (20.1-68.8)	34.6 (18.1-63.2)	57.5 (33-87.7)
12 Month Retention in ART care after first DMOC visit*	96%	85%	93%	96%
12 Month Retention in DMOC care	85%		79%	85%
Viral load within first year after first DMOC visit* % complete (%suppressed)	33% (95%)	36% (91%)	43% (96%)	77% (96%)
*in the case of clinic patients, DMOC start refers to the DMOC start date of the patient they were matched to				

[Table 1: Baseline Characteristics and Outcomes of QPUP, Clinic and Club Patients]

WEPEE752

Early findings of an innovative, community-based antiretroviral therapy (ART) delivery program for female sex workers in Tanzania

L. Vu[1], W. Tun[1], L. Apicella[2], C. Casalini[3], D. Bikaru[4], N. Makyao[5], D. Michael[6], T. Koppenhaver[7], E. Mlanga[7]
[1]Population Council/Project SOAR, Washington DC, United States, [2]Populaton Council/ Project SOAR, Dar es Salaam, Tanzania, United Republic of, [3]Jhpiego, Dar es Salaam, Tanzania, United Republic of, [4]Jhpiego, Njombe, Tanzania, United Republic of, [5]National AIDS Control Program (NACP), Dar es Salaam, Tanzania, United Republic of, [6]National Institute for Medical Research (NIMR), Mwanza, Tanzania, United Republic of, [7]USAID, Dar es Salaam, Tanzania, United Republic of

Background: To increase linkages to and retention in ART care, we designed and piloted the delivery of community-based ART services to female sex workers (FSWs) using community-based HIV testing and counseling (HTC) platforms (mobile and home based).
Methods: This is a mixed-method implementation science research study, using a quasi-experimental design. Eligible participants in the intervention arm (Njombe Region) were enrolled into community-based ART, counselled on ART, and immediately received one month of ARV drug supply. At the first refill, each FSW receive 2 months of drug supply. Subsequently, FSWs receive 3 months of drug supply. FSWs in the comparison arm (Mbeya Region) were referred to public ART facilities, following national guidelines (at registered facility, fixed refill date, one month of ARVs). We collected data at baseline and will re-interview the cohort at 6 and 12 months. Viral load will be measured at 6 months and 12 months. This abstract describes baseline quantitative, and early qualitative and process data from the study.
Results: A cohort of 617 HIV-positive FSWs not currently on ART were established (June-July, 2017) and is being followed up (309 in Njombe; 308 in Mbeya). The median age is 30 years old; half were never married and a third were divorced. One-third of FSWs learned about their HIV positive status for the first time at study enrollment. Among a sub-sample who had known their status for more than a month before the study (n=97/617), half had not registered in HIV care. Condom use (at last sex) was low with paying (28%) and non-paying clients (25%), and internalized stigma was high (e.g. 46% felt guilty, 33% worthless; 39% ashamed because of living with HIV). In the intervention arm, 98% of participants came back on time for the first refill, and 95% came back on time for the second refill. Our 3-month qualitative interviews with providers and FSWs showed overwhelming support of this community-based ART model.
Conclusions: We found gaps in linking HIV+ FSWs with ART services. Early findings suggest that the community-based ART model is closing these gaps by being feasible, acceptable, and associated with increased linkages and retention in ART among FSWs.

WEPEE753

Barriers and facilitators to successful decentralized treatment provision for female sex workers living with HIV in Durban, South Africa

C. Comins[1], L. Parmley[1], S. Schwartz[1], H.T. Mkhize[2], V. Guddera[2], D.R. Phetlhu[3], K. Young[4], H. Hausler[4], S. Baral[1]
[1]Johns Hopkins Bloomberg School of Public Health, Key Populations Program, Center for Public Health and Human Rights, Department of Epidemiology, Baltimore, United States, [2]TB/HIV Care, Durban, South Africa, [3]University of Western Cape, School of Nursing, Cape Town, South Africa, [4]TB/HIV Care, Cape Town, South Africa

Background: Female sex workers (FSW) across sub-Saharan Africa are disproportionately affected by HIV and antiretroviral therapy (ART) coverage among FSW living with HIV remains low due to individual and structural-level barriers to care. Differentiated care models, including decentralized treatment programs (DTP), are being increasingly scaled for those that have already achieved viral suppression, but may also represent opportunities to better service marginalized populations including FSW. Here, we explore potential barriers and facilitators to decentralized HIV treatment initiation and care for FSW living with HIV in South Africa.
Methods: 38 semi-structured, in-depth interviews were conducted with FSW living with HIV in Durban, South Africa (n=24) and key informants (n=15) including implementing partners, clinic nurses, police, sex work advocates, brothel managers, and other key stakeholders. Participants were recruited using criterion-based sampling. Interviews were conducted in English or isiZulu between September-November, 2017 and transcribed, translated, and analyzed using grounded theory in Atlas.ti 8, based on deductive themes emerging from participants.
Results: DTP was seen to be particularly impactful in minimizing transport costs, time spent at the clinic (including wage loss), sex work-related stigma, and risks of inadvertent HIV disclosure. Advantages of mobile DTP emerged; Participants reported DTP would be more discrete, FSW-friendly, and less resource intensive than receiving care at facility-based clinics. Moreover, participants reported that DTP would provide a safety net for FSW who have missed ART pickup appointments and facilitate improved tracing of FSW, particularly those who are moving across venues within an urban area.
However, branding of mobile clinics, security and concerns around ART packaging may undermine DTP success.
Conclusions: Decentralization of HIV treatment services may represent a relevant differentiated treatment model to overcome occupational and non-occupational barriers among FSW living with HIV to engagement in ART. Studying determinants of who would most benefit from DTP and optimal implementation approaches for DTP will provide insight to the scalability of these approaches and utility in optimizing sustained treatment outcomes among FSW living with HIV in South Africa.

WEPEE754

Improving retention, viral suppression, and facility decongestion through community-based individual drug distribution (PODIs) in DRC

E. Mothibi[1], J. Mangoma[2], D. Kabamba[2], L. Monteith[2], F.X. N'siesi[3], J. Firth[4], J. Kiluba[5], D. Kamhere[6], F. Chirowa[7], B. Makumbe[2], A. Grimwood[2], G. Fatti[8]
[1]Khethimpilo, Health Systems Strengthening, Cape Town, South Africa, [2]Khethimpilo, EQUIP, Cape Town, South Africa, [3]USAID, Kinshasa, Congo, Democratic Republic of the, [4]EQUIP, Washington DC, United States, [5]IHAP, Lubumbashi, Congo, Democratic Republic of the, [6]IHAP, Kinshasa, Congo, Democratic Republic of the, [7]Khethimpilo, EQUIP, Harare, Zimbabwe, [8]Khethimpilo, Cape Town, South Africa

Background: Current estimates of PLHIV in the DRC is 370,000 with 33% (122,268) on ART (UNAIDS 2015). While scale-up is ongoing to increase patients on ART, strategies to achieve retention and viral load suppression are essential. Monthly patient visits, provider prescribing, and dispensing of medications creates congestion at clinics and pharmacies, additional time and economic burden on patients, and additional data collection and tracking burden on M&E systems. EQUIP is implementing

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an out-of-health facility, community-based individual drug distribution (PODI) point from which clients can pick-up their medication and receive psychosocial support and other additional services.
Description: With the support of EQUIP, PROVIC Plus (now IHAP) established PODIs in Lubumbashi, and Kinshasa. EQUIP trained local supporting partners, NGOs and MOH staff on PODI setup, created SOPs, tools and registers to use for performance tracking. PODI members are adults >18years who have been adherent to treatment for the last 6 months. At each PODI visit, lay NGO staff members, who are mostly PLWHIV, do a symptom screen, provide peer support and issue three months' ARV supply to the client. Symptomatic members are referred to the health facility for care. Annual, viral load tests are conducted. Monitoring tools track enrolment and missed appointment, retention, adherence and viral load suppression.
Lessons learned: In Lubumbashi PODI Kenya was set up in October 2016 and PODI Lubumbashi in January 2017. In Kinshasa, PODI Masina and PODI Kingasani were set up in 2017. By September 2017, a total of 1484 ART clients were enrolled at the 4 PODI houses resulting in decanting of linked facilities by 44%- 47% respectively. The four PODI houses show high retention rates of 92-100% at 3, 6 and 9 months and Viral Suppression above 90%. Some of the benefits of PODI houses include reduced costs to the patient and improved convenience for patients without compromising the quality of care.
Conclusions/Next steps: Shifting of ART delivery to Community Distribution points implemented as a differentiated model of ART provision for stable patients produces good retention and viral load suppression. This model can also provide benefits of decongesting facilities to enable rapid Test and Treat.

WEPEE755

Anticipated and lived experiences of stable patients on ART in urban adherence groups: A qualitative study from Zambia

P.C. Mwamba[1], S.M. Topp[2], C. Bolton-Moore[1], C. Cheelo[3], L. Jere[1], M. Mukumbwa-Mwenechanya[1], S. Nkwemu[1], W. Mutale[3], A. Sharma[1]
[1]Centre for Infectious Disease Research in Zambia, Research, Lusaka, Zambia, [2]College of Public Health Medical and Veterinary Sciences, James Cook University, Townsville, Australia, [3]The University of Zambia, School of Public Health, Lusaka, Zambia

Background: In Zambia, growing numbers of people on ART and health system constraints has spurred differentiated service delivery (DSD). Nested within a mixed methods study on DSD in three provinces in Zambia, we compared anticipated and lived experiences of patients and health care workers (HCWs) prior to and after six months of implementation of urban adherence groups (UAG). The acceptability, feasibility and appropriateness of UAGs, which consist of a group of 30 patients who collect ART at a facility-based meeting held every 2-3 months during off hours, has not been previously studied in Zambia.
Methods: At baseline, we conducted 34 focus group discussions (FGDs) with patients, family members, and HCWs and 26 in-depth interviews (IDIs) with government officials and local leaders. At mid-line evaluation, we conducted 15 FGDs with professional HCWs and patients and, 18 IDIs with lay and professional HCWs. Audio transcripts were translated, transcribed and uploaded to Nvivo QSR™. Using framework analysis, major themes from both evaluations were compared by type of respondent and exposure to UAGs.
Results: Prior to implementation, working patients found the off-hours drug collections times highly acceptable while HCWs considered them unacceptable given current workloads and clinic space. Both patients and HCWs raised concerns regarding the big group size which could expose patients to stigma and unintentional disclosure. HCWs expressed concerns about physical safety, record keeping, security of stored drugs and working off-hours. After six months of implementation, both patients and HCWs found UAGs acceptable albeit with concerns about staff shortage, compensation for HCWs working off-hours and ARV storage space. Contrary to expectations, patients found that UAGs reduced HIV-related stigma and created group support. There were no reported cases of theft and physical harm. On the contrary, documentation and records were described as well-kept and updated.
Conclusions: Most pre-implementation concerns were not reported at mid-line demonstrating the importance of mitigating foreseeable challenges. Implementing UAGs can result in reduced HIV-related stigma, freed-up time for patients and potentially decongest day-time clinics. To effectively implement UAGs, health services must be re-organised by increasing UAG-specific staffing and, adapting clinic operations to meet off hours and ARV storage requirements.

WEPEE756

Uptake of HIV differentiated care models for patients on antiretroviral therapy in South Africa

D. Joseph Davey[1,2], C. Serrao[3], T. Luthuli[4], E. Darkoh[2], BroadReach
[1]University of Californa, Los Angeles, Epidemiology, Hout Bay, South Africa, [2]BroadReach, Cape Town, South Africa, [3]BroadReach, Johannesburg, South Africa, [4]DOH, Mpumalanga, South Africa

Background: South Africa rolled out differentiated care to stable adult patients who were the same regimen for ≥12-months, ≥2 consecutive normal laboratory results (viral load <1000 copies/mL), and not currently on TB or other medication that requires clinical consultation. Differentiated care in South Africa includes: pharmacy, fast lanes, adherence clubs and decentralized, community-based drug distribution (CCMDD).
Methods: We conducted an analysis of national data from 307 facilities in five Districts in South Africa between September 2016 and December 2017 to evaluate demographic and clinical characteristics and treatment outcomes in patients on differentiated care vs. standard of care in multivariable logistic regression models.
Results: Of 433,249 patients on ART, 221,596 were eligible for differentiated care (51%) in 307 facilities. To date, 173,267 eligible patients were registered for differentiated care (78% of eligible patients) including: 34% CCMDD external pick up points (e.g. pharmacies), 27% clinic or community-based adherence clubs, 19% using internal CCMDD pick-up-points and 20% using clinic fast-lanes for ART delivery. There was a drop in use of external pick up points due to late deliveries, limited pick-up-points in rural areas and stock outs reported. Median age of patients in differentiated care was 39 (IQR=32-46), 71% were females. Median time on ART was 4.3 years (IQR=2.5-6.4 months). Median CD4 count was 488 (IQR=338-663), women had twice the odds of having a CD4 >450 (age-adjusted OR=2.06, 95% CI=1.98-2.16). Median last viral load was 124 (IQR=84-124) and men had increased risk of having a viral load >1000 copies/mL (age-adjusted OR=1.23, 95% CI=1.11-1.36). Loss to follow up and mortality were very low in this cohort at < 1%.
Conclusions: We found high uptake (78%) of differentiated care in stable patients on ART with most using external pick-up-points. Additional interventions are needed to improve treatment outcomes in patients not in differentiated care, mostly men and young people. Additional research is needed to evaluate the extent to which differentiated care decongests facilities, allowing for improved clinical management of complex cases, and initiation of new patients on ART.

WEPEE757

The first experience with ART adherence clubs in Maputo, Mozambique: An analysis of a second-line ART subcohort

I. Finci[1], A. Flores[1], A.G. Gutierrez Zamudio[1], E. de Abreu[1], S. Issufo[2], I. Gaspar[2], L. Molfino[1]
[1]Medecins sans Frontieres, Maputo, Mozambique, [2]Ministry of Health, Maputo, Mozambique

Background: The Adherence Club (AC) model of care was piloted by Medecins Sans Frontieres (MSF) starting in 2007 in South Africa. AC model offers patient-centred access to antiretroviral therapy (ART) to clinically stable patients and reduces the number of consultations in health-care facilities. In Maputo, MSF started to run AC in collaboration with Ministry of Health (MoH) in October 2015, at Centro de Referencia Alto Mae (CRAM), an MSF-supported health facility which assists complex HIV patients. Therefore, this is one of the first descriptions of an AC cohort of patients with a history of treatment failure.

Methods: A retrospective analysis of patients' data from CRAM enrolled in AC clubs and receiving second-line ART treatment was performed. The analysis spanned from October 2015 to January 2018. In addition to death, lost-to-follow-up (LFU) or coinfection with tuberculosis, reasons for exiting AC can be: unsuppressed viral load (VL) or skipping club session twice in succession. Kaplan-Meyer curve was used to analyse retention in AC (RIAC) and retention in care in health facility (RIC).
Results: The analysed cohort contains 687 patients on second-line ART, with median age at enrolment of 40 years [IQR:35-42] and 429 (63%) being female. All patients were stable and with VL< 400 copies/ml at enrolment in AC. During study period, 6 (0.9%) patients died and 5 (0.7%) were LFU. RIAC at months 12, 18 and 24 was 95% [CI:93-97%], 87% [CI:86-92%] and 83% [CI:78-87%], respectively. In the analysed period, 23 (3.4%) of patients exited AC due to unsuppressed VL, of which 6 (26%) successfully supressed VL afterwards and returned to AC. Additionally, 24 (3.5%) patients exited AC due to skipping club sessions. Patients who exited AC continued to be treated in the same facility, hence, the RIC of AC patients in our facility for the same period was 99% [98-100%], 98% [CI:96-99%] and 97% [CI:95-99%].
Conclusions: Patients with a history of treatment failure can have good outcomes in AC. Furthermore, by reinforcing counselling of patients who exit AC due to unsuppressed VL, patients can achieve VL re-suppression and return to AC. Finally, overall retention in care of AC second-line patients was encouragingly high.

WEPEE758

Challenges in providing patients centred care through community adherence groups in three provinces of Zambia

S. Nkwemu[1], C. Mwamba[1], C. Bolton-Moore[1], S.M. Topp[2], L. Jere[1], M. Mukumbwa-Mwenechanya[1], C. Cheelo[3], W. Mutale[3], A. Sharma[1]
[1]Centre for Infectious Disease Research in Zambia, Lusaka, Zambia, [2]College of Public Health Medical and Veterinary Sciences, James Cook University, Townsville, Australia, [3]The University of Zambia, School of Public Health, Lusaka, Zambia

Background: The Community Adherence Group (CAG) is a model adopted across resource-constrained facilities to improve ART retention. A CAG consists of approximately six stable patients who visit the clinic on a rotational basis for their clinical visit, during which they collect drugs for themselves and other CAG members. In anticipation of wider roll-out in Zambia, we piloted CAGs in five facilities in Lusaka, Eastern and Southern Province to identify unforeseen challenges faced by health service providers (HSP) and patients during implementation.
Methods: Using a qualitative exploratory study design, from August to November 2017, we conducted 12 focus group discussions with HSP and 16 in-depth interviews with CAG members to understand their experiences after approximately 6 months of implementation. Discussions and interviews were recorded on digital audio recorders and transcribed directly into English. Thematic analysis was conducted using inductive and deductive reasoning.
Results: Both HSP and patients favoured CAGs because of its ability to decongest the clinics and reduce work load but reported several health system issues that compromised intervention fidelity. CAG members had to return to the clinic more times than scheduled due to inadequate supply of anti-retroviral (ARV) drugs and specimen bottles to collect blood for CD4 testing as well as a malfunctioning CD4 machine. Patients reported challenges posed by eligibility criteria leading to, for example, exclusion of pregnant women. Lay healthcare workers (LHCWs) could not always cover the distances between clinic and CAG meeting venues or pick up attendance registers due to lack of transport. Additionally, they reported that some CAG members were keen to only pick up their drugs and did not participate in full CAG meetings that included health discussions and symptom checks. HSP reported lack of office space for document storage which could compromise patient confidentiality.
Conclusions: While CAGs have the potential to ease the health system, health systems must adapt to the needs of the CAG model. Supply chain management, laboratory services and management of patient and programme monitoring tools must be strengthened to allow LHCWs and HSP to perform their duties and to maintain fidelity to visit schedules.

WEPEE759

Acceptability of community differentiated models of care: A patient and service provider's perspective on community art refill groups in Zimbabwe

V. Mashungu[1], J. Munkuli[1], W. Khembo[1], B. Nkawu[1], B. Kumani[1], O. Mugurungi[2], N. Ngorima-Mabhena[3]
[1]Khethimpilo, Multi-Month Drug Dispensing Study, Harare, Zimbabwe, [2]Ministry of Health and Child Welfare, HIV/AIDS/TB, Harare, Zimbabwe, [3]Khethimpilo, Multi-Month Drug Dispensing Study, Pretoria, South Africa

Background: Public healthcare facilities are overburdened with large numbers of stable antiretroviral treatment (ART) patients resulting in poor management and long waiting time; community ART Refill Groups (CARGs) are postulated to decongest facilities improving care as one person collects ART at the facility for the whole group. This study explores patient and service provider's acceptability of CARGs in Zimbabwe.
Methods: As part of a cluster randomized trial to assess effectiveness of 3 and 6-monthly dispensing of ART for stable patients in CARGs, qualitative data were collected in Shona, Ndebele and Venda from October-December 2017 in Beitbridge, Chitungwiza, Gutu, Mberengwa and Zaka districts. Twenty key informant interviews from purposively selected service providers were conducted. 113 females and 42 males newly enrolled in CARGs were randomly selected and participated in focus group discussions from each of the 20 facilities. Translated-transcripts were analyzed for thematic content.
Results: Facility staff welcomed the formation of CARGs linked to their facilities as a solution to decongest facilities, improve care for unstable patients, increased time for patient data compilation and group viral load testing to improve monitoring (the third 90). New CARG members anticipate benefits that include saving on transport costs and reduction in facility visits thereby allowing increased focus on productive activities. Group support through livelihood projects, adherence and defaulter tracing were highlighted to improve retention, lifestyles, and psychological well-being.
Despite the general acceptability of CARGs, some members cited fear of stigma, discrimination and losing respect as reasons for not joining groups particularly for those unwilling to disclose HIV status. Young people and males preferred sending relatives for facility drug pick-ups than joining a CARG.
Some clients reported fear of *"huroyi"* (witchcraft) through someone else handling their medication as one of the reasons for not joining CARGs. Nurses expressed worry towards 6-month ART dispensing as monitoring occurs only twice yearly; patients may not seek needed care.
Conclusions: High acceptability of CARGS was shown by patients and service providers, however stigma and discrimination remain a challenge and need to be addressed at both individual and community-level. Group differentiated care may not be ideal for young people and men.

WEPEE760

Peer providers delivering differently: Installing young trained service providers (20-24 yrs) at service delivery points to increase access to adolescent and young people friendly SRH-HIV services in rural Kenya

A. Mwakalindo[1], J. Carter[2]
[1]Family Health Options Kenya, Youth Programs, Malindi, Kenya, [2]Family Health Options Kenya, Youth Programmes, Siaya, Kenya

Background: Siaya County has a 24.8% HIV prevalence, 4.2 times higher the national prevalence. Over 46% of new infections occurred amongst adolescents and young people (AYP), Kenya HIV estimates 2016. Policy documents like Adolescent SRH 2016 and the Fast track plan to end AIDS amongst adolescents have been adopted.
However Young people do not access SRH-HIV services including HIV testing services in public health facilities citing perceived or experienced health provider attitudes (IAS Young Lives, New Solutions Policy Brief). The Get Up, Speak Out (GUSO) project seeked to amplify the voices of young people and design service delivery models anchored on recommendations AYP in Family Health Options Kenya (FHOK) facilities.

Description: Supported by IPPF, FHOK, a leading service provider of SRH services in Kenya, with a special focus on youth, marginalized and socially-excluded people, initiated a nationwide 1 year project (Jan 1 - Dec 31, 2017). It seeked to ensure all AYP in Kenya enjoy there SRH rights. Through increasing access to rights based AYP friendly SRH-HIV services to 60,000 adolescents and young people nationally. Siaya County in Nyanza region was selected as a rural county where HIV stigma remains high. GUSO adopted the evidences and recommendations from the IAS Young Lives, New Solutions Policy Brief. GUSO recruited and trained 3 young graduates (Nursing officer, clinical officer and HTS provider 20-24 yrs) from Kenya Medical Training College in Bondo on AYP friendly services across different settings. Included 18 AYP in facility management teams. Trained 56 digital CSE peer facilitators.

Lessons learned: Young service providers recruited improved optics of the facility amongst AYP. More AYP accessed services at the facility due to referrals by peers who were satisfied clients. An unprecedented 67,196 (51,133F 16,063M) AYP accessed Contraceptive services while 16,612 (8,563F 8,049) tested for HIV.

Conclusions/Next steps: AYP has significant innovative solutions to barriers of accessing SRH-HIV services. Young people have the capacity to offer Clinical services. It is imperative that AYP friendly services training are institutionalised in the Kenya Medical Training College curriculum. Young graduates are place in AYP friendly centres. AYP are incorporated in hospital management committees.

WEPEE761

Characteristics and early clinical outcomes of key populations attending comprehensive community-based HIV care in Nigeria

O.J. Ibiloye[1,2], N. Eyona[1], T. Decroo[3], P. Agada[1], P. Eze[1], W. Fajemisin[1], A. Afolabi[1]
[1]Society for Family Health, Abuja, Nigeria, [2]APIN Public Health Initiatives, Clinical Services, Abuja, Nigeria, [3]Institute of Tropical Medicine, Antwerp, Belgium

Background: Despite a call for differentiated care, there is limited data from sub-Saharan Africa on comprehensive community-based HIV care for key populations (KP), including commercial sex workers (CSW), men who have sex with men (MSM), and people who inject drugs (PWID). In Nigeria, a programme was implemented that liaised with community-based organizations and offered HIV testing, same-day ART initiation, and ART follow-up to KP. Here we characterize KP and their partners enrolled on ART. Our objective is to assess the early treatment outcomes and to estimate predictors of attrition among KP.

Description: This is a retrospective cohort study of routinely collected data in a community-based HIV program for KP in Nasarawa state, Nigeria from August 2016 to November 2017. Variables of interest were socio-demographic, KP types, treatment outcomes, ART adherence, WHO stage, TB status and viral load. Summary statistics, logistic and Cox proportional hazard regression were used to describe the characteristics of KP and estimate predictors of attrition (patients either lost to follow-up (LTFU) or dead).

Lessons learned: Seven hundred and ten (710) KP and their partners were enrolled into this study, 77.3% (549) of study subjects were female and the median age was 30 years (IQR: 24-35). Respectively, 74.2%, 4.5%, 1.1% and 20% were FSW, MSM, PWID and their partners. Of 710 KP who started ART, 13.9% (99/710) discontinued after the first visit. After a median follow-up time of 7 months on ART 73.2% of patients were retained, 23.4% were LTFU, and 3.4% were dead. Lack of formal education (aHR 1.8; 95% CI 1.3-2.6) and unemployment (aHR 1.8; 95% CI 1.2-2.6) were significantly associated with attrition.

Conclusions/Next steps: Comprehensive community-based HIV care, including HIV testing and same-day ART is feasible. However, ART initiation on the same day of confirmatory HIV testing resulted in a high uptake of ART, but at the same time inflated attrition. To mitigate early attrition among KP after same-day ART initiation, the psychosocial readiness of clients should be assessed better. We strongly recommend further studies to understand factors contributing to high attrition among the KP.

WEPEE762

Rolling out a community differentiated care model: Lessons learned from a high-volume health facility in Taita Taveta County, Kenya

S. Konah
Pathfinder International, Watertown, United States

Background: Afya Pwani, a project funded by USAID and implemented by Pathfinder International, serves a population of more than 3 million and roughly 50,000 people living with HIV (PLHIV) on ART in five coastal counties in Kenya. The project has been supporting the rollout of differentiated service delivery for PLHIV in 19 high-volume facilities.

Description: In Taita Taveta County, since March 2017, Mwatate Hospital has been offering a community model of differentiated care through which ART patients who are virally suppressed, meeting predetermined clinical criteria for stable clients, and living in the same community are organized into groups of six to coordinate ART distribution and patient support. Each member takes turns picking up medication for the whole group and reports back on the progress of their group members to the clinician. A comprehensive care center (CCC) team visits the groups in the community quarterly for continuous medical education and to answer patient questions.

To identify eligible clients, 150 PLHIV patient files were reviewed from which 125 met the criteria of being stable; eighty-three patients (66% of eligible patients) agreed to participate and were organized into 13 ART groups based on proximity to other patients. After 10 months of implementation (March-December 2017), there has been no loss-to-follow-up, all patients have received viral load testing, and 81 patients (98%) remained virally suppressed.

Two patients (2%) that became unsuppressed were discharged from the community group and appropriate enhanced care was provided to them. Overall suppression rates for the hospital have increased from 81% in 2016 to 86% (395/460) in 2017.

Lessons learned: Mwatate Hospital has demonstrated how client-managed differentiated care can successfully be introduced without compromising overall suppression rates. This model provides an opportunity to reduce and prioritize healthcare provider workload, save client time and resources, and also enable PLHIVs to care for and support each other. The hospital continues to adapt the approach to maximize outcomes and quality of care, including increasing community-based CCC visits from quarterly to bi-monthly.

Conclusions/Next steps: The preliminary results from this community differentiated care approach are promising and lessons learned will inform rollout in all 19 Afya Pwani-supported high-volume facilities.

WEPEE763

Characteristics of adults in Malawi and Zambia eligible for 6-monthly antiretroviral therapy refills: The INTERVAL study

K. Balakasi[1], P. Pisa[2], A. Bardon[3], J. Hubbard[1,3], C. Moyo[4], Z. Siwale[4], G. Kakwesa[1], M. Haambokoma[4], J. Phiri[4], M. Fox[5], T. Kalua[6], T. Xulu[2], S. Rosen[7], I. Sanne[2], R. Hoffman[3], EQUIP Innovation for Health
[1]Partners in Hope Medical Center, Lilongwe, Malawi, [2]Right to Care EQUIP, Johannesburg, South Africa, [3]David Geffen School of Medicine at the University of California, Department of Medicine, Los Angeles, United States, [4]EQUIP Zambia, Lusaka, Zambia, [5]Boston University School of Public Health, Department of Epidemiology and Global Health, Boston, United States, [6]Malawi Ministry of Health, Lilongwe, Malawi, [7]Boston University School of Public Health, Department of Global Health and the Center for Global Health & Development, Boston, United States

Background: Differentiated models of care (DMOCs) are being adopted across Africa. Extending refills of antiretroviral therapy (ART) to 6 months is one such model, but little is known about the proportion or characteristics of patients who will qualify for and benefit from this DMOC. The INTERVAL study is a cluster-randomized evaluation of standard of care versus 3- and 6-month ART refills to determine whether a decreased frequency of facility visits for medication pickup improves retention in care and virologic suppression while reducing costs.

Methods: INTERVAL is being implemented in 30 facilities (10/arm) in Malawi and Zambia. Participants receive all clinical care at the assigned refill interval with no required interim visits. Participants are screened in waiting areas of adult, outpatient ART clinics and defined as "stable" if: ≥18 years, on first-line ART for ≥6 months; no active HIV-related complications/drug toxicities; no noncommunicable diseases (NCDs); not pregnant or breastfeeding; and have an undetectable viral load within the previous 6 months (Malawi: < 1,000 copies/mL, Zambia: < 20 copies/mL). We examined the characteristics of enrolled individuals to inform expectations for scaling up this model.

Results: 79% (N=6400, 65% female) of participants met the stability criteria. The most common reason for ineligibility was detectable viral load (7% Malawi, 19% Zambia). Only ~3% of women were excluded because of pregnancy or breastfeeding, as most ante/postnatal care is provided in antenatal and maternity clinics. Less than 1% were excluded for NCDs. Among individuals enrolled, the median age was 42.6 years. The median duration on ART (~5 years) reflects the transition in ART programs from newly initiated, younger patients to experienced, older patients. Women were slightly younger, had less formal education, and were less likely to miss work to come to ART clinic (Table). The gender breakdown reflects national populations on ART.

Conclusions: Roughly 4 out of 5 ART patients in outpatient clinics can be defined as "stable" for DMOC purposes. The low rate of NCDs in this older population suggests poor routine screening for these conditions. If DMOCs serve a relatively older population, other conditions of aging should be included in service delivery plans for these models of care.

	Overall n=6,400	Female n=4186 (65%)	Male n=2214 (35%)
Median age (IQR)	42.6 (35.9-50.0)	41.2 (34.5-48.4)	44.9 (39.0-53.0)
Median duration on ART, years (IQR)	4.8 (2.6-8.0)	5.0 (2.9-8.1)	4.5 (2.3-7.7)
Married or long-term partner, n (%)	4100 (64.1)	2222 (53.1)	1878 (84.8)
Education completed*, n (%)			
None	1203 (18.8)	982 (23.5)	221 (10.0)
Primary	3073 (48.1)	1946 (46.6)	1127 (51.0)
Secondary	1741 (27.3)	1021 (24.5)	720 (32.6)
University or higher	367 (5.7)	224 (5.4)	143 (6.5)
Work Status^			
Not working, not looking for work	1756 (27.5)	1399 (33.5)	357 (16.1)
Not working, looking for work	445 (7.0)	314 (7.5)	131 (5.9)
Working informally	3163 (49.4)	1983 (47.4)	1180 (53.3)
Working formally	1029 (16.1)	484 (11.6)	545 (24.6)
Miss work to come to ART clinic, n (%)	3179 (49.7)	1879 (44.9)	1300 (58.7)
Median travel time to ART clinic, hours (IQR)	0.8 (0.5-1.5)	0.8 (0.5-1.5)	0.8 (0.4-1.5)

*Missing for 16 participants
^Missing for 7 participants

[Sex differences in stable ART patients eligible for 6-monthly ART in the INTERVAL study (n=6,400)]

WEPEE764

Overcoming barriers to access of HIV/AIDS services among female sex workers through differentiated service delivery models, TASO Entebbe experience

D. Kagimu, J. Egessa, L. Oucul, E. Senyonga
The AIDS Support Organisation (TASO), Program Management, Kampala, Uganda

Background: In 2014, there was an estimated 54,549 Female Sex Workers (FSW) in Uganda with HIV prevalence of 34.1% (UAC 2014).The combination of a restrictive legal environment and mobile nature of FSW are among the barriers that influence access of HIV/AIDS services, leading to poor retention in the continuum of care. TASO Entebbe, a model center of excellence, piloted the Community Client Led ART Delivery (CCLAD) Differentiated Services Delivery Model (DSDM) among 90 HIV positive FSWs in care to increase access to HIV/AIDS services and improve retention rates among FSWs in care.

Description: Following complaints from some FSWs, of long waiting time with loss of clients in lodges, inconvenient time drug refills time, and stigma & discrimination from the general population due to their dress code and appearance at the drug pick-up points, TASO Entebbe introduced the Community Client Led ART Delivery (CCLAD) model for stable FSWs living in the same community. This involved grouping FSWs according to a criteria of; being HIV positive, registered with TASO, having disclosed to peers, consented to join CCLAD and having suppressed VL. The group selected a leader whose roles included; taking members' parameters like weight and MUAC, distribution of condoms and lubricants, delivery of pre-packed ARVs to members and submission of the filled tools to the TASO technical staff.

Lessons learned: A total of 14 FSWs aged 20-29 years (3) and 30-35 years (11), were identified and 2 CCLAD of 7 members each were formed. All FSWs in each CCLAD group maintained a suppressed VL.100% retention rates in each group was achieved. ART adherence improved from 75% to 95%. The ripple effects of CCLAD caused other FSW in the same hotspots to request to join the CCLAD groups.

Conclusions/Next steps: Innovative ART delivery models like CCLAD among FSWs stimulates demand for HIV/AIDS services, mitigate effects of stigma and enhance treatment adherence and retention.

WEPEE765

Ensuring equitable access to HIV/AIDS care in rural Africa to meet the UNAIDS 90-90-90 targets: Achieving the second and third 90s through community based follow-up

N. Khozomba[1], J. Jere[1], L. Munthali[1], E. Geoffroy[2], E. Schell[3,4], T. Schafer[3], J. Goldman[5]
[1]Global AIDS Interfaith Alliance, Blantyre, Malawi, [2]Global AIDS Interfaith Alliance, Marblehead, United States, [3]Global AIDS Interfaith Alliance, San Rafael, United States, [4]University of California, San Francisco, United States, [5]Elizabeth Taylor AIDS Foundation, Beverly Hills, United States

Background: In southern Malawi 16% of the adult population is living with HIV. Ensuring that those found newly-positive through community based testing initiatives are quickly linked to care is critical to halting the spread of the disease and achieving the second and third 90s of the 90-90-90 UNAIDS treatment targets. Since 2014, Global AIDS Interfaith Alliance (GAIA) has implemented a program employing "follow-up nurse coordinators" (F/Cs) to make home visits to clients, encouraging adherence to co-trimoxazole preventive therapy (CPT) and for those eligible, anti-retroviral therapy ART initiation (or re-initiation) and adherence. With the advent of "test and treat" in September 2016, many clients needed to be notified of their eligibility for ART and linked to care.

Description: Well-known and trusted in this rural community, GAIA's trained nurses travel to clients' homes in remote villages by motorbike. They see each client a minimum of three times after diagnosis, first making sure the client has attended an ART clinic for group counseling and timely treatment initiation, and then assure the client is adherent and stable on ART. In addition, they provide index testing of family members (including at-risk children) and sexual partners as necessary.

Lessons learned: In 2017, five F/Cs provided individualized, holistic, confidential care to 367 clients living with or exposed to HIV across two districts. By the end of the year 92% (326/355) of HIV+ clients had enrolled in ART and 98% of those were adherent to treatment (verified by pill counts and refill records). Average time from diagnosis to treatment initiation was 13 days. Early initiation helped healthy clients stay healthy and productive and restored health to others. Counseling helped clients understand the importance of staying on lifelong treatment. Clients have cited the F/Cs' personal encouragement and "feeling that someone cared" as the main reason they either initiated or reinitiated treatment or remained adherent.

Conclusions/Next steps: Follow-up care can be resource and cost intensive but is important in assuring achievement the second two "90s." The investment may well pay off in terms of increased life-expectancy, economic productivity, and reductions in onward transmission. Studies testing scale up and cost/benefit analysis are needed.

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WEPEE766

Client and health worker perception to differentiated HIV care: A qualitative study from Kebbi State, North West Nigeria

U.I. Katchy[1], A. Etsetowaghan[2], S. Ibrahim[3], A.B. Usman[4], M.R. Magana[5], D. Ogundehin[6], J. Ezekiel[7]
[1]Management Sciences for Health, Clinical Care, Abuja, Nigeria, [2]Management Sciences for Health, Technical, Abuja, Nigeria, [3]Management Sciences for Health, Technical, Sokoto, Nigeria, [4]Sir Yahaya Memorial Hospital, Laboratory, Birnin Kebbi, Niger, [5]Management Sciences for Health, Laboratory, Birnin Kebbi, Nigeria, [6]USAID, PMTCT, Abuja, Nigeria, [7]USAID, HIV Care and Treatment, Abuja, Nigeria

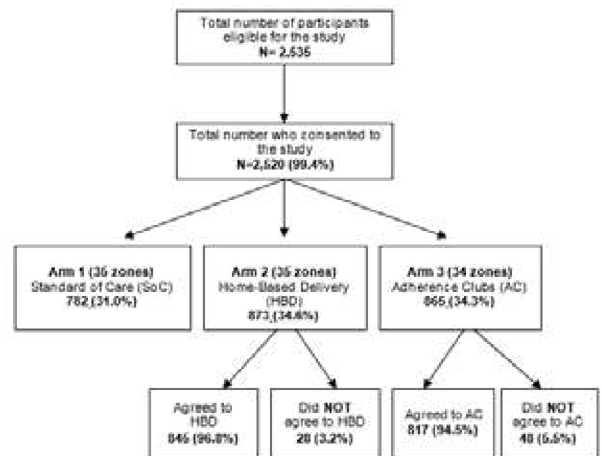
Background: The Differentiated Care Model (DCM) in HIV care is a patient centered approach to improve service delivery and supports meeting the UNAIDS 90-90-90 targets. Despite the potential impact of this model, it is imperative to establish client preferences and identify potential barriers. This will help in the development of feasible context specific DCM, which was the aim of this study.
Methods: The USAID-funded CaTSS project implemented by MSH conducted a qualitative study on perception of DCM among stakeholders involved in HIV care for at least one year between October-December 2017. Focus group discussions (FGD) were conducted among clients receiving ART treatment in six groups (6-8 people per group) using an FGD guide. Key informant interviews (KII) were conducted with 15 health care workers using a key informant guide. Participants were selected purposively from two large hospitals in Kebbi State (General Hospital Argungu and Sir Yahaya Memorial Hospital). Data transcription and familiarization were completed and data analysis done using mixed coding methods (predetermined codes [A-Priori] and use of emergent codes).
Results: Findings from FGD and KII were triangulated. Reducing the frequency of hospital visits (multiple-months prescriptions) was the most preferred approach for stable clients; HCW and clients desired three-monthly appointments to reduce travel related costs, stigmatization and improve adherence. Fast tracking, where stable clients collect medications without doctors' review, was desired, but HCWs were concerned that clients may pretend to be well to avoid reviews. Client managed groups were rejected by HCWs who believed this should be reserved for couples because it may affect patient monitoring, while clients worried that quarrels among group members may cause intentional disclosure of their status. A community distribution model was discarded by both groups; HCWs worried about fraudulent practices, documentation issues, and increased cost to providers, while clients feared stigmatization.
Conclusions: Reduction of the frequency of visits was the most preferred model in the hospitals in Kebbi State, because of perceived reduction in stigmatization and cost savings. Multiple-month prescriptions may improve adherence in this area. Scale up of this model in this resource-constrained area with high stigmatization is recommended.

WEPEE767

Acceptability and preferences of two different community models of ART delivery in a high prevalence urban setting in Zambia, nested within the HPTN 071 (PopART) trial

M. Limbada[1], S. Fidler[2], D. Macleod[3], O. Shibwela[1], S. Floyd[4], D. Nzara[1], V. Situmbeko[1], R. Hayes[4], H. Ayles[1,5], on behalf of the HPTN 071 (PopART) Study Team
[1]Zambart (Zambia AIDS-Related TB Project), Lusaka, Zambia, [2]Imperial College London, HIV Clinical Trials Unit, London, United Kingdom, [3]London School og Hygiene and Tropical Medicine, Department of Infectious Disease Epidemiology, London, United Kingdom, [4]London School of Hygiene and Tropical Medicine, Department of Infectious Disease Epidemiology, London, United Kingdom, [5]London School of Hygiene and Tropical Medicine, Department of Infectious and Tropical Diseases, London, United Kingdom

Background: In high HIV-prevalence resource-limited settings with overburdened health care facilities, retention on ART and viral suppression are key challenges. Community models of ART delivery have shown promising outcomes in relation to retention in care and adherence to treatment. Within the HPTN 071(PopART) trial, two models of non-facility based ART delivery, either home-based delivery (HBD) or adherence clubs (AC), were offered and compared to facility-based delivery (standard of care, SoC) for stable HIV+ patients. We describe acceptability of the different models of ART delivery, and preferences reported by eligible residents offered them.
Methods: This was a three-arm cluster randomized non-inferiority trial comparing outcomes, including virological suppression, among patients offered HBD of ART or AC in two HPTN 071(PopART) trial communities in Lusaka, Zambia. The communities were divided into zones and each zone was randomized to one of the three delivery arms:
1. SoC,
2. a choice between HBD or SoC, or
3. choice between AC or SoC.
Stable HIV+ patients (defined according to WHO classification) living within the community zones were invited to take part in the study. Irrespective of the trial arm, all participants at baseline were asked to state their preference for mode of ART delivery.
Results: Between May and December 2017, the study identified 2535 stable patients who were eligible for community models of ART delivery across both communities and 2520 (99.4%) consented to join the study. Initial preferences, regardless of randomization arm, were expressed by 32.2% of participants. Of those that stated a preference, 70.3% stated they preferred HBD, 15.5% AC and 14.2% SoC. (Table 1). Among participants randomized to the choice of non-facility method of ART delivery, overall 95.6% chose the non-facility method that they were randomized to receive [96.8% in the HBD arm and 94.5% in the AC arm] (Fig1).
Conclusions: In this urban Zambian setting, stable HIV+ patients who expressed a preference preferred home based delivery of ART compared to adherence clubs or receiving treatment at the clinic. Patient preference should be considered when developing differentiated care delivery models.



[Figure 1: Acceptability and Choices of Community Models of ART Delivery]

	Number (N)	Percentage (%)
Total number of participants who consented to the study	2520	99.4
Total number who did NOT state a model preference	1709	67.8
Total number who stated a model preference	811	32.2
• Preferred Standard of Care	115	14.2
• Preferred Home Based Delivery	570	70.3
• Preferred Adherence Clubs	126	15.5

[Table 1: Participants' stated Preferences for Models of ART Delivery]

WEPEE768

High acceptance and satisfaction of differentiated antiretroviral therapy service delivery among men who have sex with men, transgender women and healthcare workers in Thailand

T. Sungsing[1], R. Ramautarsing[1], J. Jantarapakde[1], S. Pengnonyang[1], R. Buajoom[2], H. Thiamkrathok[2], P. Panpet[3], F. Suwan[4], P. Pothasin[5], R. Faikhom[6], T. Jadwattanakul[7], P. Methajittiphan[7], P. Leenasirima[8], K. Traidej[8], A. Norchaiwong[9], A. Nilmanat[10], S. Chandrema[10], P. Phiayura[1], W. Sirisakyot[1], R. Meksena[1], P. Mingkwanrungruang[1], S. Charoenying[11], S. Mills[11], R. Vannakit[12], N. Phanuphak[1], P. Phanuphak[1]
[1]Thai Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand, [2]Service Workers in Group Foundation, Bangkok, Thailand, [3]Rainbow Sky Association of Thailand, Bangkok, Thailand, [4]Rainbow Sky Association of Thailand, Songkhla, Thailand, [5]Sisters Foundation, Chonburi, Thailand, [6]Caremat, Chiang Mai, Thailand, [7]Queen Savang Vadhana Memorial Hospital, Chonburi, Thailand, [8]Nakornping Hospital, Chiang Mai, Thailand, [9]Sarapee Hospital, Chiang Mai, Thailand, [10]Hatyai Hospital, Songkhla, Thailand, [11]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [12]Office of Public Health, U.S. Agency for International Development Regional Development Mission Asia, Bangkok, Thailand

Background: WHO recommends differentiated service delivery (DSD) for antiretroviral therapy (ART) to allow decentralization of ART-maintenance for stable patients. We studied feasibility and client and staff acceptance of and attitude towards key population (KP)-led DSD-ART for men who have sex with men (MSM) and transgender women (TGW) in Thailand.

Methods: We integrated DSD-ART into our Key Population-Led Health Services (KPLHS) model for MSM and TGW in 4 provinces in May 2017. Stable patients (ART for >1 year, 2 consecutive undetectable HIV-RNA, CD4>200 cells/mm^3, no adverse drug-reactions or current illnesses, and good understanding of lifelong ART-adherence) were eligible to receive ART-maintenance from KP community health-workers (KP-CHW) at KP-led clinics. KP-led clinics and public hospitals discussed and mutually agreed upon the building blocks of DSD-ART models (graph 1). Acceptance of and attitudes towards DSD-ART was evaluated among stable patients and staff.

Results: Between May 2015-October 2016, KP-led clinics tested 2,644 MSM and TGW, 453 (17.1%) were HIV-positive and 383 (84.6%) started ART. By September 2017, 95 patients were stable, 59 reached the visit when ART-maintenance by KP-HW at KP-led clinics was offered, and all agreed to be seen by KP-CHW. No adherence or clinical concerns which warranted referral back to hospitals have occurred. Among 157 patients on ART for >1 year, 95.5% were satisfied with the care at KP-led clinics, and 61.8% preferred ART-maintenance to happen at KP-led clinics. The most cited expectations from DSD-ART by clients were empowerment of individual responsibility for their health (91.7%), encouragement of their autonomy as a patient (88.5%) and enhancement of retention in care (86.6%). A positive attitude to DSD-ART was reported by 82.7% of 52 KP-CHW and 86.7% of 15 hospital-staff. The most reported expectation by KP-CHW and hospital staff was encouragement of patient autonomy (88.5% and 73.3%), while the biggest concern was regulatory barriers (28.8% and 40.0%).

Conclusions: DSD-ART models, mutually designed by KP-led clinics and hospitals, were feasible and highly acceptable by HIV-positive MSM, TGW and healthcare staff in Thailand. Longitudinal evaluations on adherence and virologic outcomes are needed. Policy support, legalization, and financing mechanisms are imperative to ensure scale-up and sustainability.

[Graph 1. Models for Key Population-Led Health Services for differentiated ART and care service delivery]

WEPEE769

Improving the identification of CAYPLHIV through index case testing across 14 districts in Zimbabwe

T. Chimbidzikai[1], T. Napei[2], N. Willis[3], K. Madzeke[3], S. Chimoko[4], T. Tapera[3], P. Manyanga[5]
[1]Africaid Zvandiri, Programmes, Harare, Zimbabwe, [2]Africaid Zvandiri, M&E, Harare, Zimbabwe, [3]Africaid Zvandiri, Harare, Zimbabwe, [4]Africaid, Harare, Zimbabwe, [5]I-TECH Zimbabwe, Harare, Zimbabwe

Background: Identifying and diagnosing children, adolescents and young people living with HIV (CALPLHIV) is the first step in the continuum of care and treatment. Yet, despite the availability of ART many CAYP are never offered an HIV diagnostic test (WHO 2013). CAYPLHIV who do receive an HIV test are often tested later than recommended, even though earlier testing is needed in order to facilitate treatment initiation. In Zimbabwe 34% of adolescents and young people, 15-24 have been tested and know their status compared to 74.2% amongst the adult population (ZIMPHIA 2015/16).

Description: Africaid is implementing a PEPFAR funded Game Changer project in partnership with I-TECH, the prime partner. The project aims to increase the availability and quality of care and treatment services for CAYPLHIV. HIV positive adolescents, 18-24 years, known as Community Adolescent Treatment Supporters, were trained and mentored in index case finding. During routine home visits to CAYP on ART, they identified undiagnosed siblings and sexual partners and referred them for HIV testing at either facility or linked them with I-TECH community-based testers. Those identified to be HIV positive were linked to care and confirmed through health facility ART register recording.

Lessons learned: 4,747 CAYP were mobilized through index case finding for HIV testing services with 4,180 getting tested and receiving their results. 628 were diagnosed HIV positive translating into a 15% yield rate with districts such as Marondera achieving a 24% yield rate. Out of the 628 who tested positive, 98% (613) were initiated on ART.

Conclusions/Next steps: Targeting undiagnosed siblings, sexual partners and immediate family members of CAYPLHIV index cases achieves an excellent yield. The role of AYPLHIV as peer experts has been a very successful innovation to improve HTS services and target those who are most unwilling to seek HTS at the facility level. CATS are therefore a critical community cadre to maximise the identification of new CAYPLHIV and link them into care peer-to-peer support.

Strategies to Increase Uptake of retention in HIV Services

WEPEE770

Positive links: Mobile technology to improve retention in care

C. Canan[1], M. Grabowski[1], A.L. Waldman[1], G. Reynolds[2], T. Flickinger[1], W. Cohn[1], K. Ingersoll[1], R. Dillingham[1]
[1]University of Virginia, Charlottesville, United States, [2]Health Decision Technologies, Oakland, United States

Background: PositiveLinks (PL) is a smartphone-based platform designed in partnership with people living with HIV (PLWH) to improve medication adherence and retention in care among PLWH. PL provides daily medication reminders, check-ins about mood and stress, educational resources, a community message board, and an ability to message providers. In this study, we evaluate the impact of up to 18 months of PL use on CD4 count, HIV viral suppression, and retention in care.

Methods: Between September 2013 and March 2017, providers at the UVA Ryan White HIV clinic referred patients to PL who were at risk of falling out of care. We assessed two measures of retention in care: attendance at ≥2 appointments ≥90 days apart within the past year (i.e. HRSA compliance) and visit constancy. CD4 and HIV viral load were assessed at 6 month intervals starting at enrollment. HRSA compliance, visit constancy, CD4, and viral suppression were compared between

study baseline and the 6-, 12-, and 18-month follow-up time periods using generalized estimating equations. We compared time to viral suppression (among those unsuppressed at baseline) and time to HRSA compliance (among those non-compliant at baseline) among patients with high vs. low PL use.
Results: Between September 2013 and March 2017, 127 patients enrolled in PL. Patients had a median age of 40, 65% were male, 53% were non-Hispanic Black, 52% earned < 50% of the federal poverty level, and 37% received education beyond high school. At baseline, 60% were virally suppressed and 59% met the HRSA metric for retention in care. All four outcomes improved significantly after 6 months of PL use and remained significantly improved after 18 months (see Table). Patients with high PL use were 1.51 (95% CI 0.70-3.26) times more likely to achieve viral suppression and 1.41 (95% CI 0.72-2.76) times more likely to attain HRSA compliance compared to those with low PL use.
Conclusions: Mobile technology, such as PL, can be effective in retaining patients in care and improving clinical outcomes. Our study demonstrates long-term acceptability of PL and provides preliminary evidence to support a long-term improvement in retention in care associated with PL use.

	Estimate (95% CI)			
	Baseline	6 months	12 months	18 months
HRSA compliance (proportion compliant)	0.59 (0.50-0.67)	0.86 (0.80-0.92)	0.81 (0.74-0.89)	0.72 (0.62-0.82)
Visit constancy (proportion 3 vs. ≤2)	0.27 (0.19-0.35)	0.36 (0.27-0.44)	0.45 (0.35-0.54)	0.40 (0.39-0.51)
CD4 count (cells/mm3)	569 (501-636)	628 (559-696)	654 (578-730)	598 (492-705)
Viral suppression (proportion <200)	0.62 (0.53-0.70)	0.87 (0.81-0.93)	0.83 (0.75-0.90)	0.84 (0.74-0.93)

[Estimated HRSA compliance, visit constancy, CD4, and viral suppression using generalized estimating equations]

WEPEE771

Mobile and tele-health: Scalable platforms for supporting efforts towards meeting the 90-90-90 targets in Uganda

J.M. Bwanika[1], D. Musinguzi[1], W. Lubega[1], L.H. Kamulegeya[1], J. Ssebwana[1], W. Abigaba[1], K. Horvath[2]
[1]The Medical Concierge Group Limited, Kampala, Uganda, [2]University of Minnesota, Minneapolis, United States

Background: Uganda has made tremendous strides towards achieving the UNAIDS 90-90-90 targets.
In order to beat the 2020 recommended target date; health ministries and HIV public health programs need to employ innovative ways of sustainably accelerating and scaling their activities.
We set out to explore the feasibility and role of mobile health (mHealth) and telehealth centre in improving HIV testing as well as treatment adherence and retention for eventual viral load suppression.
Description: Between January 2016 and July 2017, men and women from the Uganda Police, Private security guards, Uganda wildlife authority and Hotel owners' association consented to receive mobile health services through messaging and a 24/7 telehealth platform. This was under the USAID/Uganda HIV/AIDS and Health Initiatives in Workplaces Activity (HIWA) Project.
Through an open source SMS platform, voice calls and WhatsApp, beneficiaries were engaged with HIV prevention and testing information and how to access HIV services close to their locality. They also received individualized periodic reminders for treatment compliance and adherence as well as reminders for viral load testing. On-ground follow up based on the mHealth data was done by community linkage facilitators and health centre staff.
Lessons learned: Males contributed 73.4% of the users compared to 26.6% females overall; with a median age of 27 years (Interquartile range (IQR) 23, 33). 19,152 people received HIV prevention and behavioral change messages. 4.3% of those urged through the platforms to test for HIV were HIV positive.143 newly diagnosed HIV patients were successfully linked into care. 121 mothers joined the EMTCT mHealth campaign to be supported to adhere to treatment and complete diagnostic testing for their exposed babies.1241 HIV+ adults (M=532,42.8%; F=709,57.2%) signed up for the mHealth engagement on reminders for treatment adherence and clinic visits. All engaged HIV positive beneficiaries met their schedules for viral load repeat testing in the last 12 months.
Conclusions/Next steps: Mobile health services through a 24/7 telehealth centre are a feasible way to increase uptake of HIV testing services, improve retention in care as well as adherence and compliance to treatment guidelines. They should be considered as a way to scale up 90-90-90 efforts.

WEPEE772

Who understands viral load? Challenges for reaching the third 90 in South Africa

J. Michalow[1], M. Fineberg[2], S. Magni[2], A. Ismail[2]
[1]Genesis Analytics, Health, Johannesburg, South Africa, [2]Genesis Analytics, Johannesburg, South Africa

Background: Despite having the largest ART programme in the world, South Africa faces barriers to linkage and retention in HIV care. This threatens progress toward the 90-90-90 targets. One barrier is poor HIV treatment literacy. In line with the third-90, we assessed gaps in understanding and knowledge of viral load terminology.
Methods: We conducted 3,000 interviews across all nine provinces in South Africa with men and women aged 18-34 years using three-stage cluster sampling proportional to population size. To understand factors that contribute toward viral load knowledge we measured self-reported knowledge through the question "do you know what viral load is?" with response options "yes/no" and then asked respondents to define the term. Demographic information and self-reported HIV status were also measured. Multivariate analysis was performed in Stata v14. Results are reported using adjusted odds ratio (AOR) and 95% confidence intervals (CI).
Results: 10% (313/3,000) said they understood the term viral load and 8% (252/3,000) correctly defined viral load as "the number of HIV cells or copies in the blood of someone who is HIV-positive". Of those who self-reported as HIV-positive, 35% (65/184) said they understood the term viral load and 27% (50/184) defined it correctly.
Knowledge of viral load was: less likely in men (AOR 0.73, 95% CI 0.54-0.98, p=0.038), more likely in older respondents (AOR 1.06, 95% CI 1.03-1.09, p=0.000), more likely in respondents with higher socio-economic status (AOR 3.5, 95% CI 2.25-5.49, p=0.000), and less likely in self-reported HIV-negative respondents (AOR 0.19, 95% CI 0.14-0.28, p=0.000). Education level and employment status were not predictors of viral load knowledge.
Conclusions: Knowledge and understanding of viral load is low in South Africa. Understanding of viral load is concerningly low in PLHIV. This is an immediate issue with a direct bearing on achieving the third-90. Additionally, young, HIV-negative men of low socio-economic status are the least likely to know what viral load is. This group also displays poor testing behaviour.
Health system communication should be strengthened with a focus on PLHIV and other low-knowledge-high-risk groups to achieve the third-90 in South Africa.

WEPEE773

Need-based care to improve linkage to HIV services for female sex workers in Botswana

W. Dikobe[1], V. Ranebennur[2], M. Gilbert-Lephodisa[1], C. Akolo[2], M. Seretse[1]
[1]FHI 360, LINKAGES, Gaborone, Botswana, [2]FHI 360, LINKAGES, Washington, United States

Background: Antiretroviral therapy (ART) service delivery tailored for female sex workers (FSWs) helps improve retention and viral suppression by optimizing drug and care delivery. LINKAGES Botswana adopted a tailored approach for ART service delivery to enhance linkage to care and treatment for FSWs.
Description: From October 2016 to September 2017, LINKAGES Botswana has been providing integrated clinical services to FSWs through outreach at mobile clinics or drop-in centers using a one-stop-shop

approach. HIV testing services (HTS) and ART services were offered in the same location, making it easy for those newly diagnosed with HIV to be immediately initiated on care and treatment. Baseline laboratory tests were requested for newly diagnosed HIV-positive FSWs, but clients were initiated on ART immediately. Patients stable on treatment received multi-month prescriptions. Clinical visits were conducted every six months, with refills provided at the community level during outreach and at drop-in centers. Nonclinical staff at drop-in centers were trained to provide emergency refills for up to 14 days to anyone who had missed an appointment or traveled away from the base clinic. This allowed FSWs the flexibility of accessing treatment outside of normal working hours.

Lessons learned: By implementing the one-stop-shop approach and same-day initiation, there was a significant improvement in linkage to and initiation of ART among FSWs compared to the previous year. A total of 3,477 FSWs were reached with HIV prevention services October 2016-September 2017. More than 81 percent of those who were eligible for HIV testing and counseling were successfully linked to testing services (n=2,831), resulting in a 13 percent case-finding rate (n=358). Sixty-eight percent (n=242) of those who tested positive were successfully initiated on ART, demonstrating a 12 percent increase (p=.0003, CI 5.4-18.2) compared to the previous year (figure 1).

Conclusions/Next steps: Tailored HIV care and treatment services showed significant improvement in linking FSWs living with HIV to treatment. While this approach was highly successful among FSWs, efforts to link and retain key populations on treatment should be tailored by KP type. LINKAGES will expand this model across all Botswana sites in the remaining project period.

WEPEE774

Cut-off score of readiness to start antiviral therapy for patients newly diagnosis with HIV

Y.-I. Lai[1], C.-Y. Hsieh[2], Y.-C. Chen[3], C.-C. Lin[4], Y.-W. Tang[5], C.-P. Wu[6], H.-C. Ku[7], Y.-C. Kuo[8], L.-F. Liu[9], N.-Y. Ko[5,10]
[1]National Cheng Kung University Hospital, Department of Nursing, Tainan, Taiwan, Province of China, [2]Taichung Veterans General Hospital, Department of Nursing, Taichung, Taiwan, Province of China, [3]National Cheng Kung University, Institute of Allied Health Sciences, College of Medicine, Tainan, Taiwan, Province of China, [4]Chung Shan Medical University Hospital, Taichung, Taiwan, Province of China, [5]National Cheng Kung University Hospital, Tainan, Taiwan, Province of China, [6]Chain Medical University Hospital, Taichung, Taiwan, Province of China, [7]Chi Mei Medical Center Hospital, Tainan, Taiwan, Province of China, [8]EDA Hospital, Kaohsiung, Taiwan, Province of China, [9]Nurse AIDS Prevention Foundation, Taipei, Taiwan, Province of China, [10]National Cheng Kung University, Tainan, Taiwan, Province of China

Background: Since 2016, initiation of antiretroviral therapy (ART) after diagnosis regardless of CD4 counts is a global consensus. It is crucial to find an instrument to assess the readiness for early initiation of ART for people newly diagnosis with HIV. The study aims to compare the readiness between the patients receiving ART and those who have not yet on ART, to compare the readiness scores between two groups across 12 months, and to determine a cutoff value for medicine readiness with early initiation of ART.

Methods: A multicenter cohort study design was conducted and enrolled 297 newly diagnosed patients with HIV at four times: baseline, 1, 3-6, 9-12 months after ART initiation. Data collection included demographics, Chinese version of HIV Medication Readiness Scale (HMRS) and 2 items using 10-point Likert scale: readiness to take ART for a long time and confidence for adherence to ART.

Results: Overall, 224 (75.4%) patients with HIV initiated ART. The medicine readiness in patients with ART initiation was significantly increased across one year compared to non-ART user (*p*< .001). The mean scores of the 2-items self-rating readiness scale in patients with ART initiation were significantly higher than those without (*p*< .001). The cut off value in HMRS, self-rating readiness for ART, and confidence for adherence to ART were 23.5, 5.5, 6.5-score, respectively.

Conclusions: The optimal cut off value of Chinese version HMRS for evaluating HAART initiation among persons with HIV infection was 23.5. HIV health care professionals can apply the Chinese version HMRS and two simple self-rating questions as a rapid clinical tool for assessing readiness of ART initiation among people newly diagnosis with HIV.

Key Words: HIV, HAART initiation, HIV Medication Readiness Scale (HMRS).

WEPEE775

Retention on ART among HIV patients in Côte d'Ivoire and Swaziland

Y. Wu[1], T.G. Harris[1], H. Brou[2], H.N. Kamiru[3], S. Mazibuko[4], A. Kidane[3], G. Vandebriel[2], J.-J. M'Bea[2], A. Ekra[5], A.A. Howard[1], W.M. El-Sadr[1]
[1]Columbia University, ICAP, New York, United States, [2]Columbia University, ICAP, Abidjan, Cote D'Ivoire, [3]Columbia University, ICAP, Mbabane, Swaziland, [4]Center for Disease Control and Prevention, Center for Global Health, Division of Global HIV/AIDs and TB, Mbabane, Swaziland, [5]Center for Disease Control and Prevention, Center for Global Health, Division of Global HIV/AIDS and TB, Abidjan, Cote D'Ivoire

Background: The ultimate success of antiretroviral therapy (ART) initiation is dependent on achievement of high retention and adherence. Data are needed on factors that influence retention of ART patients in resource-limited settings.

Methods: We evaluated 12-month retention (PEPFAR MER indicator) among ART patients at PEPFAR-funded, ICAP-supported health facilities (HF) in Côte d'Ivoire (CI) and Swaziland (SW). By country, proportions of retained ART patients were calculated for quarterly cohorts initiating ART from January 2014-September 2015. Poisson regression models with generalized estimating equations (GEE) were used to examine time trends and significant demographic and HF factors associated with retention.

Results: Data from 6,923 HIV patients from CI (87 HF) and 19,118 from SW (93 HF) who initiated ART in this period were included in the analysis. In CI, 71.4% of patients were women and 94.2% were ≥15 years. Retention in CI at 12-months increased from 74.4% for the first cohort (January-March 2014) to 88.8% for the last cohort (July-September 2015), an average increase of 2.6 % per quarter after adjusting for sex, age and facility type (p_{trend}< 0.001). Men had lower retention than women (p< 0.0001). Patients at secondary (p< 0.0001) or tertiary (p=0.02) HF had lower retention than those at primary HF. In SW, 66.2% of patients were women and 94.3% were ≥15 years old. The 12-month retention was 92.7% for the first cohort and 88.2% for the last cohort, with no significant change over time (p_{trend}=0.34). Children 5-14 years old (p=0.001) had higher retention than adults ^{3}15 years but children < 5 years did not (p=0.69). Patients at semi-urban HF (p=0.02) had higher retention than urban HF, while those at tertiary HF (p=0.04) had lower retention compared to primary HF.

Conclusions: Retention on ART was high in both countries compared to earlier reports from sub-Saharan Africa, with differences noted by sex, age and HF location and type. Overall, these findings are encouraging and bode well for achieving the individual and societal benefits of ART. Viral load data are needed to confirm this potential.

		Côte d'Ivoire				Swaziland			
		Patients enroled	% retained	RR ratio (95% CI)	Adj.RR ratio (95%CI)	Patients enrolled	% retained	RR ratio (95%CI)	adj. RR ratio (95%CI)
Total		6,923	79.8			19,118	90.9		
Sex:	Male / Female	1,978/ 4,945	76.3 / 81.2	ref 1.05 (1.03,1.1)^	ref 1.06 (1.03,1.1)^	6,468/ 12,650	90.2 / 91.3	ref. 1.01 (0.99,1.03)	
Age	<5 yrs / 5-14 yrs/ >=15 yrs	147 / 256 / 6,520	76.9 / 78.5 / 79.9	0.97 (0.88,1.07) 1.01 (0.94,1.08) ref	0.97 (0.89,1.07) 1.0 (0.94,1.08) ref	523 / 566 / 18,029	89.3 / 96.3 / 90.8	1.01 (0.95,1.07) 1.1 (1.03,1.15)^ ref	1.01 (0.96,1.06) 1.09 (1.03,1.16) ref.
Location of HF	Urban / Semi-urban / Rural	6,171 / 561 / 191	79.5 / 80.7 / 85.9	ref 1.00 (0.96,1.06) 1.09 (0.99,1.19)		9,738 / 2,150 / 7,230	89.0 / 95.2 / 92.1	ref. 1.1 (1.01,1.14)^ 1.04 (0.97,1.11)	ref. 1.1 (1.01,1.14)^ 1.04 (0.97,1.11)
Type of HF	Primary/ Secondary/ Tertiary/ Private	2,619 / 2,647 / 649/ 1,008	83.5 / 75.4 / 78.9/ 82.3	ref. 0.9 (0.86,0.93)^ 0.94 (0.9,0.99)^ 0.99 (0.94,1.04)	ref. 0.9 (0.85,0.93)^ 0.95 (0.9,1.0)^ 1.0 (0.95,1.04)	6,778 / 2,462 / 3,364 / 6,514	92.4 / 94.2 / 83.6 / 91.9	ref. 1.01 (0.70,1.06) 0.9 (0.80,0.99)^ 0.99 (0.94,1.03)	ref. 0.99 (0.95,1.03) 0.9 (0.79,1.0)^ 0.98 (0.92,1.04)
Time (in quarters)				2.5 (1.6,3.4)%*^	2.6 (1.7,3.6)%*^			-0.4 (-1.1,0.3)%*	-0.4 (-1.1,0.3)%*
Notes: Adj. RR=adjusted relative risk ratios from a MV model. *tranferred into % change;^p<0.05									

[Table 1: 12-month retention among ART patients in ICAP supported HIV care & treatment facilities in Cote d'Ivoire and Swaziland, Jan 2014 - Sept 2015]

WEPEE776

A descriptive analysis of call and text messaging communication between participants and healthcare providers

H.F. Adhiambo[1], M.A. Guze[2], J. Kulzer[3], E. Akama[4], Z. Kwena[4], T. Odeny[5], M. Petersen[6], E. Geng[2]
[1]Kenya Medical Research Insitute, Kisumu, Kenya, [2]University of California, San Francisco, United States, [3]University of California, San Fransisco, United States, [4]Kenya Medical Research Institute, Kisumu, Kenya, [5]University of Missouri, Kansas City, Kenya, [6]University of California, Berkeley, United States

Background: Mobile health (mHealth) is on the rise globally with recent research focused on use and outcomes. However, content and intensity analysis of SMS-based communication between patients and providers in resource-constrained settings is limited. We examined the frequency of call-backs, response time and duration, and reasons for calling in a sub-study of an ongoing randomized controlled trial on the effect of SMS on retention of persons living with HIV in Kenya.

Methods: We included five study sites in western Kenya between March 2015 and November 2017. Participants were ≥18 years with mobile phone access and randomized to the larger trial's SMS arm. Participants received scheduled health messages and appointment reminders, and could call or text back to a study phone. Study nurses responded to the calls/texts. Call times and content were recorded in a standardized phone log. We compared the demographic characteristics of callers versus non-callers using Chi-square tests. We analyzed and described reasons for participant call/text message and response time of the study nurse.

Results: Of 626 participants, 66% were female. The median age was 31 (inter-quartile range [IQR] 27, 37). A total of 292 calls/texts were sent by 170 (27%) participants, at a rate of 1.4 calls per person-year among callers. There were no significant demographic differences between participants who called/texted and those who did not. The broad reasons for calls were: social/behavioural (47%), medical (17%), logistical (17%), other (16%), and two or more reasons combined (2%), see figure 1 for more details. The study nurse responded to 99% of calls/texts, with a median response time of 29.0 (IQR 6.0, 76.0) minutes and a call length between nurse and participant of 1.0 (IQR 0.5, 1.4) minutes.

Conclusions: Over one-quarter of participants used the SMS call back feature, calling in 1-2 times a year. Nearly half called for social/behavioural reasons, primarily to appreciate message receipt. Provider response was rapid. This mHealth intervention appears to be well-received by patients utilizing it and response to patient needs was efficiently managed by providers. Further evaluation of communication content between the participants and providers would be helpful to understanding patient needs.

WEPEE777

'I hope I never have to go to the adult clinic': Clinic experiences of South African adolescents living with HIV

T.D. Ritchwood[1], A. Oduro[2], M. Atujuna[2], N. Ntlapo[2], S. Letoao[3], L.G. Bekker[2]
[1]Medical University of South Carolina, Public Health Sciences, North Charleston, United States, [2]University of Cape Town, Desmond Tutu HIV Centre, Observatory, South Africa, [3]Information Health Measurement, Mbabane, Swaziland

Background: While South Africa has the largest antiretroviral treatment (ART) program in the world, only 14% of adolescents living with HIV (ALWH) are on ART and only 10% are currently virally suppressed. These concerning figures emphasize the urgent need to identify socio-structural factors that contribute to poor retention in HIV care and low rates of treatment adherence within this group. One significantly under-studied factor that may impact treatment retention and adherence concerns the adolescent HIV clinic environment. The purpose of this study was to identify aspects of the clinic environment that either improve ALWH treatment retention and adherence, or that impede their ability to achieve positive healthcare outcomes.

Methods: Fifty-nine semi-structured, in-depth interviews were conducted to qualitatively determine how ALWHs' experiences at HIV clinics either support or hinder their treatment retention and adherence. Next, we inquired about best practices in ALWH treatment retention and adherence. Participants were ALWH (n=20; 13-19 years of age), their caregivers (n=19), and local stakeholders (n=20) from Cape Town, South Africa. Data were coded and analyzed using inductive content analyses. We then grouped codes into positive and negative HIV clinic experiences, and into suggestions on how clinic practices could be improved to facilitate ALWH treatment retention and adherence.

Results: Perceived positive aspects of adolescent-serving HIV clinics included: clinic co-location within one's community; familiarity with clinic staff; the benefits of adolescent-only clinics; and the availability of adolescent-friendly clinic spaces. Negative clinic aspects included: too many clinic visits that lead to missing school or work regularly; overcrowding and long wait times; HIV-related discrimination and stigma from staff and other patients; clinic practices that lead to involuntary status disclosure; no flexibility in appointment scheduling; and negative staff attitudes.

Conclusions: ALWHs' clinic experiences could impact their ability to remain in HIV care and adhere to their treatment regimens. Such realities call for innovative approaches to the provision of HIV services for ALWH, including precision-based medicine, differentiated care, and multi-level interventions that would enable stakeholders (e.g., private-sector, community, healthcare organizations) and ALWH to work together to support ALWH as they progress along the HIV treatment cascade.

WEPEE778

The sex worker virtual currency: Incentivizing peer educators to expand peer mobilization among female sex workers in Kisumu County, Kenya

B. Okaka[1], W. Odera[1], B.E. Ogwang'[1], M. Opili[2], N. Njuguna[1]
[1]FHI 360, LINKAGES Program, Nairobi, Kenya, [2]Keeping Alive Society's Hope, Kondele DIC, Kisumu, Kenya

Background: Though peer education has proven effective in promoting behaviour change among key populations (KPs), gaps remain in mobilizing KPs in Kenya to access HIV prevention interventions, a situation compounded by the decrease in global funding for HIV programming. We implemented a non-monetary incentive-based intervention—*Sex Worker Virtual Currency* (SWVC)—to motivate peer educators (PEs) to reach all peers in their cohort every quarter.

Methods: SWVC is a redeemable points system involving female sex worker (FSW) PEs at the Keeping Alive Societies' Hope (KASH) drop-in centre (DIC) in Kisumu, Kenya. PEs were oriented on SWVC, and an outreach worker appointed as the SWVC manager. Redeemable points were awarded based on the number of educators' peers who (i) registered their mobile numbers with the DIC to receive programmed health information messages via a bulk SMS platform, (ii) took an initial and repeat HIV test at the DIC, and (iii) enrolled in national health insurance. Uptake within the intervention was entirely voluntary. The SWVC manager awarded points daily based on uptake of services. At the end of the intervention, the three highest-scoring PEs redeemed their points for exchange visits to tourist beaches, shopping vouchers, and mobile phone airtime. Awards were based on discussions held with PEs. We used descriptive statistics to summarize SWVC outcomes.

Results: Twenty-one FSW PEs participated in SWVC from April to September 2017. Of the 1,748 FSW peers within their cohorts, 1,487 (85%) were enrolled into the bulk SMS system and thus received health information and communication from the DIC. A total of 1,099 (62%) tested for HIV for the first time within the year. Only 19 (< 1%) registered for the national health insurance program; the most commonly cited reason for poor uptake was the monthly insurance premium ($5). There was a 14% increase of FSWs reached with HIV prevention services by PEs during the SWVC compared to a similar time period the previous year.

Conclusions: Non-financial incentives to PEs improve their mobilization of hard-to-reach peers for uptake of HIV prevention services. Further education on benefits of insurance coverage for FSWs may increase uptake of enrollment into the national health program.

WEPEE779

Linkage to care among HIV-infected female sex workers participating in project Shikamana in Iringa, Tanzania: A long and winding road

W. Davis[1,2], A. Mantsios[2], C. Shembilu[2], J. Mbwambo[3], S. Likindikoki[3], N. Galai[2], S. Beckham[2], A. Mwampashi[3], D. Gitagno[3], A. Addesso[2], D. Kerrigan[1,2]

[1]American University, Department of Sociology, Washington DC, United States, [2]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States, [3]Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania, United Republic of

Background: Implementation research to strengthen linkage to care, the foundation of test and treat approaches and the 90-90-90 goals, is urgently needed among key populations including female sex workers (FSW) who are less likely to access HIV care. Formative research conducted in Iringa, Tanzania identified multiple barriers to linkage including sex work-related stigma and discrimination. FSW led peer navigation was established to address such barriers within a Phase II trial of a community-based, combination HIV prevention intervention (Project Shikamana) with 496 FSW, (203 HIV+) in Iringa, Tanzania.

Methods: Ten peer navigators (PNs) were trained in supportive communication, disclosure, provider communication and motivational interviewing (MI) to address a mid-course lag in linkage. Each PN was assigned approximately 10 HIV+ FSW from the trial's intervention community (n=102). In weekly meetings, PNs problem-solved around linkage barriers on a case-by-case basis and developed responsive strategies. PNs aimed for weekly contact with participants including calls, text reminders, meetings and clinic visits. PNs also participated in sensitivity trainings with providers.

Results: At 18-month follow-up, of 99 HIV+ participants approached by PNs (3 participants died before PNs initiated contact), 88 were linked vs. 24 at baseline (see graph). In month 1, 33 were linked. Ten women were linked in 10 months and then with the introduction of MI 21 more women were linked. Linkage barriers included stigma, misinformation about the importance of immediate ART uptake, low social support, practical and logistical concerns (e.g., lack of clinic familiarity, how to hide pills). Linkage often took months to achieve given individual readiness and structural factors. PNs observed that persistence and trust were essential to successful linkage.

Conclusions: For FSW in Iringa, Tanzania, linkage to care is a delicate, complex process that must address individual and structural barriers. Ongoing, context-driven problem solving including a mid-course training in MI were central elements in our approach.

[Graph: Linkage to Care, by month, Project Shikamana]

THURSDAY 26 JULY

Oral Abstract Sessions

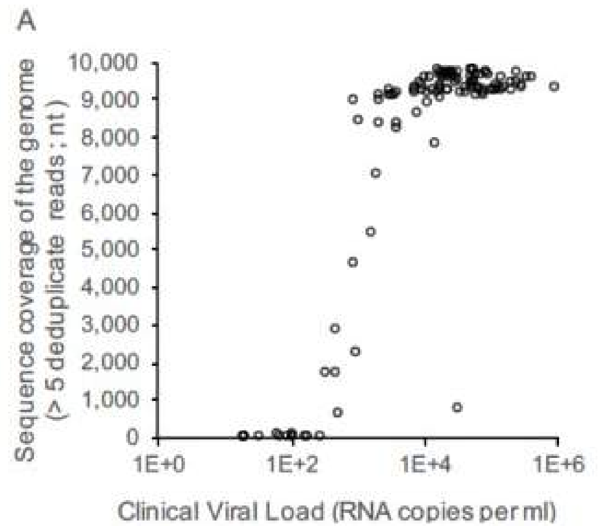
THAA01 Building the wall: On a mission to block transmission

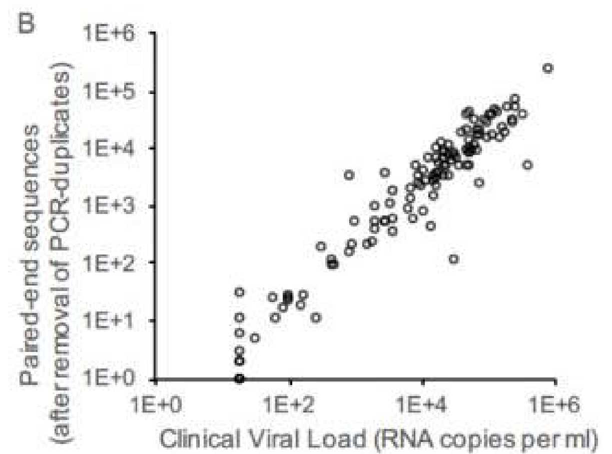
THAA0101

HIV genotyping and phylogenetics in the HPTN 071 (PopART) study: Validation of a high-throughput sequencing assay for viral load quantification, genotyping, resistance testing and high-resolution transmission networking

D. Bonsall[1,2], T. Golubchik[1], B. Kosloff[3,4], M. Limbada[3,4], M. de Cesare[2], A. Schaap[3,4], M. Hall[1], C. Wymant[1], G. Macintyre-Cockett[2], A. Brown[5], M.A. Ansari[5], S. Floyd[4], R. Hayes[4], H. Ayles[3,4], S. Fidler[6], C. Fraser[1], HPTN 071 (PopART) Study Group
[1]Big Data Institute, University of Oxford, Nuffield Department of Medicine, Oxford, United Kingdom, [2]Wellcome Trust Centre for Human Genetics, University of Oxford, Nuffield Department of Medicine, Oxford, United Kingdom, [3]The Zambia AIDS Related Tuberculosis (ZAMBART) Project, Lusaka, Zambia, [4]London School of Hygiene and Tropical Medicine, London, United Kingdom, [5]Peter Medawar Building for Pathogen Research, University of Oxford, Nuffield Department of Medicine, Oxford, United Kingdom, [6]Imperial College, Department of Clinical Medicine, London, United Kingdom

Background: Next-generation sequencing has been transformative to molecular epidemiology of viruses, though technical complexities have slowed adoption in clinical settings. We developed a quantitative genotyping method optimised for a large-scale HIV phylogenetic study linked to the HPTN 071 (PopART) cluster-randomised trial of antiretroviral treatment as prevention in Zambia.
Methods: To date, 4319 HIV-positive patients (ART-naive or >1 year since last ART) from 9 health care facilities have consented to viral sequencing using residual blood from CD4 testing collected at recruitment. Nucleic acid extracted from 0.5 ml plasma from 292 male and 357 female HIV-infected participants was used to produce sequencing libraries without virus-specific PCR. Oligonucleotide-baits, designed to capture the full HIV epidemic diversity enriched libraries for sequencing on MiSeq (Illumina) and portable MinION (Oxford Nanopore) sequencers. Optimizations focused on the simplest, most cost-effective means of maximizing numbers of unique viral RNA templates, including samples with low viral load, while preserving quantitative information and minimizing oversampling of short-RNA fragments. Merged paired-end reads were assembled using SHIVER, depleted of PCR-duplicates and contaminants, then submitted for high-resolution transmission-mapping (phyloscanner) and drug resistance profiling (HIVdb, Stanford). Quantitative sequencing controls were used to estimate viral load. Clinical viral loads were obtained for a random subset of samples (n=126) for cross validation.
Results: Whole genomes were obtained (with minimum depth of 5x) for 80% of all samples and for 97% of samples with clinical viral load >1,000 copies per ml (fig A). Sequence-based viral load correlated with clinical viral load (R2 = 88% and n=126, fig B). By minimizing PCR-amplification of short fragments, a median of 49% of inserts were longer than 350 b.p providing sufficient phylogenetic resolution to assess intrahost diversity, identify transmission pairs and potentially estimate recency of infection. The total processing time from RNA extraction to sequencing can be completed in 48 hours per batch of 90 samples.
Conclusions: Our novel laboratory and informatics pipeline provides robust viral genetic, viral load, and minority variant information. Processing times, cost and capabilities for handling low viral load samples are highly-competitive compared to routine viral load or polymerase drug resistance testing and suitable for clinical use.





[Quantitative sequencing of HIV]

THAA0102

High levels of adaptation to host cellular immunity in a concentrated North American HIV epidemic

N.N. Kinloch[1], S. Sanche[2], A. Wong[3], E. Martin[1], K.D. Cobarrubias[1], P. Sandstrom[4], P. Levett[5,6], P.R. Harrigan[7,8], J.B. Joy[7,8], Z.L. Brumme[1,7]
[1]Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada, [2]University of Saskatchewan, College of Medicine, Saskatoon, Canada, [3]University of Saskatchewan, College of Medicine, Regina, Canada, [4]National HIV Retrovirology Laboratories, Public Health Agency of Canada, Winnipeg, Canada, [5]Saskatchewan Disease Control Laboratory, Regina, Canada, [6]University of Regina, Department of Biology, Regina, Canada, [7]British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada, [8]University of British Columbia, Faculty of Medicine, Vancouver, Canada

Background: Globally, the spread of viral HLA-associated escape mutations in HIV epidemics has been linked to rapid disease progression and poor clinical outcomes. HIV diagnosis rates in the Canadian province of Saskatchewan are the highest nationwide, and reports of unusually rapid progression have also emerged from the province. Accelerated progression among individuals expressing certain HLA alleles, including the typically protective B*51, has also been reported in neighbouring areas; moreover, regional HLA surveys reveal HLA-B*51, B*35 and B*15 as the most frequently observed HLA-B alleles in at-risk populations in the region. Here, we tested the hypothesis that HIV adaptation to common HLA alleles, in particular B*51, is elevated in Saskatchewan.
Methods: We analyzed 1,144 partial HIV subtype B Pol sequences from unique Saskatchewan residents collected between 2000-2016 for drug resistance genotyping, alongside >6500 published Pol sequences from elsewhere in Canada and the USA from the same period, for the pres-

ence of 70 published HLA-associated Pol mutations. Overall HIV adaptation levels to 34 individual HLA alleles were also compared between these regions. Phylogenetic methods were used to identify putative HIV transmission clusters and the distribution of HLA-associated adaptations within and external to these clusters was investigated.

Results: HIV molecular epidemiology in Saskatchewan is unique: >75% of sequences resided within 26 large phylogenetic clusters (largest >200 sequences). HIV adaptation to numerous HLA alleles, notably B*51, B*15 and others, was also significantly elevated. For example, the Saskatchewan Pol consensus sequence differs from the North American consensus at 9 codons, 7 of which represent major HLA-associated escape mutations. Adaptation levels are also increasing over time. HLA-adapted HIV strains are significantly enriched in Saskatchewan transmission clusters, indicating that these are being widely and preferentially transmitted within the province.

Conclusions: Results indicate that a substantial proportion of at-risk individuals in Saskatchewan have a high probability of acquiring HIV that is pre-adapted to host immunity, providing a plausible explanation for reports of accelerated progression. Results also identify Saskatchewan as the first North American HIV epidemic featuring significant circulating HLA adaptation and highlight the urgent need to expand HIV prevention, testing and treatment in this region.

THAA0103

HIV-1 exposure enhances sexual transmission of hepatitis C virus by human mucosal Langerhans cells

B.M. Nijmeijer[1], R. Sarrami Forooshani[1], G.S. Steba[2], R.R.C.E. Scheurs[1], S.M. Koekkoek[2], R. Molenkamp[2], J. Schinkel[3], P. Reiss[4,5], M.L. Siegenbeek van Heukelom[5,6], M. van der Valk[5], C.M.S. Ribeiro[1], T.B.H. Geijtenbeek[1]
[1]Academic Medical Center- University of Amsterdam - Amsterdam Infection and Immunity Institute, Experimental Immunology, Amsterdam, Netherlands, [2]Academic Medical Center, University of Amsterdam, Department of Medical Microbiology, Clinical Virology Laboratory, Amsterdam, Netherlands, [3]Academic Medical Center, University of Amsterdam, Department of Medical Microbiology, Clinical Virology laboratory, Amsterdam, Netherlands, [4]Academic Medical Center - Amsterdam Institute for Global Health and Development, Department of Global Health, Amsterdam, Netherlands, [5]Amsterdam Infection and Immunity Institute, Academic Medical Center - University of Amsterdam, Department of Internal Medicine, Division of Infectious Diseases, Amsterdam, Netherlands, [6]Academic Medical Center - University of Amsterdam, Department of Dermatology, Amsterdam, Netherlands

Background: Sexual transmission of Hepatitis C virus (HCV), until recently, was thought to be rare. However, there has been a significant rise in the incidence of HCV infection among HIV-infected men-who-have-sex-with-men (MSM) and studies suggest that HCV can be sexually transmitted within this population. The mechanisms underlying this sexual transmission are unclear. Syndecans, a familiy of cell surface heparan sulfate proteoglycans have been shown to act as attachment receptors to transmit viruses.

In this study we investigated the role of Syndecans on LCs in HCV infection and transmission. We hypothesized that HIV-1 replication in HIV-1-infected MSM leads to mucosal changes that allow HCV entry and subsequent dissemination to hepatocytes via Syndecan-4 on activated LCs.

Methods: Therefore, we analyzed the immune cells within mucosal anal biopsies from HIV-1 infected MSM individuals as a potential entry route for HCV during sexual contact. We investigated the role of LCs in HCV infection and transmission using human primary isolated LCs and the *ex vivo* tissue transmission model.

Results: Notably, we detected Langerhans cells (LCs) within the mucosal anal tissue. Immature LCs were neither infected nor transmitted HCV to hepatocytes *in vitro* and *ex vivo*. As sexual transmission is mostly observed within HIV-1 infected individuals, we pre-exposed tissues with HIV-1 and, strikingly, HIV-1 pre-exposure significantly increased HCV transmission by LCs. Active HIV-1 replication is crucial for the increased HCV transmission as treating *ex vivo* tissue with HIV-1 replication inhibitors significantly decreased HIV-1-induced HCV transmission. Activation of LCs did not lead to infection by HCV but these activated LCs, in contrast to immature LCs from same donor, were efficient in transmitting HCV to hepatocytes. Notably, B cell-line expressing Syndecan-4 in contrast to other Syndecans was very efficient in transmitting HCV. Furthermore, silencing of Syndecan-4 on activated LCs decreased HCV transmission.

Conclusions: Thus, our data strongly suggest that HIV-1 replication in mucosal tissues in HIV-1 infected MSM, changes LC function, allowing Syndecan-4 to capture and subsequently transmit HCV to hepatocytes. This novel transmission mechanism by LCs implicates also that the activation state of LCs is an important determinant for HCV susceptibility after sexual contact.

THAA0104

Prophylactic and therapeutic efficacy of broadly neutralizing antibody PGDM1400 against HIV-1 in humanized mice

Y. van der Velden[1], J. Villaudy[1,2], E. Siteur - van Rijnstra[1], C. van der Linden[1], E. Frankin[1], M. Vink[1], P. van der Woude[1], E. Schermer[1], B. Berkhout[1], R.W. Sanders[1], M.J. van Gils[1]
[1]AMC, University of Amsterdam, Amsterdam, Netherlands, [2]AIMM Therapeutics, Amsterdam, Netherlands

Background: Broadly neutralizing antibodies (bNAbs) show promise as prophylactics and therapeutics against HIV-1 in macaques and humans. The introduction of new approaches in B cell isolation reinvigorated the field and led to identification of unusually broad and potent bNAbs. One example is PGDM1400, which neutralizes around 83% of virus strain, and at very low concentrations, making it a very attractive antibody for prophylactic and therapeutic applications.

Methods: A hu-HSC NSG mouse model, which has the complete human immune system, was used to study the protective and therapeutic efficacy of the bNAb PGDM1400. Mice were passively immunized (i.v.) with different concentration of PGDM1400 and challenged high dose i.p. with HIV-1_{JRCSF} 24 hours later. In a second experiment mice were infected with viruses from clades A, B or C (HIV-1_{BG505}, HIV-1_{REJO}, HIV-1_{AMC008}, or HIV-1_{MJ4}) and 12 weeks later, a high dose of PGDM1400 was given (i.v.) once a week for 4 weeks. Viral populations were sequenced before and after the administration of PGDM1400.

Results: In the passive immunization study, all animals in the 10 mg/kg and 3 mg/kg groups, and 4 out of 7 animals in the 1mg/kg group had undetectable levels of viral RNA, while all animals of the PBS group and the antibody control group had high levels of viral RNA 7 days after challenge. Subsequently, PGDM1400 administered during chronic infection, caused a modest decrease in viral load and also an increase in CD4+ T cell counts in the first 1-2 weeks of administration in some animals, however these levels did not persist, suggesting that the virus escaped from PGDM1400, quickly after administration of the antibody. This was confirmed by the sequence analysis of the viral population after PGDM1400 therapy.

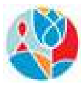
Conclusions: We showed that PGDM1400 is a promising component of a future prophylactic to prevent HIV-1 infection. In agreement with studies on other bNAbs, PGDM1400 monotherapy did not fully suppress chronic HIV-1 infection for a prolonged period, however considering that PGDM1400 is one of the most potent and broad bNAbs known, it can be an important component in therapeutic combination of different bNAbs.

THAA0105

A single dose of anti-HIV-1 antibodies can protect macaques from repeated mucosal SHIV exposures for 6 months

R. Gautam[1], Y. Nishimura[2], N. Gaughan[2], A. Gazumyan[3], T. Schoofs[3], A.-B. White[2], M. Seaman[4], B. Swihart[2], D. Follmann[2], M. Nussenzweig[3], M. Martin[2]
[1]NIH, Molecular Microbiology, Bethesda, United States, [2]NIH, Bethesda, United States, [3]Rockefeller University, New York, United States, [4]BIDMC, Boston, United States

Background: In the absence of an effective and safe vaccine against HIV-1, the administration of broadly neutralizing antibodies (bNAbs) represents a logical alternative approach to prevent virus transmission. bNAbs are capable of neutralizing most circulating strains, targeting different non-overlapping epitopes on the HIV-1 envelope spike.



Methods: We introduced two amino acid mutations (M428L and N434S [referred to as "LS"]) into the Fc domains of the highly potent HIV-specific 3BNC117 and 10-1074 bNAbs to increase their half-lives and evaluated their efficacy in blocking infections following repeated low dose mucosal challenges of rhesus macaques with the Tier 2 $SHIV_{AD8-EO}$.
The protective efficacy of 3BNC117-LS or 10-1074-LS was assessed following a single intravenous infusion of each mAb (20 mg/kg body weight) to 6 animals. The macaques were challenged beginning one-week after bNAb administration, and, in addition to viral RNA, we measured serum bNAb concentrations, anti SHIV-neutralizing titers, and anti-bNAb responses.
Results: The most striking result obtained in this study was the long period of protective efficacy conferred by a single injection of Fc modified human anti-HIV-1 neutralizing antibodies in macaques compared to the previous studies. A single intravenous infusion of 10-1074-LS mAb markedly delayed virus acquisition for 18 to 37 weeks (median = 27 weeks) whereas the protective effect of the 3BNC117-LS bNAb was more modest (protection for 11 to 23 weeks; median = 17 weeks). Serum concentrations of the 10-1074-LS mAb gradually declined and became undetectable in all recipients between weeks 26 to 41 whereas the 3BNC117-LS bNAb exhibited a shorter half-life. To model immunoprophylaxis against genetically diverse and/or neutralization resistant HIV-1 strains, a combination of the 3BNC117-LS plus 10-1074-LS mAbs was injected into macaques by the more clinically relevant subcutaneous route. Even though nearly 3-fold less of each bNAb in the mixture was administered, compared to the amount of single mAb injected in the intravenous infusions, the mAb combination still protected macaques for a median of 20 weeks.
Conclusions: The extended period of protection observed in macaques for the 3BNC117-LS plus 10-1074-LS combination could translate into an effective semi-annual or annual immunoprophylaxis regimen for preventing HIV-1 infections in humans.

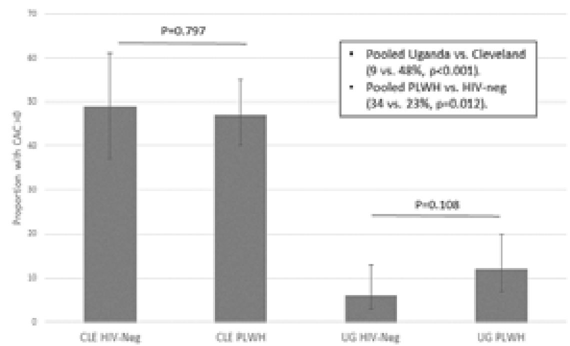
THAB01 Non-communicable diseases: Continued challenges

THAB0101

Low prevalence of calcified coronary plaque among Ugandans with and without HIV infection: Comparison with a United States cohort and associations with biomarkers of inflammation

C.T. Longenecker[1,2], B. Alencherry[2], G. Erem[3,4], G. Mirembe[5], J. Nansimbe[5], I. Ssinabulya[4,6], C.-H. Yun[7], C.-L. Hung[7], M.J. Siedner[8,9], C. Kityo[5], G.A. McComsey[1,2]
[1]*Case Western Reserve University School of Medicine, Cleveland, United States,* [2]*University Hospitals Cleveland Medical Center, Cleveland, United States,* [3]*Nsambya St. Francis Hospital, Kampala, Uganda,* [4]*Makerere University School of Medicine, Kampala, Uganda,* [5]*Joint Clinical Research Centre, Kampala, Uganda,* [6]*Uganda Heart Institute, Kampala, Uganda,* [7]*Mackay Memorial Hospital, Taipei, Taiwan, Province of China,* [8]*Massachusetts General Hospital, Boston, United States,* [9]*Harvard Medical School, Boston, United States*

Background: Little is known about subclinical coronary disease among people living with HIV (PLWH) in sub-Saharan Africa. We sought to compare prevalence of calcified coronary plaque between people with and without HIV in Uganda and the United States, and to explore associations with HIV-specific factors and biomarkers.
Methods: 100 Ugandan PLWH on antiretroviral therapy over 40 years old were prospectively age- and sex-matched to 100 HIV-uninfected controls. All had ≥1 major cardiovascular risk factor (hypertension, diabetes, smoking, or high cholesterol). Coronary artery calcium (CAC) scores were obtained from gated non-contrast computed tomography scans of the heart. Biomarkers were measured from cryopreserved plasma. Ugandan subjects were compared to PLWH on antiretroviral therapy (n=167) and uninfected controls (n=63) over 40 years old from a research database in Cleveland, USA.
Results: Compared to US subjects, Ugandans were older (mean age 56 vs. 52 years), had higher cholesterol (mean fasting cholesterol 216 vs. 176 mg/dL), more diabetes (36 vs. 3%), and more hypertension (85 vs. 36%); but were less likely to be male (38 vs. 74%), smokers (4 vs. 56%) or statin users (6 vs. 13%; all p< 0.01). Ugandan PLWH had lower current CD4+ (mean 570 vs 675, p=0.015), but similar nadir CD4+ compared to US PLWH. The unadjusted prevalence of CAC>0 was higher in the US vs. Uganda and among PLWH vs. uninfected controls (Figure). After adjustment for HIV serostatus, age, sex, and traditional risk factors, Ugandans had over 13x lower odds of CAC>0 (p< 0.001). In multivariable-adjusted models, soluble intercellular adhesion molecule (p=0.044), soluble CD163 (p=0.004), and oxidized LDL (p=0.043) were each associated with CAC>0 among Ugandans. Soluble CD163 and oxidized LDL remained associated (p< 0.025) in models of Ugandan PLWH that further adjusted for PI use and current CD4+. Among all PLWH (n=267), nadir CD4+ was the only HIV-specific variable associated with CAC>0 in adjusted models.
Conclusions: Despite a high burden of risk factors, this Ugandan cohort of PLWH and controls had substantially lower rates of calcified coronary plaque compared to a US cohort. Lower nadir CD4+ count and higher systemic levels of inflammation and immune activation were associated with CAC>0.



[Figure. Prevalence of calcified coronary plaque (coronary artery calcium score <0) among people living with HIV in Uganda and the United States. Error bars represent 95% confidence interval of the proportion, CLE, Cleveland; UG, Uganda; PLWH, people living with HIV]

THAB0102

Cardiac chamber abnormalities and left ventricular mass in people living with HIV and matched uninfected controls assessed by multidetector computed tomography

L. Demmer[1], A. Ronit[1], P.E. Sigvardsen[2], A.-M. Lebech[3], J. Gerstoft[1], A.D. Knudsen[1], A. Fuchs[2], J.T. Kühl[2], J. Lundgren[1], B.G. Nordestgaard[4], K.F. Kofoed[2], S.D. Nielsen[1]
[1]*Rigshospitalet, Viro-Immunology Research Unit, Copenhagen, Denmark,* [2]*Rigshospitalet, Heart Center, Copenhagen, Denmark,* [3]*University of Copenhagen, Department of Infectious Diseases, Hvidovre, Denmark,* [4]*Herlev Hospital, Copenhagen General Population Study, Herlev, Denmark*

Background: People living with HIV (PLWH) have increased risk of cardiovascular disease (CVD). Previous studies using echocardiography have reported higher prevalence of cardiac abnormalities including left atrial enlargement, left ventricle dysfunction, right ventricle dilatation and greater left ventricular mass in PLWH. Multidetector computed tomography (MDCT) allows a precise estimate of cardiac chamber volumes. We aimed to assess cardiac structural abnormalities and factors associated with cardiac abnormalities in PLWH and uninfected controls using MDCT.
Methods: A total of 592 PLWH from the Copenhagen co-morbidity in HIV-infection (COCOMO) study and 1184 age and sex matched uninfected controls from the Copenhagen General Population Study were included. Left atrial volume (LAV), left ventricular diastolic volume (LVDV), right ventricular diastolic volume (RVDV) and left ventricular mass (LVM) were assessed with semi-automated MDCT software and indexed by body surface area (LAVi, LVDVi, RVDVi and LVMi). Linear regression

models adjusted for demographic variables (model 1) and additionally for cardiac risk factors (model 2) were used to assess association between HIV and MDCT dimensions.

Results: Most PLWH were men (88.2%) with mean (SD) age 53.7 (8.8) years, and had undetectable viral replication (96.1%) and CD4 count > 500 cells/mL (77.0%). PLWH had smaller mean (SD) LAVi (40mL/m² (8) vs. 41mL/m² (9), p=0.002) and LVDVi (61mL/m² (13) vs. 65mL/m² (14), p< 0.0001). However, RVDVi was larger in PLWH (89mL/m² (18) vs. 86mL/m² (17), p< 0.001) than uninfected controls. After adjustment for age, sex, body mass index, ancestry, smoking pack-years, systolic blood pressure, high density lipoprotein, low density lipoprotein, triglyceride and non-fasting blood glucose, HIV was associated with -6mL (95%CI: -10;-3) lower LVDV, 11mL (95%CI: 7;16) larger RVDV, and 4g (95%CI: 1;7) larger LVM. Finally, CD4 nadir (per 100cells/mL) was associated with 2 mL larger LVDV (95%CI: 0;3) and 3mL larger RVDV (95%CI: 0;5).

Conclusions: HIV was independently associated with smaller LVDV, larger RVDV and greater LVM. However, absolute differences were small and no major structural cardiac abnormalities were found in a well-treated population of PLWH. Thus, the clinical impact is uncertain, and it is unlikely that structural cardiac abnormalities explain the increased risk of CVD previously observed in PLWH

CVD risk factors	Univariate β (95% CI)	P-value	Model 1 β (95% CI)	P-value	Model 2 β (95% CI)	P-value
LAV (mL)						
HIV+/-	-5 (-7; -3)	<0.0001	-2 (-4;1)	0.146	-1 (-3;2)	0.618
LVDV (mL)						
HIV+/-	-12 (-15; -9)	<0.0001	-7 (-10; -3)	<0.0001	-6 (-10; -3)	<0.001
RVDL (mL)						
HIV+/-	1 (-3;5)	0.605	9(5;13)	<0.0001	11 (7;16)	<0.0001
LVM						
HIV+/-	-4 (-7; -1)	0.008	4 (2;7)	0.002	4 (1;7)	0.005

[Uni- and multivariate associations between HIV status and cardiac chamber volumes and left ventricular mass]

THAB0103

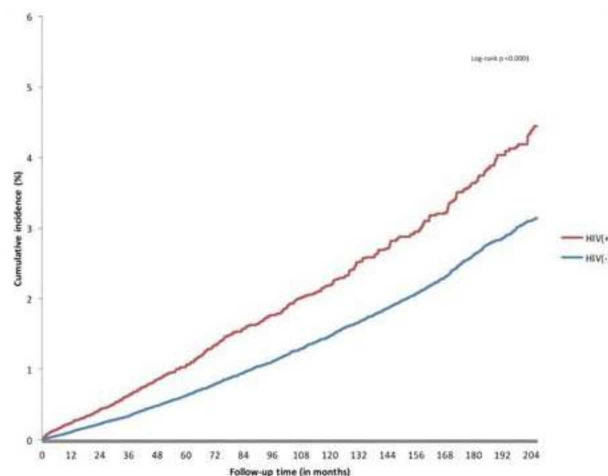
HIV infection independently increases the risk of developing heart failure: The HIV HEART study

A.S. Go[1], M. Horberg[2], K. Reynolds[3], W.J. Towner[3], H. Avula[1], R.C. Hechter[3], D. Klein[1], S. Vupputuri[2], K.K. Lee[1], T.K. Leong[1], W. Leyden[1], R. Neugebauer[1], S.H. Sung[1], M.J. Silverberg[1]
[1]Kaiser Permanente Northern California, Division of Research, Oakland, United States, [2]Kaiser Permanente Mid-Atlantic States, Mid-Atlantic Permanente Research Institute, Rockville, United States, [3]Kaiser Permanente Southern California, Department of Research and Evaluation, Pasadena, United States

Background: HIV infection has been associated with excess atherosclerotic events, but limited data exist about its link to developing heart failure (HF) and possible contributing factors. In a large, multi-institutional, community-based population, we evaluated the independent association of HIV infection with incident HF.

Methods: Within 3 large U.S. integrated healthcare delivery systems, we identified all eligible HIV(+) adults (≥21 years) between 2000-2016 without prior HF and frequency-matched up to 10:1 to HIV(-) subjects without prior HF based on entry year, age (±1 year), gender, race, and primary treating facility. Through 2016, we identified cases of incident HF based on validated algorithms using electronic health records (EHR). Demographic features, cardiovascular risk factors, pertinent medical history and medication use were ascertained from EHR and other health system databases. We evaluated the independent association of HIV infection with incident HF through a series of multivariable Cox regression models that sequentially adjusted for: health system and calendar era, demographics, lifestyle factors, cardiovascular history, other comorbidities, and cardiopreventive and other medication use. In the final model, we adjusted for acute coronary syndrome events during follow-up as a potential explanatory variable.

Results: We identified 38,868 HIV(+) and 386,586 matched HIV(-) adults during the study period. HIV(+) patients were more likely to have low neighborhood-level educational attainment and household income, prior cancer, dementia or depression but less likely to have prior cardiovascular conditions or cardiovascular risk factors. The rate (per 100 person-years) of incident HF was higher in HIV(+) (0.24, 95%CI:0.22-0.26) vs. matched HIV(-) (0.16, 95%CI:0.15-0.16) patients (P< 0.0001) (Figure). In multivariable analyses, HIV infection was associated with an increased rate of developing HF that strengthened after serial adjustment for demographic characteristics; cardiovascular and medical history; and cardiopreventive medication, antidiabetic therapy and NSAID use, with an 75% increased rate in the fully adjusted model (Table, Models 1-3). Further adjustment for acute coronary syndrome events during follow-up only modestly attenuated the association of HIV infection with incident HF (Model 4).



[Cumulative incidence of newly-diagnosed heart failure by HIV status]

	Model 1	Model 2	Model 3	Model 4
	Health System, Entry Year and Demographics	Model 1 + Cardiovascular and Non-Cardiovascular History	Model 2 + Cardiopreventive Medications, Antidiabetic therapy and NSAIDs	Model 3 + Acute Coronary Syndrome Events During Follow-Up
Adjusted Hazard Ratio (95% CI) for HIV(+) vs. HIV(-)	1.54 (1.40-1.69)	1.69 (1.54-1.86)	1.75 (1.59-1.93)	1.66 (1.50-1.83)

[Multivariable association of HIV infection with incident heart failure]

Conclusions: HIV infection independently increases the risk of developing HF and this excess risk does not appear to be mediated through atherosclerotic disease pathways or differential use of cardiopreventive therapies.

THAB0104

Malignancy and all-cause mortality: Incidence in teenage young adults living with perinatally acquired HIV

S. Chhabra[1], S. Fidler[1], M. Bower[2], S. Ayers[3], H. Lyall[3], C. Foster[3]
[1]Imperial College London, London, United Kingdom, [2]Chelsea and Westminster Hospital NHS Trust, London, United Kingdom, [3]Imperial College Healthcare NHS Trust, London, United Kingdom

Background: The incidence of malignancy between 10-24 years of age in the general UK population is 0.2/1000 person-years. Adults living with HIV have an increased risk of malignancy yet there is a paucity of data for teenage young adults (TYA) living with perinatally acquired HIV (PaHIV).

Methods: Retrospective cohort analysis of all-cause mortality and malignancies in TYAPaHIV aged 10-24 years attending a tertiary unit from 01.01.2004 to 31.12.2017, assessing mortality, cancer presentation, immunology, virology and comparing incidence and mortality to aged-matched UK general population rates.

Results: 290 TYAPaHIV contributed 2644 person-years of follow up. 2/290 (0.7%) were lost to follow-up, 14/290 (4.8%) transferred care and 6/290 (2.0%) died within the study period at a median age of 17 years

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(inter-quartile range (IQR) 15-19). Cause of death; 3 with malignancy (non-Hodgkin's lymphoma, hepatocellular carcinoma (HCC), gastrointestinal adenocarcinoma), 2 with end stage HIV with poor adherence to antiretroviral therapy (ART) and 1 with cryptococcal meningitis. Overall mortality rate was 2.3/1000 person-years, 9.4 times the age-matched general population (incidence rate ratio (IRR) 9.4, 95% confidence interval (CI) 3.4-20.4, p < 0.0001). 8/290 (2.8%) were diagnosed with a malignancy aged 10-24 years; 7/8 males; 6 with lymphoma (3 Hodgkin's, 1 Burkitt's, 2 B-cell) and one each with HCC and gastrointestinal adenocarcinoma. At cancer diagnosis the median age was 19 years (IQR 14-23), median CD4 count 453 cells/uL (IQR 231-645) and 4/8 had undetectable HIV viral load (< 50 copies/mL). Median length of HIV viraemia pre-cancer diagnosis was 15 years (IQR 12-17). 4/6 lymphomas presented with advanced disease (Ann Arbor stage III/IV). The incidence of a malignancy was 3.0/1000 person-years in TYAPaHIV, IRR to the age-matched general population 12.9 (95% CI 5.6 - 25.5, p < 0.0001), driven by lymphomas (IRR 44.2, 95% CI 16.1 - 96.7, p < 0.0001).

Conclusions: In this cohort, TYA living with PaHIV had nearly a ten-fold increased risk of all-cause mortality and of malignancy compared to their uninfected peers, with the excess in malignancy driven by lymphomas. It is hoped that earlier access to antiretroviral therapy will mitigate some of the risk for future generations.

THAB0105

Increased risk of both mortality and incident comorbidity among frail HIV-positive and HIV-negative participants in the AGE$_h$IV Cohort Study, and increased risk of frailty progression in those with HIV

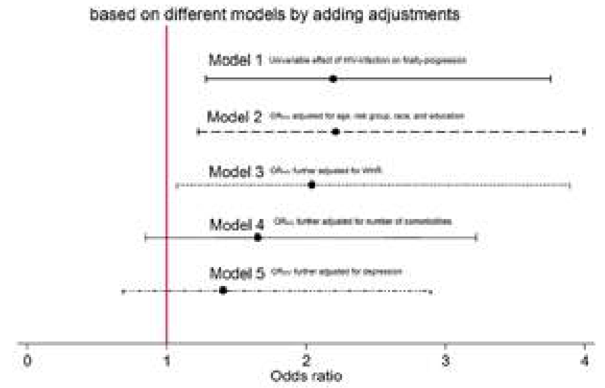
E. Verheij[1,2], G.D. Kirk[3], F.W. Wit[1,2,4], R.A. van Zoest[1,2], S.O. Verboeket[1,2], M.F. Schim van der Loeff[5], P. Reiss[1,2,4], AGEhIV Cohort Study
[1]Academic Medical Center, Department of Global Health and Division of Infectious Diseases", Amsterdam, Netherlands, [2]Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, [3]Johns Hopkins University, Department of Epidemiology, Bloomberg School of Public Health, Baltimore, United States, [4]HIV Monitoring Foundation, Amsterdam, Netherlands, [5]Public Health Service of Amsterdam, Department of Infectious Diseases, Amsterdam, Netherlands

Background: Frailty is associated with morbidity and mortality in the general geriatric population. We assessed both the impact of frailty on mortality/incident comorbidity risk and factors associated with frailty progression.

Methods: Longitudinal data from 598 people living with HIV (PLWH) and 550 demographically comparable HIV-uninfected AGE$_h$IV Cohort Study participants were analyzed (Table). The presence of ≥3 criteria among 5 domains (weight loss, low physical activity, exhaustion, decreased grip strength, and slow gait speed), defined frailty. Impact of time-updated frailty status on all-cause-mortality in all, and on incident comorbidity among those (497 HIV-positive and 479 HIV-negative) contributing ≥1 consecutive visit pairs (n=1833 pairs) was assessed. Factors associated with frailty progression were analyzed among a subset of 488 participants with ≥2 consecutive biennial follow-up visits (Table). Kaplan-Meier plots, multivariable Cox or logistic regression models with generalized estimated equation were used, as appropriate.

Results: Among HIV-positive and HIV-negative participants respectively, 8.5 and 3.4 percent were frail, and during 4,423 person-years of follow-up (PYFU) 12 and 5 persons died, for an all-cause mortality rate of 5.2/1000 and 3.8/1000 PYFU. Time to death was shorter among frail persons. Adjusted for HIV-status, age and number of pre-existing comorbidities, frailty was independently associated with mortality (hazard ratio: 12.3, 95%CI 4.5-33). 342 incident comorbidities were diagnosed among 307 participants. Adjusted for HIV-status, age, gender, ethnicity, education and number of pre-existing comorbidities, frail participants had higher odds of developing ≥1 comorbidity (OR 1.93, 95%CI 1.15-3.322). No interaction was found between frailty and HIV-status on mortality or incident comorbidity risk.

In the subset of 488 participants, 60 demonstrated frailty progression. HIV-status was associated with frailty progression (OR 2.2, 95%CI 1.3-3.8), partly mediated by higher waist-to-hip ratio (WHR), comorbidity burden and depression.



[Showing the odds ratio and 95% CI of HIV-infection on frailty-progression based on different models]

Conclusions: Frailty was a strong predictor of mortality and incident comorbidity, regardless of HIV-status. Frailty was more prevalent among PLWH and HIV-status was associated with frailty progression, which was partly mediated by higher WHR and pre-existing comorbidity burden and depression. These results provide guidance to clinicians in recognizing patients at risk for developing frailty and associated adverse health outcomes, and the importance of maintaining physical and mental health.

	Part A			Part B		
	HIV-uninfected (n = 550) n (%) or median (IQR)	HIV-infected (n = 598) n (%) or median (IQR)	p-value	HIV-uninfected (n = 284) n (%) or median (IQR)	HIV-infected (n = 204) n (%) or median (IQR)	p-value
Age, years	52.1 (47.9-58.1)	52.7 (48.3-59.4)	0.34	52.7 (48.2 - 57.9)	52.8 (48.2 - 59.2)	0.7
Risk group: MSM male, Non-MSM male, Female	386 (70.2%), 79 (14.4%), 85 (15.5%)	454 (75.9%), 70 (11.7%), 74 (12.4%)	0.09	203 (71.5%) 44 (15.5%) 37 (13.0%)	157 (77%) 28 (13.7%) 19 (9.3%)	0.3
Non-black race	526 (95.8%)	522 (87.6%)	<0.001	274 (96.5%)	186 (91.2%)	0.013
Higher education	289 (55.8%)	220 (41.3%)	<0.001	166 (59.5%)	91 (46.0%)	0.003
WHR	0.91 (0.87 - 0.96)	0.97 (0.92 - 1.0)	<0.001	0.91 (0.88 - 0.96)	0.97 (0.92 - 1.00)	<0.001
Number of diagnosed comorbidities[1]	0 (0-1)	1 (0-1)	<0.001	0 (0-1)	1 (0-1)	<0.001
Depression; CES-D ≥16[2]	71 (13.6%)	106 (19.8%)	0.006	21 (7.7%)	24 (12.5%)	0.08

Part A: Population analyzed for mortality and incident comorbidity.

Part B: Population analyzed for frailty progression (284 HIV-uninfected contributing to 442 visit-pairs and 204 HIV-infected contributing to 300 visit-pairs)

Abbreviations: WHR, waist-to-hip ratio; CES-D, Center for Epidemiologic Studies Depression scale; Higher education; attained at least a bachelors degree.

[1]Comorbidities; included are chronic obstructive pulmonary disease (defining obstruction as having lower than 1.64 z-score for FEV1/FVC-ratio using Global Lung Initiative guidelines), diabetes (HbA1c = 48 mmol/mol and/or elevated blood glucose (non-fasting = 11.1 mmol/L or fasting = 7.0 mmol/L) or on antidiabetic medication), hypertension (use of antihypertensive medication or measured grade 2 hypertension following European Guidelines (systolic blood pressure 160 mmHg and/or diastolic blood pressure 100 mmHg in all 3 measurements, renal insufficiency (eGFR <60 mL/min/1.73 m2), osteoporosis (having a T score of -2.5 SD or lower, in men aged <50 years and premenopausal women; a Z score of -2 SD or lower in men aged =50 years and postmenopausal women), self-reported and validated heart-failure, non-AIDS associated cancer, cardiovascular disease (myocardial infarction, angina pectoris, peripheral artery disease, ischemic cerebrovascular disease).

[2]CES-D scale, two questions used in the frailty scale are excluded from CES-D score calculation.

[Baseline characteristics of participants of the AGEhIV Cohort]

THAB02 HIV and the liver

THAB0201

Effectiveness of hepatitis A virus (HAV) vaccination among people living with HIV during an hepatitis A outbreak in Taiwan, 2015-2017

K.-Y. Lin[1,2], H.-Y. Sun[3], S.-M. Hsieh[3], H.-Y. Cheng[4], Y.-C. Lo[4], W.-H. Sheng[3], Y.-C. Chuang[3], A. Cheng[3], S.-C. Pan[3], G.-J. Chen[3], C.-T. Fang[2], C.-C. Hung[3], S.-C. Chang[3]
[1]*National Taiwan University Hospital Jin-Shan Branch, Department of Medicine, New Taipei City, Taiwan, Province of China,* [2]*Institute of Epidemiology and Preventive Medicine, College of Public Health, National Taiwan University, Taipei, Taiwan, Province of China,* [3]*National Taiwan University Hospital and National Taiwan University College of Medicine, Department of Internal Medicine, Taipei, Taiwan, Province of China,* [4]*Centers for Disease Control, Taipei, Taiwan, Province of China*

Background: Outbreaks of hepatitis A virus (HAV) infection have re-emerged among men who have sex with men (MSM) across the Asia-Pacific region, the United States, and several European countries since 2015. The suboptimal response to HAV vaccine among MSM living with HIV raises serious concerns about the personal-level and population-level effectiveness of HAV vaccination. We estimated the transmissibility of HAV during an hepatitis A outbreak among MSM living with HIV in Taiwan, 2015-2017, and measured the effectiveness of HAV vaccine in this population.

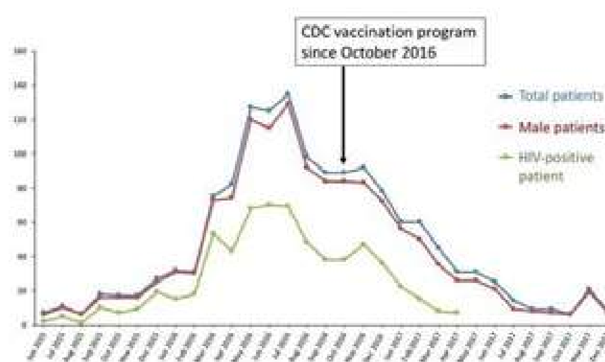
Methods: We developed a mathematical model of HAV transmission to estimate the basic reproductive number (R_0) of HAV in this outbreak. A case of acute hepatitis A was defined as a documented positive anti-HAV IgM in an HIV-positive patient who presented with clinical symptoms, elevated aminotransferases, or jaundice. We conducted a 1:4 nested case-control study to assess the effectiveness of HAV vaccine in MSM living with HIV.

Results: Given 30% of HIV-positive patients having mild symptoms after acquiring acute hepatitis A, we estimated the R_0 of HAV was as high as 6.37 in this outbreak. During study period (from June 1, 2015 to June 30, 2017), 55 cases of acute hepatitis A occurred among 1533 initially HAV seronegative HIV-positive patients. All case patients were MSM with a median age of 30 years and baseline CD4 count of 545 cells/µL, and 60% had recent syphilis within 6 months prior to the onset of acute hepatitis A. HAV vaccination protected recipients from acute hepatitis A (adjusted odds ratio, 0.03; 95% CI, 0.001-0.12), with an overall vaccine effectiveness of 97.4% (Table). The effectiveness of single dose and two doses of HAV vaccine was 96.1% and 99.7%, respectively. This high personal-level vaccine effectiveness in MSM living with HIV might explain the rapid control of this hepatitis A outbreak in Taiwan (Figure).

Conclusions: Our findings strongly support the implementation of HAV vaccination to control hepatitis A outbreak among MSM living with HIV.

	Univariable analysis		Multivariable analysis	
	Odds ratio (95% CI)	P value	Odds ratio (95% CI)	P value
At least one dose of HAV vaccination	0.04 (0.01-0.13)	<0.001	0.03 (0.001-0.12)	<0.001
Age, per 1-year increase	1.53 (0.63-3.70)	0.349		
HBsAg positivity	1.28 (0.27-4.98)	0.913		
Anti-HCV positivity	2.03 (0.58-6.57)	0.302		
Receiving cART at baseline	1.19 (0.52-2.70)	0.685		
CD4 count at baseline, per 1-cell/mm3 increase	0.999 (0.998-1.001)	0.316		
PVL at baseline, per 1-log10 copies/mL increase	1.03 (0.88-1.21)	0.710		
Syphilis during follow-up	3.93 (2.04-7.60)	<0.001	13.52 (1.40-130.26)	0.024

[Factors associated with acquiring acute hepatitis A]



[Number of indigenous cases of acute hepatitis A reported to the Taiwan CDC during the outbreak.]

THAB0202

Less severe but prolonged course of acute hepatitis A in HIV-positive patients than HIV-negative patients during an outbreak: A multicenter observational study

Y.-L. Li[1], C.-E. Liu[1], C.-C. Hung[2], P.-L. Lu[3], N.-Y. Chen[4], Taiwan HIV Study Group
[1]*Changhua Christian Hospital, Changhua, Taiwan, Province of China,*
[2]*National Taiwan University Hospital, Taipei, Taiwan, Province of China,*
[3]*Kaohsiung Medical University, Kaohsiung, Taiwan, Province of China,*
[4]*Chang Gung Memorial Hospital, Taoyuan, Taiwan, Province of China*

Background: This multicenter retrospective cohort study aimed to compare the clinical presentations and evolution of acute hepatitis A (AHA) between HIV-positive patients and HIV-negative counterparts during the AHA outbreak.

Methods: Information on the demographics, clinical presentations, serial laboratory data, and abdominal imaging were collected from the medical records of the patients who received a diagnosis of AHA at the 14 designated hospitals for HIV care around Taiwan between May 2015 and May 2017.

Results: A total of 297 adult patients with AHA were included during the 2-year study period. With a mean age of 31.4 years (range, 19.0-76.1), 93.4% were males and 58.6% MSM. Of 265 patients with known HIV serostatus, 166 (62.6%) were HIV-positive. Compared with HIV-negative patients, HIV-positive patients had a lower peak alanine aminotransferase (ALT) level (median, 1312 vs 2014 IU/L, p=0.003), less coagulopathy (6.0% vs 16.2%, p=0.007), less hepatomegaly or splenomegaly on imaging studies, but delayed resolution of hepatitis (40.9% vs 21.3%, p=0.005). In the subgroup analysis, HIV-positive patients with good HIV viral suppression (plasma RNA load [PVL] < 1000 copies/ml) by combination antiretroviral therapy (cART) had a higher peak ALT level (median, 1420 vs 983 IU/L, p=0.012) and less delay in resolution of hepatitis (22.6% vs. 51.0%, p< 0.001) than patients without cART or with higher PVL.

Conclusions: During an AHA outbreak, we found that HIV-positive patients had a lower severity, but delayed resolution of AHA than HIV-negative patients. Receipt of cART with better viral suppression alleviated the impact of HIV infection on the clinical manifestations of AHA in HIV-positive patients.

THAB0203

Shared HCV transmission networks among HIV-1 positive and HIV-1 negative men having sex with men in Paris

T. Nguyen[1], C. Delaugerre[2,3], M.-A. Valatin[4], E. Netzer[5], P.-M. Girard[6], N. Day[7], G. Kreplak[7], G. Pialoux[8], J.-M. Molina[3,9], V. Calvez[1], A.-G. Marcelin[1], E. Todesco[1]
[1]Sorbonne Université, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique (iPLESP), AP-HP, Hôpital Pitié-Salpêtrière, Laboratoire de Virologie, Paris, France, [2]Saint-Louis, Assistance Publique Hôpitaux de Paris, Paris, France, [3]INSERM UMR 941, Université de Paris Diderot, Sorbonne Paris Cité, Paris, France, [4]Sorbonne Université, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique (iPLESP), AP-HP, Hôpital Pitié-Salpêtrière, Services de Maladies Infectieuses et Tropicales, Paris, France, [5]INSERM SC10, Villejuif, France, [6]Saint-Antoine Hospital, Assistance Publique-Hôpitaux de Paris, Paris, France, [7]Cerballiance Laboratory, Paris, France, [8]Hôpital Tenon, APHP, Université Pierre et Marie Curie, Department of Infectious Diseases, Paris, France, [9]Maladies Infectieuse, Hôpital Saint-Louis, Assistance Publique Hôpitaux de Paris, Paris, France

Background: Infection of acute hepatitis C (AHC) among men having sex with men (MSM) has become an outbreak in several high-income countries from 2000. Several studies reported existence of specific HCV transmission network among MSM communities in Europe and especially a spread of HCV strains from HIV-HCV co-infected MSM toward HCV mono-infected MSM. We aimed to characterize HCV transmission clusters in HIV positive and HIV negative MSM communities in Parisian region by ultra-deep sequencing (UDS).

Methods: Illumina (Miseq) deep-sequencing of NS5B fragment was performed on plasma samples of 50 AHC HIV-positive and 18 AHC HIV-negative individuals including 13 from the Prep IPERGAY ANRS study. UDS data were analysed by Geneious (version 10.1.3). Phylogenetic trees were realized using Fasttree 2.1 and local support value of > 80% was chosen to define a robust tree. Trees were submitted to ClusterPicker (version 1.2.3) to determine transmission cluster at different thresholds of maximum genetic distance (MGD). We compared results of Sanger at 3%, UDS at 3%, and at 4.5% of MGD.

Results: Of 68 acute hepatitis C patients, 15 were cases of recontamination. HCV genotyping showed genotype 1a (47%), 4d (41%), 3a (9%), and 2k (3%). Sanger at 3%, UDS at 3% and at 4.5% of MGD allowed detection of 10, 17, and 18 clusters, respectively. By UDS, more clusters were detected but fewer subjects (median: 2 subjects) were identified within each cluster than Sanger did (median: 3 subjects). Furthermore, mixed clusters including HIV-positive and HIV-negative MSM were observed in 8/10 clusters by Sanger, in 10/17 by UDS at 3%, and in 10/18 by UDS at 4.5% of MGD. Overall, the number of HIV-negative individuals clustering with HIV-positive ones was 8/18 by Sanger, 8/18 by UDS at 3%, and 9/18 by UDS at 4.5% of MGD.

Conclusions: By Sanger or UDS, our study allowed the detection of HCV transmission clusters in MSM communities in Parisian region. Particularly in this population, the HIV-positive MSM shared the HCV transmission network with HIV-negative MSM, which in turn alerts the public health for surveillance and prevention measures in these communities, regardless of their HIV status.

THAB0204

Will hepatitis C transmission be eliminated by 2025 among HIV-positive men who have sex with men in Australia?

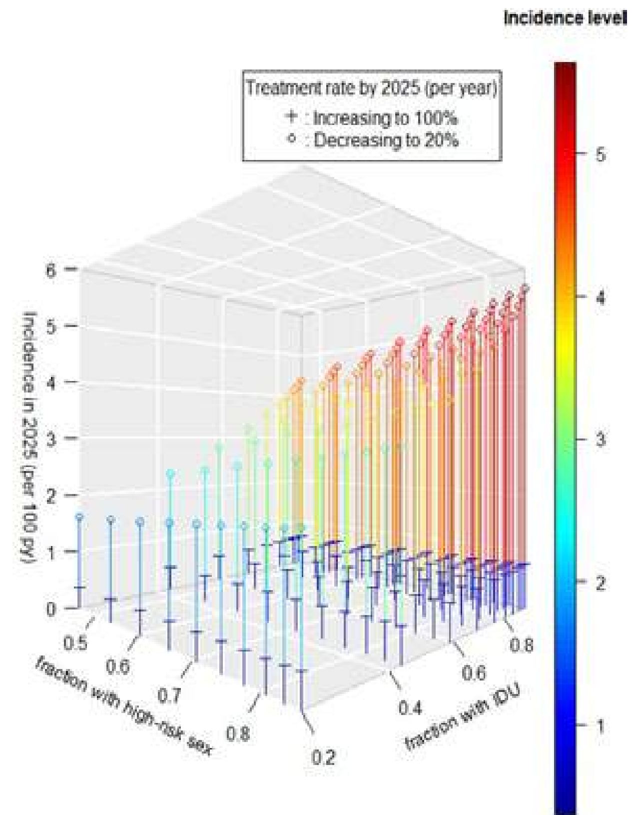
L. Salazar-Vizcaya[1], D.C. Boettiger[2], G.J. Dore[2], R. Gray[2], M. Law[2], A. Rauch[1], T. Lea[3], G. Matthews[2]
[1]University Hospital Bern, Inselspital, Department of infectious diseases, Bern, Switzerland, [2]Kirby Institute, UNSW, Sydney, Australia, [3]Centre for Social Research in Health, UNSW, Sydney, Australia

Background: Australia was among the first countries to offer universal access to direct-acting antiviral (DAA) therapy for hepatitis C virus (HCV) to HIV-positive men who have sex with men (MSM). Rapid scale-up of DAA therapy has been ongoing in Australia since 2016 and has the potential to interrupt HCV transmissions. However, concerns have been raised that behavioural changes may counterbalance the effect of treatment. We assessed the potential effect of treatment and risk behavioral changes on HCV incidence among HIV-positive MSM up to 2025.

Methods: Mathematical model of HCV transmission parameterized with Australian data collected between 2000 and 2016. The model was set to reproduce observed data and to assess the future impact of a range of changes in behavior that facilitate HCV transmission (i.e. high-risk sex and injecting drug use-IDU) in the context of increasing and decreasing rates of DAA use. Baseline DAA-treatment rate was based on data from the Control and Elimination within Australia of Hepatitis C from people living with HIV (CEASE) study.

Results: The Figure summarizes model outcomes. If the rate of DAA use increased from 65%/year among eligible patients in 2016 to 100%/year by 2025, HCV incidence would drop from 3.7/100 person-years (py) in 2016 to 0.4/100py by 2025 providing rates of risk behavior remained at current levels (20% and 45% for IDU and high-risk sex respectively). Even in the setting of substantial increases in the rates of high-risk sex and IDU (e.g. 90% and 85%) HCV incidence would drop to 0.8/100py. Moreover, if treatment rate remains stable after 2016, incidence would also drop regardless of risk behavior (results not shown in the Figure). Conversely, HCV incidence only increased from that in 2016 when rates of IDU also increased substantially (above 69%) alongside a drop in DAA use (to 20% by 2025).

Conclusions: The model suggests that HCV transmission among Australia's HIV-positive MSM population will continue, but decline substantially with DAA treatment upscale, even in the context of increased risk behaviour. If treatment rate continues to increase, by 2025 Australia could meet the 80% reduction goal formulated by the WHO.



[Projected incidence of HCV among HIV-positive men who have sex with men in Australia. Colors indicate incidence values as depicted in the coloured bar]

THAB0205

HIV infection is an independent risk factor for liver steatosis: A study in HIV mono-infected patients compared to uninfected paired controls and associated risk factors

A. Pacheco[1], H. Perazzo[2], S. Cardoso[2], M.J. Fonseca[3], R. Griep[4], P. Lotufo[5], I. Bensenor[5], J. Mill[6], R. Moreira[1,2], R. Moreira[2], R. Friedman[2], M. Santini-Oliveira[2], V. Veloso[2], D. Chor[3], B. Grinsztejn[2]
[1]Fundação Oswaldo Cruz (FIOCRUZ), PROCC, Rio de Janeiro, Brazil, [2]Fundação Oswaldo Cruz (FIOCRUZ), LAPCLIN-AIDS, Rio de Janeiro, Brazil, [3]Fundação Oswaldo Cruz (FIOCRUZ), Departamento de Epidemiologia e Métodos Quantitativos em Saúde, Rio de Janeiro, Brazil, [4]Fundação Oswaldo Cruz (FIOCRUZ), Laboratory of Health and Environment Education, Rio de Janeiro, Brazil, [5]University of São Paulo, School of Medicine, São Paulo, Brazil, [6]Federal University of Espírito Santo, Departamento de Ciências Fisiológicas, Vitoria, Brazil

Background: Several studies have been reporting the burden of metabolic liver disease in HIV-infected individuals. However, the impact of HIV infection on prevalence of liver steatosis and associated risk factors still lack. We aimed to evaluate the prevalence and factors associated with liver steatosis in HIV mono-infected patients compared to uninfected subjects paired for confounding factors.
Methods: 649 HIV mono-infected patients from the INI-ELSA cohort were eligible. To test the association of HIV infection with steatosis, non-infected subjects from the Brazilian Longitudinal Study of Adult Health (ELSA-Brasil) cohort (n=15,087) were paired by demographic, metabolic and inflammatory characteristics. Nearest neighbor matching with a 0.05 caliper on logistic regression-based scores were used for matching and balance was checked with usual procedures. The variables used for the matching and the ones used in the final model for risk factors for steatosis in HIV-infected individuals were selected through a genetic algorithm that searched for the best model fit. Fatty Liver Index (FLI) was calculated as previously validated [Bedogni BMC-Gastroenterology 2006] and liver steatosis was defined as FLI ≥ 60. Logistic regression analysis was performed to assess risk of steatosis in HIV-patients compared to controls and to identify factors associated with fatty liver in HIV-infected individuals.
Results: HIV-patients [58% male; median (IQR) age=44 (36-51) years; body mass index (BMI)=24.4 (21.9-27.5) Kg/m^2; 33% with metabolic syndrome] were paired with 333 uninfected controls, with good balance on demographic and clinical characteristics between patients and controls. HIV infection was an independent factor associated with liver steatosis [OR=2.1 (95%CI 1.49-2.95), p< 0.001]. In a multivariate analysis with all HIV patients included, the following variables were independently associated [OR (95%CI)] with presence of steatosis: male gender [5.36 (2.41-11.94)]; Black/*Pardo* ethnicity [0.22 (0.09-0.55)]; hypertension [2.56 (1.25-5.26)]; diabetes [5.79 (2.58-13)]; dyslipidemia [2.57 (1.27-5.21)]; BMI [1.91 (1.67-2.18)]; CD4 count [per cell/mm3, 1.13 (1.01-1.27)] and cumulative HIV viral load [1.25 (1.02-1.54)].
Conclusions: HIV-infected individuals had 2-fold higher odds for presence of steatosis compared to uninfected paired controls. Traditional and HIV-specific risk factors were also associated with steatosis. Prevention of metabolic factors should be integrated to HIV care to decrease the burden of liver diseases in HIV-infected individuals.

HIV mono-infected (n= 649)	OR (95%CI)	p-value
Male gender (yes vs no)	5.36 (2.41-11.94)	< 0.001
Black/Pardo ethnicity (yes vs no)	0.22 (0.09-0.55)	0.001
Hypertension (yes vs no)	2.56 (1.25-5.26)	0.010
Type 2 diabetes (yes vs no)	5.79 (2.58-13)	< 0.001
Dyslipidemia (yes vs no)	2.57 (1.27-5.21)	0.009
BMI (kg/m2)	1.91 (1.67-2.18)	< 0.001
Poor health management (yes vs no)	0.36 (0.17-0.79)	0.011
CD4 count (per 100 cells/mm3)	1.13 (1.01-1.27)	0.036
Cumulative HIV viral load [per 10 log(copies/mm3)*year]	1.25 (1.02-1.54)	0.031

[Risk factors associated with liver steatosis in HIV mono-infected patients]

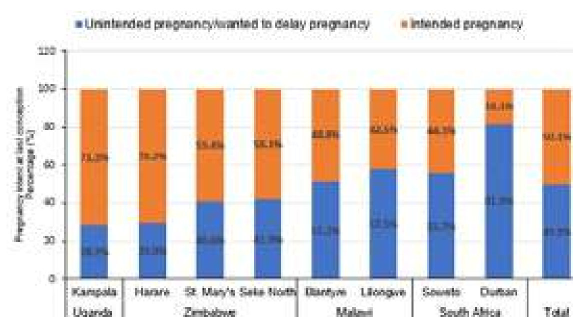
THAB03 Pregnancy: Pre, peri, and post

THAB0301

High frequency of unintended pregnancy and predictors of contraceptive choice among HIV-infected African women on life-long antiretroviral therapy (ART). The US-PEPFAR PROMOTE Cohort Study

J. Aizire[1], N. Yende[2], T. Nematadzira[3], M.E. Nyati[4], S. Dadabhai[1], L. Chinula[5], C. Nakaye[6], M. Naidoo[7], M.G. Fowler[8], T. Taha[1], US-PEPFAR PROMOTE Cohort Study
[1]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [2]Centre for the AIDS Programme of Research in South Africa (CAPRISA), Data Management Centre (DMC), Durban, South Africa, [3]University of Zimbabwe College of Health Sciences, Harare, Zimbabwe, [4]Perinatal HIV Research Unit (PHRU), Chris Hani Baragwanath Hospital University of the Witwatersrand, Johannesburg, South Africa, [5]University of North Carolina - Lilongwe, Lilongwe, Malawi, [6]Makerere University Johns Hopkins University (MUJHU), Kampala, Uganda, [7]Centre for The AIDS Research in South Africa (CAPRISA), Umlazi Clinical Research Site, Nelson R. Mandela School of Medicine, Durban, South Africa, [8]Johns Hopkins University, School of Medicine, Pathology-Medical Microbiology, Baltimore, United States

Background: About 90% of unintended pregnancies among African women are attributed to non-use of effective family planning (EFP) methods (injectable, oral, intra-uterine device (IUD), implant, or tubal-ligation). Long acting reversible contraceptives (LARC), which include implants or IUDs, are the most effective reversible contraception for an extended period without requiring user action. We report frequency of unintended pregnancy and determinants of contraceptive choice among African women on life-long ART.
Methods: The US-PEPFAR PROMOTE is a long-term cohort study of HIV-infected women (n=1,986) and their children, enrolled from December 2016 to June 2017, as an extension to a completed mother-to-child transmission prevention trial from eight sites in Malawi, South Africa, Uganda, and Zimbabwe. Standardized questionnaires were used to collect demographic and reproductive health data. Baseline enrollment data were analyzed using chi square and Wilcoxon Rank-Sum tests for group comparisons, and multivariable logistic regression to identify determinants of contraceptive choice.
Results: Overall, among 1,984 women included in this analysis, 49.9% (n=990) reported that their last pregnancy was unintended (figure 1), and >50% had no desire for more children.



[Fertility desire at last conception among HIV-infected women on Antiretroviral Therapy (ART) reported at study entry]

Among sexually-active, non-pregnant women, 81.6% (1,050/1,287) reported EFP use; while 19.0% (227/1,197) without permanent contraception reported LARC methods. Injectables were the commonest method (39%) - especially at the South African sites (>50%), followed by implant (14.4%). Oral pills were popular in Zimbabwe and tubal-ligations were common in Malawi and South Africa. Non-pregnant women whose last pregnancy was unintended versus intended were more likely to report current EFP use, adjusted odds ratio (95% CI), 1.44 (1.10 -1.96), p=0.02; but not LARC use, 1.25 (0.92-1.70), p=0.15. Women with no formal employment were less likely to report LARC use, 0.64 (0.43-0.96), p=0.03, but not EFP-use, 0.92 (0.62-1.35), p=0.60. All multivariable models included

age, marital-status, attained desired number of children, clinic travel-time, household water, and electricity, which were not associated with contraception choice.

Conclusions: Unintended pregnancy is common among HIV-infected African women. LARCs are acceptable contraceptive options in these settings, though under-utilized. Programmatic research should explore integrated ART and LARC delivery in consideration of the unique reproductive health challenges among HIV-infected African women on universal ART.

THAB0302

Tenofovir alafenamide pharmacokinetics with and without cobicistat in pregnancy

J.D. Momper[1], B. Best[1], J. Wang[2], A. Stek[3], T.R. Cressey[4], S. Burchett[5], R. Kreitchmann[6], D.E. Shapiro[2], E. Smith[7], N. Chakhtoura[8], E.V. Capparelli[1], M. Mirochnick[9], IMPAACT P1026s Protocol Team

[1]University of California, San Diego, La Jolla, United States, [2]Harvard University, Boston, United States, [3]University of Southern California, Los Angeles, United States, [4]Chiang Mai University, Chiang Mai, Thailand, [5]Boston Children's Hospital, Boston, United States, [6]Irmandade da Santa Casa de Misericordia de Porto Alegre, Porto Alegre, Brazil, [7]National Institute of Allergy and Infectious Diseases, Bethesda, United States, [8]National Institute of Child Health and Human Development, Bethesda, United States, [9]Boston University, Boston, United States

Background: Tenofovir alafenamide (TAF), a prodrug of tenofovir (TFV), has enhanced stability in plasma and improved safety compared to tenofovir disoproxil fumarate (TDF). TAF is administered as part of a fixed-dose combination either with or without the pharmacokinetic (PK) booster cobicistat (COBI). As COBI inhibits transporters involved in the disposition of TAF, co-administration of TAF with COBI results in higher TAF exposure. The PK of TAF have not been studied in pregnant women. This study described TAF exposure when administered with and without COBI during pregnancy and postpartum.

Methods: IMPAACT P1026s is an ongoing, nonrandomized, open-label, multi-center study of antiretroviral PK in HIV-infected pregnant women. Steady-state PK profiles of TAF following once-daily dosing of either TAF/FTC/RPV (25/200/25 mg, Odefsey®) or TAF/FTC/EVG/COBI (10/200/150/150 mg, Genvoya®) were obtained during the 2nd and 3rd trimesters (2T/3T) and 6-12 weeks postpartum (PP). TAF plasma concentrations were measured by a validated LC-MS/MS method. A two-tailed Wilcoxon signed rank test (=0.10) was employed for paired within-subject comparison of PK parameters.

Results: A total of 42 subjects from the US were enrolled with a median age at delivery of 30.4 years (range 19.1-38.8). For the TAF 25 mg arm, TAF exposure was lower and oral clearance was higher in 3T compared to PP (Table 1). For the TAF/COBI arm, no differences were seen between any ante-partum and post-partum PK parameters. HIV RNA at delivery was < 50 copies/mL for 10/11 women in the TAF 25 mg arm and 24/27 women in the TAF/COBI arm. Median infant gestational age and weight at birth were 38.9 weeks and 3.24kg, respectively. Congenital anomalies considered possibly related to study drugs included a ventral septal defect in one infant and congenital pseudoarthrosis of the left clavicle and neonatal compartment syndrome in another infant. Overall 27/41 infants were HIV-negative and 14 were indeterminate/pending.

Conclusions: In women taking TAF without COBI, TAF exposure was lower in 3T compared to PP, whereas no differences were seen between pregnancy and PP in women taking TAF with COBI. Before TAF can be recommended for use in pregnancy additional safety and outcome data as well as intracellular PK data are needed.

Parameter	2nd Trimester	3rd Trimester	Postpartum	GMR (90% CI): 2nd Trimester/ Postpartum	GMR (90% CI): 3rd Trimester/ Postpartum
TAF 25 mg	n = 5	n = 11	n = 8	n = 2	n = 8
AUC_{0-24} (ng*hr/mL)	182 (133 - 386)	184 (147 - 355)	395 (288 - 461)	0.56	0.58 (0.41 - 0.82)*
C_{max} (ng/mL)	68.7 (63.0 - 87.7)	81.1 (50.8 - 206.1)	156.3 (91.8 - 265.8)	0.60	0.46 (0.28 - 0.75)*
CL/F (L/hr)	154 (136 - 185)	136 (72 - 170)	64 (55 - 131)	2.61	1.73 (1.22 - 2.45)*
T_{max} (hr)	0.24 (0.24 - 0.77)	0.28 (0.21 - 0.85)	0.52 (0.30 - 0.45)	1.03	0.81 (0.44 - 1.02)
TAF/COBI 10/150 mg	n = 27	n = 23	n = 26	n = 7	n = 24
AUC_{0-24} (ng*hr/mL)	197 (149 - 356)	209 (158 - 264)	213 (188 - 264)	1.21 (0.70 - 2.09)	0.95 (0.77 - 1.17)
C_{max} (ng/mL)	90.4 (57.3 - 121.0)	85.8 (51.4 - 136.0)	96.3 (74.3 - 135.5)	1.08 (0.56 - 2.07)	0.80 (0.53 - 1.21)
CL/F (L/hr)	127 (71 - 173)	120 (98 - 158)	118 (83 - 148)	0.83 (0.48 - 1.45)	1.05 (0.84 - 1.32)
T_{max} (hr)	0.34 (0.25 - 0.92)	0.53 (0.27 - 0.48)	0.50 (0.27 - 0.46)	0.86 (0.41 - 1.49)	1.30 (0.79 - 2.14)

GMR (90% CI): Geometric Mean Ratio (90% Confidence Interval); TAF: Tenofovir alafenamide; COBI: Cobicistat; For TAF 25 mg 2T/PP comparison, [illegible]
*p<0.10

[Table. Tenofovir Alafenamide Pharmacokinetic Parameters, Median (IQR)]

THAB0303

Effect of pregnancy on raltegravir free concentrations

Y. Zheng[1], D. Hirt[1], S. Benaboud[1], J. Lechedanec[2], J.-M. Tréluyer[1], S. Delmas[2], E. Arezes[2], J. Warszawski[2], J. Ghosn[3], ANRS 160 RalFe Study Group

[1]Hopital Cochin Laboratoire Pharmacologie, Paris, France, [2]Hôpital Kremlin-Bicêtre, Paris, France, [3]Hôpital Hôtel-Dieu, Infectious Diseases, Paris, France

Background: Raltegravir can be used for the prevention of mother-to-child HIV transmission, especially when a rapid decline of HIV RNA load is necessary. Physiological changes during pregnancy have an impact on raltegravir elimination. Indeed, exposure of total raltegravir were shown to decrease from 29 to 50% during the third trimester of pregnancy compared to postpartum. However albumin level is known to be lowered during pregnancy which could increase the active free fraction of the drug and reduce this effect. The objective of this study was to describe the unbound, total and glucuronide raltegravir pharmacokinetics during pregnancy.

Methods: The RalFe ANRS160 study was a non-randomized, open label, multicenter phase II trial in HIV-infected pregnant women receiving raltegravir 400 mg twice daily. Samples were collected during pregnancy (between 30 and 37 weeks of amenhorrea), at delivery and at postpartum (4 to 6 weeks after delivery). None of these women received an antiretroviral drug which could interact with raltegravir. Free raltegravir, total raltegravir and raltegravir glucuronide concentrations were measured using a validated liquid chromatography-tandem mass spectrometry and ultrafiltration methods. A population pharmacokinetic model was developed by using NONMEM software.

Results: A total of 414 samples were collected from 43 women, in which free, total and glucuronide raltegravir concentrations were measured. Free raltegravir was described by a one-compartment model with first order absorption and lag time, evolving either to bound raltegravir (by a linear binding to albumin), or metabolism to raltegravir glucuronide (through an additional compartment) or to a first order elimination. Pregnancy increased free raltegravir clearances : by 26% for glucuronide formation and 17% for other elimination. During pregnancy, trough concentrations and exposures decreased by 28 and 37% for total raltegravir and by 25 and 22% for free raltegravir. The decrease was low for the glucuronide form.

Conclusions: This is the first data reporting raltegravir free and glucuronide pharmacokinetics during pregnancy. Pregnancy effect is moderate on the active raltegravir free fraction, especially when compared to its intersubject variability. This effect is not considered to be of clinical importance; raltegravir doses do not need to be modified during pregnancy.

THAB0304

Lack of viral load testing in pregnancy is a barrier to breastfeeding among HIV-infected women in Botswana

G.K. Mayondi[1], R. Zash[1,2,3], S. Moyo[1,4], M. Diseko[1], J. Mabuta[1], G. Mogomotsi[5], E. Dintwa[5], J. Makhema[1], R. Falama[6], M. Mmalane[1], S. Lockman[1,2,7], M. Essex[1,2], R. Shapiro[1,2]

[1]Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana, [2]Harvard T.H. Chan School of Public Health, Boston, United States, [3]Beth Israel Deaconess Medical Center, Boston, United States, [4]Harvard T.H. Chan School of Public Health, Department of Immunology and Infectious Diseases, Boston, United States, [5]Ministry of Health and Wellness, Gaborone, Botswana, [6]Kanye Seventh Adventist Hospital, Kanye, Botswana, [7]Brigham and Women's Hospital, Boston, United States

Background: Breastfeeding reduces child morbidity and mortality, including among HIV-infected women. Botswana updated its antiretroviral treatment (ART) guidelines in May 2016 to support breastfeeding for HIV-infected women on ART who have documented viral suppression during pregnancy. We describe infant feeding choices among HIV-infected mothers since new guidelines were implemented.

Methods: We abstracted data from obstetric records of all HIV-infected women discharged with a live infant from 8 government maternity wards from September 2016-December 2017. We validated the reported feed-

ing method using the PMTCT counselor report, formula dispensing log or direct observation. We evaluated obstetric card documentation of any viral load in pregnancy. All pregnant women were eligible to start ART and continue life-long, regardless of CD4 cell count.

Results: Among 6845 HIV-infected women with a live infant, 6473 had a validated feeding method at discharge from maternity and were included in the analysis. ART coverage was high (95%) among all women: 58% started ART prior to conception, 37% started in pregnancy, and 96% with a known ART start date had received at least 8 weeks of ART prior to delivery. At discharge, 2553(39%) of the HIV-infected women were confirmed to be breastfeeding (Table 1). Of 4573 records assessed, only 412(9%) women had viral load result (VL) documented at any time during pregnancy; of these, 400(97%) were suppressed to < 400 copies/ml. Among women with documented suppressed VL during pregnancy, 228(57%) chose breastfeeding compared with 1519(37%) of women without documented viral load testing in pregnancy (p< 0.0001). Four (33%) of 12 women with VL>400 copies/ml and 72(27%) of 270 women with no reported ART use in pregnancy, chose to breastfeed.

Conclusions: The low rate of breastfeeding among HIV-infected women in Botswana underscores the need to address barriers affecting feeding choices. Although the majority of pregnant women tested have a suppressed viral load and might be eligible for breastfeeding per Botswana guidelines, few women currently receive viral load testing in pregnancy. The viral load testing requirement in HIV-infected pregnant women is therefore unlikely to prevent a substantial amount of HIV transmission during breastfeeding, but likely contributes to low rates of breastfeeding in Botswana.

	Breastfed at Discharge	Formula Fed at Discharge	p-value
Delivery Site (n=6473)			p<0.0001
PMH (tertiary, south)	434 (31.8%)	931 (68.2%)	
Nyangabgwe (tertiary, north)	483 (30.1%)	1121 (69.9)	
Molepolole (district, south)	245 (28.8%)	605 (71.2%)	
Ghanzi (primary, west)	86 (47.5%)	95 (52.5%)	
Maun (district, north)	239 (33.9%)	466 (66.1%)	
Serowe (district, mid)	474 (64.4%)	262 (35.6%)	
Mahalapye (district, mid)	280 (52.0%)	258 (48.0%)	
Selebi-Phikwe (district, north)	312 (63.2%)	182 (36.8%)	
Feeding Counseling in Pregnancy (N=4382)			p=0.28
Yes	1516 (42.0%)	2096 (58.0%)	
No	307 (39.9%)	463 (60.1%)	
Planned Feeding in Pregnancy (n=3468)			p<0.0001
Breastfeeding planned	1060 (71.0%)	434 (29.0%)	
Formula feeding planned	349 (18.7%)	1516 (81.3%)	
Undecided in pregnancy	49 (45.0%)	60 (55.0%)	
Documentation of viral load drawn during Pregnancy (n=4573)			p<0.0001
No	1519 (36.5%)	2642 (63.5%)	
Yes	232 (56.3%)	180 (43.7%)	
Viral load result in pregnancy (n=412)			p=0.11
Detectable (>= 400 copies/mL	4 (33.3%)	8 (66.7%)	
Undetectable (< 400 copies/mL)	228 (57.0%)	172 (43.0%)	
ART in pregnancy (N= 6473)			p<0.0001
No ART recorded in pregnancy	72 (26.7%)	198 (73.3%)	
ART in pregnancy	2481 (40.0%)	3722 (60.0%)	

[Table 1. Characteristics of HIV+ Women in Botswana, by Infant Feeding Choice at Discharge from Maternity Ward]

THAB0305

Safety and nevirapine concentrations of 6-week triple antiretroviral prophylaxis in high risk HIV-exposed tnfants

S. Anugulruengkitt[1,2], P. Suntarattiwong[3], P. Ounchanum[4], U. Srirompotong[5], W. Jantarabenjakul[1,2], J. Sophonphan[6], S. Punnahitanon[1], C. Pancharoen[1,2], K. Chokephaibulkit[7], T.R. Cressey[8,9,10], T. Puthanakit[1,2], on behalf of CIPHER_AEPEP Study Team

[1]Chulalongkorn University, Department of Pediatrics, Faculty of Medicine, Bangkok, Thailand, [2]Chulalongkorn University, Center of Excellence in Pediatric Infectious Diseases and Vaccines, Faculty of Medicine, Bangkok, Thailand, [3]Queen Sirikit National Institute of Child Health, Department of Pediatrics, Faculty of Medicine, Bangkok, Thailand, [4]Chiang Rai Prachanukroh Hospital, Chiang Rai, Thailand, [5]Khon Kaen Hospital, Khon Kaen, Thailand, [6]The Thai Red Cross AIDS Research Centre, HIV Netherlands Australia Thailand Research Collaboration (HIV-NAT), Bangkok, Thailand, [7]Siriraj Hospital, Mahidol University, Department of Pediatrics, Faculty of Medicine, Bangkok, Thailand, [8]Chiang Mai University, Program for HIV Prevention and Treatment, Department of Medical Technology, Faculty of Associated Medical Sciences (IRD/174), Chiang Mai, Thailand, [9]Harvard T.H. Chan School of Public Health, Boston, United States, [10]University of Liverpool, Department of Molecular & Clinical Pharmacology, Liverpool, United Kingdom

Background: Triple-drug antiretroviral prophylaxis of zidovudine (AZT) / lamivudine (3TC) / nevirapine (NVP) is preferred among HIV-exposed neonates with high-risk of transmission in many countries, including Thailand. This study aimed to assess safety of triple-drug neonatal prophylaxis and NVP trough concentrations (C_{24}) over the first 28 days of life.

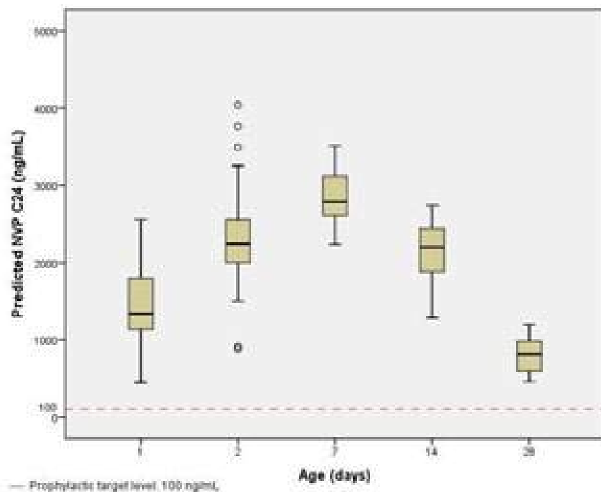
Methods: A prospective cohort of 200 HIV-exposed infants was conducted at 5 clinical sites in Thailand. We enrolled 100 high-risk HIV-exposed neonates (maternal HIV RNA >50 copies/mL prior to delivery or received antiretroviral therapy (ART) < 12 weeks) who received AZT/3TC twice daily, plus NVP (4 mg/kg/dose) once daily, from birth for 6 weeks, and 100 standard-risk HIV-exposed neonates who received a 4-week regimen of AZT. Blood tests to assess hematologic and liver toxicities were performed at birth, 1, 2 and 4 months of life. Sparse plasma NVP concentrations were collected at day 1, 2, 7, 14, and 28 and assayed by a validated liquid chromatography-mass spectrometry assay.

Results: From October 2015 to November 2017, 200 infants were enrolled. Median (IQR) gestational age and birth weight were 38 (37-39) weeks and 2,873 (2,590-3,184) g, respectively. Common maternal ART regimens were TDF/3TC or FTC (58%), AZT/3TC(32%) in combination with EFV (45%), ritonavir boosted protease inhibitor (28%). There was no significant difference of adverse events between triple prophylaxis and AZT alone (Table 1). Median (IQR) hemoglobin level among infants who received triple prophylaxis were 9.9 (9.0-11.4) g/dL, 10.1 (9.3-11.0), and 11.7 (11.0-12.3) at aged 1, 2 and 4 months, respectively, which did not significantly differ between groups. No infants required blood transfusion. NVP concentrations were available from 48 infants (135 samples); median predicted NVP C_{24} were 1,336 ng/mL, 2,241, 2,782, 2,197, and 812 on days 1, 2, 7, 14, and 28 of life, respectively (Figure 1). All infants maintained NVP concentrations above the proposed prophylactic target threshold of 100 ng/mL during the first 4 weeks. Maternal EFV treatment did not affect infant NVP levels.

Conclusions: Six-weeks of AZT/3TC/NVP in HIV-exposed infants did not increase the risk of toxicity compared with an AZT regimen. Administration of 4 mg/kg of NVP from birth provided adequate NVP concentrations for prophylaxis during the first 4 weeks of life.

Adverse event rates+	6-week AZT/3TC/NVP prophylaxis (n=100)	4-week AZT prophylaxis (n=100)	p-value*
All grade anemia	41.8%	39.3%	0.69
Grade 3-4 anemia	3.7%	3.3%	0.80
All grade neutropenia	5.3%	6.2%	0.58
Grade 3-4 neutropenia	1.1%	0.5%	0.39
Elevated aspartate transaminase (AST)	1.6%	1.6%	0.97
Elevated alanine transaminase (ALT)	3.7%	3.1%	0.66
+According to DAIDS Grading toxicity table 2014			
*p-value calculated by Chi-Square test			

[Table 1. Adverse event rates between triple and AZT prophylaxis.]



[Figure 1: Predicted nevirapine trough concentrations (C24) (ng/mL) versus post-natal age in days]

THAC01 New tools, old tricks: Innovative methods for understanding the epidemic

THAC0101

The identification of a micro-epidemic in a hyper-endemic HIV setting using molecular epidemiology

C. Coltart[1,2], F. Tanser[2], D. Gareta[2], S. Ntuli[2], T. de Oliveira[3], D. Pillay[2], A. Johnson[1], S. Hue[4]
[1]University College London, Institute for Global Health, London, United Kingdom, [2]Africa Health Research Institute, KwaZulu-Natal, South Africa, [3]University of KwaZulu-Natal, Durban, South Africa, [4]LSHTM, London, United Kingdom

Background: Understanding transmission dynamics of infectious diseases is critical in developing effective interventions. Traditional epidemiological analyses are the bedrock of many public health decisions, but can be resource-intensive and may be limited by incomplete/inaccurate datasets. Since HIV gene sequences can provide information not contained in traditional case data, considerable efforts are now invested in generating genomic data. However, the value of such data for epidemiological surveillance remains unclear. We illustrate how incorporating genomic data with traditional epidemiological analyses provides additional insight for surveillance, with potential to inform prevention strategies.

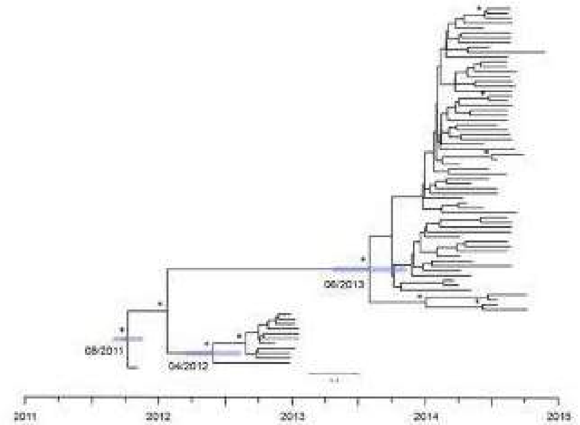
Methods: We used routinely-collected AHRI data to undertake a combined phylogenetic and epidemiological investigation.

A phylogeny of 2,179 HIV-1 subtype-C partial pol sequences was reconstructed by maximum-likelihood inference. This included 1,376 local sequences (2010-14, 15% of the HIV-positive population) and 803 publicly-available South African control sequences (2000-14). A dated phylogeny was inferred using Beast2 and reproduction numbers(R_e) estimated. We geo-located individuals to their residence and undertook space-time analyses to identify variations in HIV incidence.

Results: Phylogenetic reconstruction revealed a previously undetected distinct monophyletic cluster (75 local sequences; branch support>90%). The dated phylogeny suggests this outbreak emerged from a single common source, experienced two bursts of infection (2012&2013/4; R_e>1.8) and was still expanding at the time of sampling (2014)(Figure 1). Geo-locating individuals/sequences revealed over 40% resided within a rural area adjacent to a recent (2008) coal mine development. Baseline characteristics of the cluster suggest demographics compatible with those working in the mine (higher proportion of employed males). Space-time analysis confirmed the emergence of this rural cluster by identifying increased HIV incidence in the locality of the mine.

To our knowledge, this is the first time molecular methods have detected a micro-epidemic not identified via traditional epidemiological surveillance.

Conclusions: By uncovering a micro-epidemic our findings demonstrate that molecular epidemiology enhances traditional epidemiological analysis. Genomic data are a valuable addition to routine surveillance data, particularly in allowing detection of emerging micro-epidemics in a hyper-endemic region. Although, at present, implementation may be unrealistic in resource-poor settings, sequence data is becoming increasingly affordable, and molecular methods should be considered to enhance surveillance and guide the development of optimal intervention strategies.



[Figure 1.Dated Phylogeny of identified cluster.
This shows that the cluster emerged from a common single ancestral source in approximately August 2011 (confidence intervals between July and September) There appear to be two distinct (non-overlapping) outbursts of infections within this cluster - one in 2012 and one in 2013]

THAC0102

High prevalence fishing communities are not a major source of new HIV infections to the inland populations in Rakai District, Uganda: Implications for geo-spatially targeted HIV prevention interventions

O. Ratmann[1,2], M.K. Grabowski[3,4], M. Hall[5], T. Golubchik[5], C. Wymant[2,5], J. Kagaayi[4], G. Kigozi[4], T. Quinn[3,6], M. Wawer[4,7], O. Laeyendecker[3,6], D. Serwadda[4,8], R. Gray[3,4,7], C. Fraser[5], PANGEA-HIV Consortium and Rakai Health Sciences Program
[1]Imperial College London, Mathematics, London, United Kingdom, [2]Imperial College London, School of Public Health, London, United Kingdom, [3]Johns Hopkins Bloomberg School of Public Health, Medicine, Baltimore, United States, [4]Rakai Health Sciences Program, Entebbe, Uganda, [5]University of Oxford, Oxford Big Data Institute, Li Ka Shing Centre for Health Information and Discovery, Nuffield Department of Medicine, Oxford, United Kingdom, [6]National Institute of Allergy and Infectious Diseases, Division of Intramural Research, Bethesda, United States, [7]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [8]Makerere University School of Public Health, Kampala, Uganda

Background: Targeting combination HIV prevention (CHP) to areas of high HIV prevalence is considered a cost-efficient and essential strategy for reducing HIV incidence in sub-Saharan Africa. Since 2014, the Ugandan National Antiretroviral Therapy Guidelines recommend targeted CHP to fishing communities on Lake Victoria, with an estimated HIV prevalence 25%-40%, partly based on the assumption that fishing sites are a major source of HIV transmissions to the inland populations; however the validity of this assumption has not been empirically evaluated.

Methods: Between August 2011 and Oct 2014, individuals aged 15-49 years in 40 communities in Rakai District, Uganda, were tested for HIV and interviewed (sociodemographic, behavioral and health information).

Households were geocoded, and communities were classified as Lake Victoria fishing (n=4), agrarian (n=27), or main road trading (n=9) communities. Viral RNA from newly diagnosed participants was deep sequenced via *Illumina* instruments. The *phyloscanner* software package (https://github.com/BDI-pathogens/phyloscanner) was used to reconstruct HIV transmission networks, and to infer the direction of HIV transmission from deep sequence data. Transmission flows between fishing sites and agragrian/trading communities were estimated with Bayesian multi-level models.

Results: Of 23,719 individuals surveyed, 6205 were HIV-positive, 4309 (69%) were antiretroviral naive, of whom 2,803 (65%) were sequenced. 359 phylogenetically likely transmission events involving 676 individuals were reconstructed, with an estimated, expected 16% [11%-23%] of false reconstructions. Direction of transmission could be inferred in 241 likely transmission events, with an estimated, expected 14% [7%-26%] of false directions. Only 3/241 transmission events occurred from fishing sites to agrarian/trading communities. Adjusting for differences in participation and sequence sampling by age and community, an estimated 34.3% [28.6%-40.5%] of transmissions occurred within fishing sites, 58.0% [51.2%-64.6%] within agrarian/trading communities, 3.4% [1.7%-6%] from fishing sites to agrarian/trading communities, and 4.0% [2%-7.2%] from agrarian/trading communities to fishing sites.

Conclusions: HIV is infrequently transmitted from 4 high-prevalence fishing sites to the population in 36 agrarian/trading communities further inland, based on population-level NGS viral phylogenetic analysis. Our results suggest that targeted CHP to Lake Victoria fishing sites would not mitigate the broader HIV epidemic. Further studies in sub-Saharan Africa are needed to assess the strategy of targeting CHP to various high prevalence hotspots.

THAC0103

An RNA-seq gene expression signature identifies early HIV infection in rural Mozambique

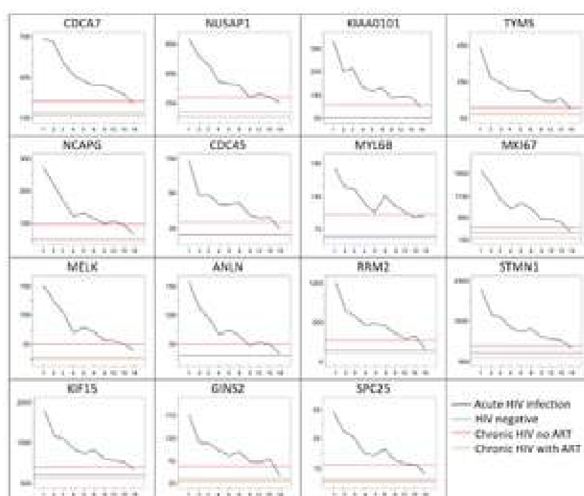
M. Judge[1], E. Parker[1], L. Pastor[2,3], L. Fuente-Soro[2], C. Jairoce[4], K. Carter[5], D. Anderson[5], D. Naniche[2,4], P. Le Souëf[1]

[1]University of Western Australia, School of Paediatrics and Child Health, Perth, Australia, [2]ISGlobal, Barcelona Centre for International Health Research (CRESIB), Barcelona, Spain, [3]AIDS Research Institute - IrsiCaixa, Barcelona, Spain, [4]Centro de Investigação em Saúde da Manhiça (CISM), Manhiça, Mozambique, [5]Telethon Kids Institute, Perth, Australia

Background: Accurate measurement of HIV incidence is crucial in determining the effectiveness of preventative and therapeutic interventions, yet remains a global challenge. This study employed RNA-seq to investigate changes in human gene expression during early HIV-1 infection with the objective of identifying a transcriptomic signature able to differentiate early from long-standing infection.

Methods: Individuals presenting to Manhiça District Hospital, Mozambique were screened for acute HIV infection (AHI), defined by positive viral load prior to seroconversion, with follow-up over 18 months. Uninfected subjects, plus those with longstanding HIV, with and without anti-retroviral therapy (ART), were recruited as controls. Peripheral blood mononuclear cells were collected and RNA extracted using RNeasy MinElute Clean-up kit (Qiagen). Illumina 50bp, single-end RNA-seq was performed. Read quality was assessed using FastQC. Reads were aligned to human reference genome hg19 using HISAT. Alignment quality was assessed using Samstat. Quantification and normalisation of read counts was performed using summarizeOverlaps (*GenomicAlignments* package) and voom (*limma* package), both from Bioconductor. Random Forest assessed the predictive accuracy of sample classification. Statistical analyses were performed using R version 3.2.0.

Results: Fifty-three AHI individuals had a median estimated time since infection of 9 weeks (IQR 7.8-19.3 weeks). RNA-seq was performed on 164 longitudinal samples from the AHI cohort, as well as 54 HIV negative, 24 chronic without ART, and 24 chronic with ART samples, resulting in an average of 23 million reads per sample, with 80% of reads mapped at high accuracy. All samples passed pre-and post-alignment QC. Fifteen genes were significantly differentially expressed during AHI compared with all controls (Figure 1). Random Forest analysis was able to predict biological group with a sample-level error rate of 0.26.



[Figure 1: Expression patterns of the fifteen gene that are differentially expressed during early HIV infection compared to all controls]

Conclusions: This exploratory transcriptomic analysis was able to identify a gene expression signature unique to early HIV infection, most effective at distinguishing the initial three months from longer-term infections. For individual samples, acute infections and chronic infections with ART had high identification accuracy, however chronic untreated infection samples were harder to distinguish from early infection. The gene candidates in Figure 1 are clearly differentially expressed during early infection, compared with all controls, indicating useful pathways for future incidence assay optimisation.

THAC0104

Size estimation of key populations for HIV in Singapore using the network scale-up method

A.K.J. Teo[1], K. Prem[1], M.I.-C. Chen[1,2], A. Roellin[3], M.L. Wong[1], H.H. La[4], A.R. Cook[1]

[1]Saw Swee Hock School of Public Health, National University of Singapore, Singapore, Singapore, [2]Tan Tock Seng Hospital, Department of Clinical Epidemiology, Singapore, Singapore, [3]National University of Singapore, Department of Statistics and Applied Probability, Singapore, Singapore, [4]Center for High Impact Philanthropy and Center for Public Health Initiatives, University of Pennsylvania, Philadelphia, United States

Background: The size of populations at-risk for HIV in Singapore has yet to be systematically estimated. Using the network scale-up (NSU) approach, we developed a localised instrument and Bayesian statistical method to generate size estimates—adjusted for transmission error—of at-risk populations in Singapore.

Methods: We conducted nine in-depth interviews and four focus groups discussions with key stakeholders to guide the development of the survey questionnaire. In total 199 participants recruited from the Singapore Population Health Studies cohort reported their socio-demographic information, opinions about certain behaviours and the social standing of different groups of people, and quantified the number of people whom they knew. We developed a Bayesian hierarchical NSU model to estimate the number of individuals in four hidden populations at-risk of HIV in Singapore. The method accounted for both transmission error and barrier effects using social acceptance measures and demographics.

Results: The adjusted size estimate of the population of male clients of female sex workers was 72 000 (95% CI: 51 000-100 000), of female sex workers 4 200 (95% CI: 1 600-10 000), of men who have sex with men 210 000 (95% CI: 140 000-300 000), and of intravenous drug users 11 000 (95% CI: 6 500-17 000). Average estimated personal network sizes were 140 (95% CI: 82-238).

Conclusions: The network scale-up method with adjustment for attitudes and demographics allows national-level estimates of multiple priority populations to be determined from simple surveys of the general population, even in relatively conservative societies.

THAC0105

Demographic transitions and the future of the HIV epidemic for children and adolescents

A. Khalifa[1], C. Lwamba[1], T. Porth[1], S. Essajee[2], D. Walker[2], L.D. Tsage[3], A. Bains[4], C. Luo[2]
[1]United Nations Children's Fund, Data, Research and Policy, New York, United States, [2]United Nations Children's Fund, Programme, New York, United States, [3]United Nations Children's Fund, West and Central Africa Regional Office, Dakar, Senegal, [4]United Nations Children's Fund, Eastern and Southern Africa Regional Office, Nairobi, Kenya

Background: Despite progress in the HIV response, new infections among adolescents and youth (AY) aged 15-24 in Sub-Saharan Africa (SSA) have only reduced by an average 3%/year since 2010. By 2050, the number of AY in SSA will increase by 85%. This demographic transition may impact the HIV epidemic and service needs for future generations. We used population statistics and recent epidemic trends to characterize the future of the HIV epidemic in SSA.
Methods: For 46 countries, we organized UNAIDS HIV estimates and UN population projections into five-year age groups by sex. HIV incidence and prevalence was calculated from 2010 to 2016. After analyzing trends, 2014-2016 data reflecting recent progress in disease control were selected to inform regression analyses by country, age and sex.
An exponential curve was applied for downward incidence trends and a linear curve for upward incidence trends and prevalence. From each regression, HIV incidence and prevalence was predicted until 2050. Incidence and prevalence were applied to projected populations in each year to determine new infection numbers.
Results were analysed to assess feasibility of epidemic control among AY 15-24, defined as 95% reduction in new infections since 2016.
Results: By 2050, new HIV infections will decrease by over 70% in Eastern and Southern Africa and by 2% in West and Central Africa. Overall, the SSA region will observe a 53% reduction in new HIV infections. None of 46 SSA countries will achieve epidemic control among AY by 2030. Botswana, Mozambique, Uganda, Zimbabwe, and Swaziland may reach epidemic control by 2050.
Of these five countries, Botswana, Swaziland, and Zimbabwe will reduce new infections among boys and men at least two years before they will in girls and young women.
Between 2017 and 2050, 9.6 million AY will become newly infected with HIV in SSA, 67% of which will occur among girls and young women.
Conclusions: While the world set a bold target of ending AIDS by 2030, epidemic control is unlikely among AY in SSA. Turning this demographic transition into a dividend will require better access to HIV prevention, sexual and reproductive health, and targeted testing services.

THAC02 Testing for 2030: Novel strategies for the home stretch

THAC0201

Delivering a high-quality comprehensive package of HIV prevention, care, and treatment for key populations is possible: Experience from two years of the FHI 360 LINKAGES Malawi project

G. Kamanga[1], L. Banda[1], L. Banda[1], C. Banda[1], M. Mkandawire[1], S. Kalyati[1], E. Mpunga[1], M. Gondwe[1], M. Ruberintwari[1], C. Akolo[2]
[1]FHI 360, Malawi, Global Health, Population and Nutrition, Lilongwe, Malawi, [2]FHI 360, Global Health, Population and Nutrition, Washington DC, United States

Background: In Malawi, HIV prevalence is 8.8 percent among the general population but higher among key populations (KPs): 62.7 percent among female sex workers (FSW) and 17.5 percent among men who have sex with men (MSM). FHI 360, through the USAID/PEPFAR-funded LINKAGES project, provides comprehensive HIV prevention, care, and treatment services for KPs. We present our experience implementing this project over a two-year period.
Description: We engaged government structures at all levels, KPs, and civil society organizations (CSOs) to get the project running. Programmatic mapping of hot spots and size estimation were conducted through engagement of KPs. Using a peer-led model, KPs were recruited to support others with HIV prevention services, linkage to care, antiretroviral therapy (ART), and retention. We built the capacity of peer leaders through trainings and microplanning, created safe spaces, and trained health care workers to mitigate stigma and discrimination.
Lessons learned: From October 2016 to June 2017, the project reached 9,601 FSWs, 3,609 (38 percent) of whom were already HIV positive, and 5,136 of whom were eligible for HIV testing; of the latter, 2,068 (40 percent) tested HIV positive and 1,862 (90 percent) were initiated on ART. The total number of HIV-positive cases detected, 5,677/9601 (59.1 percent), is close to the 62.7 percent estimated HIV prevalence among FSWs in Malawi. A total of 3,025 HIV-positive FSWs were enrolled in community care. We screened 13,827 FSWs for STIs, diagnosed 5,119 (37 percent) cases, and treated 5,108. Of 2,696 MSM reached with services, 2,561 were tested for HIV, 188 (7 percent) tested HIV positive, and 114 (61 percent) were initiated on ART. We screened 4,726 MSM for sexually transmitted infections, diagnosed 1,585 (34 percent) cases, and treated 1,507. Eighty-seven FSW and 39 MSM reported gender-based violence and received services. We identified 239 transgender women and are now receiving HIV prevention, care, and treatment.
Conclusions/Next steps: Empowered KP members positively contribute to their health. In addition, engagement with government, health care workers, and peer leaders is key to ensuring a successful KP program. Efforts are ongoing to document and scale up some of the best practices emanating from the program.

THAC0202

Key population-led health services: Community-based organizations and lay health workers transform HIV testing in Vietnam

H. Ngo[1], N.B. Vu[2], K. Green[2], H. Phan[3], H.S. Vo[3], M.T. Ngo[4], M.S. Le[5], T. Le[6], H.A. Doan[2], A. Bao[7]
[1]PATH, Healthy Markets, Ha Noi, Vietnam, [2]PATH, Ha Noi, Vietnam, [3]Ministry of Health, Ha Noi, Vietnam, [4]USAID, Ha Noi, Vietnam, [5]G3VN, Ho Chi Minh City, Vietnam, [6]G-LINK, Ho Chi Minh City, Vietnam, [7]PATH, Ho Chi Minh City, Vietnam

Background: Vietnam became the first Asian country to adopt global 90-90-90 targets, despite low annual uptake (~30%) of HIV testing among key populations (KPs). Up until late 2015, lay providers were not allowed to offer HIV testing, although studies indicated KP preference for community testing services.
Description: The USAID/PATH Healthy Markets project and Ministry of Health (MOH) piloted HIV lay provider testing in four provinces. From October 2015-September 2017, services were delivered by KP-led community-based organizations (CBOs) in urban areas and village health workers (VHWs) in rural areas, using blood- and oral fluid-based rapid diagnostic tests (RDTs). This was the first time CBOs were allowed to offer HIV services in Vietnam.
Trained CBOs/VHWs administered the RDT, interpreted results, provided post-test counseling supported those that were HIV-reactive to seek confirmation testing, and their enrollment in treatment. Coaching was provided to trained lay providers to reinforce service quality. 59,333 clients were HIV-tested, 2,503 (4.2%) were newly diagnosed HIV-positive and 90% enrolled in treatment.
Lessons learned: The pilot generated four key lessons: First, that CBOs/VHWs were capable of offering HIV testing with exceptional skills, and engagement in lay testing significantly boosted CBO confidence and pride in their work. Second, CBOs/VHWs were very effective in facilitating ART enrollment among those HIV-diagnosed. Third, among those tested by lay testers, more than half were first time testers, and 4.2% were newly HIV-diagnosed (compared to 1.6% among KPs testing in public sites). This suggests trust among KP for HIV lay provider services. Last, fostering close MOH engagement and observation of CBO/VHW testers rapidly translated into national trust and support for their work.
Conclusions/Next steps: Stepwise rollout of HIV lay provider testing positively disrupted the status quo, and has opened the door for KP-led HIV services. The pilot led to the development of national HIV commu-

nity testing guidelines and training package, and rapid adoption of the approach by the MOH, PEPFAR partners and Global Fund. For the future, it will be critical to target HIV lay testing to localities that need it most, and secure domestic financing sustained service delivery.

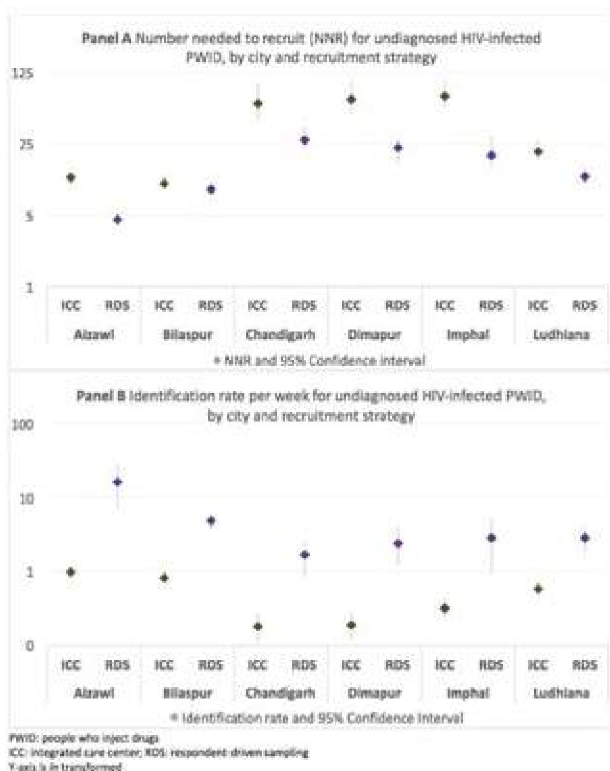
THAC0203

Respondent-driven sampling more efficiently identifies undiagnosed HIV-infected people who inject drugs (PWID) than PWID-targeted community integrated care centers in India

A.M. McFall[1], S.S. Solomon[2], A.K. Srikrishnan[3], S. Anand[3], C.K. Vasudevan[3], G.M. Lucas[2], S.H. Mehta[1]
[1]*Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States,* [2]*Johns Hopkins University School of Medicine, Baltimore, United States,* [3]*YR Gaitonde Centre for AIDS Research and Education, Chennai, India*

Background: Injection drug use drives HIV epidemics in many low-resource settings. Yet, many people who inject drugs (PWID) are inadequately engaged in HIV services, resulting in low awareness among HIV-infected PWID. Respondent-driven sampling (RDS), a method using peer connections, is widely used in research among key populations. We assessed the ability of RDS to identify undiagnosed HIV-infected PWID compared to integrated care centers (ICCs) in India.

Methods: In 6 Indian cities from 2014-2017, ICCs provided PWID-tailored services such as HIV counseling/testing and needle exchange; ICC utilization was voluntary. In these same cities from 2016-2017, an RDS sample of 1000 PWID/city was conducted; RDS participants were compensated for time and referrals. The number needed to recruit (NNR) (number of PWID screened in order to find one undiagnosed person living with HIV [PLWH]) and the identification rate (number of undiagnosed PLWH identified per week) assessed the efficiency of RDS vs. ICCs. Undiagnosed PLWH were individuals who tested positive and denied a prior diagnosis. Multinomial logistic regression was used to explore characteristics associated with identification by RDS only and RDS & ICC, both in comparison to ICC only.



[Figure: Number needed to recruit (NNR) and identification rate for undiagnosed HIV-infected PWID in India]

Results: Across the 6 cities, there were 10,759 ICC clients and 6,012 RDS participants; 40% of RDS participants were ICC clients (confirmed via biometrics) resulting in 14,397 unduplicated PWID, of which 753 (5%) were undiagnosed PLWH. The RDS NNR ranged from 5 to 27 and the ICC NNR ranged from 10 to 74. The NNR was lower for RDS versus the ICC in all but one city, Bilaspur (*Figure*). The RDS identification rate (1.7 to 2.8/week) was faster than the ICC identification rate (0.2 to 1.0/week) in all cities (*Figure*). PWID identified by RDS vs. the ICC only were more likely to be male (adjusted odds ratios [aOR] RDS only: 6.8, both: 2.7) and HIV-infected but undiagnosed (aOR RDS only: 2.5, both: 1.5).

Conclusions: In India, RDS required screening fewer PWID and more rapidly identified undiagnosed PLWH as compared to ICCs. Network-driven recruitment strategies with moderate compensation could be considered to identify and engage groups of PWID not currently visiting venues where HIV and harm reduction services are available.

THAC0204

Integrated gender affirmative hormone treatment services improve access to and retention in HIV testing, syphilis testing and pre-exposure prophylaxis (PrEP) service uptake among transgender women in Thailand

R. Janamnuaysook[1], K. Samitpol[1], P. Ketwongsa[1], A. Chancham[1], J. Kongkapan[1], P. Mingkwanrungruang[1], R. Meksena[1], P. Rattakitvijunnanakorn[1], N. Teachatanawat[1], S. Mills[2], S. Charoenying[2], S. Umasa[2], R. Vannakit[3], P. Phanuphak[1], N. Phanuphak[1]
[1]*Thai Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand,* [2]*FHI 360 and USAID LINKAGES Project, Bangkok, Thailand,* [3]*United States Agency for International Development, Office of Public Health, Bangkok, Thailand*

Background: Despite the growing recognition of gender affirmative hormone treatment (GAHT) as an essential part of comprehensive health care for transgender women, evidence is limited on the roles of GAHT-services in HIV programming for transgender women. We examined the potential role of GAHT-services as an entry-point to facilitate uptake of HIV and other sexual health services.

Methods: Established in 2015, the Tangerine Community Health Center is the first clinic in Asia where fee-based GAHT-services are fully integrated with HIV services. Characteristics of transgender women clients and their access to GAHT-services and other health services were recorded. We compared the uptake of HIV and other sexual health services between transgender women who accessed or did not access GAHT-services.

Results: Of 972 transgender women who attended the clinic between November 2015-December 2017, median (IQR) age was 25.4 (22.5-30) years, 55% had education below bachelor's degree, 25% were unemployed, 56% used alcohol, and 10% used amphetamine-type stimulants. GAHT-services were used by 34% of transgender women. At baseline, 91% received HIV testing, and HIV prevalence was 12%. Antiretroviral therapy initiation was successful in 80%. Transgender women who did not use GAHT-services had lower income (65% vs. 45% earned < $571/month, p< 0.001), higher HIV prevalence
(13% vs. 3%, p< 0.001), and a trend toward higher HIV incidence than those who used GAHT-services. Compared to clients not accessing GAHT-services, GAHT-service clients were more likely to re-visit the clinic (50% vs. 34%, p< 0.001), had higher rates of repeat HIV testing (32% vs. 25%, p=0.019), repeat syphilis testing (14% vs. 9%, p=0.026), PrEP uptake (10% vs. 6%, p=0.015), and use of other sexual health services, including hepatitis B testing/vaccination and sexually transmitted infection treatment (50% vs. 34%, p< 0.001).

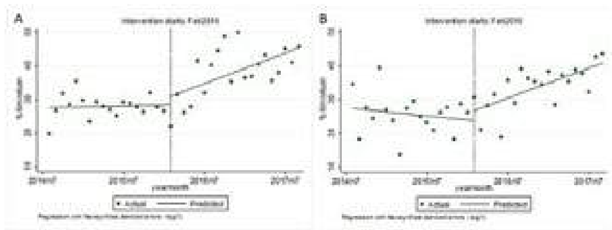
Conclusions: Integration of GAHT-services into HIV programming in this cohort showed improvement of retention in the program and subsequent increase of sexual health service utilization, including PrEP. Transgender women not accessing GAHT-services appeared to be highly vulnerable to HIV infection. HIV program managers, policymakers, and institutional donors should consider investing in well-tailored, subsidized, and comprehensive HIV and sexual health service packages that fully integrate GAHT-services for transgender women.

THAC0205

Continuing structural barriers to HIV/STI testing for migrants attending a community-based HIV testing service in Melbourne, Australia

K. Ryan[1], A. Wilkinson[2], D. Leitinger[3], P. Locke[3], A. Pedrana[1], M. Hellard[1], M. Stoove[1]
[1]Burnet Institute, Public Health Discipline, Melbourne, Australia, [2]Cancer Council Victoria, Centre for Behavioural Research in Cancer, Melbourne, Australia, [3]Victorian AIDS Council, Melbourne, Australia

Background: In February 2016 PRONTO!, a peer-led community-based rapid HIV testing service, introduced STI (gonorrhoea, chlamydia, syphilis) testing and SMS reminders to improve return HIV testing. HIV testing is free for all clients. Clients eligible for Australia's universal healthcare system, including Australian, New Zealand and UK citizens (eligible), receive free STI testing. Citizens of other countries (ineligible) pay up to $158AUD upfront. We determined changes to return-HIV testing pre- and post-service changes among eligible and ineligible clients to explore ongoing barriers to accessing sexual healthcare among migrants.
Methods: All HIV tests conducted between February 2014 and September 2017 with country of birth recorded were included in the analysis (February-July2014 allowed lead time to assess returning). We describe STI testing uptake and HIV/STI positivity among eligible and ineligible clients. Return HIV testing was compared between pre-intervention (August 2014-January 2016) and post-intervention (February 2016-September 2017) periods. Segmented linear regression of monthly aggregate data assessed changes in the percentage of tests that returned within 183 days (six month return testing) among eligible and ineligible clients across pre- and post-intervention periods. We report changes in six month return testing pre- to post-intervention (change in slope, 3), p< 0.05 was considered significant.
Results: This analysis included 2679 eligible and 1619 ineligible clients. Post intervention there was a significant difference in the proportion of HIV tests accompanied by STI tests among eligible clients (82%) and ineligible clients (49%; p< 0.01); however among those accessing testing, STI positivity was similar (12% and 12%, respectively). Four (0.3%) eligible and nine (1.1%) ineligible clients were diagnosed with HIV. Post-intervention, six month HIV return testing increased significantly among eligible (3 0.7% per month, 95%CI:0.1-1.3, p=0.02) clients from 22%-50% and ineligible (3 0.9% per month, 95%CI:0.4-1.5, p< 0.01) clients from 19%-44% (Figure 1).



[Figure 1. Six month return testing among eligible (A) & ineligible (B) clients pre (Aug 2014-Jan 2016) & post (Feb 2016-Sept 2016) service level changes]

Conclusions: Increases in six month HIV return testing were observed among eligible and ineligible clients following the introduction of STI testing and SMS reminders. However, the significantly lower uptake of fee-for-service STI tests among overseas-born clients compared to uptake of free STI tests among eligible clients suggests ongoing financial barriers to comprehensive HIV and STI testing in this group.

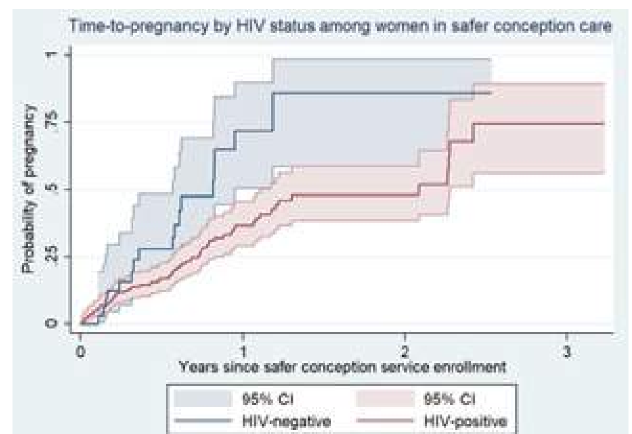
THAC03 Better care: Enhancing mother and child outcomes

THAC0301

HIV and pregnancy outcomes from the Sakh'umndeni Safer Conception Clinic

S. Schwartz[1], J. Bassett[2], M. Mudavanhu[2], N. Yende[2], R. Phofa[2], L. Mutunga[2], I. Sanne[3], A. Van Rie[4]
[1]Johns Hopkins University, Epidemiology, Baltimore, United States, [2]Witkoppen Health and Welfare Centre, Johannesburg, South Africa, [3]Clinical HIV Research Unit, University of the Witwatersrand, Johannesburg, South Africa, [4]University of Antwerp, Antwerp, Belgium

Background: Safer conception strategies--ART for HIV-positive partners, PrEP for HIV-negative partners, timed condomless sex, self-insemination and male medical circumcision--empower couples affected by HIV trying to conceive to minimize HIV transmission risk to partners and potential children. We report outcomes from the Sakh'umndeni demonstration project, one of the first safer conception clinics in sub-Saharan Africa.
Methods: Adults trying to conceive and in relationships in which at least one partner was HIV-positive were enrolled into safer conception care at Witkoppen Clinic in Johannesburg, South Africa, between July 2013-July 2017. Patients were provided tailored safer conception care by a nurse. Time-to-first pregnancy was estimated using Kaplan-Meier curves; women who did not conceive were censored at date of termination or last follow-up visit.
Results: 526 individuals (334 women/192 men) from 334 partnerships participated. Couples were serodifferent (n=164, 49%), seroconcordant (n=147, 44%) or in relationships with one unknown status partner (n=23, 7%). Median ages of women and men were 34 [IQR:30-38] and 37 [IQR:33-42] respectively. At baseline, 64% of HIV-positive women and 45% of HIV-positive men were virally suppressed (< 50copies/ml). It took couples a median of 4.0 months [IQR:1.7-7.7] to be given the go-ahead to start trying to conceive. In total, 98 pregnancies among 88 women were observed. Pregnancy incidence was 47.9/100 person-years (95%CI:38.9,59.1). HIV-positive women were 52% less likely to conceive as HIV-negative women (IRR:0.48, 95%CI:0.28,0.87). Median time-to-pregnancy was 0.8 years for HIV-negative and 2.1 years for HIV-positive women (Figure). At time of pregnancy, most HIV-positive women were virally suppressed (63/75 [84%] < 50 copies/ml and 74/75 [99%] < 1000 copies/ml]. Of the 98 pregnancies, 66 (67%) delivered a baby, 24 (25%) had a miscarriage or ectopic pregnancy, 5 (5%) were still pregnant and 3 (3%) unknown. No horizontal or vertical HIV transmissions were observed.
Conclusions: HIV-positive women were less likely to conceive than HIV-negative women and risk of miscarriage was high. Prolonged attempted conception highlights the need for approaches to reduce onward transmission risks, particularly as viral suppression among patients trying to conceive on ART cannot be assumed. Safer conception strategies can help couples successfully conceive an HIV-free child without jeopardizing their own or partner's health.



[Time-to-pregnancy among women enrolled in safer conception care, Johannesburg, South Africa]

THAC0302

HIV mother-to-child transmission in Cameroon: Early infant diagnosis positivity rates by entry point and key risk factors

P. Tchendjou[1], S. Lekeumo[1], T. Binde[1], A.C. Bissek[2], G. Dongmo[1], J. Cohn[3], E. Sacks[4], C. Kengne[5], A. Beng Amougou[5], V. Nzima[1]
[1]*Elizabeth Glaser Pediatric AIDS Foundation, Yaounde, Cameroon,*
[2]*Ministry of Health/Division of Operational Research, Yaounde, Cameroon,*
[3]*Elizabeth Glaser Pediatric AIDS Foundation, Geneva, Switzerland,*
[4]*Elizabeth Glaser Pediatric AIDS Foundation, Washington D.C., Cameroon,*
[5]*National AIDS Control Committee, Yaounde, Cameroon*

Background: Prevention of mother-to-child transmission (PMTCT) programs aimed at reducing pediatric HIV infections are frequently assessed by the MTCT rate collected from PMTCT entry points, but this misses positivity rates in other entry points. Using the opportunity of the introduction of point of care early infant diagnosis (POC EID) in Cameroon, we extended infant HIV testing to several entry points of health facilities. We assessed HIV positivity by entry point and key risk factors.
Methods: A cross-sectional study nested within the POC EID project implemented in four regions was conducted in 58 health facilities of varying levels. Clinical history of the mother-baby pair, assessment of HIV status of the mother were used as eligibility criteria of infants. In each health facility, all entry points were considered and categorized as either a PMTCT entry point or a non-PMTCT entry point. Eligible infants presenting to these facilities between December 2016 and December 2017 were tested by POC EID. Variables including demographics, antiretroviral use, and breastfeeding history were extracted from the EID request form. Data were analyzed using multivariate analysis with backward elimination ($p>0.20$).
Results: Overall, 2,254 HIV-exposed infants were tested using POC EID as first HIV diagnosis. The median age at sample collection was 7.3 weeks (IQR [6.3;19.0]). The main entry points were PMTCT (48.7%), immunization unit (14.3%), Pediatric ward (13.8%). Of the 2,254 infants tested, 8.7% (197/2,254) were HIV-positive. This rate varied according to entry points (outpatient department, 19.2%; emergency/pediatric ward, 17.7%; PMTCT/antiretroviral treatment (ART), 5.7%). In univariate analysis, positive cases were more likely to be found at non-PMTCT entry point, among females, and infants delivered to HIV-positive women who received incomplete ARVs for PMTCT. In multivariate analysis, risk of being HIV-positive was higher when the infant was found at non-PMTCT entry point (OR:2.09; 95%CI: 1.47-2.99; $p< 0{,}001$), was on mixed feeding mode (OR: 3.74; 95%CI: 2.43-3.47; $p< 0{,}001$).
Conclusions: Only 48% of infected infants came from PMTCT-entry point. EID positivity rates were highest in non-PMTCT entry points. Strengthening testing in non-PMTCT entry points help to address missed opportunities of PMTCT programs and link more children into ART care.

THAC0303

Prevention of mother to child transmission and early infant diagnosis in Malawi: Accomplishments of a mature Option B+ program in a resource-limited setting

E. Kim[1], J. Cuervo-Rojas[2], T. Kalua[3], A. Jahn[3], D. Payne[4], C. West[4], M. Nzima[5], N. Wadonda-Kabondo[4], S. Jonnalagadda[6], MPHIA Study Team
[1]*Centers for Disease Control and Prevention, Division of Global HIV and TB, Lilongwe, Malawi,* [2]*ICAP at Columbia University, New York, United States,* [3]*Ministry of Health, Lilongwe, Malawi,* [4]*Centers for Disease Control and Prevention, Lilongwe, Malawi,* [5]*UNAIDS, Lilongwe, Malawi,* [6]*Centers for Disease Control and Prevention, Atlanta, United States*

Background: Malawi spearheaded the development and implementation of the Option B+ policy for prevention of mother to child transmission of HIV (PMTCT). From mid-2011, all HIV-infected pregnant and breastfeeding women were eligible for life-long ART. Routine aggregate program data indicated successful rapid scale-up, but some concerns about uptake and retention remained. We measured PMTCT and early infant diagnosis (EID) coverage in the 2015-16 Malawi Population-based HIV Impact Assessment (MPHIA).
Methods: MPHIA was a nationally representative household survey; eligible women were consented and interviewed on pregnancies and outcomes, including self-reported HIV status during their most recent pregnancy, uptake of PMTCT, and EID testing. Women aged 15-49 years reporting a live birth in the 36 months before the survey were included in this analysis. Descriptive and multivariable logistic regression analyses were weighted to account for the complex survey design.
Results: A total of 3,598 women reported a live birth in the 36 months before the survey; mean age was 26.9 years and mean parity was 3.0. Of these, 96.2% (95% confidence intervals (CI): 95.5-97.0) reported being tested for HIV and receiving their results or knowing their HIV status during their last pregnancy; 7.4% (95% CI: 6.5-8.4) self-reported their HIV-positive status during pregnancy. Of the 302 women self-reporting their HIV-positive status, 98.1% (95% CI: 96.5-99.6) reported being on ART during pregnancy and 81.0% (95% CI: 75.6-86.4) reported that their child was tested for HIV; 50.6% (95% CI: 43.1-58.1) reported EID testing within two months of birth. Of those reporting that their child was tested for HIV, 3.1% (95% CI: 0.5-5.7) reported a HIV-positive result.
Adjusting for age and urban/rural residence, EID testing within 2 months of birth was associated with secondary or higher education (adjusted odds ratio (aOR) 3.1, 95% CI: 1.5-6.2), disclosure of mother´s HIV-positive status to family (aOR 2.4, 95% CI: 1.3-4.6), and uptake of cotrimoxazole (aOR 6.2, 95% CI: 2.7-14.2).
Conclusions: Data from the 2015-16 MPHIA demonstrate the success of Malawi´s PMTCT Option B+ program at a population level, with high uptake across the PMTCT cascade. However, challenges remain in the timeliness of EID testing for HIV-exposed infants according to recommended guidelines.

THAC0304

Birth outcomes and HIV-free survival with Option B+ in Lesotho: Results from an observational prospective cohort study

A. Tiam[1,2], S. Kassaye[3], R. Machekano[1], V. Tukei[4], M. Gill[1], M. Mokone[4], S. Mohale[4], M. Letsie[5], M. Tsietso[6], I. Seipati[7], J. Barisa[4], A. Isavwa[8], L. Guay[1,9]
[1]*Elizabeth Glaser Pediatric AIDS Foundation, Research, Washington, United States,* [2]*University of Bergen, Centre for International Health, Bergen, Norway,* [3]*George Town University, Medicine and Infectious Disease, Washington, United States,* [4]*Elizabeth Glaser Pediatric AIDS Foundation, Research, Maseru, Lesotho,* [5]*Ministry of Health, Disease Control, Maseru, Lesotho,* [6]*Ministry of Health, Laboratory Services, Maseru, Lesotho,* [7]*Ministry of Health, Family Health, Maseru, Lesotho,* [8]*Elizabeth Glaser Pediatric AIDS Foundation, SI & E, Maseru, Lesotho,* [9]*George Washington University, Milken Institute School of Public Health, Washington, United States*

Background: Combination antiretroviral therapy (cART) reduces mother-to-child transmission of HIV and improves maternal health. Since introduction of option B+, there are scant data on birth outcomes of HIV-exposed compared to unexposed infants. We assessed birth outcomes and six-week HIV free survival among HIV-exposed infants (HEI) and HIV-unexposed infants (HUI).
Methods: 941 HIV-negative and 653 HIV-positive pregnant women were enrolled in an observational cohort to evaluate effectiveness of universal maternal cART (Option B+) rolled out within routine programs in 13 health facilities in Lesotho. Birth outcomes included infant birth weight (IBW), maturity, congenital anomalies, and mortality. Infant HIV birth testing by DNA PCR within two weeks of birth was introduced at study sites alongside routine six-week testing. Data were analysed to determine birth outcomes, HIV transmission, and HIV-free survival rates at six weeks.
Results: : HIV-positive women were older, 28.7 vs. 24.4 years ($p<0.001$) and presented for antenatal care earlier at 23 weeks vs. 25.3 weeks gestation ($p<0.001$). Mean IBWs were similar: 3.0 kgs for HEIs vs 3.1 kgs for HUI. HEI were more likely to be premature, 8.3% vs. 4.0% ($p=0.001$). Neither Age (median age: 26 vs 25) nor parity (median: 1 vs 1) was associated with prematurity. No differences in stillbirths or congenital anomalies were noted. Six infants were HIV-infected by six weeks: cumulative HIV transmission was 0.9% (N=4) at birth (95%CI: 0.25%-2.36%) and 1.03% (N=6) (95%CI: 0.38%-2.23%) by six weeks. Infant mortality was 4.4% and 4.3% for HUI and HEI respectively ($p=0.93$). The estimated six-week HIV

free survival was 91.5% [95%CI: 89.1% - 93.6%] for HEI. Survival for HUI was 94.1% [95% CI: 92.4% - 95.6%]. Excluding stillbirths, six-week HIV free survival for HEI was 95.2% [95% CI: 93.2% - 96.8%] compared to survival rate of 97.5% [95% CI: 96.2% - 98.4%] among HUI (p=0.02).
Conclusions: A low HIV transmission rate by six weeks was found among mother-infant pairs enrolled in a universal cART prevention of mother-to-child transmission program, though there were higher rates of pre-maturity; six-week survival among HIV-exposed infants was comparable to HIV-unexposed infants. It will be important to explore if this trend continues at 12 months and 24 months.

THAC0305

Cohort study of HIV+ children in Southern Africa returning to care after being lost to follow up: Effect of interrupting care on mortality

C. Davies[1], S. Sawry[2], C. Chimbetete[3], B. Eley[4], M. Vinikoor[5], K. Technau[6], J. Ehmer[7], H. Rabie[8], S. Phiri[9], F. Tanser[10], K. Malisita[11], G. Fatti[12], M. Osler[1], R. Wood[13], M.-A. Davies[1]
[1]University of Cape Town, Centre for Infectious Disease Epidemiology and Research, School of Public Health and Family Medicine, Cape Town, South Africa, [2]Chris Hani Baragwanath Academic Hospital, Harriet Shezi Children's Clinic, Soweto, South Africa, [3]Newlands Clinic, Harare, Zimbabwe, [4]University of Cape Town, Red Cross Children's Hospital and School of Child and Adolescent Health, Cape Town, South Africa, [5]Centre for Infectious Disease Research in Zambia, Lusaka, Zambia, [6]Rahima Moosa Mother and Child Hospital and University of the Witwatersrand, Johannesburg, South Africa, [7]SolidarMed, Lucerne, Switzerland, [8]University of Stellenbosch, Department of Paediatrics and Child Health, Tygerberg Academic Hospital, Stellenbosch, South Africa, [9]Kamuzu Central Hospital, Lighthouse Trust Clinic, Lilongwe, Malawi, [10]University of KwaZulu-Natal, Africa Centre for Health and Population Studies, Somkhele, South Africa, [11]Queen Elizabeth Central Hospital, Umodzi Family Centre, Blantyre, Malawi, [12]Kheth'Impilo AIDS Free Living, Cape Town, South Africa, [13]University of Cape Town, Gugulethu HIV Programme and Desmond Tutu HIV Centre, Cape Town, South Africa

Background: Although patients initiating antiretroviral therapy (ART) should ideally have sustained engagement in care after ART start, it is increasingly recognized that a large proportion of patients experience care interruptions for a range of reasons. However, few studies have assessed the long-term outcomes of children with a care interruption (CI), during which the child's health status and use of medication is unknown. We evaluated the characteristics and outcomes of HIV-infected children that have care interruptions (i.e. >180 days without a clinic visit).
Methods: We included data on children < 16 years old initiating antiretroviral therapy (ART) since 2004 at an International Epidemiologic Databases to Evaluate AIDS (IeDEA) Southern Africa (IeDEA-SA) cohort with >180 days potential follow-up. Children who died within 180 days of ART start were excluded. A CI was defined as a >180 days without a clinic visit and loss to follow-up (LTFU) was defined as no visit within 180 days of database closure. The main outcome was all cause mortality. Two exposed groups were considered: those with a first CI within the first 6 months on ART, and those with a first CI after >6 months on ART. Adjusted rate ratios were determined using a Poisson regression model with robust standard errors.

Variable	ARR* (95% CI)	P-value
Care Interruption status		
No Care Interruption	1.00	<0.001
Care Interruption before 6 months	2.70 (2.13 to 3.43)	
Care Interruption after 6 months	1.01 (0.77 to 1.31)	
Age at ART initiation		
<2 years	1.00	<0.001
2-5 years	0.98 (0.75 to 1.27)	
6-9 years	1.83 (1.26 to 2.66)	
>=10 years	4.18 (2.71 to 6.45)	

[Adjusted rate ratios for the effect of a care interruption on mortality using a Poisson model]

Results: Among 46,356 children included, 24,280 (52%) had a CI, of which 10,998 (45%) had a first CI within 6 months on ART and 13,282 (55%) had a first CI after 6 months on ART. Having a CI within the first 6 months on ART was associated with increased mortality (adjusted rate ratio (ARR) = 2.70, 95% CI 2.13- 3.43), but there was no association between a first CI after 6 months on ART and mortality (ARR = 1.01, 95% CI 0.77- 1.31)
ARR adjusted for variables in the table, and also adjusted for gender, current age, year of ART initiation, time in/ out of care, CD4% at ART initiation.
Conclusions: The findings suggest that strengthening retention of children in care in the early period after ART initiation is critical to improving paediatric ART outcomes.

THAC04 Pedal to the metal: Accelerating the cascade

THAC0401

Rapid ART initiation and index client testing outcomes of commlink, a community-based, HIV testing, mobile HIV care, and peer-delivered, Linkage Case Management Program - Swaziland, 2017

D. Williams[1], D. Mackellar[1], M. Dlamini[2], N. Simelane[2], S. Mlambo[2], P. Mamba[2], J. Byrd[3], S. Mazibuko[4], I. Pathmanathan[1], N. Lukhele[5], L. Dube[5], M. Pasipamire[5], V. Nxumalo[2], A. Beyer[2], C. Ryan[4]
[1]U.S. Centers for Disease Control and Prevention, Division of Global HIV/ AIDS and Tuberculosis, Atlanta, United States, [2]Population Services International Country Program, Mbabane, Swaziland, [3]ICF International, Atlanta, United States, [4]U.S. Centers for Disease Control and Prevention Country Office, Mbabane, Swaziland, [5]Swaziland Ministry of Health, Swaziland National AIDS Programme, Mbabane, Swaziland

Background: Few persons diagnosed in community settings receive antiretroviral therapy within seven days of diagnosis (rapid ART) in accordance with World Health Organization recommendations. To improve rapid ART for clients diagnosed in community settings in Swaziland, we implemented CommLink, an integrated community-based HIV testing (CBHTS), mobile HIV care, and peer-delivered linkage case management (LCM) program.
Description: In urban and rural settings in three regions of Swaziland, consenting HIV-positive, out-of-care clients identified through CBHTS receive mobile-unit CD4 testing, baseline clinical assessment, and cotrimoxazole. Medical charts and test results are transferred to referral HIV care facilities. ART-adherent, expert-client counselors provide LCM for up to 90 days. Services include escort and treatment navigation at referral facilities, regular telephone contact for psychosocial support, and counseling on HIV care and disclosure. Beginning in April 2017, index-client testing services (IDTS) were initiated for partners, family members, and associates (PFAs) of CommLink clients.
Lessons learned: From April through December 2017, of 498 eligible clients aged ≥15 years, 488 (98%) participated in LCM. Of 361 (74%) closed cases (completed program/discontinued participation/timed-out), from the date of diagnosis, 351 (97%) clients enrolled in facility-based care within a median (IQR) of 2 days (1-6) and 349 (97%) were initiated on ART within a median (IQR) of 2.5 days (1-6); 276 (76%) clients received rapid ART. At least 95% of clients in all gender and age groups were initiated on ART (Table). During LCM, 94% of clients disclosed their HIV status to at least one partner or family member, and 42% had at least one PFA tested. Of 209 PFAs tested, 128 (61%) tested HIV positive (40% of 128 newly diagnosed), and 117 subsequently participated in CommLink. Disclosure of HIV status and participation in IDTS was similar across demographic groups.
Conclusions/Next steps: CommLink achieved near-universal early and >70% rapid ART initiation among all persons diagnosed in community settings in Swaziland, including men and young adults. As an integral component of LCM, index client testing was pivotal for active case finding. In 2018, CommLink has been approved by the Swaziland Ministry of Health to pilot community-based point-of-diagnosis ART initiation and is being scaled-up nationally.

	CommLink Enrollment in Care, ART Initiation, Disclosure, and Partner, Family Member, and Associate (PFA) Testing Outcomes						Index Client Testing Outcomes	
	Clients	Enrolled in HIV Care	Initiated on ART	Rapid ART Initiation	Disclosed HIV status to ≥1 PF	≥1 PFA Tested	PFA Tested	PFA HIV+
	n	n (%)	n (%)	n (%)	n (%)	n (%)	n	(%)
All	361	351 (97)	349 (97)	276 (76)	340 (94)	153 (42)	209	128 (61)
Sex Male	166	159 (96)	157 (95)	117 (70)	152 (92)	63 (38)	104	56 (54)
Female	195	192 (98)	192 (98)	159 (82)	188 (96)	90 (46)	105	72 (69)
Age <15	--	--	--	--	--	--	20	6 (30)
15-24	68	67 (99)	67 (99)	56 (82)	66 (97)	33 (49)	35	26 (74)
25-34	153	149 (97)	148 (97)	117 (76)	144 (94)	57 (37)	85	59 (69)
>34	140	135 (96)	134 (96)	103 (74)	130 (93)	63 (45)	69	37 (54)

[CommLink Enrollment in Care, ART Initiation, and Index Client Testing Outcomes]

THAC0402

Community-based HIV testing and assessment for same-day ART reaches men for HIV care

S. Asiimwe[1], H. van Rooyen[2], T. Schaafsma[3], A. van Heerden[2], B. Turyamureeba[1], M. Krows[3], A. Szpiro[4], J. Baeten[3], C. Celum[3], R. Barnabas[3], The Delivery Optimization of Antiretroviral Therapy (DO ART) Study
[1]Integrated Community Based Initiatives, Kabwohe, Uganda, [2]Human Sciences Research Council, Sweetwaters, South Africa, [3]University of Washington, Department of Global Health, International Clinical Research Center, Seattle, United States, [4]University of Washington, Biostatistics, Seattle, United States

Background: Integrating same-day ART start into community-based HIV testing has the potential to increase ART coverage, particularly among hard to reach priority populations, such as men. The coverage and feasibility of community-based same-day ART initiation requires evaluation.
Methods: The Delivery Optimization for ART (DO ART) Study is an ongoing randomized study of community-based compared to clinic-based ART initiation and monitoring in the Sheema District, Uganda and KwaZulu Natal, South Africa. Lay counselors conduct community-based HIV testing and counseling at home or through a mobile van. To reach men, testing was conducted at trading posts and in the evenings. HIV-positive persons are assessed for same-day ART by a clinical questionnaire and point-of-care testing for CD4 count, pregnancy, and creatinine. Nurses received standardized government training on ART initiation and HIV care, and assess ART eligibility. Participants are eligible for same-day ART start if they are clinically stable (have a CD4 count >100 cell/mL and no evidence of current or past WHO stage 3 or 4 HIV conditions), have no symptoms of active TB, are not pregnant, and have normal renal function. Eligibility results are presented for Uganda, where enrollment is complete.
Results: Between June 2016 and November 2017, 398 HIV-positive persons were identified by community-based HIV testing in Uganda, of whom 320 (80%) were eligible for same-day ART start. Among the 98 participants who were not eligible for same-day ART start, the leading reasons were CD4 count >500 cells/mL (46%, who were not eligible by the Ugandan national guidelines for ART initiation at the time), CD4 count < 100 cells/mL (17%), any of 4 symptoms suggestive of TB (14%), and a positive pregnancy test (9%). One participant had a creatinine >1.5 mg/dL and was not eligible. Of those eligible for same-day ART start, 169 (53%) were men.
Conclusions: Among HIV-positive persons identified through community-based HIV testing in a rural setting in Uganda, 80% were eligible for same-day ART start. Notably, men accounted for more than half the persons eligible for same-day ART start. Community-based HIV testing and counseling and same-day ART start has the potential to increase coverage of ART among priority populations.

THAC0403

Same-day ART initiation in HIV/STI testing center in Bangkok, Thailand: Initial results from an implementation research

P. Seekaew[1], N. Teeratakulpisarn[1], P. Surapuchong[1], S. Teeratakulpisarn[1], S. Amatavete[1], P. Jomja[1], C. Prabjunteuk[1], C. Hanaree[1], W. Chaison[1], P. Plodgratoke[1], K. Singhaseni[1], D. Lingjongrat[2], S. Janyam[3], P. Na Nakorn[1], S. Charoenying[4], S. Mills[4], R. Vannakit[5], P. Phanuphak[1], N. Phanuphak[1]
[1]Thai Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand, [2]Rainbow Sky Association of Thailand, Bangkok, Thailand, [3]Service Workers in Group Foundation, Bangkok, Thailand, [4]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [5]Office of Public Health, U.S. Agency for International Development Regional Development Mission Asia, Bangkok, Thailand

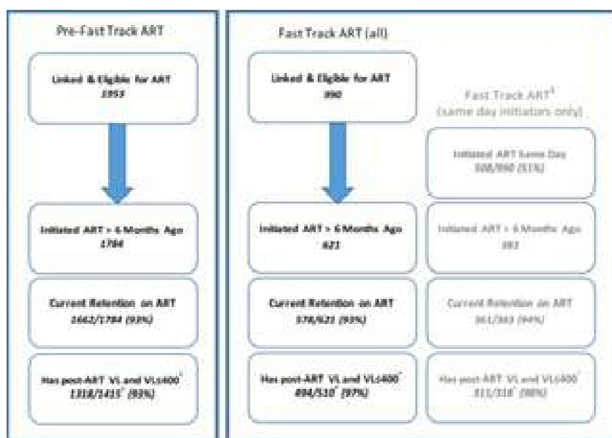
Background: Despite WHO's recommendation on Universal ART, one-third of persons living with HIV in Thailand are without antiretroviral therapy (ART). Attrition from care due to delays in initiating treatment may contribute to this gap. There is strong evidence to suggest clinical and practical benefits of rapid ART initiation, including Same-Day ART. However, data on safety and feasibility in real-world settings is limited.
Methods: Data was collected among HIV-seropositive Thai clients at Thai Red Cross Anonymous Clinic in Bangkok, Thailand. Clients were categorized as newly diagnosed or reengaged. Assessment of acceptability, logistical eligibility (no previous ART and could return for follow-up visits), and first date of known HIV-seropositive status were self-reported. Baseline laboratory tests (creatinine/ALT/syphilis/HBsAg/anti-HCV/CD4/CrAg if CD4< 100) and chest x-ray were performed according to national guidelines. Physicians determined clinical eligibility of Same-Day ART based on signs/symptoms and only results of CD4 and chest x-ray to rule out tuberculosis, cryptococcal meningitis, and serious illnesses. Mean days from HIV diagnosis/reengagement to ART initiation were calculated. Referral rate to long-term ART continuation site, after 10 weeks of ART, was also determined.
Results: From July-December 2017, 86.8% of 1,062 HIV-seropositive clients were logistically eligible for Same-Day ART service and 90% (95% newly diagnosed; 85% reengaged) accepted the service. Median (IQR) CD4 was 295.5 (203-415) cells/mm^3. 82% of those who accepted the service were clinically eligible and initiated ART. Among these, 79% received ART on the day of HIV diagnosis/reengagement. Mean (SD) days from HIV diagnosis/reengagement to ART initiation was 1.4 (5.2) days for newly diagnosed clients and was 1.1 (4.0) days for reengaged clients. Immune reconstitution inflammatory syndrome was not seen. Referral to long-term ART site was successful among 88.2%. Virologic suppression was achieved by 100% of 12 clients who reached month six after ART.
Conclusions: Same-Day ART initiation in an HIV/STI testing center in Thailand is highly feasible and safe, with high rates of client eligibility and acceptability. Preliminary data on referral to long-term ART site and short-term virologic suppression are encouraging. Same-Day ART should be immediately scaled-up, with rigorous and longitudinal evaluations to further inform HIV guidelines.

THAC0404

Fast-track ART initiation in Botswana is associated with high rates of ART initiation, retention in care, and virological suppression

R. Lebelonyane[1], P. Bachanas[2], W. Abrams[3], M. Roland[3], J. Theu[1], M. Kapanda[1], S. Matambo[3], S. Lockman[4], J. Moore[2], L. Block[5], T. Gaolathe[6], J. Makhema[6], J.N. Jarvis[6,7]
[1]Botswana Ministry of Health and Wellness, Gaborone, Botswana, [2]Centers for Disease Control and Prevention, Division of Global HIV/ AIDS and TB, Atlanta, United States, [3]Centers for Disease Control and Prevention, Gaborone, Botswana, [4]Harvard T.H. Chan School of Public Health, Boston, United States, [5]Intellectual Concepts, Atlanta, United States, [6]Botswana Harvard Partnership, Gaborone, Botswana, [7]Botswana-UPenn Partnership, Gaborone, Botswana

Background: The Botswana Combination Prevention Project (BCPP) started in 2013 and has offered "fast-track" ART initiation at the first clinic visit since June 2016. We examined treatment outcomes pre- and post-fast-track ART initiation.
Methods: BCPP is a cluster-randomized trial evaluating a combination HIV prevention package in 15 intervention and 15 control communities. In the intervention communities, we compared the cumulative proportion of individuals initiating ART (using Kaplan Meier estimates), as well as retention in care and viral suppression in patients, comparing outcomes in two periods: following the introduction of fast-track ART (June 2016-November 2017), versus pre- fast track ART initiation (October 2013-May 2016).
Results: Overall 3622 HIV-infected individuals not on ART were identified through community testing activities and referred for treatment, and 3315 (92%) linked to care. At data censoring in November 2017, 91% (2682/2943) of linked, eligible individuals had initiated ART. The cumulative probability of initiating ART within one year of linkage was 84% and 87% in pre- and post-fast track groups respectively. ART initiations occurred more quickly after implementation of fast-track ART with 63% (626/990) initiating ART within 7 days of linkage and 73% (723/990) initiating within 30 days, compared to 12% (237/1953) and 44% (851/1953) prior to fast-track. Retention in care after 6 months on ART was 93% in both groups. However, viral suppression rates within the first year of ART were higher in the fast-track group; 82% of those on ART for at least 6 months (510/621) had a viral load (VL) performed of whom 97% (494/510) were suppressed. In the pre fast-track group, 80% (1415/1784) had a VL performed of whom 93% (1318/1415) were suppressed (p=0.04). Median time from linkage to first viral suppression was significantly shorter following introduction of fast track ART (108 days vs 288 days, p< 0.001).



*Within First Year of ART initiation
†Viral loads were available for 1415/1784 (79%), 510/621 (82%),and 318/383 (83%) of individuals initiating in the pre-fast track, fast track, and same day cohorts respectively.
‡A sub-analysis was performed limited to just those individuals who initiated ART within one day of linkage (results not shown in text)

[Retention in Care and Viral Suppression in the Botswana Combination Prevention Project]

Conclusions: ART initiation, retention in care and viral suppression rates were high in HIV-infected individuals who initiated fast track ART. Time from linkage to viral suppression was significantly shorter with fast-track ART, reducing the period of potential HIV-transmission risk. These data support programmatic ART initiation efforts designed at starting ART quickly in stable patients.

THAC0405

Towards the third 90: Factors associated with adolescent antiretroviral adherence and viral suppression

P. Wekesa[1], L. Nyabiage[2], K. Owuor[1], J. Kataka[1], J. Oliech[1], A. Bisera[1], E. Ouma[1], S. Omondi[3]
[1]Centre for Health Solutions - Kenya (CHS), Nairobi, Kenya, [2]Division of Global HIV & TB (DGHT), US Centers for Disease Control and Prevention (CDC), Nairobi, Kenya, [3]Ministry of Health, County Department of Health, Siaya, Kenya

Background: Globally, adolescents have lower rates of adherence to antiretroviral therapy (ART) and viral suppression (VS) compared to adults and children. We sought to understand predictors of adherence and VS among adolescents in Siaya County, western Kenya.
Methods: We conducted a retrospective analysis of patient files for adolescents aged 10-19 years initiated on ART between 2000 and 2017 at 119 sites. Outcomes were self-reported adherence (SRA) to ART and VS (< 1000 copies/ml) based on the latest 2017 VL results. Adherence was based on missed doses per month (good < 2, fair 2-4, poor >4). Variables were: age, sex, ART regimen, VS, SRA, school attendance, and frequency of clinic visits. Caregiver variables included HIV status, VS, SRA, stable caregiver and support group (SG) attendance within the last 3 months. Descriptive, bivariate and multivariable binary logistic regression analyses were done. Unadjusted and adjusted odds ratios (OR) and 95% confidence intervals (CI) were calculated to assess associations at the 5% level.
Results: Records of 2,814 adolescents were included in the analysis; of these 1,389 (49%) were female and the mean age was 13.3 years (SD ±2.7). Good adherence was reported among 2,192 (78.8%), while 389 (14%) had fair and 201 (7.2%) poor adherence. In total, 1,615 (61.6%) achieved VS. Among caregivers 1,568 (55.7%) attended SG, 1,440 (51%) had HIV, 1,425 (99%) were on ART, and of these, 1,087 (88%) reported good adherence. Factors associated with good SRA were: caregiver good SRA (aOR= 9.05 [95% CI: 4.96-16.52]), caregiver VS (aOR=11.11 [95% CI 8.33 -14.28]), caregiver attendance of SG (aOR=1.38 [95% CI: 0.97-1.98]) and clinic visit intervals of 2 months or more (aOR=3.76 [95% CI: 1.72-8.22]). Viral suppression was associated with good SRA (aOR= 11.34 [95% CI: 8.56-15.01]), clinic visit intervals of 2 months or more (aOR=2.82 [95% CI: 1.75-4.53]) and Tenofovir-based ART regimen versus an Abacavir (aOR=0.64 [95% CI: 0.48-0.85]) or Zidovudine (aOR=0.65 [95% CI: 0.5-0.86])-based regimen.
Conclusions: Caregiver factors were associated with good SRA to ART among adolescents. Regimen type was a significant predictor of VS. The potential role of these factors in improving adolescent adherence to ART and VS should be explored.

THAC05 I want your sex: Sexual health in the PrEP era

THAC0501

The post-intervention effects of conditional cash transfers for HIV/STI prevention: A randomized trial in rural Tanzania

D. de Walque[1], W.H. Dow[2], R. Nathan[3], The RESPECT Study Team
[1]The World Bank, Development Research Group, Washington, United States, [2]University of California, School of Public Health, Berkeley, United States, [3]Ifakara Health Institute, Dar es Salaam, Tanzania, United Republic of

Background: Incentive-based policies have been shown to be powerful in many areas of behavior, but have rarely been tested in the sexual domain. The Rewarding Sexually Transmitted Infection Prevention and

Control in Tanzania (RESPECT) study is a randomized controlled trial testing the hypothesis that a system of rapid feedback and positive reinforcement that uses cash as the primary incentive can be used to reduce risky sexual activity among young people, male and female, who are at high risk of HIV infection. Recognizing that such an intervention would be difficult to sustain over the length of individuals' sexual lives, we evaluated its long-term effects using a post-intervention follow-up survey conducted one year after discontinuing the intervention.
Methods: The study enrolled 2,399 participants in 10 villages in rural southwest Tanzania. The intervention arm received conditional cash transfers ($10 or $20 every four months) that depended on negative results of periodic screenings for sexually transmitted infections, an objectively measured marker for risky sexual behavior. One year after discontinuing the CCT intervention, at month 24, we revisited the 10 study villages and retested and re-interviewed study participants to assess the long-term impacts of the intervention.
Results: Overall, the CCT interventions seemed to have had a sustained impact in reducing the STI prevalence among the study population: when we combine all 7 STIs tested, both the high and the low value CCT intervention have relative risks significantly lower than 1, corresponding to 18 (p< 0.1) to 20% (p< 0.01) risk reduction compared to the control group, respectively. These effects are stronger among males than among females.
Conclusions: Those results from the one-year post intervention follow-up indicate that the CCT interventions might have sustained effect even after the cash payments have been discontinued and suggest a learning effect. They do not suggest that CCTs might destroy the intrinsic motivation to adopt safe sexual practices since no increased risk was reported in the intervention groups. Those are important results when considering the potential feasibility at scale and sustainability of our CCT intervention.

THAC0502

Changes, patterns and predictors of sexually transmitted infections in gay and bisexual men using PrEP; interim analysis from the PrEPX demonstration study

M. Traeger[1], J. Asselin[1], B. Price[2], V. Cornelisse[3,4], N. Roth[4], J. Wilcox[5], B.K. Tee[6], C. Fairley[3], C. Chang[2], J. Armishaw[2], O. Vujovic[2], M. Penn[7], P. Cundill[7], G. Forgan-Smith[8], J. Gall[8], C. Pickett[9], L. Lal[2], A. Mak[2], T. Spelman[1,10,11], L. Nguyen[1], D. Murphy[12], K. Ryan[1], C. El-Hayek[1], S. Ruth[13], C. Batrouney[13], J. Lockwood[2], J. Hoy[10], R.M. Grant[14], M. Hellard[1,2,10], M. Stoové[1,10], E. Wright[1,2,10], PrEPX Study Team
[1]Burnet Institute, Disease Elimination Program, Melbourne, Australia, [2]Alfred Health, Melbourne, Australia, [3]Melbourne Sexual Health Centre, Melbourne, Australia, [4]Prahran Market Clinic, Melbourne, Australia, [5]Northside Clinic, Melbourne, Australia, [6]Centre Clinic, Melbourne, Australia, [7]PRONTO! clinic, Melbourne, Australia, [8]ERA Health, Melbourne, Australia, [9]Ballarat Community Health Centre, Ballarat, Australia, [10]Monash University, School of Public Health and Preventative Medicine, Melbourne, Australia, [11]Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [12]University of New South Wales, Centre for Social Research in Health, Sydney, Australia, [13]Victorian AIDS Council, Melbourne, Australia, [14]Gladstone Institute for Virology and Immunology, San Francisco, United States

Background: While there is growing evidence of increasing sexually transmitted infections (STIs) among gay and bisexual men (GBM) using PrEP, few studies have been able to measure STI incidence before PrEP commencement. We compare STI incidence among GBM before and after enrolment in the Pre-exposure Prophylaxis Expanded (PrEPX) study, a population-level, multi-site, PrEP implementation project in Melbourne, Australia, and predictors of STI diagnoses while taking PrEP.
Methods: STI testing and behavioural data from PrEPX participants attending five clinics specializing in GBM health were extracted prior to study enrolment and at scheduled three-monthly PrEP visits between July 2016-December 2017 through the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance (ACCESS). We calculated participants' gonorrhea, chlamydia and syphilis incidence in the year before PrEPX enrolment and during PrEPX follow-up. Incidence comparisons were calculated overall and by participants' pre-enrolment testing frequency and self-reported pre-study PrEP use. Kaplan-Meier estimating methods and Cox proportional hazards regression explored associations between baseline and longitudinal behaviours and STI diagnosis after PrEP commencement.
Results: 2,490 participants contributed 1040.3 person-years (PY) pre-PrEPX and 1899.7 PY during PrEPX. During PrEPX, 41% of participants were diagnosed with ≥1 STI and 455 (18%) participants with multiple STIs accounted for 68% of all infections. Rectal infections were commonest (62.4/100PY). STI incidence among all participants increased significantly from 78.4/100PY pre-PrEPX to 96.1/100PY during PrEPX. Significantly elevated STI incidence was detected among participants with ≥3 test visits in the year preceding enrolment, but not among participants with ≥4 visits. STI incidence increased most among participants reporting no pre-study PrEP use. STI diagnosis and condomless receptive anal intercourse prior to enrolment were associated with increased STI risk during PrEPX (p< 0.001). Younger age (aHR=1.02/year, 95%CI=1.01-1.03), >10 casual anal sex partners (aHR=1.76, 95%CI=1.30-2.39) and group sex (aHR=1.49, 95%CI=1.10-2.03) in the past six months were associated with increased STI risk.
Conclusions: STI incidence increased among GBM in PrEPX following PrEP initiation, driven largely by GBM experiencing repeat infections. High partner turnover and group sex elevated STI risk. Our findings support ongoing and frequent STI screening alongside education on early identification of STI symptoms for PrEP users, especially among those exhibiting multiple STIs and high-risk behaviours.

	1 Year Before Enrolment		During Follow-up			
	Median Follow-up (months)	Incidence Rate (per 100 person-years)	Median Follow-up (months)	Incidence Rate (per 100 person-years)	IRR (95% CI)	p-value
All Participants (n=2490)	11.9	78.4	9.9	96.1	1.23 (1.13-1.33)	<0.001
GBM with ≥2 visits in the 12 months before enrolment (n=1003)	12.0	93.6	10.2	113.2	1.21 (1.10-1.33)	<0.001
GBM with ≥3 visits in the 12 months before enrolment (n=692)	12.0	106.5	10.3	120.7	1.13 (1.02-1.26)	0.022
GBM with ≥4 visits in the 12 months before enrolment (n=447)	12.0	122.6	10.6	135.1	1.10 (0.97-1.25)	0.122
GBM reporting ever using PrEP before enrolment (n=649)	11.9	99.0	10.7	108.0	1.09 (0.97-1.23)	0.156
GBM reporting never using PrEP before enrolment (n=1841)	11.8	63.7	9.5	90.9	1.43 (1.28-1.60)	<0.001

[Incidence of chlamydia, gonorrhea and syphilis among gay and bisexual men before and after enrolling in the PrEPX study. IRR=Incidence Rate Ratio.]

THAC0503

How can programmes better support female sex workers to avoid HIV infection in Zimbabwe? A prevention cascade analysis

E. Fearon[1], A. Phillips[2], S. Mtetwa[3], S. Chabata[3], P. Mushati[3], V. Cambiano[2], J. Busza[1], S. Napierala[4], B. Hensen[5], S. Baral[6], S.S. Weir[7], B. Rice[1], F.M. Cowan[3,8], J.R. Hargreaves[1]
[1]London School of Hygiene and Tropical Medicine, Department of Public Health, Environments and Society, London, United Kingdom, [2]University College London, Institute for Global Health, London, United Kingdom, [3]Centre for Sexual Health and HIV AIDS Research Zimbabwe, Harare, Zimbabwe, [4]RTI International, Women's Global Health Imperative, San Francisco, United States, [5]London School of Hygiene and Tropical Medicine, Department of Clinical Research, London, United Kingdom, [6]Johns Hopkins University, Bloomberg School of Public Health, Baltimore, United States, [7]University of North Carolina at Chapel Hill, Department of Epidemiology, Chapel Hill, United States, [8]Liverpool School of Tropical Medicine, Department of International Public Health, Liverpool, United Kingdom

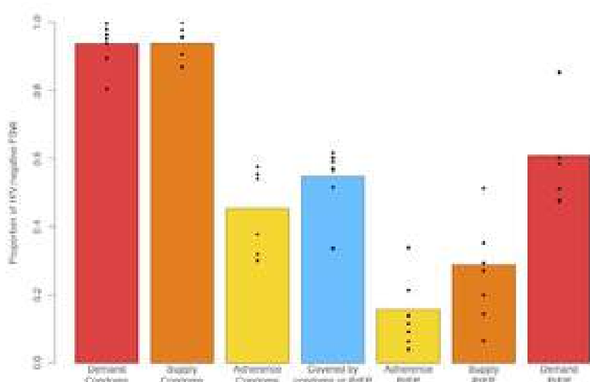
Background: The 'HIV prevention cascade' has been proposed as a tool to measure prevention coverage and guide programming by identifying gaps in demand, supply and capability to adhere to HIV prevention tools. Here, we use a prevention cascade framework to explore coverage of

condom use and Pre-Exposure Prophylaxis (PrEP) among female sex workers (FSW) in Zimbabwe, and make recommendations for programming.

Methods: We conducted secondary analysis of seven respondent-driven sampling (RDS) surveys from the intervention sites of a cluster-randomised trial in Zimbabwe in 2016. Women were tested for HIV, and completed a questionnaire detailing their socio-demographic and sex work characteristics, their experience of PrEP (available during the trial 2014-2016) and reported condom use with clients and partners. We operationalised measures of 'demand', 'supply' and 'adherence' to using condoms and PrEP. We used logistic regression to identify determinants of adherence. Differences were examined across sites and data then pooled. We weighted by site-normalised inverse degree and dropped seeds.

Results: There were 611 HIV-negative women included in our analysis. Approximately half of these women (54.7%) reported adherence to condoms and/or to PrEP. While women knew that condoms prevented HIV and reported good access (both 94.0%), only 45.5% reported no episodes of condomless sex in the previous month. For PrEP, there were gaps across all three domains of demand, supply and adherence (Fig 1). Alcohol use of women and of their clients was associated with lower condom adherence (among women drinking alcohol 4+ times per week, 38/115 28.9% adhered, compared to no alcohol, among whom 139/262 50.9% adhered, aOR=0.34 95% CI 0.08-0.41, adjusted for socio-demographic and sex work characteristics). Newer entrants to sex work, and younger women were less likely to report taking PrEP every day (aOR=1.05, 95% CI 1.01-1.10 for each year of age).

Conclusions: After 21 months of intensive community mobilisation for PrEP and condoms during the trial intervention, almost half of HIV-negative FSW reported inadequate prevention coverage, worse in the context of heavy alcohol use, which programmes could address. Interventions aimed at younger women are important. HIV prevention cascades should consider different prevention tools together, not in isolation.



[Figure 1. Demand, Supply, Adherence and Coverage by Condoms and/or PrEP amongst 611 HIV-negative FSW from seven sites]

THAC0504

HIV "condom cascade" to monitor prevention among female sex workers in Uganda

S. Weir[1], F. Ssengooba[2], L. Ayutambe[3], S. Kasasa[2], G. Mulholland[1]
[1]*University of North Carolina, Epidemiology, School of Public Health, Chapel Hill, United States,* [2]*Makerere University, School of Public Health, Kampala, Uganda,* [3]*Makerere University, Kampala, Uganda*

Background: Recently there has been interest in HIV prevention cascades. We applied a proposed prevention cascade framework (*Garnett, 2016, Lancet*) to data collected for a PLACE mapping and biobehavioral survey in 30 districts in Uganda.

Description: The client-centric and program centric cascades were measured for condom use among 9,207 HIV-negative female sex workers from 30 districts. The client centric cascade showed that over half of the female sex workers did not perceive themselves to be at risk for HIV acquisition. Most of those who perceived themselves at risk had ever used condoms but only 64 of the 9,207 female sex workers reported consistent use. The program centric prevention cascade found that only two-thirds of the female sex workers who are at risk have access to condoms. But of those who have ever used condoms, consistent use is very poor. Estimating the condom cascade led us to estimate the number of condoms that would be required per month in order to protect female sex workers. We estimated that 110,889 condoms would be required to for 10,417 female sex workers. We estimated that 1677 acts in the past 4 weeks were among HIV infected sex workers who did not use a condom. Anal sex was also often not protected.

Lessons learned: Both the program centric and the client centric cascades provided compelling evidence of the lack of availability of condoms, the poor uptake of condoms, and the almost negligible consistent use of condoms in this population. It is striking that 4,736 of 9207 female sex workers did not perceive they were at risk for HIV acquisition. It is also striking that 2853 female sex workers reported that condoms were not readily available to them. The cascade helped document the condom programming needs for this key population.

Conclusions/Next steps: These findings have already been used to advocate to increase cthe accessibility of condoms to those who most need it. Additionally, there is interest in developing HIV prevention cascades at the venue level to characterize venues that have been adequately reached by prevention programs and those where there remain gaps.

THAC0505

Making markets work for HIV prevention: A total market approach to condom security in Vietnam

Y. Vu, K. Green
PATH, USAID-PATH/Healthy Markets, Hanoi, Vietnam

Background: Donor-funded free and partially subsidized condoms for key populations (KPs) artificially suppressed a domestic commercial condom market in Vietnam. With significant declines in free/socially marketed condoms from 2014 on, market management was needed to ensure a sustained supply of affordable commercial condoms capable of meeting the needs of populations at-risk of HIV.

Description: From 2015 on, the USAID/PATH Healthy Markets project initiated a condom total market approach (TMA) effort:

1) Generating condom market volume, sales and growth projections that were used to engage local condoms manufacturers and encourage local production of quality, low-cost condoms that appealed to KP; identify new distribution channels; and increase demand among key populations;

2) Developing a sustainable KP-focused condom value chain, bringing together the private sector, social enterprises, and KP-led community-based organizations (CBOs); and

3) Working with the Ministry of Health to use market data to shape annual condom planning and budgeting.

As a result, four KP-market segmented brands were developed, and commercial condom sales volume in KP hotspots/outlets increased 400% from 5,125,984 in 2015 to 22,823,447 in 2017. Commercial condom market-share in KP-preferred outlets, i.e. hotels and guesthouses, significantly increased from 25% in 2013 to 74% in 2016.

Lessons learned: Key lessons learned include:

1) market and consumer insights and brokering relationships with new distributors and retailers were invaluable to engaging and securing commitment from local condom manufacturers to invest in the local market;

2) increasing the capabilities of KP-led CBOs and social enterprises to engage in commercial condom sales was essential to developing a sustainable KP-targeted market;

3) partnering closely with the MOH from the start increased their ownership and stewardship of more nuanced condom commodity planning.

Conclusions/Next steps: The TMA has been a driving force for growing a sustainable condom market that meets the needs of KP in Vietnam. The TMA needs to be extended to other HIV-commodities, and the MOH will need to take an increasing role as a market manager, not only for condoms, but also for needles and syringes and other critical HIV-related commodities, as donor funds further decline and domestic financing of all HIV-commodities must be secured.

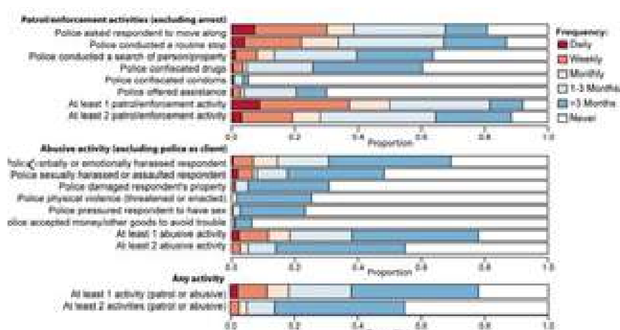
THAD01 Creating danger: Impact of end-demand laws and policing of sex work

THAD0101

Police related correlates of client violence among female sex workers in a U.S. city

K.H.A. Footer[1], J. Park[2], S.T. Allen[1], M.R. Decker[3], B.E. Silberzahn[1], S. Huettner[4], N. Galai[2], S.G. Sherman[1], the SAPPHIRE Study
[1]Johns Hopkins Bloomberg School of Public Health, Health Behavior and Society, Baltimore, United States, [2]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [3]Johns Hopkins Bloomberg School of Public Health, Population,Family and Reproductive Health, Baltimore, United States, [4]Johns Hopkins School of Medicine, Baltimore, United States

Background: Globally, rates of HIV among female sex workers (FSW) remain high. A more nuanced understanding of the role of structural factors is of paramount importance. Law enforcement practices have been identified as an important factor in the HIV risk environment of FSW. This study looks to characterize the frequency and type of interactions that FSW have with the police and explore the implications of cumulative police exposures on experiences of client violence.
Methods: Cross-sectional baseline data examined from a cohort study of 250 street-based FSW recruited between 04/2016- 01/2017 using targeted sampling in Baltimore City, Maryland, U.S. Questionnaires captured a range of patrol/enforcement (e.g., routine stops) and abusive (e.g., verbal/sexual harassment) police encounters, experiences of client violence and other HIV risk factors, including drug use. All women were tested for HIV. Pearson's chi-square tests and logistic regression models were used to test frequency and type of police interactions experienced by FSW, and the association between police interactions and client violence, accounting for daily heroin use.
Results: 78% of participants (n= 195) reported lifetime abusive police encounters, 41% reported daily/weekly encounters of any type. 22% of participants experienced client violence in the prior three months. FSW that reported heroin use (70%; n= 175) reported more abusive encounters (2.5 vs 1.6, p<0.001) and more client violence (26% vs 12%, p=0.02) than their non-heroin using counterparts. In multivariable analysis, each additional type of abusive interaction was associated with 1.3 times (95%CI: 1.1-1.5) increased odds of client violence. For patrol/enforcement encounters this value was 1.3 (95%CI: 1.0-1.7).
Conclusions: Our findings point to high levels of routine and abusive police exposure experienced by FSW contributing to a layering of risk that promotes an environment in which FSW are at a heightened risk of client perpetrated violence. For FSW who inject drugs, risk of both police exposure and client violence appear amplified. Our results demonstrate the need for greater attention to better understanding the nature and impact of these forms of intersectional risk on FSW HIV risk environment. Structural interventions that seek to address police-FSW interactions and promote FSW safety are critical to alleviating police's impact on FSW health.



[Figure 1]

THAD0102

"They should protect us because that is their job": An assessment of sex workers' experiences with police abuse in Lusaka, Zambia

T.K. Esterhuizen
Southern Africa Litigation Centre (SALC), LGBTI and Sex workers Rights Programme, Johannesburg, South Africa

Background: In Lusaka, police officials often perpetrate violence and abuse against sex workers and target them with the arbitrary and subjective enforcement of overly broad laws. This abuse increases the vulnerability of sex workers pushes them away from important health services and limits their access to information about their sexual and reproductive health needs. This study assesses the challenges faced by Lusaka's sex workers. It is aimed at developing advocacy and litigation strategies to address the systemic abuse of sex workers by the police in Lusaka. It also highlights mechanisms that activists and lawyers can use to hold officials accountable.
Description: This study is based on a combination of desk research and limited qualitative research. The desk research focused on the legal framework within which the police interact with sex workers in Zambia. In addition to this, focus group discussions were held with 39 self-identified female sex works (FSW) in two local languages, Nyanja and Bemba. The FSW, aged between twenty and forty, represented five different geographic districts across Lusaka. The purpose of the focus group discussions was to develop an understanding of the relationship between sex workers and police authorities.
Lessons learned: While the act of selling sex for reward is not criminalised in Zambia, police officials often use vagrancy and nuisance laws to arbitrarily arrest and detain sex workers. These offences are overbroad and subjectively applied, which creates a culture of impunity - in which both the clients and police officials can abuse sex workers without consequences. Often, police officials request sex from sex workers in exchange for not arresting, detaining, or fining them. Eighty seven percent (87%) of participants in the study reported that the police have harassed them because they engage in sex work. Sex workers' experiences with police affect their willingness to open cases at the police station, and therefore, often directly affect the extent to which they can access healthcare services post-rape, including post-exposure prophylaxis and emergency contraception.
Conclusions/Next steps: In order to protect the fundamental rights and dignity of sex workers, the Zambian Penal Code must be revised to repeal offences that are vague and overly broad.

THAD0103

Violence towards sex workers in the Netherlands

M. Kloek[1], M. Dijkstra[1], M. Jonker[1], D. Bons[2], L. Dekker[1], S. Hendriks[1], Study Group Consisting of Research Assistents from Sex Worker Led Organisation
[1]Aids Fonds, Sex Work Program, Amsterdam, Netherlands, [2]PROUD, Dutch Union for Sex Workers, Amsterdam, Netherlands

Background: Violence is one of the most important factors affecting the risk for sex workers around the world to HIV/AIDS. Due to their position in society and criminalising laws, sex workers are at risk for physical, sexual, economic and emotional violence from clients, co-workers, managers, institutions and others. This may cause inconsistent condom use and prevents sex workers globally from accessing necessary support and health care. This study assesses the current state of violence among sex workers in the Netherlands.
Methods: In this mixed methods study (including surveys, in-depth interviews and FGDs) sex workers were trained as research assistants and were part of the design and roll-out of the study. A very diverse group of 308 sex workers from all over the Netherlands was included.
Results: Overall violence experienced by sex workers in the Netherlands is high (physical violence 60%, sexual violence 78%, economic violence 58%, emotional violence 93%). Logistic regression analysis shows among others that male sex workers have 2.3 (p< .05) more odds for sexual violence and transgender sex workers have 4.9 (p< .05) more odds for emo-

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tional violence compared to their female peers. Young sex workers were found to have (e.g. 2,4 (p< .05) more odds for sexual violence). Sex workers who do not work in a licenced venue have 3,2 (p< .0001) more odds for sexual violence. Sex workers who work at massage salons have 8,5 (p< .01) more odds for sexual violence where as sex workers who work in hotel rooms have 4,6 (p< .05) more odds for emotional violence. Working in a window venue is a strong protective factor (3.1 (p< .05) less odds for sexual violence). Despite high levels of violence experienced by sex workers in this study most sex workers (79%) did not report any incident of violence to the police in the last 12 months.
Conclusions: Even though sex work is legal in the Netherlands, sex workers experience high levels of violence. Most sex workers do not report incidents to the police, which leaves them at higher risk. Decriminalization of sex work is necessary to increase access to justice for sex workers and reduce violence.

THAD0104

The impact of end-demand legislation on sex workers' utilization of HIV care, health and community-led support services in a Canadian setting

E. Argento[1,2], S.M. Goldenberg[1,3], M. Braschel[1], S. Moreheart[1], S.A. Strathdee[4], K. Shannon[1,5]
[1]BC Centre for Excellence in HIV/AIDS, Gender and Sexual Health Initiative, Vancouver, Canada, [2]University of British Columbia, Interdisciplinary Studies, Vancouver, Canada, [3]Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada, [4]University of California San Diego, Medicine, San Diego, United States, [5]University of British Columbia, Faculty of Medicine, Vancouver, Canada

Background: Despite scientific and legal evidence on the harms of criminalization of sex work, Canada adopted new end-demand legislation - the Protection of Communities and Exploited Persons Act (PCEPA) - in 2014 that criminalizes new aspects of sex work (e.g., clients, third party advertising). One of the explicit goals of end-demand approaches is to increase access to services and supports for sex workers, despite substantial evidence that criminalization impedes access. This study aimed to longitudinally evaluate the impact of the PCEPA on sex workers' access to HIV care, primary care, and community/sex worker-led services in Vancouver, Canada.
Methods: Data were drawn from a prospective community-based cohort of women sex workers, known as AESHA (An Evaluation of Sex Workers Health Access) represented by experiential team members. Multivariable logistic regression with generalized estimating equations (GEE) examined the independent effect of the post-PCEPA period (2015-2017) versus the pre-PCEPA period (2010-2013) on sex workers' utilization of HIV care and community-driven services and supports, using time-updated data.
Results: In separate multivariable confounding models, the post-PCEPA period was independently correlated with significantly reduced odds of utilizing community-driven (e.g., sex worker-led, Indigenous, migrant/refugee, women or youth-specific) services and supports (AOR 0.60; 95%CI: 0.49-0.73). There was no evidence of increased access to HIV-specific services among sex workers living with HIV following implementation of the new laws (AOR 1.30; 95%CI: 0.85-2.00). The post-PCEPA period was also correlated with significantly reduced odds of accessing health services when needed (AOR 0.59; 95%CI: 0.45-0.78).
Conclusions: Findings show no increase in utilization of HIV care or other health services post-PCEPA, and rather a reduction in odds of accessing community-driven supports and health services when needed. Findings demonstrate that end-demand approaches to criminalize sex work may not only reproduce the harms of previous criminalized approaches to sex work in Canada, but may further exacerbate barriers to accessing health and community-led services that have been proven to be key contributors of better health outcomes. There is a critical evidence-based need to move away from criminalized approaches to sex work to ensure full labor and human rights for sex workers, including access to health, social, and legal support services.

THAD0105

"Ending demand" in France: The impact of the criminalisation of sexworkers´ clients on sexworkers' health, security and exposure to HIV

H. Lebail[1], T. Leicester[2], C. Giametta[3]
[1]CNRS - Sciences Po, Centre de Recherches Internationales, Paris, France, [2]Médecins du Monde [Doctors of the World], France Fieldwork Operations, Paris, France, [3]Aix-Marseille University, Laboratory or Mediterranean Sociology, Marseille, France

Background: As of April 2016 France criminalized sexworkers' clients as part of new legislation aimed at "Fighting against the prostitutional system" inspired by the so-called "Swedish model". Detractors of the new legislation have cited the risks that the new law increases sexworkers' vulnerability and exposure to stigma and violence, hinders their access to health and legal services and increases risks of exploitation in the sex industry. Based on these arguments, Médecins du Monde (Doctors of the World) initiated a survey aimed at evaluating the impact of the law on sexworkers' health, rights and well-being.
Methods: Research was conducted between April 2016 and January 2018 based on mixed-methodology including qualitative semi-directive interviews and a questionnaire-based quantitative survey. Two researchers in social sciences oversaw research methodology and data analysis, and data collection was undertaken with a strong involvement of 13 civil-society organisations (health NGOs, community-based health NPOs and sex worker groups). 70 semi-directive interviews with sex workers, 28 interviews with outreach service-providers and 583 questionnaires completed by sexworkers were collected in 9 different cities and overseas territories.
Results: The most direct effect of the 2016 law on sex workers has been an acute increase in their socio-economic vulnerability. This vulnerability is interconnected with a multiplicity of factors including: the increase of violence; degrading working conditions; negative impact on sexworkers' health. Our research also highlights the decrease in condom use and the increasing difficulty for sex workers to negotiate safe-sex practices as well as the difficulty of accessing treatment for HIV+ sexworkers. Whilst it is still too early to evaluate the impact in terms of HIV infections, the research points to an increase in some STIs, notably of syphilis, amongst sexworkers in France.
Conclusions: Sexworkers are a key population in the fight against HIV. Our research clearly demonstrates the negative consequences of the criminalisation of clients on sexworkers' ability to practice safe sex and prevent HIV infection. The results have far-reaching implications for policy-makers considering the legal framework around sexwork and are highly relevant to health workers, activists and sex-worker groups advocating to improve the rights of sexworkers and mitigate the negative impacts of repressive policy.

THAD02 Dignity has no nationality: HIV and migrants' rights

THAD0201

Criminal justice involvement as a social determinant of sexual risk among male migrant and non-migrant market vendors in Kazakhstan: Implications for HIV prevention and human rights

P. Marotta[1,2,3], A. Terlikbayeva[1,2,3], S. Primbetova[1,2,3], A. Mandavia[1], T. Hunt[1,2,3], L. Gilbert[1,2,3], L. Beletsky[4], G. Mergenova[1,2,3], E. Wu[1,2,3], N. El-Bassel[1,2,3]
[1]Columbia University, New York City, United States, [2]Social Intervention Group, New York City, United States, [3]Global Health Research Center of Central Asia, New York City, United States, [4]Northeastern University, Boston, United States

Background: This longitudinal study assessed associations between criminal justice involvement (CJI) and sexual risk behaviors in a sample of male migrant and non-migrant vendors in the largest open-air marketplace in Central Asia. We hypothesized that questioning by market officials and migration police, experiencing arrest and incarceration would be associated with greater likelihood of sex under the influence of drugs or alcohol, more than one sexual partner, condomless sex, transactional sex, condomless sex while traveling, and more than one sexual partner while traveling.
Methods: We employed respondent driven sampling (RDS) to recruit 1,342 male vendors consisting of external migrants from Tajikistan, Uzbekistan, and Kyrgyzstan, internal migrants and a non-migrant comparison group from Kazakhstan. Multiple imputation with chained equations (ICE) adjusted for bias introduced from missing data at baseline and 3, 6, and 12-month assessments (5,863 observations). Multi-level logistic regression with time period fixed effects and random intercepts estimated odds ratios (OR) of associations between CJI and sexual risk behaviors overall and by non-migrant and migrant groups.
Results: Table 1 provides CJI, and sexual risk behaviors stratified by migration status. In multivariate models, questioning by market officials predicted increased risk of condomless sex (OR=1.02, SE=0.01, p<0.05), sex under the influence of drugs/alcohol (OR=1.03, SE=0.01, p<0.01), transactional sex (OR=1.05, SE=0.01, p<0.001) and more than one sexual partner while traveling (OR=1.06, SE=0.02, p<0.001). Contacts with migration police predicted increased risk of sex under the influence of drugs/alcohol (OR=1.02, SE=0.008, p<0.01). Arrest predicted increased risk of sex under the influence of drugs/alcohol (OR=1.91, SE=0.31, p<0.001), more than one sexual partner (OR=1.33, SE=.20, p<0.10), condomless sex (OR=1.42, SE=0.16, p<0.01), transactional sex (OR=1.96, SE=0.44, p<0.01) and more than one sexual partner while traveling (OR=2.62, SE=0.60, p<0.001). Incarceration predicted increased risk of sex under the influence of drugs (OR=3.79, SE=1.08, p<0.001), sex with more than one partner (OR=1.71, SE=0.44, p<0.05) and transactional sex (OR=4.16, SE=1.70, p<0.001).

	External migrant %(obs.)	Internal migrant %(obs.)	Non-migrant %(obs.)	Overall %(obs.)
Sex under the influence of drugs/alcohol	11.47(143)	15.08(141)	11.60(219)	12.49(503)
Transactional sex	7.31(72)	6.76(66)	5.99(101)	6.47(239)
Unprotected sex	35.53(609)	32.54(321)	34.66(585)	34.28(1515)
>1 sex partner while traveling	3.16(31)	7.37(55)	4.24(59)	4.84(145)
Questioning by market officials	1.05(.21)	.50(.11)	.51(.11)	.62(.08)
Questioning by migration police	3.10(.50)	.86(.27)	1.13(.28)	1.47(.18)
Arrest	26.58(711)	10.37(120)	7.69(190)	12.37(1021)
Incarceration	4.27(125)	2.48(23)	1.83(34)	2.51(182)

[Table 1. Population estimates of CJI and sexual risk by migration status (obs. 5868)]

Conclusions: Findings underscore the need for structural interventions that target law enforcement and other criminal justice policies to facilitate HIV prevention interventions with key populations including male labor migrant market vendors in Kazakhstan.

THAD0202

Harms of workplace inspections for im/migrant sex workers in indoor establishments: Enhanced barriers to health access in a Canadian setting

B. McBride, K. Shannon, P. Duff, M. Braschel, S.M. Goldenberg, AESHA Study Team
BC Centre for Excellence in HIV/AIDS, Gender and Sexual Health Initiative, Vancouver, Canada

Background: New end-demand sex work legislation (PCEPA) was passed in Canada in 2014, the enforcement of which may disproportionately impact im/migrant women in indoor venues due to its focus on third party advertising and conflation of sex work with sex trafficking (forced sexual labour). Im/migrant sex workers face intersecting concerns regarding criminalization, restrictive immigration policies, and poor health access, yet evidence is limited regarding how experiences and perceptions of criminalized enforcement impact health access. This study examined correlates of worrying about workplace inspections by authorities and modeled the independent effect of worrying about inspections on health access amongst indoor sex workers over a 2.5-year period (2014-2017).
Methods: Longitudinal data were drawn from AESHA, a community-based prospective open cohort involving 900+ sex workers across Metro Vancouver. Experiential (current/former sex workers) and non-experiential staff guided participants through interviewer-administered semi-annual questionnaires. Bivariate and multivariable logistic regression with generalized estimating equations (GEE) were used to investigate factors correlated with worrying about workplace inspections, using time-updated data at each semi-annual visit. A separate confounder model was used to examine the independent impact of worrying about inspections on barriers to health access.
Results: Across the 2.5-year study, of 397 indoor sex workers, 23.9% experienced workplace inspections and 51.6% worried about legal, economic or social consequences of inspections. In multivariable GEE analyses, worry about inspections was correlated with recent im/migration (adjusted odds ratio[AOR] 3.13; 95% confidence interval[CI] 1.77-5.53), police harassment (AOR 3.49; 95%CI 1.92-6.34), workplace violence (AOR 1.66, 95%CI 1.09-2.51), and enhanced work stress (AOR 1.05 per additional point on work stress scale, 95%CI 1.01-1.09). In a multivariable GEE confounder model adjusted for key confounders, worry about inspections had an independent effect on enhanced barriers to health access (AOR 1.45, 95%CI 1.06-1.98).
Conclusions: Im/migrant sex workers had higher odds of worrying about inspections and their consequences, and worrying about inspections was linked to enhanced barriers to health access. Findings suggest that enforcement-based approaches to sex work may exacerbate poor health access amongst sex workers in indoor venues, particularly recent im/migrants. Legal reforms that decriminalize sex work, avoid conflation of sex work and sex trafficking, and enable safer indoor workspaces are recommended.

THAD0203

The influence of immigration law concerns on drug use and HIV risk

B. Suro Maldonado[1], C. Galletly[2], J. Lechuga[3]
[1]Lehigh University, Education, Bethlehem, United States, [2]The Medical College of Wisconsin, Milwaukee, United States, [3]Lehigh University, Bethlehem, United States

Background: Hispanic immigrants are disproportionately impacted by health disparities in many domains. For example, they have the second highest rate of Human Immunodeficiency virus (HIV) infection of any racial or ethnic minority group in the United States (U.S). Although past research has documented the impact of the existence of immigration laws that criminalize immigration on access to health care none of the aforementioned studies examined participants' perceptions and understanding of the immigration laws that lead them to avoid and the effect of such perception on accessing health care services and HIV testing.

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The purpose of the present study is to investigate the impact of fear of deportation and perceived enforcement of immigration law on Hispanic immigration law related concerns, access to health care and HIV testing.
Methods: Three hundred and thirty-nine U.S Hispanic immigrants between the ages of 18 to 74 years (*M*=34.08 years, *SD* = 9.12) were recruited primarily through Spanish radio ads and referrals from a network of community based organizations serving Hispanics in metropolitan areas in Virginia and North Carolina. The inclusion criteria included the following: be at least 18 years old, engaged in sexual risk behavior in the past 12 months, reported negative or unknown HIV status, and lived in the U.S for at least 6 months. Data analysis consisted of descriptive statistics to describe the sample and blocked logistic and linear regression analysis.
Results: Results indicated that concern with being a public charge, which refers to concern that seeking publicly funded health services will present a barrier for adjusting one's or a family member's immigration status is associated with reduced HIV testing OR = .07 [.02,.28] $p < .01$, fear of seeking healthcare services due to immigration status = .22, $p < .01$, and more logistical barriers seeking health care services = .15, $p < .01$.
Conclusions: Our findings indicate that immigrant's perceptions of immigration law consequences are significantly associated with health behaviors. In light of the present negative political rhetoric towards immigrants around the world it is important to research the potential negative impact that such climate may have in willingness to seek health care services.

THAD0204

Ensuring access to primary care for undocumented migrants in England

Y. Azad, C. Hicks, K. Smithson, D. Gold
NAT (National AIDS Trust), London, United Kingdom

Background: In the UK, the National Health Service (NHS) is a comprehensive health service providing free healthcare to all UK residents. It is funded by taxation i.e it is not an insurance-based or contributory system. However, in England undocumented migrants are not eligible for free care and are charged for accessing certain services.
Description: Migrants, especially from sub-Saharan Africa, are amongst the most affected by HIV in the UK. Black African men and women living in the UK making up 1.8% of the UK population but 31% of all people accessing HIV care.
Despite securing free HIV treatment for migrants in 2012, we continued to be concerned about charging migrants for other elements of healthcare, which would deter migrants from accessing healthcare and reduce opportunities for migrants to be tested and diagnosed. Primary care is a key site for HIV diagnosis and in England migrants are more likely to be diagnosed with HIV in primary care than in a sexual health clinic.
The Government has looked to implement primary care charging for a number of years. Most recently, in the Government's 2015-16 consultation on further extensions of charging, the Government canvassed views of stakeholders on charging in primary care. We submitted a consultation response detailing the public health impact of such a move. We also supported a coalition of other NGOs to respond making the case for access to primary care. In early 2017, the Government announced that they were putting off immediate plans to charge in primary care.
Lessons learned: We have ensured that, despite the current anti-immigration policy context in England, primary care remains free for everyone irrespective of residency status. The public health argument, in a political climate where migrants are a marginalised and politically unpopular group, is an argument that policy-makers have particularly taken note of. Important to the success of our campaigning has been; a united voice from the HIV sector including clinicians, strategic coalitions with health and migration organisations, mobilising parliamentarians, and utilising the evidence base.
Conclusions/Next steps: Advocacy will continue to ensure that migrants can continue to access primary care and other vital parts of the health service.

THAD0205

Migrant's perspective on TB and HIV in relation to healthcare services: A qualitative study in Stockholm, Sweden

V. Tirado[1], J. Shedrawy[1], S. Strömdahl[1,2], C. Hanson[1], K. Lönnorth[1], A.M. Ekström[1,3]
[1]*Karolinska Institutet, Public Health Sciences, Stockholm, Sweden,* [2]*Uppsala University, Uppsala, Sweden,* [3]*Karolinska Hospital, Stockholm, Sweden*

Background: While most refugees are young adults in relatively good physical health, the unprecedented stress and trauma that most are exposed to on-route affects their mental well-being and also favors the spread of infectious diseases, such as HIV and tuberculosis (TB) and challenges their health. In Sweden, newly arrived migrants are offered a free-of-charge examination to identify and provide treatment of infectious diseases, including HIV and TB. However, little is known about the migrants' knowledge and attitude towards HIV and TB screening in the host country. We aim to explore the knowledge and attitudes about HIV and TB in relation to the healthcare services through migrant's perspective in Stockholm.
Methods: Focus group discussions (FGD) and in-depth interviews (IDI) with migrants were conducted during late 2017 and early 2018 in various settings; specialized health clinics for migrants and civil societal organizations meeting newly arrived migrants in Stockholm, Sweden. The FGD were organized with homogenous groups of 7 individuals based on gender, age range and language. The IDI with 6 migrant men and women were utilized to allow for sensitive thoughts to emerge. The interviews were done with migrants with latent TB, and migrants have that not tested for HIV since arrived to Sweden. We conducted latent content analysis.
Results: In Sweden, migrants reported the following: experience stigma associated with testing for HIV and TB; fear of positive diagnosis for TB and HIV infection: limited knowledge about available services to screen and treat for HIV/TB; delay timely healthcare seeking due to fear of and stigma; and fear of losing social and family support in the case of HIV/TB diagnosis.
Conclusions: HIV and TB screening are perceived as a necessity for newly migrants and receive information upon arrival to Sweden. Crowded living conditions, language barriers, stigma, myths about HIV and TB, as well as fear of deportation also add to reluctance of migrants to seek for screening, delaying diagnosis and treatment. It can be seen as an opportunity to critically evaluate actions taken for newly arrived migrants, and to learn from and to share experiences between policy-makers and service providers concerning migrant's health in Sweden.

THAD03 Community system strengthening = Sustainable HIV response

THAD0301

Community monitoring in HIV prevention programs with sex workers in Kyrgyzstan

S. Radchenko, A. Myrzabekova
Tais Plus, Bishkek, Kyrgyzstan

Background: The goal is to regularly monitor the quality of services and legal barriers that prevent sex workers from participating in HIV programs, including monitoring of:
- approaches to working with sex workers
- adequacy of services in terms of needs and context
- work of state agencies
Monitoring in the field is accompanied with technical assistance to NGO.
Description: Tais Plus conducted monitoring by the community during 2016-2017 in the framework of the Global Fund program, the components "Community Systems Strengthening" and "Removing Legal Barriers" (CSS and RLB).

Monitoring tools have been developed for conducting focus groups with NGOs in the following areas: VCT, STI services, capacity of NGOs to work on CSS and RLB.
For 2 years, Tais Plus staff has visited 6 NGOs on a quarterly basis, which implement HIV prevention programs with sex workers in Kyrgyzstan. During each visit, focus groups were held with NGO staff, as well as meetings with sex workers, during which participants shared their concerns and feedback on the work of NGOs, and also discussed their barriers and opportunities to actively participate in HIV and rights programs. Conclusions&recommendations from each visit were agreed with NGOs, and then sent to the principal donors funding HIV and rights programs to inform them about the need to make changes in current activities.
Technical assistance was based on the SWIT.
Lessons learned: For two years:
- 10 Tais Plus staff participated in monitoring visits, 8 of them - on a voluntary basis.
- 5 visits were made to most of the NGOs
- 47 employees from 6 NGOs participated in monitoring, including focus groups discussions and on-the-job trainings
- The proposals to improve the following program areas with sex workers were developed and agreed with NGOs: information work, VCT, legal barriers, community strengthening, STI&SRHR services, and increasing NGO capacity. These proposals are addressed to both NGOs and donors.

Conclusions/Next steps:
- Monitoring through community should be an integral part of HIV programs, and its results should be used to plan and adjust programs
- Ensure training employees who are sex workers of visited organizations to monitor and then form mixed monitoring teams.

THAD0302

When situations go from bad to worse: Strengthening collective action during periods of crisis through concrete guidance and principles for engagement

R. Dayton[1], M. Sundararaj[2], S. Mellors[3], J. Keatley[4], J. Chang[5], G.T. Brighton[6]
[1]FHI 360, LINKAGES, Durham, United States, [2]Global Forum on Men who have Sex with Men and HIV, Oakland, United States, [3]International HIV/AIDS Alliance, Brighton, United Kingdom, [4]Innovative Response Globally for Trans Women and HIV, Oakland, United States, [5]International Network of People Who Use Drugs, London, United Kingdom, [6]Network of Sex Work Projects, Bulawayo, Zimbabwe

Background: Acute violence, defined as periods of increased severe emotional, physical, sexual, and economic abuse, against key populations—men who have sex with men, people who inject drugs, sex workers, and transgender women—is increasing, including in East Africa. Recent examples include the torture of peer educators, the arrest of mobile outreach teams, and the ransacking of key population-led community-based organizations (CBOs)—all of which disregard human rights and undermine efforts to curb the HIV epidemic. While local actors lead the response to acute violence, international and regional stakeholders—such as global and regional key population networks, international non-governmental organizations (NGOs), and donors—must be able to play an effective role if requested.
Methods: In 2017, the Technical Advisory Group on Violence, Stigma, and Discrimination Against Key Populations supported by the PEPFAR and USAID-funded LINKAGES project, convened CBOs, NGOs, United Nations agencies, donors, security experts, and global and regional key population networks working in East Africa to identify current challenges in acute violence responses, articulate principles for local engagement, and generate recommendations for international and regional actors.
Results: Barriers to appropriate and effective responses by international and regional stakeholders' include: acting without guidance from those most affected, causing added stress and danger for local actors; a failure to adequately resource program staff most at risk, increasing their vulnerability; and support to individual local partners instead of collectives, resulting in duplicative investments and fractured coalitions. Recommendations include deference to local actors, appropriate resourcing, and pre-emptively forming local collectives and international and regional coordinating bodies that can act in a unified immediate way. Principles to guide international or regional actors' engagement reinforce the importance of: embracing "first, do no harm" in every aspect of key population programming, avoiding false dichotomies between human rights and HIV objectives, and striving to take a long-term view even during a crisis.
Conclusions: International and regional actors operating in East Africa and beyond can strengthen their responses to acute violence by taking concrete steps, grounded in principles for engagement, thereby protecting key population members' human rights and removing barriers to the effective implementation of HIV programs.

THAD0303

Monitoring and evaluating technical assistance to key populations and HIV projects in Russia: Removing legal barriers and community systems strengthening

S. Ka Hon Chu[1], M. Golichenko[1], A. Bidordinova[2], R. Elliott[3]
[1]Canadian HIV/AIDS Legal Network, Research and Policy, Toronto, Canada, [2]Canadian HIV/AIDS Legal Network, Consultant, Toronto, Canada, [3]Canadian HIV Legal Network, Research and Development, Toronto, Canada

Background: In 2015-2017, non-governmental organizations in Russia delivered HIV services for people who use drugs, sex workers and men who have sex with men with the support of the Global Fund to Fight AIDS, Tuberculosis and Malaria. The service component was aligned with an advocacy component, which included community systems strengthening activities (CSS) to empower and mobilize key affected populations (KPs) to engage in meaningful dialogue with authorities, and activities to educate KPs and provide them with tools to challenge discrimination and remove legal barriers (RLB) for HIV services. In 2016 the Canadian HIV/AIDS Legal Network provided legal technical assistance (TA) for the advocacy component.
Description: A Monitoring, Evaluation and Learning framework was designed to collect and analyze quantitative and qualitative data to assess (1) how staff of HIV projects and KP representatives rated the TA; and (2) how the access to legal aid changed as a result of the TA.
Lessons learned: Through the TA, access to legal aid significantly improved. Over 500 community legal workers (CLWs) and KPs participated in CSS/RLB capacity-building and networking activities. CLWs consulted with 7,683 clients and the TA team provided direct legal support for 950 clients. Of 1,195 documented cases, 929 were partially or fully resolved, including through formal complaint and court procedures (580 cases) and legal mediation. Two shadow reports to two UN treaty bodies resulted in strong recommendations to Russia regarding the discrimination and HIV prevention among SW and PWUD. CLWs and project managers rated the TA as a very important component in vitalising legal advocacy and integrating human rights promotion and protection into national, community- based programs.
Conclusions/Next steps: Legal TA is important to help CLWs and KPs navigate complex legal environments, encourage and empower them to address discrimination and human rights violations, thus reducing the risks of HIV. With the support of the Elton John AIDS Foundation, the Legal Network will implement the "best practices" of the 2016 TA project in its current 2017-2020 legal TA project in St. Petersburg to help people who use drugs access a continuum of HIV care services.

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THAD0304

The Caribbean civil society shared incident database: A monitoring and reporting mechanism to strengthen community activism to address human rights violations

M. Thompson, K. Mena, I. Cruickshank
Caribbean Vulnerable Communities Coalition, Programme Department, Kingston, Jamaica

Background: People living with HIV and key populations in the Caribbean frequently experience human rights violations including denial of access to health, housing, employment, as well as social exclusion and violence.
Description: In 2016, the Caribbean Vulnerable Communities Coalition (CVC) established the Shared Incident Database (SID), the first regional civil society-led human rights monitoring mechanism which records, analyses and exchanges information on rights violations. It facilitates comprehensive data collection through standardised intake procedures which enhance the capacity of KPs and CSOs to document rights breaches and enables data sharing to support redress or engagement with policy, public health and legal decision-makers.Clients identifiable details are only visible at an organizational level and there are varied data access levels within an organization profile. At an organizational, national and regional level the database generates non-identifiable aggregated data with geographic identifiers. The database is linked to redress opportunities such as Cari-bono which is a network of lawyers around the Caribbean who will be offering pro-bono services to cases documented. Technical assistance was provided to civil society organizations to build capacity in the community monitoring of legal rights and use of SID.
Lessons learned: As a result of improved community monitoring of legal rights, there have been five legal challenges filed before the courts in Jamaica, Guyana and Trinidad & Tobago respectively.
The database has support the building of CSO capacity to carry out redress for their clients. While CSOs engage their clients around redress, it provides capacity building opportunity for community members to take on self-advocacy.
For instances where persons are not aware of the official patient complaint mechanism, SID has proven to be viable substitute once there is an understanding between the CSOs documenting the right violations and the health care officials.
Conclusions/Next steps: Use one of the incidents entered into SID to undertake strategic litigation for the improvement of the legal enabling environment for PLHIV and key populations. To have CSOs documenting rights violations in all the Caribbean countries and territory
Increase awareness.

THAD0305

Strengthening HIV-related community organizations: Evidence from a large-scale program in India

M. Battala, S. Patel, M. Walia, S. Mukherjee, B. Mahapatra, N. Saggurti
Population Council, HIV/AIDS, New Delhi, India

Background: Community-organizations (COs) are at the front lines of combating the AIDS epidemic, particularly among marginalized populations. Yet they often have institutional weaknesses that make their stability uncertain. The Bill and Melinda Gates Foundation, through its Avahan program in India, supported the development and strengthening of COs in high HIV prevalence states to help reduce socioeconomic vulnerabilities among key populations. We assessed the capacities of the COs over a three-year period in program implementation, resource mobilization, networking, and advocacy.
Methods: The training of the COs to deliver quality services was based on four pillars:
(i) strengthening institutional capacity,
(ii) improving access to social protection schemes,
(iii) enhancing financial security and
(iv) providing effective social justice and security efforts.
Further COs' capacities were strengthened in resource mobilization, advocacy, networking, etc. Data collected in two survey rounds during 2015 and 2017 from 48 COs have been used in the analysis, that includes descriptive statistics, frequencies and bivariate techniques.
Results: More than 42,000 new members were enrolled across the COs in the last three years. A three-fold increase was found in their corpus fund from an average of US$ 2,961 per CO in 2014 to US$ 8,844 in 2017. Similarly, the COs have been immensely successful in raising funds from various sources; 71% of COs have generated funds in 2017 as compared to 46% in 2014. COs generated on average US$ 3,604 in the last three years, 56% of which was raised in the program's last year. COs engagement with different district level forums, government officials and institutions increased significantly over time; Police (35% vs 75%), Social welfare department (32% vs 81%), Judiciary (31% vs 79%) and with formal financial institutions (37% vs 77%).
Conclusions: Most of the COs demonstrated significant improvement in increasing their corpus fund through resource mobilization, establishing networks with a wide range of stakeholders, and taking up various income generating activities. Strengthening COs to implement focused interventions inculcates ownership among members and an increased probability of organizational sustainability.

THAE01 Confronting violence against women

THAE0101

What do we know about interventions to prevent and reduce gender-based violence among young people living with, or most affected by, HIV in low- and middle-income countries? A systematic review

F. Meinck[1,2], M.T. Little[1], V. Nittas[3], V. Picker[1], A. Bustamam[4], L. Orza[5], M. Pantelic[5], H. Stöckl[6]
[1]University of Oxford, Social Policy and Intervention, Oxford, United Kingdom, [2]North-West University, School of Behavioural Sciences, Vanderbeijlpark, South Africa, [3]University of Zurich, Epidemiology, Biostatistics and Prevention Institute, Zurich, Switzerland, [4]McMaster University, Department of Health Research Methods, Evidence, and Impact, Hamilton, Canada, [5]International HIV/AIDS Aliance, Brighton, United Kingdom, [6]London School of Hygiene and Tropical Medicine, Global Health and Development, London, United Kingdom

Background: Adolescents and young people are disproportionately affected by gender-based violence (GBV). GBV is associated with an increased risk of HIV acquisition and can disrupt access to treatment and retention in care, resulting in worse HIV outcomes. This systematic review aims to assess effectiveness of existing GBV interventions evaluated among young people vulnerable to HIV aged 10-24 in low-and middle income countries (LMICs).
Methods: Studies were identified by searching databases, grey literature, trial registries, back referencing and contact with researchers and program implementers. Abstracts were screened by two researchers according to the inclusion criteria pre-specified in the review protocol. Randomized, cluster-randomized and quasi-experimental studies with control group were included if they assessed GBV or attitudes towards GBV as an outcome. Data were extracted using a form adapted from the Cochrane Collaboration and narratively synthesized. Study quality was assessed using the Cochrane Risk of Bias tool.
Results: Thirteen studies with 35,322 participants were included. Interventions were structural (5), school-based (4), community-based (2), and individual-focused (2). Interventions aimed to empower young women (5), change behaviors (4), remove economic barriers among young women (2) or change gender norms (2). All interventions had multiple components (e.g. life-skills and health education, micro-grants, or social support). ONE intervention specifically included a key population (sex-workers); the remaining included young people in high HIV-prevalence settings. No interventions for HIV+ adolescents were found.
Overall, the studies had a median risk reduction of 15% (range: 4-60%) in self-reported GBV exposure favoring the intervention, and TWO studies reported a median risk reduction of 7% (range: 1-12%) in self-reported

GBV perpetration favoring the intervention. SIX studies reported reductions in physical/emotional intimate partner violence, THREE studies reported reductions in physical coercion/violence, ONE study reported reduction of verbal assault by opposite sex, and FOUR studies reported reduction of any sexual assault/forced sex. No harmful effects could be observed. Structural and school-based interventions were most effective.
Conclusions: Structural and school-based interventions targeting behaviors, economic barriers, negative gender norms and promoting empowerment may help to substantially reduce and prevent GBV among young people vulnerable to HIV in LMICs. Evidence on effective GBV interventions for young key populations is urgently needed.

THAE0102

WINGS of hope: Evaluating effects of integrating a brief gender-based violence prevention intervention with HIV counseling and testing among women who use drugs in Kyrgyzstan

T. Musagalieva[1], D. Nikitin[2], A. Pugachev[2], L. Gilbert[3], T. Hunt[3], T. Jiwatram-Negron[3], O. Rychkova[4], A. Mukambetov[5], I. Sadykov[5], I. Ermolaeva[6], R. Bayazitova[7], M. Atabekova[6], N. Sharonova[8], M. Akmatova[8], M. Abduraupova[9], S. Nazarova[9], E. Tkacheva[10], R. Mazhitov[11]
[1]ASTERIA Foundation, Bishkek, Kyrgyzstan, [2]GLORI Foundation, Bishkek, Kyrgyzstan, [3]Columbia University Social Intervention Group, New York, United States, [4]Previously Open Society Foundations, New York, United States, [5]Soros Foundation Kyrgyzstan, Bishkek, Kyrgyzstan, [6]Asteria Foundation, Bishkek, Kyrgyzstan, [7]Asteria Foundation & Ganesha Foundation, Bishkek, Kyrgyzstan, [8]Podruga Foundation, Osh, Kyrgyzstan, [9]Positive Dialogue Foundation, Osh, Kyrgyzstan, [10]Chance Crisis Center, Bishkek, Kyrgyzstan, [11]Plus Center, Osh, Kyrgyzstan

Background: Gender-based violence (GBV) negatively impacts access of women who use drugs (WWUD) to HIV prevention and to drug treatment. Collaboratively with consultants at Columbia University Social Intervention Group, partner Kyrgyz-based NGOs and GLORI Foundation, we developed WINGS of Hope intervention that includes GBV screening, brief intervention and referral to treatment service (SBIRT) with HIV counseling, testing and linkage to care. We evaluated the feasibility and acceptability of WINGS (Women Initiating New Goals for Safety) GBV-prevention model adapted for helping WWUD in Kyrgyzstan to access HIV prevention and harm reduction services.
Methods: In 2013-2016, 213 WWUD in Kyrgyzstan participated in WINGS of Hope intervention study. Each participant attended the 2-session GBV SBIRT intervention that included raising awareness about different types of GBV and how GBV increases risk for substance misuse and HIV, screening for GBV, safety planning, and identifying goals to increase safety. Women participants were offered voluntary HIV rapid testing and linkage to HIV care when necessary (Gilbert et al., 2016). We used a pre-post design to evaluate the effects of the intervention.
Results: At 3-month follow-up assessment, participants experienced 11% fewer intimate partner and 39% fewer gender-based violence incidents of any kind than what they had experienced at baseline. Also, there was a 38% increase in women who experienced neither IPV nor GBV "in the past 3 months". The number of women who completed the gender-specific HIV testing, increased from 37 to 61%, from 14 to 29% increased number of women who received counseling or group support to deal with GBV. All 10 women who tested positive for HIV, including 3 new cases, were referred to HIV treatment at the AIDS Centers.
Conclusions: The high rates of participation, attendance, and retention, as well as significant reductions in GBV victimization suggest the feasibility and promising effects of this WINGS SBIRT-based intervention to help WWUD who experience GBV, and link them to appropriate HIV services. The GBV services for WWUD should be integrated into and coordinated with social, medical and legal services. The project findings underscore the need for gender-sensitive harm reduction services for WWUD.

THAE0103

Integrating gender-based violence screening and support into HIV counselling and testing for adolescent girls and young women accessing PrEP in South Africa and Tanzania - experiences from the EMPOWER study

M.B. Colombini[1], L. Ramskin[2], N. Khoza[2], A. Stangl[3], F. Scorgie[2], S. Harvey[4], C. Manyamba[2], C. Watts[4], S. Kapiga[5], S. Delany-Moretlwe[2], EMPOPOWER Study group
[1]London School of Hygiene and Tropical Medicine, Public Health and Policy, Pretoria, South Africa, [2]Wits Reproductive Health Institute, Johannesburg, South Africa, [3]International Center for Research on Women, Washington DC, United States, [4]London School of Hygiene and Tropical Medicine, Public Health and Policy, London, United Kingdom, [5]Mwanza Intervention Trials Unit, Mwanza, Tanzania, United Republic of

Background: Partner violence may undermine oral PrEP use, yet evidence is scarce on how to best to support PrEP use while decreasing vulnerability to violence. We assessed the feasibility and acceptability of integrating gender-based violence (GBV) screening and support into HIV counselling for adolescent girls and young women (AGYW) accessing oral PrEP.
Methods: EMPOWER is an open-label PrEP demonstration project for AGYW (16-24 years) in South Africa and Tanzania. We adapted HIV counselling and testing guidelines for lay counsellors to include five questions about exposure to gender-based violence (GBV), recommended by the World Health Organisation. Participants were screened at baseline and at each follow-up visit. We analysed data from counselling session observations (n=10 in SA only) and in-depth interviews with participants (n=39, SA = 25, Tz =14) and clinical staff (n=13, SA = 10, Tz =3). Themes explored included: comfort with GBV screening sessions, usefulness of risk assessment and safety planning, and appropriateness of referrals to GBV support services.
Results: We screened 619 and enrolled 431 HIV negative AGYW (SA=379; Tz=52). 141 (SA=119; Tz= 22) reported lifetime experiences of violence at baseline. Including GBV screening within HIV counselling sessions was feasible, provided continuous training and staff support was available. Overall, study participants were amenable to GBV screening, provided that the basic principles of confidentiality, staff empathy, and absence of judgment were observed. Participants who reported abuse said that it was reassuring and helpful to talk to friendly, non-judgemental counsellors. Challenges reported by HIV counsellors included: initial discomfort in asking about violence; facilitating disclosure of suspected cases; length of time taken to complete the sessions; and offering help when participants did not want any referrals. Staff felt supported by regular debriefings, a directory of referral services for GBV, and an on-site social worker.
Conclusions: Overall, our study suggests that integrating GBV screening into HIV counselling and testing for AGYW is acceptable and feasible when appropriate referral, staff debriefing and technical support are offered, and basic principles of empathetic listening and confidentiality are respected. It is essential that counselling for this group is adolescent-friendly and non-judgmental.

THAE0105

Group therapy for gender-based violence (GBV): Reducing HIV and GBV risk among adolescent girls and young women in Nairobi's informal settlements

M. Muia[1], B. Odero[1], M. Nderitu[2], T. Simiyu[3], C. Bennett[4], M. Kariuki[2], D. Wendo[5]
[1]National Organization of Peer Educators, Nairobi, Kenya, [2]IMA World Health, Nairobi, Kenya, [3]USAID, Nairobi, Kenya, [4]IMA World Health, Washington, United States, [5]IMA World Heatlh, Nairobi, Kenya

Background: The 2015-2018 USAID/Kenya and East Africa funded Afya Jijini program is implementing the Determined, Resilient, Empowered, AIDS free, Mentored and Safe (DREAMS) intervention to help empower adolescent girls and young women (AGYW) and reduce their HIV risk in Nairobi, Kenya's informal settlements. Five in every 10 Kenyan wom-

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en (about 47%) between ages 15 to 49 have experienced at least one form of violence in their lifetime. Adolescent girls and young women in Nairobi's informal settlements are uniquely vulnerable to HIV. Their vulnerability cuts across behavioral, social and biological factors. AGYW often engage in age-disparate and/or transactional relationships as a result of poverty and unemployment, putting them at increased HIV risk. The perception that AGYW can negotiate monogamy, condom use, as well as request their male sexual partners (MSPs) to get circumcised, is still largely unheard of for most AGYW living in the project's catchment areas.

Methods: Group therapy for GBV, facilitated by a trained trauma counselor allows AGYW to cultivate trust and share GBV experiences during group sessions. This therapy includes recognition of emotional self-awareness, followed by cognitive autonomy sessions that enable AGYW to take responsibility for their own change. The therapy sessions provided post violence counseling support to 2,452 enrolled AGYW at 12 safe spaces across Mukuru Kwa Njenga Ward. Ninety-five percent (n=2,320) of AGYW accessed counseling for physical violence, with 5% (n=124) reached with emotional counseling. Afya Jijini worked with the girls and formed post GBV support groups with over 1,050 (43%) AGYW.

Results: The need for trauma counseling support and information sharing on GBV-related matters is pivotal to AGYW transformation. The earlier the AGYW are exposed to GBV prevention information, the increased likelihood of reporting GBV cases. Multiple platforms for GBV prevention awareness is key for communities to shun negative gender norms. Post GBV therapy groups offer a base for advocacy and networking for collective voice against the social issue.

Conclusions: Discussing GBV is a taboo issue in Kenya. Through group GBV therapy sessions, AGYW find a platform to discuss these issues. Furthermore, AGYW are able to recognize their roles in mitigating GBV.

THURSDAY 26 JULY

Poster Discussions

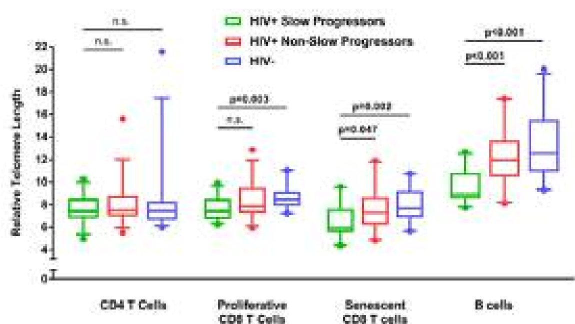
THPDA01 Restoring immunity and ageing gracefully

THPDA0102

Shorter cell subset telomeres in HIV slow progressors than in HIV non-slow progressor women

A. Hsieh[1], B. Sattha[1], N. Bernard[2], C. Tremblay[3], H. Côté[1,4],
for the CIHR Team on Cellular Aging and HIV Comorbidities in Women and Children (CARMA)
[1]University of British Columbia, Pathology and Laboratory Medicine, Vancouver, Canada, [2]McGill University Health Centre Research Institute, Montreal, Canada, [3]Centre de Recherche du Centre Hospitalier de l'Université de Montréal, Montreal, Canada, [4]Centre for Blood Research, Vancouver, Canada

Background: Although shorter leukocyte telomere lengths (TL) of people living with HIV have been reported, TL investigations in HIV-relevant immune subsets remain scarce. Immune aging, including subset-specific TL attrition and imbalance in senescent/proliferative CD8 T cell distributions, likely link HIV with premature age-related comorbidities among people on stable cART. It is unknown whether this link exists for HIV slow progressors (SP). Our objective was to characterize immune subset TL in SP to determine whether their ability to control HIV protects against HIV-modulated immune aging. We hypothesized that TL shortening and senescent CD8 T cell subset expansion would be mitigated in SP compared to cART-controlled HIV+ non-slow progressors (NSP).
Methods: Live PBMCs were obtained from cART-controlled NSP and HIV- women enrolled in the CARMA cohort, and SP from the Canadian Cohort of HIV+ Slow Progressors. Groups were matched 1:1:1 for age. CD4 T cells, proliferative (CD28+), senescent (CD28-) CD8 T cells, and (CD19+) B cells were sorted by FACS, and their relative TL measured by multiplex qPCR. Groups were compared using Mann-Whitney or χ^2 tests.
Results: Women (n=35/group) 27-60y were well-balanced for age and ethnicity, and CD4 counts were similar between SP/NSP. All NSP were undetectable, while 15/35 SP were ART-experienced, including 2 on cART at visit. Cells were sorted from all matched groups and TL data were available for n=20-31, as matched trios with insufficient sorted cells were excluded. Shorter TL was observed in SP proliferative CD8, senescent CD8, and B, but not CD4 T cell subsets, compared to both NSP (p<0.047, n=20-31) and HIV- (p=0.002) participants (Figure 1). TL was shorter in senescent compared to proliferative CD8 T cells among SP (n=34, p<0.001) and NSP (n=27, p=0.027) but not HIV- controls (n=22, p=0.13). The senescent CD8 compartment was expanded in SP (median CD28-:CD28+ ratio=1.67) compared to NSP (0.66, p<0.001) and HIV- (0.45, p<0.001) participants.



[Relative telomere lengths of immune subsets between HIV+ Slow Progressor, HIV+ Non-Slow Progressor, and HIV- groups]

Conclusions: Contrary to our hypothesis, these data strongly suggest that cellular aging, at least within CD8 T and B subsets, may be accelerated among SP compared to HIV+ NSP and HIV- women. These results stress the importance of cART treatment and viral suppression in SP.

THPDA0103

Does HIV-seroconversion affect the serum N-glycans profile, one possible biomarker of ageing? Insights from a longitudinal study

C. Pirazzini[1], P. Garagnani[2], E. Giampieri[3], C. Sala[3], V. Borelli[2], M.G. Bacalini[1], D. De Francesco[4], C.A. Sabin[4], M. Prins[5,6], F.N.M.W. Wit[7,8], N.A. Kootstra[9], C. Libert[10,11], C. Franceschi[1], P. Reiss[7,8], The Co-morBidity in Relation to AIDS (COBRA) Collaboration and the Amsterdam Cohort Studies on HIV
[1]IRCCS Institute of Neurological Sciences, Bologna, Italy, [2]Alma Mater Studiorum Università di Bologna, Department of Experimental, Diagnostic and Specialty Medicine, Bologna, Italy, [3]Alma Mater Studiorum University of Bologna, Department of Physics and Astronomy, Bologna, Italy, [4]Institute for Global Health, University College London, London, United Kingdom, [5]Public Health Service of Amsterdam, Department of Infectious Diseases, Amsterdam, Netherlands, [6]Academic Medical Center, Department of Internal Medicine, Amsterdam, Netherlands, [7]Academic Medical Center and Amsterdam Institute for Global Health and Development, Department of Global Health and Amsterdam Infection and Immunity Institute, Amsterdam, Netherlands, [8]Stichting HIV Monitoring, Amsterdam, Netherlands, [9]Department of Experimental Immunology, Amsterdam, Netherlands, [10]Ghent University, Department of Biomedical Molecular Biology, Ghent, Belgium, [11]Center for Inflammation Research, Flanders Institute for Biotechnology, Ghent, Belgium

Background: Persons living with HIV (PLWH) who are successfully treated with combination antiretroviral therapy can survive to older ages but have an increased risk of age-related conditions compared to HIV-negative individuals. Whether HIV infection per sé affects the ageing process and contributes to PLWH's susceptibility to age-related conditions remains unclear. To address this question, we determined the serum profile of N-glycans, which are powerful and reliable biomarkers of ageing, in cryopreserved longitudinal serum samples from Amsterdam Cohort Studies on HIV/AIDS (ACS) participants, from before and after HIV-seroconversion (SC).
Methods: The N-glycans profile was analyzed using longitudinal serum samples from 73 ACS participants (all males, with a mean [SD] age at time of first pre-seroconversion sampling of 34.8 [7.5] years). For each subject, 3 samples were obtained between 12 and 6 months *before* SC and 3 samples were obtained between 6 and 60 months *after* SC. None of the participants were receiving antiretroviral treatment during the time of sampling. Serum glycoproteins were analyzed using DSA-FACE technology. Ten N-glycan peaks were detected; a combination of the ten peaks was derived using measurements before SC. This combination was then applied to measurements after SC to estimate the age advancement (difference between chronological and estimated age). The effect of SC on each N-glycan peak was evaluated using a multivariate linear model including age, SC event and length of time after SC.
Results: We found a significant mean age advancement (sem) after SC of 2.61 (0.16) years. SC was significantly associated with a significant increase in peaks 1 (p< 0.001), 2 (p< 0.001) and 3 (p< 0.001) and a significant decrease in peaks 5 (p< 0.001), 7 (p< 0.001) (Table 1). The changes in peaks 2, 5 and 7 were influenced also by the length of time after SC.

	Regression coefficient for SC event	p-value for SC event
logP1	0.80	p<0.001
logP2	0.66	p<0.001
logP3	0.73	p<0.001
logP5	-0.55	p<0.001
logP7	-0.40	p<0.001

[Table. Regression coefficient and p-value for SC event (after vs before) adjusted for age and time after SC.]

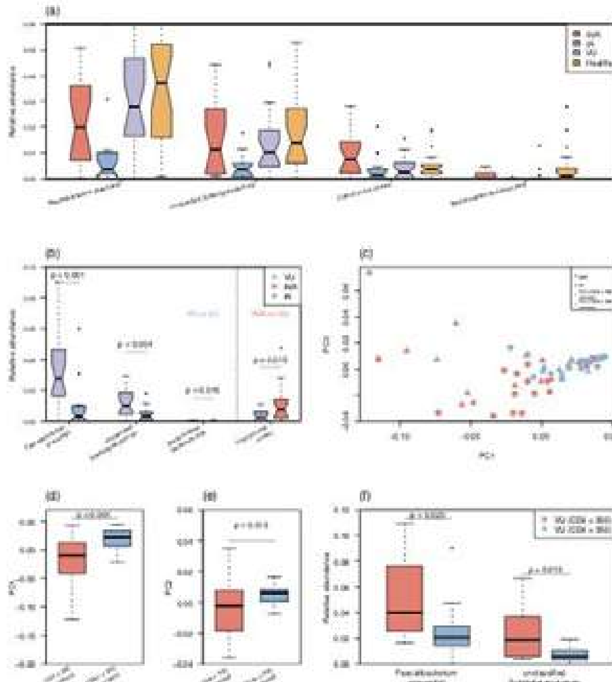
Conclusions: We confirmed the well-known dependency with age for N-glycan peaks 1 and 6. Our results suggest that both SC and the length of time after SC may affect the aging process by acting on the glycan profile, including on peaks that thus far have not been routinely used for age prediction.

THPDA0104

Association between gut microbiota and CD4 recovery in HIV-1 infected patients

W. Lu[1,2], Y. Feng[3,4,5], F. Jing[1,2], Y. Han[1,2], Z. Qiu[1,2], T. Li[1,2], B. Zhu[3,4,5]
[1]Peking Union Medical College Hospital, Division of Infectious Diseases, Beijing, China, [2]Chinese Academy of Medical Sciences and Peking Union Medical College, Center for AIDS Research, Beijing, China, [3]Chinese Academy of Science, Institute of Microbiology, Beijing, China, [4]University of Chinese Academy of Science, Beijing, China, [5]Beijing Key Laboratory of Microbial Drug Resistance and Resistome, Beijing, China

Background: Changes in gut microbial compositions have been described in human immuno-deficiency virus (HIV)-infected patients on antiretroviral therapy (ART). Evidences suggest that ART-treated patients with poor $CD4^+$ T-cell recovery have higher levels of immune activation and microbial translocation. However, the association between gut microbiota and immune recovery remains unclear.
Methods: We performed a cross-sectional study on 30 healthy controls (HC) and 61 HIV-infected individuals, including 15 immunological ART responders (IRs), 20 immunological ART non-responders (INRs) (IRs and INRs, $CD4^+$ T-cell counts ≥350 cells/mm³ and < 350 cells/mm³ after 2 years of ART, respectively), and 26 untreated individuals (VU). Each subject's microbiota composition was analyzed by metagenomics sequencing. Levels of $CD4^+$ T cells, $CD8^+HLA\text{-}DR^+$ T cells and $CD8^+CD38^+$ T cells were measured by flow cytometry.
Results: We identified more *Prevotella* and fewer *Bacteroides* in HIV-infected individuals than in healthy controls. Patients in INR group were enriched in *Faecalibacterium prausnitzii*, unclassified *Subdoligranulum sp.* and *Coprococcus comes* when compared with those in IR group. *F. prausnitzii* and unclassified *Subdoligranulum sp.* were overrepresented in individuals in VU group with $CD4^+$ T-cell counts< 350 cells/mm³. Moreover, we found that the relative abundances of unclassified *Subdoligranulum sp.* and *C. comes* were positively correlated with $CD8^+HLA\text{-}DR^+$ T-cell count and $CD38^+HLA\text{-}DR^+/CD8^+$ percentage.
Conclusions: Our study has shown that gut microbiota changes were associated with CD4 T cells and immune activation in HIV-infected subjects. Interventions to reverse gut dysbiosis and inhibit immune activation could be new strategies for immune reconstitution in HIV infected individuals.



[Differentially abundant species in the IR and INR groups and correlation with CD4 T cells.]

THPDA0105

Polymorphism rs1385129 within Glut1 gene SLC2A1 is linked to poor CD4+ T cell recovery in antiretroviral-treated HIV+ individuals

J. Masson[1], C. Cherry[1,2], N. Murphy[3,4], I. Sada-Ovalle[5], T. Hussain[3], R. Palchaudhuri[1], J. Martinson[6], A. Landay[6], B. Billah[3], S. Crowe[1,3], C. Palmer[1,2]
[1]Burnet Institute, Life Sciences, Melbourne, Australia, [2]Monash University, Department of Infectious Diseases, Melbiurne, Australia, [3]Monash University, Melbourne, Australia, [4]Monash IVF, Melbourne, Australia, [5]Unidad de Investigación Instituto Nacional de Enfermedades Respiratorias, Mexico City, Mexico, [6]Rush University Medical Centre, Department of Immunology-Microbiology, Chicago, United States

Background: HIV infection is associated with progressive $CD4^+$ T cell depletion, which is generally recovered with combination antiretroviral therapy (cART). However, a signification proportion of cART-treated individuals have poor $CD4^+$ T cell reconstitution. Abnormal glycolytic activation marked by increased $CD4^+$ T cell Glucose transporter-1 (Glut1) expression is associated with low CD4 T cell count in treated HIV infection. We investigated the association between the frequency of circulating $CD4^+Glut1^+$ T cell, specific single nucleotide polymorphisms (SNPs) within the Glut1 gene, and those regulating Glut, and HIV disease progression in treatment naïve patients and immunological response to cART.
Methods: Glut1 levels on $CD4^+$ T cells was determined by flow cytometry. Study groups comprise 17 HIV-positive treatment naïve individuals with favourable disease progression (>200 $CD4^+$ cells/μL within 3-7 years, or the loss of < 80 $CD4^+$ cells/μL/year) and 11 with non-favourable progression (< 200 $CD4^+$ cells/μL within 3 years of diagnosis, or a loss of >80 $CD4^+$ cells/μL/year). Treated groups comprise 25 treatment responders (>500 $CD4^+$ cells/μL; >3 years on cART), and 14 non-responders (< 500 $CD4^+$ cells/μL; >3 years on cART). SNP was evaluated in the Glut1 gene SLC2A1 (rs1385129, and rs841853), Glut1 regulatory AKT (rs1130214, rs2494732, rs1130233 and rs3730358), and the antisense RNA 1 region SLC2A1-AS1 (rs710218).
Results: High $CD4^+Glut1^+$ T cell percentage is associated with rapid $CD4^+$ T cell decline in HIV-positive treatment-naïve individuals and non-favourable $CD4^+$ T cell recovery in HIV-positive individuals on cART. Poor $CD4^+$ T cell recovery in HIV+/cART individuals is linked to the homozygous genotype (GG) of SLC2A1 SNP rs1385129 when compared to those with a recessive allele (GA/AA) (OR: 4.67; P: 0.04; Univariable logistic regression). $CD4^+Glut1^+$ T cell percentage is elevated among those with a homozygous dominant genotype for SNPs rs1385129 (GG) and rs710218 (AA) when compared to those with a recessive allele (GA/AA and AT/TT respectively) (P: 0.04; Mann-Whitney). The heterozygous genotype of AKT SNP 1130214 (GT) has a higher $CD4^+Glut1^+$ T cell percentage when compared to the dominant homozygous genotype (GG) (P: 0.0068; Mann-Whitney).
Conclusions: SNPs within genes that regulate glycolysis offer new insights into HIV pathogenesis and factors controlling HIV disease outcomes.

THPDB01 Antiretroviral drug resistance

THPDB0101
Characterization of doravirine-selected resistance patterns from participants in treatment-naïve Phase 3 clinical trials

M.-T. Lai[1], M. Xu[2], W. Ngo[3], M. Feng[3], D. Hazuda[3], G. Hanna[4], S. Kumar[5], X. Xu[6], E. Martin[4], C. Hwang[4]
[1]Merck & Co., Inc., Kenilworth, United States, [2]Merck & Co., Inc., Department of Pharmacology, West Point, United States, [3]Merck & Co., Inc., Department of Antiviral Research, West Point, United States, [4]Merck & Co., Inc., Department of Clinical Research, West Point, United States, [5]Merck & Co., Inc., Department of Clinical Sciences and Study Management, West Point, United States, [6]Merck & Co., Inc., Department of Biostatistics, West Point, United States

Background: Doravirine (DOR) is a novel human immunodeficiency type 1 virus (HIV-1) non-nucleoside reverse transcriptase inhibitor (NNRTI), with improved potency against prevalent NNRTI resistance-associated mutations, including RT K103N, Y181C, G190A, and E138K, at clinically relevant concentrations. This study aimed to characterize the mutant viruses selected in treatment-naïve participants through Week 48 from DRIVE-FORWARD and DRIVE-AHEAD, and to assess the impact of selected mutations on NNRTI susceptibility and viral fitness.
Methods: Plasma samples from the trials were tested for genotypic and phenotypic NNRTI susceptibility using a Monogram Biosciences resistance assay. Additionally, laboratory mutant isolates were generated via a site-directed mutagenesis (SDM) method with gene synthesis and subcloning into plasmid RT112. The resulting mutants were tested for their susceptibility to DOR and other NNRTIs in MT4-GFP cells to assess potential cross-resistance. The relative replication capacity of the mutants was measured by mixing various ratios of wild-type (WT) and mutant infected cells. The resulting cultures were incubated for 4 weeks with medium change every 3-4 days. At each passage, supernatant was harvested for clonal sequencing analysis to quantitate the relative abundance of WT and mutant viruses.
Results: Seven of 747 (0.9%) participants developed NNRTI resistance-associated mutations from 2 DOR phase 3 clinical trials (Table 1). SDMs were generated for the substitutions Y188L, V106I/F227C, A98G/F227C, V106I/H221Y/F227C, A98G/V106I/H221Y/F227C, V106A/P225H/Y318F, and V106M/F227C and their susceptibility to NNRTIs was evaluated. Most of the mutants conferred high level of resistance to DOR with a fold change (FC) >100 (FC: mutant$_{EC50}$ versus WT$_{EC50}$). Among the 7 mutants, V106I/F227C, V106I/H221Y/F227C, V106M/F227C, and Y188L mutants displayed FC < 10 against etravirine and rilpivirine, which is consistent with the phenotypic data from Monogram Biosciences. In addition, mutants containing F227C substitution were shown to be hypersensitive to some NRTIs such as AZT, TDF/TAF, and d4T. The replication capacity (RC) of Y188L, V106I/F227C, and A98G/V106I/H221Y/F227C was < 10% of WT virus and the RC of A98G/F227C and V106M/F227C was approximately 20% of WT virus.
Conclusions: The majority of DOR-selected viruses identified in the treatment-naive participants in clinical trials to date may retain susceptibility to etravirine and hypersensitivity to some NRTIs with low replication capacity.

Participant (HIV-1 subtype)	PDVF type or D/C (reason) Week of PDVF-VFC or D/C visit	Day sample collected (visit type) Viral load	NNRTI resistance mutations	Doravirine phenotypic resistance (IC_{50} fold diff.)	Efavirenz phenotypic resistance (IC_{50} fold diff.)	Rilpivirine Phenotypic resistance (IC_{50} fold diff.)	Etravirine Phenotypic resistance (IC_{50} fold diff.)
A (DF) Subtype B	D/C (noncompliance) Week 24	D 169 (D/C) 55,709 c/mL	V106I, H221Y, F227C	R (>96.6)	S (1.48)	S (1.24)	S (1.46)
B (DA) Subtype AE	PDVF rebound Week 48	D 366 (D/C) 1,250 c/mL	Y188L	R (>101.6)	R (>120)	R (11)	PS (3.36)
C (DA) Subtype B	PDVF Non-response Week 24	D 195 (VFC) 12,891 c/mL	V106I, F227C	R (>105.5)	S (2.46)	R (3.4)	PS (4.6)
D (DA) Subtype B	PDVF Non-response Week 24	D 182 (VFC) 34,944 c/mL	A98G/V106I/V, H221H/Y, F227C	R (>109.9)	R (15)	R (16)	PS (7.97)
E (DA) Subtype B	PDVF Non-response Week 24	D 251 (VFC) 4,254 c/mL	A98G, F227C	R (83.3)	R (8.8)	R (3.75)	S (2.8)
F (DA) Subtype B	PDVF Non-response Week 24	D 212 (D/C) 106,992 c/mL	V106A, P225H, Y318Y/F	R (>218.6)	R (4.77)	S (0.97)	S (0.78)
G (DA) Subtype C	PDVF Non-response Week 24	D 196 (VFC) 32,799 c/mL	V106M/T, F227C/R	R (>98.2)	R (11)	S (0.42)	S (0.57)

DA=DRIVE-AHEAD; DF=DRIVE-FORWARD; D/C=discontinued; PDVF=protocol-defined virological failure; R=resistant; S=susceptible; PS=partial susceptible; VFC=viral confirmation visit.

[Table 1. Doravirine-selected NNRTI resistance in treatment-naïve participants in clinical trials]

THPDB0102
Every site counts: Detecting low frequency variants in non-subtype B HIV-1 integrase associated with drug resistance in Uganda

M. Avino[1], E. Ndashimye[1,2], D. Lizotte[1], F. Kyeyune[2], I. Nankya[2], R. Gibson[1], E. Nabulime[2], C. Kityo[2], P. Mugyenyi[2], M. Quiñones-Mateu[3], E. Arts[1], A. Poon[1]
[1]Western University, London, Canada, [2]Joint Clinical Research Centre/ Case Western Reserve University Center for AIDS Research, Kampala, Uganda, [3]Case Western Reserve University, Cleveland, United States

Background: Next-generation (deep) sequencing provides a sensitive and cost-effective assay for low-frequency variants in diverse HIV-1 infections, but historically has been underutilized for non-subtype B HIV-1 infections in resource-limited settings. Here, we use deep sequencing to analyze samples from treatment-naïve individuals and individuals experiencing virological failure on combination antiretroviral treatment in Uganda.
Our objective was to detect associations between low-frequency mutations in HIV-1 integrase and treatment outcomes in Uganda.
Methods: We retrieved a total of 362 archived plasma samples from patients at the Joint Clinical Research Centre (Kampala) with non-B infections, of which 85 were treatment-naive and 277 had experienced virological failure (VF) on first- (N=129), second-line (N=116) or raltegravir (RAL)-based (N=32) regimens. For each sample, we extracted HIV-1 plasma RNA and generated amplicon libraries for two overlapping regions spanning HIV-1 integrase for sequencing on an Illumina MiSeq. Sequencing reads were iteratively aligned with bowtie2 and subtypes were classified with SCUEAL. Amino acid presence/absence matrices were generated at a 1% frequency cutoff and multiple imputations (n=50) were analyzed by L1-norm support vector machine (SVM) classification with 5-fold cross-validation.
Results: Overall, HIV-1 subtype A (47%) was the most frequent, followed by subtype D (21%). More importantly, we detected several polymorphisms associated with integrase inhibitor resistance (*e.g.*, E138K, G140A, Y143R, S147G, Q148K) in a small number of VF samples, although none of these polymorphisms were significantly associated with treatment outcomes. Our SVM analysis determined that the mutations T93A and V126M were the most strongly associated with first-line VF; T174A and K211T with second-line VF; and V165I and V151I with RAL-based VF.
Conclusions: Detecting minority HIV-1 variants with deep sequencing is important in settings where patients frequently discontinue treatment following VF, often leading to reversion to wild-type genotype by the follow-up visit. Our method describes a general strategy for detecting potential associations between the residual polymorphisms and treatment outcomes.

THPDB0103
Phenotypic assays of 5 integrase inhibitors on HIV-2 clinical isolates reveal a new resistance pathway

Q. Le Hingrat[1], G. Collin[1], G. Peytavin[2], B. Visseaux[1], M. Bertine[1], R. Tubiana[3], M. Karmochkine[4], N. Valin[5], A. Lemaignen[6], L. Bernard[6], F. Damond[1], S. Matheron[7], D. Descamps[1], C. Charpentier[1], ANRS CO5 HIV-2 Cohort
[1]IAME, UMR 1137, INSERM, Université Paris Diderot, Sorbonne Paris Cité, AP-HP, Laboratoire de Virologie, Hôpital Bichat, AP-HP, Paris, France, [2]IAME, UMR 1137, INSERM, Université Paris Diderot, Sorbonne Paris Cité, AP-HP, Laboratoire de Pharmacologie, Hôpital Bichat, AP-HP, Paris, France, [3]Department of Infectious Diseases, AP-HP Hôpital Pitié-Salpêtrière, Paris. Sorbonne Universités, UPMC Univ Paris 06, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique (IPLESP UMRS 1136), Paris, France, [4]Hôpital Européen Georges Pompidou, Service d'Immunologie Clinique, Paris, France, [5]Hôpital St-Antoine, Service de Maladies Infectieuses et Tropicales, Paris, France, [6]CHU Tours, Service de Maladies Infectieuses et Tropicales, Tours, France, [7]IAME, UMR 1137, INSERM, Université Paris Diderot, Sorbonne Paris Cité, AP-HP, Service de Maladies Infectieuses et Tropicales, Hôpital Bichat, AP-HP, Paris, France

Background: Integrase strand-transfer inhibitors (INSTI) represent an important therapeutic option in HIV-2-infected patients for whom the number of active ARV is limited. Efficiency of INSTI has rarely been de-

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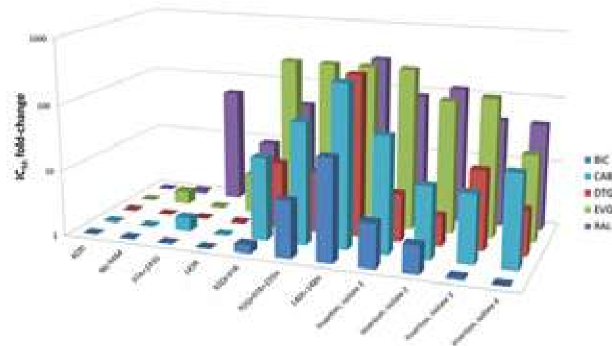
termined on HIV-2 clinical isolates. We aimed to assess phenotypic susceptibility to five INSTI on integrase clinical isolates.

Methods: Phenotypic susceptibility assays were performed on 10 HIV-2 isolates (3 group A and 7 group B) and the ROD reference strain using peripheral blood mononuclear cells method for bictegravir (BIC), cabotegravir (CAB), dolutegravir (DTG), elvitegravir (EVG) and raltegravir (RAL). Viruses were cultured without antiretroviral and with five 10-fold dilutions of drug, ranging from 1000 to 0.1 nM. At days 3 or 4, supernatant was withdrawn to assess viral replication (Biocentric HIV-2 RNA®). Phenotypic susceptibility was expressed in fold-changes of the IC_{50} between the isolate and the HIV-2 ROD reference strain.

Results: Ten clinical isolates were obtained from patients included in the ANRS CO5 HIV-2 cohort, exhibiting virological failure (VF) under an INSTI-based regimen (RAL=6, EVG=1 and DTG=3). Five isolates displayed integrase resistance-associated mutations (RAM) (97A+143G, 143R, 92Q+97A, 92Q+97A+155H and 140S+148). Five had no RAM but four of them presented a similar 5 amino-acids insertion in the integrase N-terminal region (S/Y-R-E-G-R/K), selected under RAL-based regimen.

On the 5 isolates with RAM, BIC and DTG exhibited lower fold-changes than RAL and EVG. On the 92Q+97A and 140S+148H combinations, BIC had lower fold-changes than DTG (1.4 and 35-fold for BIC versus 10 and >300-fold for DTG, respectively).

Regarding the 4 isolates with integrase insertion, they all presented high fold-changes to RAL and EVG ranging from 20 to >300-fold and intermediate fold-changes to DTG and CAB ranging from 3 to 17-fold and 11 to 58-fold, respectively. Fold-changes of BIC on those isolates were unmodified (0.4 and 1.1-fold) or moderate (3 and 5-fold).



[Figure. Phenotypic susceptibility of HIV-2 isolates to integrase inhibitors For each isolate, RAM in the integrase region are indicated.]

Conclusions: We describe for the first-time, a new INSTI-resistance pathway in HIV-2-infected patients with an insertion of 5 amino-acids in the integrase. This insertion, selected under RAL-based regimen, severely impacts RAL and EVG but might also compromises CAB, DTG and BIC susceptibility. Phenotypic susceptibility to BIC was less impacted than other INSTI by the presence of INSTI-RAM.

THPDB0104

Accumulation of mutations in vivo confer cross-resistance to new integrase inhibitors

W.W. Zhang[1], P.K. Cheung[2], N.S. Oliveira[2], M. Robbins[2], P.R. Harrigan[3], A. Shahid[2]
[1]*University of British Columbia, Medicine, Vancouver, Canada,* [2]*British Columbia Centre for Excellence in HIV/AIDS, Vancouver, Canada,* [3]*University of British Columbia, Vancouver, Canada*

Background: Bictegravir (BIC) and cabotegravir (CAB) are novel HIV integrase inhibitors currently in clinical trials. Descriptions of clinically relevant resistance to these newest inhibitors are still relatively limited. Dolutegravir (DTG) response in vivo in the VIKING study was reduced in patient viruses with Q148H±G140S and/or additional mutations, with 2-fold increases in IC50 considered clinically relevant. Reduced in vitro susceptibility to viruses with these mutations has also been observed with BIC and CAB. Here, we compare the phenotypic susceptibility to all five available HIV integrase inhibitors of a panel of fourteen viruses derived from patients having integrase inhibitor resistance.

Methods: Initially clonal recombinant viruses were produced by PCR amplification under conditions where single copies of integrase were amplified. This was followed by co-transfection of integrase amplicons and linearized integrase-deleted pNL4.3 plasmid into CEM-GXR cells. Subsequent titering and phenotyping were performed in MT4-LTR-EGFP cells, where infectivity data was collected using a Spectra-max i3 Minimax 300 microplate reader. Recombinant viruses were grown under a range of concentrations of raltegravir, elvitegravir, DTG, BIC and CAB. EC50 fold-changes (FC) relative to a NL4.3 control were determined on day 3 post-infection.

Results: Viruses with the combination of G140S and Q148H substitutions alone had >100-fold increases in EC50 to raltegravir and elvitegravir, but relatively small changes (2-4-fold) in DTG, BIC or CAB susceptibility (Table 1). Viruses with progressively more substitutions showed extensive high level cross resistance to all five drugs (increases >50-fold). Viruses with T97A and L74M substitutions exhibited 6-fold greater increases in IC50 (67 to 456-fold change to DTG, BIC or CAB) compared to viruses which had only a T97A substitution (11 to 80-fold change). Phenotypic resistance values were strongly correlated between DTG, BIC, and CAB, with correlation coefficients ranging from 0.96 to 0.98.

Conclusions: Accumulation of multiple mutations in HIV integrase led to high level phenotypic resistance to all five HIV integrase inhibitors in patient-derived samples. Increases in phenotypic resistance values for DTG, BIC and CAB were almost co-linear.

Key Mutations (Stanford HIV DB)	G140S + Q148H	G140S + Q148H	G140S + Q148H
Additional mutations	-	+ T97A	+ T97A + L74M
N (patients)	6	3	3
n (viruses)	7	3	4
RAL	>100 (47->100)	>50 (>50->50)	>50 (>50->50)
EVG	>100 (>100 - >100)	>100 (>100 - >100)	>100 (>100 - >100)
DTG	3.5 (2.7-8.5)	33 (16-54)	417 (345-563)
BIC	2.7 (2.1-3.1)	11 (7.0-15)	67 (65-81)
CAB	3.7 (3.2-4.5)	80 (55-111)	456 (279-522)

[Median Fold Change in EC50 (IQR) of recombinant viruses with G140S and Q148H mutations and additional mutations for RAL, EVG, DTG, BIC and CAB.]

THPDB0105

Baseline resistance testing in the current treatment era - no longer cost-effective?

E. Hyle[1], J. Scott[1], P. Sax[2], L. Millham[1], T. Hou[1], M. Weinstein[3], K. Freedberg[1], R. Walensky[1]
[1]*Massachusetts General Hospital, Boston, United States,* [2]*Brigham and Women's Hospital, Boston, United States,* [3]*Harvard T.H. Chan School of Public Health, Boston, United States*

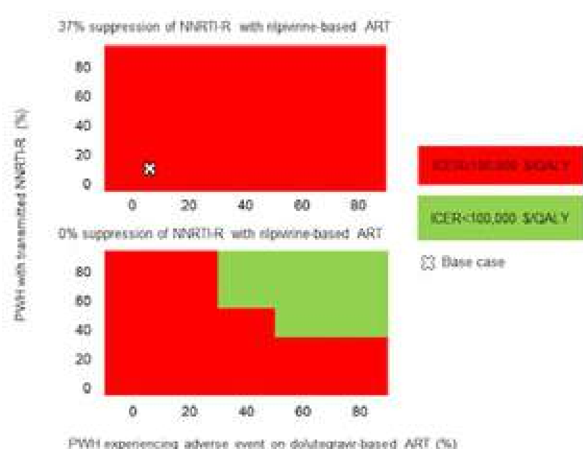
Background: For people newly diagnosed with HIV, US guidelines recommend standard genotype testing to detect transmitted resistance to NNRTI, NRTI, and PIs, but not INSTIs. With INSTI-based regimens as preferred first-line therapy, results of a standard genotype at HIV diagnosis will influence only second-line ART selection for people who experience an adverse event (AE) on INSTIs and require an ART switch.

Methods: We used the Cost-effectiveness of Preventing AIDS Complications (CEPAC) model to examine the value of standard genotype at HIV diagnosis for people starting dolutegravir, comparing: 1) *No Genotype* and 2) *Genotype*. In both strategies (Table), patients with an AE to dolutegravir switch to rilpivirine, except those with known NNRTI-resistance in *Genotype* who instead transition to darunavir. In *No Genotype*, patients with undiagnosed NNRTI-resistance have lower viral suppression with second-line rilpivirine. In both strategies, patients with virologic failure then have genotypes to guide subsequent ART. Standard genotype costs $350; ART costs $3000-3700/month. In sensitivity analysis, we varied the prevalence of transmitted NNRTI-resistance (base case, 8%), prevalence of AEs on dolutegravir (base case, 14%), and suppression of NNRTI-resistant virus with rilpivirine. Model outcomes (discounted 3%/year) included quality-adjusted life years (QALYs), costs, and incremental cost-effectiveness ratios (ICERs). We considered ICERs< $100,000/QALY cost-effective.

	No Genotype		*Genotype*	
	NNRTI-susceptible	NNRTI -resistant	NNRTI-susceptible	NNRTI -resistant
1st-line ART	Dolutegravir		Dolutegravir	
48-week suppression	93%		93%	
Monthly cost	$3,700		$3,700	
2nd-line ART	Rilpivirine	Rilpivirine	Rilpivirine	Darunavir
48-week suppression	83%	37%	83%	83%
Monthly cost	$3,000	$3,000	$3,000	$3,700

[Table. Strategy-specific response to adverse events on first-line dolutegravir.]

Results: Among all newly-diagnosed patients, *No Genotype* resulted in 15.3043 QALYs and cost $730,240/person; *Genotype* gained 0.0003 QALYs and cost $850/person more (ICER, $2.8 million/QALY gained). Among patients with transmitted NNRTI-resistance, *Genotype* resulted in 0.0039 additional QALYs compared to *No Genotype* and cost $6,590/person more (ICER, $1.6 million/QALY gained). At base case assumptions, 1.1% of newly diagnosed people with HIV would benefit clinically from *Genotype*, but it would cost $114,510 to test 100 patients for a maximum gain of 2.6 quality-adjusted days for one person. *Genotype* was not cost-effective compared to *No Genotype* unless prevalence of transmitted NNRTI-resistance >40% and AEs on dolutegravir >40%, with no suppression of NNRTI-resistant virus on rilpivirine-based ART (Figure).
Conclusions: With INSTI-based regimens as first-line treatment in the US, the standard genotype test at HIV diagnosis offers minimal clinical benefit, is more expensive, and is not cost-effective. Practice guidelines should consider removing genotypes from the recommended baseline evaluation.



[Figure. Multi-way sensitivity analysis: Genotype is cost-effective compared to No Genotype only extremely high prevalence of transmitted NNRTI-R and adverse events while on dolutegravir, as well as poor suppression of NNRTI-R with rilpivirine-based ART
NNRTI-R, NNRTI-resistant virus; PWH, people with HIV; ART. antiretroviral therapy]

THPDC01 From online to door-2-door: expanding access to HIV self-testing

THPDC0101
Dispensing HIV self-tests in pharmacies in France: The pharmacists' point of view

T. Greacen, A. Simon, A. Troisoeufs, K. Champenois
EPS Maison Blanche, Laboratoire de Recherche, Paris, France

Background: HIV self-test kits have been available in pharmacies and on pharmacy websites in France since September 2015. What are the principle obstacles and facilitators that pharmacists themselves have encountered providing self-tests and information and support for self-test clients?
Methods: From February to December 2016, 22 interviews were conducted with pharmacists in three high HIV prevalence areas (a gay neighbourhood in central Paris; Guadeloupe/French Guyana; Paris suburbs with large sub-Saharan migrant communities) and one low HIV prevalence area in Northern France.
Results: Although pharmacists saw HIV self-test provision in pharmacies as a step forward with regard to engaging their profession in a key public health issue in France, most professionals interviewed had sold relatively few self-tests, and significantly less than expected. The major concern of pharmacists was the risk associated with individuals discovering positive test results alone at home and the issue of linkage to care. The current price of self-test kits was generally considered to be too high, even for pharmacists making minimal profit. Discretion and anonymity were clearly major issues. Few clients actually asked any direct questions. Clients interested in HIV self-tests were generally not their habitual clientele. A number of pharmacists reported clients purchasing two tests at a time, and hypothesized that this might be for their partners. The positioning of the HIV self-test kits in the pharmacy was a key indicator of pharmacists' attitudes with regard to self-testing. Although the law specifically states that the HIV self-test should be kept behind the counter, some pharmacists provided off-the-shelf access to ensure convenience and privacy to clients. In other pharmacies, typically in gay areas in central Paris, the self-test kits were stored behind the counter but visible to the public, with the aim of facilitating discussion with clients. Finally, in a not insignificant number of cases, no self-test kits or information on HIV self-testing were visible at all.
Conclusions: Although pharmacists see HIV self-testing as part of a significant trend in France towards facilitating access to screening for health conditions in general, price, anonymity, discretion and linkage to care remain crucial issues.

THPDC0102
Linkage to HIV care following HIV self-testing: A cluster randomised trial of community-based distribution of oral HIV self-test kits nested in four HPTN 071 communities in Zambia

S. Floyd[1], K. Shanaube[2], A. Schaap[1,2], M. Phiri[2], B. Hensen[1], C. Mulubwa[2], V. Bond[1,2], B. Chiti[2], M. Simwinga[2], R. Hayes[1], S. Fidler[3], A. Mwinga[2], H. Ayles[1,2]
[1]*London School of Hygiene & Tropical Medicine, London, United Kingdom,* [2]*ZAMBART, Lusaka, Zambia,* [3]*Imperial College, London, United Kingdom*

Background: HIV self-testing (HIVST) has the potential to help achieve the UNAIDS 90-90-90 targets. However, evidence is limited about how to ensure linkage to care (LTC) among individuals with HIV-positive results. We report LTC findings from a HIVST cluster-randomised trial nested within the HPTN071 (PopART) trial in Zambia. The PopART intervention was delivered in "annual rounds" from 1/12/2013-31/12/2017, during which community-HIV-care-providers (CHiPs) visited all households, and offered home-based HIV testing with a rapid diagnostic test using fingerprick blood (RDT), referral to routine clinic services, and support (including follow-up visits) for LTC.
Methods: In December 2016, 4 of the PopART intervention communities in Zambia, comprising 66 zones, were included in a cluster-randomised trial of adding oral HIVST to the standard intervention. Self-testing was offered in-person, supervised or unsupervised, and to absent partners via secondary distribution. We estimated the time from CHiP referral to LTC among individuals who were (re-)enumerated as a household member during 1/2/2017-30/4/2017, aged ≥16 years, and diagnosed HIV-positive based on initial or confirmatory (following HIVST) RDT. We used the Kaplan-Meier method for "time-to-event" analysis, and follow-up information to 30/9/2017.
Results: Among 13,267 individuals in 33 HIVST zones, 195 were diagnosed HIV-positive; additionally 20 tested HIV-positive with supervised/unsupervised self-testing but did not have confirmatory RDT, and 13 tested HIV-positive following secondary distribution but were not contacted in-person by CHiPs. Among 13,706 individuals in 33 non-HIVST zones, 204 were diagnosed HIV-positive. Among those diagnosed, 94% (184/195) in HIVST and 98% (199/204) in non-HIVST zones were referred to care. We estimated that 65% in HIVST, and 64% in non-HIVST, zones were LTC by 3

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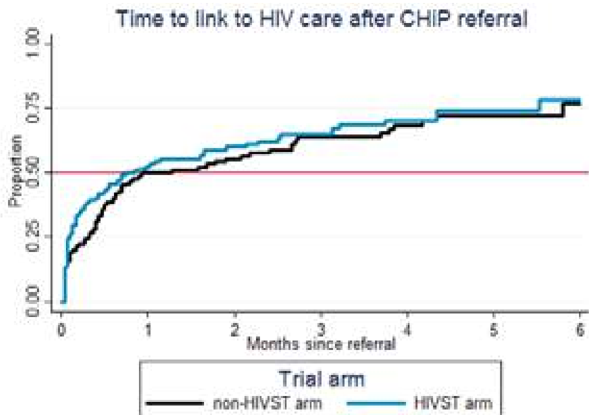
months after referral (hazard ratio 1.11, 95%CI 0.78-1.58; Figure 1, Table 1). In HIVST zones, there was a suggestion that LTC was slower for individuals who tested with unsupervised self-testing or via secondary distribution, compared with those who tested with RDT (Table 1).

Conclusions: LTC following an HIV-positive diagnosis and CHiP referral was not undermined by offering HIVST as a testing option, in the context of LTC support. Strategies to facilitate confirmatory RDT following an initial HIVST, and LTC following unsupervised self-testing and secondary distribution, may be important.

		Referred to HIV care (n/N, %)	Linked to HIV care, by months after referral (%)			
			1	3	6	Hazard ratio, 95% confidence interval
Overall	Non-HIVST	199/204, 98%	50.3	63.8	76.6	1 (ref)
	HIVST	184/195, 94%	52.6	64.8	78.2	1.11 [0.78-1.58]
Overall, HIVST zones	RDT	85/88, 97%	51.2	71.4	78.9	1 (ref)
	Supervised	80/86, 93%	57.5	68.1	80.8	1.04 [0.66-1.63]
	Unsupervised	14/16, 87%	45.6	45.6	45.6	0.47 [0.19-1.14]
	Secondary distribution	5/5, 100%	25.0	25.0	25.0	0.24 [0.03-1.76]
"Minimum estimate" of linkage to HIV care	Non-HIVST	199/204, 98%		82/199 41.2%		
	HIVST	184/195, 94%		82/184 44.6%		

[Table 1 - Time to link to HIV care after CHiP referral, by whether individual was referred from a HIVST or non-HIVST zone]



[Figure 1 - Time to link to HIV care after CHiP referral, among individuals who were diagnosed HIV-positive by CHiPs]

THPDC0103

Increasing knowledge of HIV status and demand for antiretroviral therapy using community-based HIV self-testing in rural communities: A cluster randomised trial in Malawi

P. Indravudh[1,2], K. Fielding[1], M. Neuman[1], R. Chilongosi[3], P. Mkandawire[3], E. Nyondo[3], R. Nzawa[2], L. Magombo[3], D. Chalira[2], M. Kumwenda[2], R. Nyirenda[4], C. Johnson[5], C. Nkhoma[3], N. Desmond[2,6], K. Hatzold[7], E.L. Corbett[1,2]

[1]London School of Hygiene and Tropical Medicine, London, United Kingdom, [2]Malawi-Liverpool-Wellcome Trust Clinical Research Programme, Blantyre, Malawi, [3]Population Services International, Blantyre, Malawi, [4]Ministry of Health, Lilongwe, Malawi, [5]World Health Organisation, Geneva, Switzerland, [6]Liverpool School of Tropical Medicine, Liverpool, United Kingdom, [7]Population Services International, Washington, United States

Background: HIV self-testing (HIVST) has potential to reach populations poorly served by facility-based HIV testing services. We used a cluster-randomised trial design to investigate the impact of community-based HIVST distribution on recent HIV testing and antiretroviral therapy (ART) uptake in rural Malawi.

Methods: Government clinics (n=22) and their defined rural catchment areas were allocated using restricted 1:1 randomisation to either (i) door-to-door distribution of HIVST kits by resident community-based distributors (CBD) or (ii) the standard of care (SOC). Distributors provided continuous HIVST access and option of post-test support and assisted referral to routine confirmatory testing and ART services. Social harm monitoring was also established.

The primary outcome compared recent HIV testing (previous 12 months) across arms, ascertained through population-based surveys conducted 12 months after the cluster start date in pre-defined evaluation villages. Analysis used logistic regression with adjustment for imbalance between arms. For the secondary outcome, we used generalized estimating equations to analyse cluster-level ART initiations that were recorded in clinic registers in the 12 months after cluster enrolment, adjusting for ART initiations in the preceding 12 months.

Results: A total of 83 CBDs delivered 79,349 HIVST kits over a 12 to 15-month period, with three reported social harms. Of 5,504 adults in the post-intervention survey, 42.6% were men and 15.4% were adolescents aged 16-19 years. Coverage was significantly higher in the HIVST than SOC clusters for both recent testing (64.1% versus 45.6%, adjusted risk ratio [aRR] 1.38, 95%CI 1.14-1.68) and lifetime testing (87.3% versus 78.7%, aRR 1.12, 95%CI 1.05-1.16). Differences between arms were more pronounced for adolescents (aRR 1.99, 95%CI 1.35-2.92) and men (aRR 1.55, 95%CI 1.19-2.01).

Among 93,640 adults living in the defined study area, the proportion of ART initiations per 1000 adult clinic population increased in the HIVST versus SOC arm in the intervention period, adjusting for pre-intervention ART uptake (adjusted initiation risk ratio 1.36, 95%CI 0.95-1.94, p=0.09).

Conclusions: CBD-delivered HIVST increased HIV testing coverage in rural populations, especially among men and adolescents, and population-level demand for ART. This approach can rapidly improve knowledge of HIV status in underserved populations and have a measurable impact on ART uptake.

I. Recent and lifetime HIV testing					
	HIVST arm No. (%)	SOC arm No. (%)	Unadjusted risk ratio (95% CI)	Adjusted risk ratio[1] (95% CI)	p-value
Recent testing in past 12 months	1,660 (64.1)	1,328 (45.6)	1.42 (1.19-1.68)	1.38 (1.14-1.68)	0.002
Men	659 (61.1)	511 (40.4)	1.55 (1.23-1.95)	1.55 (1.19-2.01)	0.002
Adolescents	255 (64.3)	182 (40.4)	1.74 (1.21-2.51)	1.99 (1.35-2.92)	0.005
Lifetime testing	2,262 (87.3)	2,293 (78.7)	1.11 (1.06-1.16)	1.0 (1.05-1.16)	<0.001
Men	900 (83.5)	908 (71.8)	1.15 (1.07-1.26)	1.16 (1.06-1.28)	0.003
Adolescents	306 (77.3)	248 (55.0)	1.40 (1.16-1.77)	1.53 (1.21-1.92)	0.001

II. Facility-level ART uptake				
	HIVST arm Rate per 1000	SOC arm Rate per 1000	Adjusted initiation risk ratio[2] (95% CI)	p-value
ART initiation in 12-month intervention period	10.2	7.3	1.36 (0.95-1.94)	0.09

HIVST, HIV self-testing; SOC, standard of care; NA, not applicable; NS, not significant
[1] Adjusted for age, sex and cluster-level recent testing rates at baseline
[2] Adjusted for ART uptake in the 12-month pre-intervention period

[Effect of community-based HIVST self-testing on testing coverage and ART demand]

THPDC0104

Secondary distribution of HIV self-tests as a way to promote HIV testing among male partners of young women: Subgroup analysis from a randomized trial

K. Agot[1], B. Obonyo[1], J. Ambia[1], G.-N. Wango[2], H. Thirumurthy[3]
[1]*Impact Research and Development Organization, Kisumu, Kenya,* [2]*Nyanza Initiative for Girls' Education and Empowerment, Kisumu, Kenya,* [3]*University of Pennsylvania, Department of Medical Ethics and Health Policy, Philadelphia, United States*

Background: HIV risk among young women in eastern and southern Africa remains extremely high and age-disparate sexual relationships are widely believed to be a contributing factor. Interventions that promote HIV testing among male partners of young women are essential for reducing HIV risk. Given compelling evidence on the acceptability of HIV self-testing (HIVST), we assessed whether provision of multiple self-tests to young women can result in higher male partner testing.

Methods: This sub-study analyzed data among a subgroup of young women aged 18-24 years who participated in a larger randomized trial conducted at clinics in Kisumu, Kenya (NCT02386215). The trial enrolled women seeking antenatal and postpartum care and randomized them to receive two HIV self-tests (HIVST group) or a comparison group in which invitation cards were given to encourage clinic-based HIV testing. Women in the HIVST group also received a brief demonstration of how to use self-tests along with pictorial use instructions. Follow-up interviews were conducted with women at 3 months to assess whether partner and couples testing occurred. The primary outcome was partner testing and the secondary outcome was couples testing. Logistic regression analyses were used to compare outcomes in the two study groups.

Results: Of 599 women enrolled in the trial in 2015, 367 (61.2%) were aged 18-24 years. Eighty-eight percent of the young women were married. A total of 179 and 188 women were randomized to the HIVST and comparison groups, respectively. Follow-up interviews were completed by 347 women (94.5%). Male partner testing uptake was 92.4% in the HIVST group and 55.7% in the comparison group (odds ratio 9.7, 95% CI 5.1-18.3). Couples testing was also significantly more likely in the HIVST group than the comparison group (77.8% vs. 38.1%, odds ratio 5.7, 95% CI 3.6-9.1).

Conclusions: Provision of multiple HIV self-tests to young women seeking pregnant and postpartum care was very effective in increasing male partner and couples testing. Although not generalizable to unmarried young women, the findings suggest that HIVST can play a prominent role in facilitating testing among their male partners. As countries begin to scale-up HIVST, further investigation of secondary distribution interventions among young women is warranted.

THPDC0105

Effective promotion of HIV Self-testing among MSM in Russia in the context of growing stigma and discrimination

E. Pisemskiy
Orlovskaya Regional Non-Profit Organization against AIDS Phoenix PLUS (NGO Phoenix PLUS), Orel, Russian Federation

Background: This project provided for free and easy access for gays and other MSM and TG to self-testing for HIV. They could get a free self-testing kit in various places: community organizations, friendly clinics, friendly commercial pharmacies, clubs and saunas, as well as by limited courier delivery and from volunteers. The project was implemented in 5 cities
The project answers 3 major questions:
1. How to increase testing coverage?
2. What methods of self-testing kits distribution are the most convenient for MSM and TG and are cost effective for an NGO?
3. How can we make MSM and TG come to AIDS centers for confirmation testing and linkage to care?

Methods: Throughout the project, users could contact the organizers via the free 8-800 hotline or a friendly doctor at the AIDS center (whose business card was included into the self-test kit) or a peer consultant by the phone and any social media. When receiving a self-testing kit, the users were also encouraged to give feedback on the gaytest.info website using an individual code.

Results: The project supported by EJAF allowed to perform roughly the same number of HIV tests among MSM as 5 large projects supported by the Global Fund in 5 Russian cities.
Over 10,000 tests were conducted within a year. Self-reports show that **28%** of users leave feedback on the result of the test, **15%** of them reporting a reactive result**.** As a result of case management, 230 confirmation tests were performed in AIDS centers (registered) and 186 people were enrolled in care at AIDS centers.

Conclusions: The HIV self-testing project significantly increases testing coverage of MSM and TG. Since most MSM do not turn to community organizations for services, self-testing allows to reach the groups of MSM and TG people that were not covered by testing programs earlier. We recommend self-testing as a method that can be effectively used for such key populations as MSM, SW and DU even under high levels of stigma and discrimination.

THPDC0106

An intervention to teach young MSM and transgender women of color how to HIV self-test with a friend: Lessons learned in project TRUST

M.Q. Paige[1], L. Wilton[2], D. Lucy[1], G. Ortiz[1], V. Nandi[1], B. Koblin[1], V. Frye[1,3]
[1]*New York Blood Center, Project ACHIEVE, New York, United States,* [2]*Binghamton University, Binghamton, United States,* [3]*City University of New York, New York, United States*

Background: Increasing consistent HIV testing among high-risk populations such as men who have sex with men (MSM) and transgender women (TW) can lead to earlier treatment and uptake of PEP/PrEP, reducing HIV transmission. HIV self-testing is a relatively novel method that may increase consistent testing by reducing the travel and time burdens, HIV stigma, and/or increasing client control.

Description: TRUST tested a behavioral intervention to increase consistent HIV self-testing among Black/African-American and Latino MSM and TW aged 18-34. The experimental arm randomized friend pairs to taking 4th generation HIV rapid tests together and a 30-minute, facilitated session designed to: increase motivation to test consistently, master HIV self-testing skills, and commit to consistent HIV testing. Here we describe participant experiences of the experimental arm.

Lessons learned: Correct knowledge of HIV transmission is fundamental to increasing testing motivation, yet many participants had low knowledge (e.g., the "window period," status certainty, PEP/PrEP, etc.), indicating that HIV/sex education is lacking in primary/secondary US education. HIV testing is an anxiety-producing experience, with stigma an important driver of testing fear. "TRUST" was appropriately named, as participants chose the study friend based primarily on whether they "trusted" them. Increasing trust within the friend pair was facilitated by concrete discussion of testing plans, specifying and practicing support acts, and integrating familiarity and levity into testing. Participants reported high levels of satisfaction with the session, particularly learning how to self-test and with a friend. Increased self-efficacy and control were reported and attributed to mastering test mechanics and the realization that participants could control the setting, timing of and people present via self-testing. This last finding was consistent with the theoretical bases for the intervention, which emphasized self-determination and agentic control.

Conclusions/Next steps: Teaching friend pairs of MSM and TW of color to HIV self-test may increase consistent HIV testing among this higher risk group. Our experimental arm implementation assessment suggests that the intervention hit many of the theoretical targets and was highly acceptable to participants. Results of the trial will determine if the experimental arm outperformed the control arm on study outcomes.

THPDD01 Knowing and resolving stigma

THPDD0101

Social-structural correlates of HIV stigma among women living with HIV in Metro Vancouver

K. Deering[1,2], C. Logie[3], A. Krusi[4], F. Ranville[2], M. Braschel[2], P. Duff[4], K. Shannon[2,4], on Behalf of the SHAWNA Project (Sexual Health and HIV/AIDS: Women's Longitudinal Needs Assessment)
[1]University of British Columbia, Vancouver, Canada, [2]Gender and Sexual Health Initiative, Vancouver, Canada, [3]University of Toronto, Actor-Inwentash Faculty of Social Work, Toronto, Canada, [4]University of British Columbia, Medicine, Vancouver, Canada

Background: HIV stigma is widely known as a substantial barrier to access to and use of HIV treatment and care services. Less is known about the social and structural factors that produce HIV stigma. The objective of this study was therefore to understand the social and structural correlates of HIV stigma among women living with HIV (WLWH) in Vancouver, Canada.

Methods: Data were drawn from two years of follow-up from a longitudinal community-based participatory open cohort of 318 cis or trans WLWH who lived and/or accessed care in Metro Vancouver, Canada (2014-present)(Sexual Health and HIV/AIDS: Women´s Longitudinal Needs Assessment "*SHAWNA*"). Participants completed semi-annual interviewer-administered questionnaires by trained peer researchers/community interviewers and clinical questions by a sexual health research nurse. Stigma outcomes included three dimensions:

1) Disclosure Concerns;
2) Personalized Stigma;
3) Internalized Stigma; and an additional question measuring
4) Social Attitudes Stigma.

Sexual orientation, gender identity, immigrant status and ethnic/racial identity were all measured at the initial interview; remaining social-structural variables were time-updated and measured in the last six months, including stigma outcomes. Bivariate and multivariable linear regression using generalized estimating equations for repeated measures were used to examine correlates of the four stigma measures.

Results: Overall, 215 women responded to >=1 follow-up survey with 509 total observations. In multivariable analysis, HIV disclosure without consent was significantly associated with Disclosure Concerns (estimate:0.84, 95%CIs:0.30-1.37;p=0.002); Personalized Stigma (estimate:2.17, 95%CIs:1.35-2.98;p< 0.001); Internalized Stigma (estimate:1.04, 95%CIs:0.31-1.76;p=0.005); and Social Attitudes Stigma (estimate:0.44, 95%CIs:0.11-0.76;p=0.008). Time since first diagnosed with HIV (estimate:-0.04 p/year, 95%CIs:-0.08- -0.01;p=0.016) was negatively associated with Disclosure Concerns. Physical violence by any perpetrator (estimate:0.90, 95%CIs:0.13-1.67;p=0.022); poor treatment by health professionals (estimate:0.98, 95%CIs:0.10-1.86;p=0.030); and physical/verbal violence associated with the participant's HIV-positive status (estimate:1.43, 95%CIs:0.49-2.38;p=0.003) were associated with Personalized Stigma. Physical violence from any perpetrator (estimate:0.41, 95%CIs:0.15-0.68;p=0.002); and physical/verbal violence associated with participant's HIV-positive status (estimate:0.38, 95%CIs:0.11-0.66;p=0.006) were significantly associated with Social Attitudes Stigma.

Conclusions: Study results strongly suggest a critical need to develop strategies to address social and structural violence against WLWH, including amending Canada's restrictive HIV disclosure laws as a structural intervention to reduce HIV stigma and promote safe disclosure for WLWH.

THPDD0102

HIV-related stigma and discrimination among health care personnel in Thailand: Results of the 2017 national surveillance survey

K. Srithanaviboonchai[1,2], P. Khemngern[3], N. Pudpong[4], J. Chueayen[1], T. Siraprapasiri[3]
[1]Chiang Mai University, Research Institute for Health Sciences, Chiang Mai, Thailand, [2]Chiang Mai University, Faculty of Medicine, Chiang Mai, Thailand, [3]Ministry of Public Health, Department of Disease Control, Nonthaburi, Thailand, [4]International Health Policy Program (IHPP), Nonthaburi, Thailand

Background: HIV-related stigma and discrimination (S&D) is a major obstacle in the attempt to end the AIDS epidemic. Stigma and discrimination that occur within health facilities are of particular concern. To monitor this issue, Thailand developed a national surveillance system to monitor S&D in government health facilities.

Methods: Thirteen provinces, 12 provinces that serve as the centers for Thailand´s 12 health regions as well as the capital city Bangkok, were selected as national surveillance sites. All government hospitals with antiretroviral treatment clinics in each province served as survey venues. Both health staff and supportive staff providing services directly to the patients (regardless of patient's HIV status) were eligible to participate in the survey. The sample size at each health facility was determined proportional to the size of health staff of the whole province. Simple random sampling was used to identify potential participants. The participants completed a standardized questionnaire capturing actionable drivers and manifestations of HIV-related S&D in health care facilities online using a smartphone or tablet. The composite indicators, defined as the percentage of positive responses with at least one question within a particular domain, were computed and reported as the main outcomes.

Results: Of the 2,615 participants, 78.2% were females and 51.2% were professional health staff. The average age was 38.6 years old. The most frequently reported composite indicators of the drivers of HIV-related S&D were negative attitudes toward people living with HIV (PLHIV) (82.1%), followed by fear of acquiring HIV while caring for PLHIV (50.5%). The most frequently reported composite indicators of the manifestations of stigma were over-protecting oneself while caring for PLHIV (56.7%), followed by observed discrimination towards PLHIV during the last 12 months (25.8%). Compared to non-professional staff, professional staff were more fearful acquiring HIV while caring for PLHIV (OR=1.53; 95%CI 1.24-1.88), but had fewer negative attitudes toward PLHIV (OR=0.50; 95%CI 0.40-0.63).

Conclusions: The survey provided evidence of HIV-related S&D in Thai health facilities. The information could be used as an advocacy tool for policy change and to tailor stigma reducing interventions at the local level.

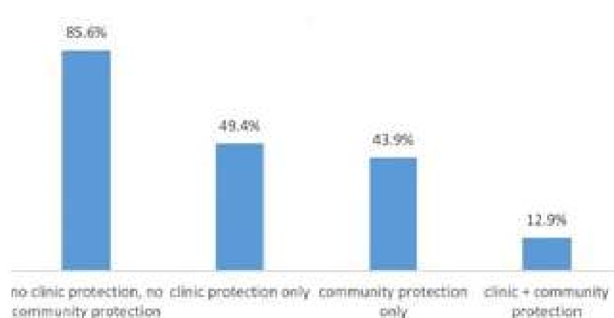
THPDD0103

Socio-structural protection from internalized HIV stigma among South African adolescents living with HIV: The potential of clinic-community collaborations for stigma reduction

M. Pantelic[1,2], M. Moshabela[3], E. Toska[2,4], L. Cluver[2,4], G. Caswell[5], A. Ronan[6]
[1]International HIV/AIDS Alliance, Secretariat, Brighton, United Kingdom, [2]University of Oxford, Department of Social Policy and Intervention, Oxford, United Kingdom, [3]University of KwaZulu-Natal, Durban, South Africa, [4]Cape Town University, Cape Town, South Africa, [5]International HIV/AIDS Alliance, Cape Town, South Africa, [6]Pediatric-Adolescent Treatment Africa, Cape Town, South Africa

Background: Southern Africa is home to 2 million adolescents living with HIV (ALHIV), who struggle to adhere to HIV treatment and care partly due to exceptionally high levels of self-stigma. South Africa's new National Strategic Plan HIV, TB and STIs includes a key objective to halve HIV-related self-stigma by 2022 but there is no evidence of scalable interventions to achieve this. This study examined protective factors in both clinics and communities that could reduce self-stigma among ALHIV.

Methods: Total population sampling of ALHIV (aged 10-19) from 53 public health facilities in the Eastern Cape, South Africa was used. Self-stigma was measured via the adolescents living with HIV stigma scale (ALHIV-SS). Community protection was measured via adolescent report of:
1) no experiences of discrimination and
2) no perceived stigma in the community.
Clinic protection was measured via five key adolescent-reported indicators:
1) No past-year ART stockouts,
2) Flexible clinic appointments that prevented excessive school truancy,
3) Adolescent-sensitive healthcare providers,
4) Perceived data confidentiality and
5) Access to a regular HIV support group.
A multivariate logistic regression tested associations between clinic and community protection and self-stigma controlling for age, gender and knowledge of HIV status. A marginal effects model tested potential additive effects of combining clinic and community protection.
Results: 90.1% of eligible ALHIV were interviewed (n=1060, 55% female, mean age = 13.8, 21% living in rural locations and 67% vertically infected). Prevalence of self-stigma was 26.5%. At the community level, protection from discrimination (OR:.38; CI:.22-.63) and non-stigmatizing perceptions (OR:.40; CI:.29-.64) decreased odds of self-stigma. At the clinic level, reliable ART stocks (OR:.40; CI:.23-.72), flexible appointment times (OR:.78; CI:.50-.93) and kind healthcare providers (OR:.58; CI:.41-.93) decreased odds of self-stigma among ALHIV. Age, gender, HIV status awareness, clinic confidentiality and support group access were not associated with self-stigma. Prevalence of self-stigma dropped from 85.8% among ALHIV without clinic or community protection to 12.9% among ALHIV with both clinic and community protection (Figure 1).
Conclusions: Findings suggest that a combination of clinic and community interventions hold promise for adolescent-centred HIV care. Self-stigma among ALHIV can be substantially reduced by addressing stigma in communities and strengthening health systems.



[Figure 1. Predicted probabilities of self-stigma by clinic and community protection]

THPDD0104

Pathways from sexual stigma to incident HIV and sexually transmitted infections among Nigerian MSM

E. Okporo[1], C. Rodrguez-Hart[2], TRUST Study Group
[1]Hyacinth AIDS Foundation, Prevention, Jersey, United States, [2]New York State Department of Health and Mental Hygiene, New York, United States

Background: Sexual stigma is the co-occurrence of the following four components within a power imbalance: labeling, stereotyping, separation, and status loss and discrimination specific to sexual minorities because of same-sex practices. Although sexual stigma has been found to be associated with HIV prevalence and with avoidance of seeking health care, it remains unknown whether sexual stigma drives onward transmission of HIV and sexually transmitted infections (STIs) among Nigerian MSM. Sexual stigma has also been found to be associated with condom less sex among MSM across a variety of settings outside of Nigeria.
Methods: The Network-Based Recruitment of MSM into HCT, Care, Treatment and Prevention Services at Trusted Community-based Venues (TRUST/RV368) study utilizes respondent-driven sampling to recruit MSM into a prospective cohort at ICARH site in Abuja Nigeria, Eligibility criteria included male sex assigned at birth and at least 16 years of age in Abuja. total of 1480 participants.
Results: The sample consisted of participants who were primarily under 25 years of age (60%), had completed high school or less education (70%), identified their sex as male (82%), had never disclosed their same-sex practices to a family member (83%), engaged in both insertive and receptive anal sex with male partners in the past 12 months (53%), and approximately half had a female sex partner in the past 12 months. Bivariate analysis revealed that in creasing sexual stigma was associated with increasing incident HIV and/or STI infections in a dose-response association (low: 10.6%, medium: 14.2%, high 19.0%, P¼0.008.
Conclusions: The path analysis model revealed that MSM who were in higher stigma classes at baseline were more likely to contract HIV/STIs over the course of the study, and this was partially explained by stigma's association with suicidal ideation, suicidal ideation's association with condomless sex with casual sex partners, and condomless sex's association with HIV/STI acquisition. Therefore, our findings highlight the need to incorporate mental health issues of MSM in HIV and STI programming in Nigeria. One option would be to adopt WHO's Mental Health Gap Action Programme intervention.

THPDD0105

Project on HIV destigmatization in the marriage equality movement in Taiwan

S.-C. Du, C.-L. Peng, M.-Y. Juan
Taiwan Tongzhi (LGBTQ+) Hotline Association, Taipei City, Taiwan, Province of China

Background: In 2016-17, the marriage equality debate was heated in Taiwan, and certain anti-LGBTQ+ groups have used HIV-related issues to attack the LGBTQ+ community, spreading false information about LGBTQ+ and HIV/AIDS via mass and social media. Gay and bisexual men, especially those living with HIV/AIDS (PLWHA), have become a major target of rumors and slanders. This presentation aims to introduce how Taiwan Tongzhi (LGBTQ+) Hotline Association tackled the HIV stigma incurred in the marriage equality movement, and how we destigmatize the disease and reflect on the issue.
Description: This project adopts two strategies of destigmatizing HIV while promoting marriage equality:
1. Analyzing and responding to false information regarding LGBTQ+ and HIV/AIDS: We designed an easy-to-understand version of "HIV/AIDS for Dummies," and have distributed the correct information to the general public via social media.
2. HIV+OK Campaign: We have invited people to express their support for PLWHA with actions through organizing public events, campaigning on social media, and taking actions on Taiwan LGBT Pride Parade.

Lessons learned: The "HIV/AIDS for Dummies" has attracted 107,353 views and public discussions. Our targeted audience is not limited to the LGBTQ+ community but also their parents and LGBTQ+-friendly heterosexuals. Meanwhile, the HIV+OK Campaign has encouraged people to express their support for PLWHA. More than 30 people, including PLWHA, their family members and friends shared their stories. More than 100 people joined Hotline's procession in Taiwan LGBT Pride Parade that promoted the concept of "HIV+OK," and more than 2,000 social media users changed their profile picture to openly show their support.
Conclusions/Next steps: Examining the implementation and outcomes of this project, we found that:
1. This project is the first time for LGBTQ+ group to initiate large-scale, broad-scope public dialogues about HIV related issues, not just focusing on LGBTQ+ community.
2. There is an obvious lack of anti-discrimination HIV/AIDS education that targets adults in Taiwan, enabling the false information about HIV/AIDS to be spread rapidly. We urge that the government devote more state resources to this issue.
3. The fight for equal rights for PLWHA cannot be independent from LGBTQ+ movements and the marriage equality movement. They have to ally with one another to move forward.

THPDD0106

Stigma as a barrier to obtaining quality VCT services: Monitoring outcomes from the Zaporizhzhia region of Ukraine

R. Milevskyi[1], O. Vytvitskyi[1], D. Kalinin[1], S. Maltabar[1], Y. Radchenko[2], O. German[2]
[1]Gender Z, Zaporizhzhia, Ukraine, [2]ECOM, Tallinn, Estonia

Background: Due to the pervasiveness of homophobia and transphobia in Ukrainian society, we decided to research the prevalence of stigma towards MSM and LGBT people by health professionals and NGO social workers providing VCT services in the Zaporizhzhia region. Additionally, we examined providers' awareness levels in regards to the specifics of MSM/LGBT counselling.

Description: With support from ECOM, we piloted an advocacy project, which included the monitoring of VCT providers in both NGO and public health care settings. The program also included training elements, as well as the development and regional-level approval of an Algorithm and practical recommendations for the consultation of MSM/LGBT people. During field research our "test clients" visited 95 service centers to assess their comprehensiveness and suitability, as well as providers' tolerance and professionalism upon disclosures of non-heterosexual sexual orientations and practices.

Based on our findings, we organized a training on SOGI and MSM/LGBT counselling for 100 representatives from every VCT point in the region.

After having jointly analysed the problems that we uncovered with local authorities, the Zaporizhzhia Department of Health adopted an Algorithm for counselling MSM and LGBT people and approved our recommendations on the prevention of stigma and discrimination in the provision of health care services.

Lessons learned: The monitoring visits revealed a range of shortcomings and gaps in the health care sector, including: inadequate accessibility to HIV testing, violations of VCT principles, homophobia and transphobia, and a widespread lack of knowledge of key populations' issues. Our follow-up advocacy activities were designed to decrease the number of rights violations experienced by MSM/LGBT people accessing health care in our region and to reduce the overall level of stigma and discrimination.

The project confirmed that:

- Provider-based stigma and inadequate knowledge of LGBT issues remain salient barriers to obtaining quality services;
- The initiative and meaningful involvement of affected communities is essential in order to promote any positive changes.

Conclusions/Next steps: Raising tolerance levels towards MSM/LGBT significantly decreases stigmatization within professional circles and, subsequently, helps fight the HIV epidemic. Our positive experience using the methodology of "test clients" suggests that this research method can be applied to future projects aimed at other key populations.

THPDD02 Falling off the HIV cascade: Autonomy as a determinant of ART retention among sex workers

THPDD0201

Multi-level barriers to antiretroviral therapy initiation, retention, and adherence for female sex workers living with HIV in South Africa

C. Comins[1], L. Parmley[1], S. Schwartz[1], H.T. Mkhize[2], V. Guddera[2], D.R. Phetlhu[3], K. Young[4], H. Hausler[4], S. Baral[1]
[1]Johns Hopkins Bloomberg School of Public Health, Key Populations Program, Center for Public Health and Human Rights, Department of Epidemiology, Baltimore, United States, [2]TB/HIV Care, Durban, South Africa, [3]University of Western Cape, School of Nursing, Cape Town, South Africa, [4]TB/HIV Care, Cape Town, South Africa

Background: South Africa has a generalized HIV epidemic that disproportionately affects female sex workers (FSW). FSW experience individual, network, and structural barriers to initiation and sustained engagement in antiretroviral therapy (ART). Here, we use a modified socio-ecological model (SEM) to map ART initiation, retention and adherence barriers among FSW in South Africa.

Methods: FSW living with HIV (n=24) and key informants (n=15) participated in semi-structured, in-depth interviews from September-November 2017 in Durban, South Africa. FSW participants were sampled using maximum-variation sampling, ensuring variations in sex work and ART experiences. Key informants included providers at various levels, brothel managers, and police. Qualitative data were coded using a grounded theory approach in Atlas.ti 8. Matrices were used as a post-coding technique to map emergent themes at each level of the SEM including individual, network, community, and public policy levels.

Results: Each level of the SEM presented specific barriers to initiation, retention, and adherence for FSW living with HIV (Figure 1). Diagnosis prior to universal test and treat, lack of clinic card, and incarceration were policy-level challenges among FSW and related to ART initiation, retention and adherence, respectively. Initiation and retention in care was affected at all levels, with emphasis on individual-level barriers, while network- and individual- level barriers predominately affected ART adherence. At the network- and community- levels, FSW experienced unique barriers generally and based on their sex work venue (indoor v. outdoor) and primary work time (nighttime v. daytime) respectively. FSW identified no community-level barriers related to ART adherence.

Conclusions: While ART is well known to improve clinical outcomes, and decrease onward HIV transmission, these data highlight the sustained barriers to ART initiation and retention among FSW living with HIV in South Africa. Moving forward necessitates tailored yet scalable interventions to address level-specific barriers among FSW and ultimately optimize sustained treatment outcomes.

[Figure 1. Challenges engaging in HIV Treatment among female sex workers living with HIV in Durban, South Africa]

THPDD0203

"They must understand us as sex workers": Health service perspectives among female sex workers in the context of PrEP and early ART introduction in the TAPS Demonstration Project, South Africa

R. Eakle[1], A. Bourne[2], R. Bothma[1], G. Gomez[3], F. Venter[1], H. Rees[1]
[1]Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [2]LaTrobe University, Melbourne, Australia, [3]London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Female sex workers (FSWs) are a key population and could greatly benefit from HIV prevention methods such as pre-exposure prophylaxis (PrEP). However, FSWs often experience difficulties accessing health services which could pose a barrier to PrEP uptake and retention. We explored previous health service experiences and suggestions for best practices with FSWs in focus group discussions (FGDs) as part of designing the TAPS Demonstration Project.
Methods: FGDs were conducted in Johannesburg and Pretoria, and examined opportunities and barriers for safe and efficient PrEP delivery within the context of TAPS. Sex worker peer educators recruited participants through social networks using snowball sampling. Facilitation was in English with adaptation by facilitators into local languages as needed. Transcripts were translated and transcribed into English. Data were subject to a thematic analysis.
Results: Four FGDs were conducted in each of the two sites engaging 69 participants, ages 20-60. Overwhelmingly, participants voiced concerns about stigma and negative treatment of FSW in public health facilities. This was seen as a major potential barrier to successful provision of PrEP and early ART as FSWs would not attend clinics where they had been negatively treated. "Feeling free" to openly discuss health issues, such as burst condoms, STIs, or even sexual assault, was critically important, as was accessibility. Some FSWs felt that getting to the clinic when they lived some distance away would be challenging for monthly clinic visits. Mobile delivery was highly recommended. Consistency and flexibility in service provision (e.g. aligning clinic times, regular mobile clinics) were recurring themes as part of effective, quality care. Peer-driven education, navigation, and service were highlighted as an important best practice.
Conclusions: Service provision sensitised and tailored to sex workers needs will be critical to successful delivery of PrEP and early ART. Stigmatization of sex workers in clinic environments is well-documented, yet little has been published from FSW perspectives about how to address these issues. Involving FSWs will help to build relevant services especially when implementing new interventions.

THPDD0204

Occupational barriers to antiretroviral therapy adherence, sources of support, and coping strategies for female sex workers living with HIV in South Africa

L. Parmley[1], C. Comins[1], S. Baral[1], H.T. Mkhize[2], V. Guddera[2], D.R. Phetlhu[3], K. Young[4], H. Hausler[4], S. Schwartz[1]
[1]Johns Hopkins Bloomberg School of Public Health, Center for Public Health and Human Rights, Baltimore, United States, [2]TB/HIV Care, Durban, South Africa, [3]University of Western Cape, School of Nursing, Cape Town, South Africa, [4]TB/HIV Care, Cape Town, South Africa

Background: Despite advances in antiretroviral therapy (ART) globally, achieving sustained viral suppression among persons living with HIV continues to be a major challenge in the HIV response. Social and structural barriers impede ART adherence and are heightened among marginalized and key populations including female sex workers (FSW) in South Africa. The objective of these analyses is to characterize FSW-specific barriers and facilitators to ART adherence affecting clinical outcomes and HIV prevention goals.
Methods: Semi-structured, in-depth and key informant interviews were conducted with 24 FSW living with HIV and 15 key informants in Durban, South Africa from September-November 2017. FSW and key informants were recruited using maximum-variation and snowball sampling respectively. FSW were recruited on key variants including: type of sex work venue, primary work time, and ART-naivety and use. Data collection and analysis were iterative; transcripts were coded and analyzed using grounded theory in Atlas.ti 8.
Results: Multiple relevant themes were reported that included sex work venues dismissing FSW known to be living with HIV based on ART use, theft of clinic cards and ART by clients, and concerns of wage loss if HIV status were disclosed to clients, colleagues, and pimps/managers either by being seen at an HIV clinic or by carrying ART. Occupational pressures including short term or seasonal migration for work further challenged engagement in treatment programs while pressures to use drugs and alcohol from clients or the use of similar substances to desensitize themselves challenged adherence to ART. Support systems to optimize ART included FSW receiving HIV treatment support from peers. In addition, many FSW reported individual coping strategies to overcome adherence barriers including sharing and purchasing ART from peers, planning for spontaneous client demands and approaches to facilitate taking medications at work while limiting unwanted disclosure of status.
Conclusions: Taken together, these data highlight the occupational barriers to accessing and taking ART among FSW living with HIV. While coping strategies included social cohesion among FSW, ART sharing and purchasing may be associated with suboptimal treatment outcomes. Considering these occupational pressures on FSW is important when designing and implementing HIV treatment programs to support sustained ART engagement.

THPDD0205

The sociability of risk: Sex work, criminalization and HIV/AIDS in Kampala, Uganda

S. Cruz
University of Amsterdam, Research Center for Gender & Sexuality, Amsterdam, Netherlands

Background: In Kampala, Uganda women engaging in "high risk" sexual practices, like commercial sex work, have an estimated 33-37% HIV seroprevalence (Vandepitte et al. 2011; Hladik et al. 2017). In response to this statistic I set out to investigate how women manage daily risks associated with sex work, criminalization, and HIV/AIDS.
Methods: Primary ethnographic data collection occurred over fifteen months within two Kampala Divisions (Rubaga and Makindye), involving participant observation, group discussions, and informal, unstructured interviews with female commercial sex workers. Research insights then informed policy analysis.
Results: The study reveals that women's social networks have the greatest impact on their ability to manage daily risks. However, three important variables intervene with women's risk management:
(1) the sex work environment,
(2) divergence in women's social relationships, and
(3) the current policy approach guiding HIV healthcare.
The study reveals that a woman's physical sex work environment, such as the room she rents in a brothel, impacts her ability to safeguard private property (e.g., condoms, cash, medications, clothing, shoes, etc.). In turn, a woman with fewer personal belongings is perceived by other women in the brothel as less capable of minimizing risks, such as police abuse, arrest, client violence, and/or contracting HIV, and therefore less deserving of social relationships in the brothel. Alternatively, women deemed more capable of maintaining their social ties are far more likely to develop cash reserves in order to purchase medications, improve their brothel working and living conditions, receive and retain condom supplies, and/or frequently travel outside the brothel to receive healthcare and/or improve their commercial sex work prospects. Data furthermore reveals how current HIV interventions, prioritizing individualized behavior, undermine women's social resources (i.e., their social networks and social capital). The study documents women's struggles to adhere to recommended HIV/AIDS treatment protocols when they believe they must choose between their individualized HIV healthcare plan and demands from their social network (i.e. the social practices minimizing daily risks associated with sex work and criminalization).
Conclusions: In conclusion, this research underscores the sociability of women's HIV risk, risk management, and the implications of these social processes on current HIV/AIDS prevention and treatment protocols.

THPDD0206

Differentiated ART delivery model for female sex workers in Uganda: Community client led ART delivery to improve outcomes

L. Oucul[1], J. Birungi[2], K. David[3]
[1]*The AIDS Support Organization (TASO), Programs and Capacity Development, Kampala, Uganda,* [2]*Medical Research Council, Kampala, Uganda,* [3]*The AIDS Support Organization (TASO), Kampala, Uganda*

Background: In 2013, Uganda National ART guidelines recommended test and start for all key populations. The AIDS Support Organization (TASO) started implementing these guidelines in 2014. In 2016, TASO ART data showed16% ART retention of FSW. To support improved outcomes, TASO expanded differentiated ART delivery model and adapted it for FSWs.

Description: TASO has been implementing a client-managed group model of differentiated ART delivery called Community Client Led ART Delivery (CCLAD) since 2012. In 2017, this was expanded and adapted for FSWs. Eligible FSWs who consent to be on group model, were grouped by geographical area into a peer support group of five to ten members. The group selected a peer leader who is responsible for collecting 3 monthly ART refills. All group members attend 6- monthly clinical reviews and annual viral load monitoring at TASO clinic.

Lessons learned: Between October 2016 and June 2017, more than 7,000 FSWs were reached with a behavior change campaign. A total of 5,775 HIV tests were completed and 525 people living with HIV were identified (positivity rate = 9.1%). Of those identified as HIV%, 81.5% were linked to care and 23.6% of those linked to care were initiated on ART. Over the same time period, a cumulative number of 215 FWs were in care with 89.8% being on ART of which 90.9% were virally suppressed. All 24 FSW in CCLAD group had viral suppression above 95%.

Conclusions/Next steps: Key populations can benefit from having access to differentiated ART delivery models. In Uganda, FSWs with access to a differentiated ART delivery model with community ART distribution and less frequency clinical consultations had good client outcomes. This model supported retention in care by tailoring services for a highly mobile population.

THPDE01 #NextGeneration: Programming for adolescents

THPDE0101

Integrated youth-friendly health services lead to substantial improvements in uptake of HIV testing, condoms, and hormonal contraception among adolescent girls and young women in Malawi

N. Rosenberg[1], N. Bhushan[1], D. Vansia[2], T. Phanga[2], B. Maseko[2], A. Kachigamba[3], J. Tang[1], M. Hosseinipour[1,2], A. Pettifor[1], L.-G. Bekker[4]
[1]*University of North Carolina at Chapel Hill, Chapel Hill, United States,* [2]*University of North Carolina Project, Lilongwe, Malawi,* [3]*District Health Office, Lilongwe, Malawi,* [4]*Desmond Tutu HIV Foundation, Cape Town, South Africa*

Background: Adolescent girls and young women (AGYW) in sub-Saharan Africa (SSA) experience high incidence of HIV, pregnancy, and sexually transmitted infections (STIs), but face numerous barriers to HIV and sexual and reproductive health (SRH) care-seeking. In this analysis, we assessed whether a model of integrated youth-friendly health services (YFHS) for AGYW led to increased uptake of condoms, HIV testing, and hormonal contraception, compared to standard of care (SOC).

Methods: Through the Girl Power study, four comparable public sector health centers were selected in Lilongwe, Malawi and randomly assigned to either the SOC or YFHS. The SOC offered vertical HIV testing, STI management, and family planning in 3 separate areas with providers who received no additional training. The other three health centers offered YFHS, which consisted of these same services in an integrated fashion, in youth-dedicated spaces, with peers and providers trained in youth-friendly approaches. In each health center, AGYW 15-24 years old were enrolled and followed for one year for uptake and frequency of HIV testing, condoms, and hormonal contraception. The SOC and YFHS models were compared using adjusted risk differences and incidence rate ratios and ninety-five percent confidence intervals.

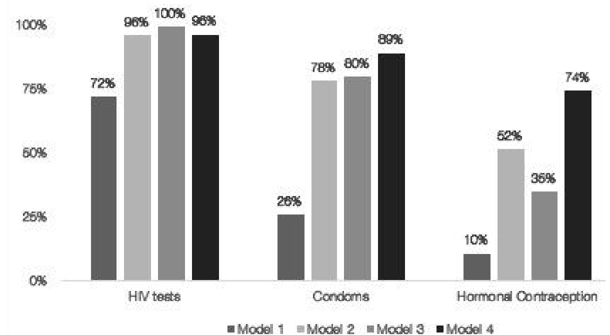
Results: One thousand AGYW enrolled (N=250/health center). Median age was 19 years (inter-quartile range 17-21 years). Compared to AGYW in the SOC health center, those in the YFHS health centers were 23% (CI: 17%-29%) more likely to ever receive HIV testing, 57% (CI: 51%-63%) more likely to ever receive condoms, and 39% (CI: 34%-45%) more likely to ever receive hormonal contraception. Compared to AGYW in the SOC, AGYW in the YFHS models accessed HIV testing 2.4 (CI: 1.9-2.9) times more often, condoms 7.9 (CI: 6.0-10.5) times more often, and hormonal contraception 6.0 (CI: 4.2-8.7) times more often. Each of the three YFHS health centers performed better than the SOC on each indicator.

Conclusions: In public sector health centers an integrated model of YFHS that included brief provider training and modest clinical modifications lead to considerably higher SRH and HIV service utilization for AGYW. Implementation science is needed to guide scale-up of this highly promising service delivery model.

	Proportion of Participants Who Ever Received the Service Over One Year				Mean Number of Times Service Received Per Participant Per Year			
	SOC (N=250)	YFHS (N=750)	Adjusted Risk Difference*	p-value	SOC (N=250)	YFHS (N=750)	Adjusted Incidence Rate* Ratio	p-value
Condoms‡	26%	83%	57%	< 0.001	0.3	2.3	7.9	< 0.001
HIV Testing†	72%	97%	23%	< 0.001	1.1	2.7	2.4	< 0.001
Hormonal Contraception§	10%	54%	39%	< 0.001	0.2	1.0	6.0	< 0.001

*All models control for age, number of children, and marital status measured at baseline. Some models also controlled for baseline HIV testing†, condom use‡, and hormonal contraceptive use§

[Table 1. Comparison of the SOC Clinic (Model 1) to the YFHS Clinics (Models 2-4)]



[Figure 1. Proportion of AGYW who Received Each Service by Arm]

THPDE0102

Meaningful engagement of schools and school-based advocates in promoting education on HIV and supporting adolescents living with HIV in Kenya

E. Ruria[1], M. Sayo Muandale[2], J. Odionyi[3], J. Kose[3], L. Matu[3], E. Mwangi[3], R. Otieno-Masaba[3], G. Woelk[4], N. Rakhmanina[4,5,6]
[1]Elizabeth Glaser Pediatric AIDS Foundation, Homa Bay, Kenya, [2]Ministry of Education, Homa Bay County, Homa Bay, Kenya, [3]Elizabeth Glaser Pediatric AIDS Foundation, Nairobi, Kenya, [4]Elizabeth Glaser Pediatric AIDS Foundation, Washington, United States, [5]Children's National Health System, Washington, United States, [6]George Washington University, Washington, United States

Background: Adolescents living with HIV (ALHIV) spend a significant proportion of their daily lives in schools. In 2016, with support from ViiV Healthcare, the Elizabeth Glaser Pediatric AIDS Foundation implemented the innovative peer-designed fast-track linkage-to-care and early retention Red Carpet Program (RCP) throughout public health care facilities (HCFs) and schools in Kenya. RCP worked closely with the Ministry of Education (MOE) and Ministry of Health (MOH) to design and implement school-based interventions to promote HIV education and support for ALHIV. The aim of this analysis was to evaluate the implementation of RCP school-based interventions conducted in 2017.

Description: RCP conducted two main interventions in the Homa Bay County boarding schools:

a) enhanced partnership between schools and 50 RCP HCFs;

b) built capacity of adolescent health advocates (counselling teachers, school matrons, nurses and boarding in-charge managers).

A sensitization meeting was held with 70 secondary boarding school in-charge managers, principals and MOE officials in August 2017. During August-September 2017, RCP conducted a two-day capacity building workshop for 90 school-based adolescent health advocates from 44 high volume local secondary boarding schools.

Lessons learned: By November 2017, 50 boarding schools in Homa Bay County developed key HIV strategies including: a) fostering direct linkages with HCFs; b) formation of School Health Committees (SHC); c) training of adolescent health advocates; and d) support of ALHIV. By December 2017, 50 SHC were formed and >3000 students (both HIV+ and HIV-) were reached with education on HIV, HIV stigma, antiretroviral treatment, pre-exposure prophylaxis, and sexual and reproductive health. Fifty schools implemented activities targeting ALHIV, parent representatives and linked RCP HCFs teams. All 50 schools implemented adherence counselling, confidential storage and access to HIV medications for ALHIV.

Conclusions/Next steps: Schools provided daily support to ALHIV from accessing care, medications to retention in care. The uptake of the general HIV education and support services for ALHIV was high in schools of Homa Bay County, Kenya. Going forward, RCP works to expand collaboration between HCFs and schools with the goal to increase long-term retention in care and on treatment, and achieve high levels of virologic suppression among ALHIV.

THPDE0103

Cash+Care: Parenting support and violence reduction programme associated with reductions in adolescent HIV-risks in South Africa: A cluster randomized trial of a DREAMS and 4Children-implemented programme 'Parenting for Lifelong Health'

L. Cluver[1,2], F. Meinck[1], J. Doubt[1,3], C. Ward[2], C. Lombard[4,5], Y. Shenderovich[1,6], J. Steinert[1], R. Herrero Romero[1], S. Medley[1], A. Redfern[1], N. Salah[7], S. De Stone[8], L. Ncobo[9], J. McLaren Lachman[1,9], S. Tsoanyane[9], H. Loening[3], J. Byrne[3], L. Sherr[10], M. Casale[1,11], F. Gardner[1], C. Wittesaele[1], R. Catanho[1], S. Hoeksma[1], C. Mikton[12], J. van der Wal[1], M. Nocuza[1], M. Pancoast[1,13], M. Danisa[9], I. Wessels[2,9], N. Masuku-Mukadah[9], M. Boyes[14], D. Nzima[15,16], N. Sibanda[17]
[1]Oxford University, Department of Social Policy & Intervention, Oxford, United Kingdom, [2]University of Cape Town, Department of Psychiatry and Mental Health, Cape Town, South Africa, [3]UNICEF Innocenti Office of Research, Florence, Italy, [4]South African Medical Research Council, Biostatistics Unit, Cape Town, South Africa, [5]University of Cape Town, School of Public Health and Family Medicine, Cape Town, South Africa, [6]University of Cambridge, Institute of Criminology, Cambridge, United Kingdom, [7]London School of Hygiene & Tropical Medicine, London, United Kingdom, [8]University of Warwick, Warwick Medical School, Warwick, United Kingdom, [9]Clowns Without Borders South Africa, Durban, South Africa, [10]University College London, London, United Kingdom, [11]University of the Western Cape, School of Public Health and Family Medicine, Cape Town, South Africa, [12]WHO, Department of Violence and Injury Prevention and Disability, Geneva, Switzerland, [13]The Beans, San Francisco, United States, [14]Curtin University, Faculty of Health Sciences, School of Psychology and Speech Pathology, Perth, Australia, [15]University of Fort Hare, Department of Sociology & Anthropology, Alice, South Africa, [16]Ali Douglas Research Network, Bulawayo, Zimbabwe, [17]London School of Economics and Political Science, Department of International Development, London, United Kingdom

Background: Adolescent HIV-risk behaviors are increased by family violence, low parental supervision, substance use and poverty. 'Cash + care' structural approaches can reduce adolescent HIV-risks, but parenting a teenager is complex and challenging. WHO, UNICEF, USAID-PEPFAR and academics developed and tested a parenting support and violence reduction program for low-resource settings, to be used as part of structural prevention programs.

Methods: Pragmatic cluster randomized trial (n=1100 participants, 40 clusters) in South Africa's rural and urban Eastern Cape. Adolescents and caregivers participated in 14 evidence-based sessions

(i.e. conflict reduction, protection from sexual abuse in the community, family budgeting), implemented by local community members with NGOs Clowns Without Borders, REPSSI, UNICEF South Africa and the Department of Social Development. Analyses used intention-to-treat with hierarchical negative binomial or Poisson regression for counts and hierarchical linear mixed effects regression for continuous outcomes.

Results: Retention was 97% at 5-9 months post-intervention. The intervention did not impact all parenting outcomes (i.e. neglect), but had significant impact on six key HIV risk reduction factors: lower family violence (caregiver report IRR 0.55 (95% CI 0.40-0.75, P< 0.001); improved involved parenting (caregiver report d=0.86 (95% CI 0.64-1.08, P< 0.001; adolescent report d=0.28 (95% CI 0.08-0.48, P=0.006) and less poor supervision (caregiver report d=−0.50 (95% CI −0.70- −0.29, P< 0.001; adolescent report d=−0.34 (95% CI −0.55- −0.12, P=0.002), and improved family economic welfare, including sustained food availability (caregiver report d=−0.62, 95%CI −0.84– -0.40, P< 0.001; adolescent report d=−0.28, 95%CI −0.52- −0.05, P=0.017). It was also associated with lower alcohol and drug use amongst adolescents (IRR=0.55, 95% CI 0.33-0.93, P=0.026) and amongst caregivers (IRR=0.67, 95%CI 0.49-0.99, P=0.041), and with improved planning for protection against sexual predators (caregiver report d=0.48, 95% CI 0.24-0.72, P< 0.001; adolescent report d=0.33, 95% CI 0.06-0.59, P=0.017).

Conclusions: This cluster RCT in South Africa shows that an intervention to support families can reduce direct risks for adolescent HIV-acquisition: violence, low supervision, food insecurity and substance use. The programme is being adapted and scaled in 8 countries in the region through DREAMS, 4Children, USAID, UNICEF and by national governments. Strengthening families may be an essential component of adolescent HIV prevention in Africa.

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THPDE0104

Improving timely linkage to care among newly diagnosed HIV-infected adolescents: Results of SMILE

R. Miller[1], D. Chiaramonte[1], C. Banerjee[2], D. Sharma[2], J.D. Fortenberry[3], Adolescent Medicine Trials Network for HIV/AIDS Interventions
[1]*Michigan State University, Psychology, East Lansing, United States,* [2]*Michigan State University, CSTAT, East Lansing, United States,* [3]*University of Indiana, Adolescent Medicine, Indianapolis, United States*

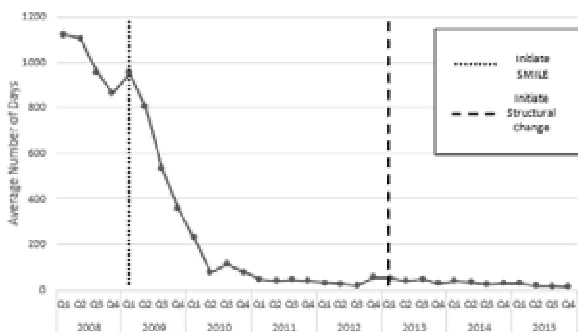
Background: In the U.S., youth are the least likely among people of all age groups to link to HIV medical care quickly following a positive HIV-test result. Delayed linkage to care deprives youth of the benefits of HIV treatment and risks increased HIV transmission. Interventions to improve the rates of timely linkage to care for youth represent an urgent national priority.

In 2009, we initiated the Strategic Multisite Initiative for Identification, Linkage and Engagement (SMILE) program to improve timely linkage to care among newly diagnosed HIV-infected youth in 8 urban U. S. adolescent medicine clinical trials units (AMTU). We deployed a dedicated linkage-to-care specialist to link youth to an infectious disease physician within 42 days of a positive test result.

In 2013, we additionally pursued local organizational, institutional, community, and policy changes to address structural barriers to youth's timely access to care through coalitions convened by each AMTU.

Methods: We collected anonymized clinical patient records from 2008 to 2015. Data included demographics and dates of HIV testing and medical care linkage events for 1695 newly diagnosed HIV-positive youth ages of 12-24. We plotted the linkage-to-care interval in days for each quarter from the start of 2008, prior to the start of SMILE, through 2015.

Results: At the start of SMILE, the average number of days between HIV test result and linkage was 951. This reflects, in part, that youth who had HIV tests long before the program's initiation ultimately linked to care during its start-up phase. By end of 2012, the average number of days to linkage had decreased to 55 (Figure 1). By the end of the initiative (2015), the average number of days to linkage had fallen to 16.



[Figure 1. Average number of days between HIV test and linkage-to-care.]

Conclusions: Integrated, multi-level interventions that draw on existing community resources can dramatically improve timely linkage to care among high-risk youth.

THPDE0105

90-90-48: The reality of viral suppression among ART-initiated adolescents in South Africa

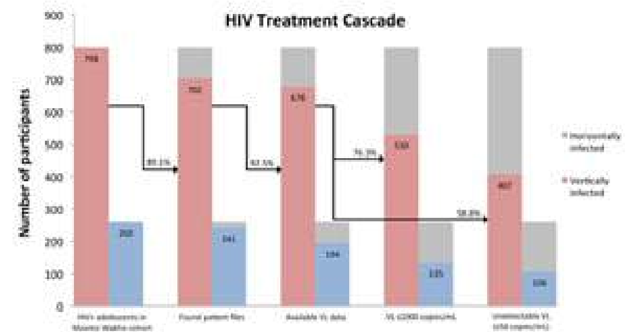
R. Haghighat[1], L. Cluver[1], N. Bungane[2], E. Toska[3]
[1]*University of Oxford, Social Policy and Intervention, Oxford, United Kingdom,* [2]*Mzantsi Wakho, East London, South Africa,* [3]*University of Cape Town, AIDS and Society Research Unit, Cape Town, South Africa*

Background: Global fast-track targets include 90% viral suppression among all ART-initiated persons. Data suggests adolescents have worse viral suppression rates than children and adults, but little is known on adolescent progression through the HIV treatment cascade. This study examines the HIV treatment cascade for a large sample of HIV+ adolescents in South Africa.

Methods: 1,058 ART-initiated adolescents (10-19 years) from 52 urban and rural healthcare facilities in the Eastern Cape were interviewed (March 2014-September 2015). Data were extracted from paper-based medical records from all facilities (including records in multiple facilities) through January 2018. Predictors of progression through cascade were identified using sequential multivariate logistic regressions, with age (10-14/15-19 years), sex, urban/rural residence, mode of infection, decentralised/centralised ART care, and time on ART entered simultaneously. Interactive effects and moderating effects of gender and mode of infection were tested with regressions, corrected with the Benjamini-Hochberg procedure.

Results: 92.5% of adolescents had viral loads available in clinic files. 63.1% had viral loads recorded in the past 2 years. At most recent viral load, 78.5% of measurements were ≤1000 copies/mL, but only 58.8% were undetectable (≤50 copies/mL). Participants were female (54.0%), median age 13 years (IQR 11-16), urban-living (76.8%); and 30.0% attended ≥2 healthcare facilities.

Adolescents on ART for < 2 years were more likely to lack viral loads from the past 2 years (OR 5.73 [95%CI 1.82-18.08], *p*< 0.003), and decentralised care was protective only for females (OR 2.56 [95%CI 1.40-4.64], *p*=0.002). Viral load >1000 copies/mL was associated with older age and rural-living (OR 2.18 [95%CI 1.58-3.00], *p*< 0.001; OR 1.48 [95%CI 1.06-2.12], *p*=0.031). Older adolescents, those on ART for < 2 years, and decentralised adolescents were less likely to have undetectable viral loads (OR 0.65 [95%CI 0.49-0.87], *p*=0.003; OR 0.36 [95%CI 0.13-0.91], *p*=0.047; OR 0.74 [95%CI 0.57-0.98], *p*=0.035).



[HIV treatment cascade for ART-initiated adolescents in the Eastern Cape, South Africa]

Conclusions: Viral suppression rates remain low among adolescents in South Africa. Older, recently initiated, and decentralised adolescents were least likely to be virally suppressed—potentially due to down-referrals from tertiary paediatric facilities to generalised primary clinics. With 30% of adolescents receiving care in multiple facilities, interventions supporting patient linkages to care may be essential for adolescents transitioning across multiple forms of care.

THPDE0106

A randomized, controlled trial of a patient-centered disclosure counseling intervention for Kenyan children living with HIV

R. Vreeman[1,2,3], W. Nyandiko[2,3], I. Marete[2,3], A. Mwangi[3,4], C. McAteer[1,3], A. Keter[3,4], M. Scanlon[3,5], S. Ayaya[2,3], J. Aluoch[3], J. Hogan[3,6]
[1]*Indiana University School of Medicine, Ryan White Center for Pediatric Infectious Disease and Global Health, Department of Pediatrics, Indianapolis, United States,* [2]*College of Health Science, Moi University, Department of Child Health and Paediatrics, Eldoret, Kenya,* [3]*Academic Model Providing Access to Healthcare, Eldoret, Kenya,* [4]*College of Health Science, Moi University, Department of Behavioral Sciences, Eldoret, Kenya,* [5]*University of Massachusetts Boston, John W McCormack Graduate School of Policy and Global Studies, Boston, United States,* [6]*Brown University, Department of Biostatistics, Providence, United States*

Background: For children living with HIV, learning about their HIV status ("disclosure") is a critical process within their transition to adulthood. Caregivers of perinatally HIV-infected children frequently worry about the impact of disclosure, while also reporting delayed disclosure can

hurt medication adherence. We evaluated the impact of a patient-centered, culturally- and age-appropriate disclosure counseling intervention among Kenyan children and their caregivers.

Methods: We conducted a prospective, clinic-cluster randomized trial in which we followed child-caregiver dyads (children ages 10-14) attending eight clinics (randomized to intervention or control) at a large HIV treatment program in Kenya. All patients at the intervention clinics had access to intensive counseling (family, one-on-one, and peer group sessions) with trained disclosure counselors and culturally-tailored materials, compared to control clinics with standard care. Disclosure was treated as a time-to-event outcome, measured on a discrete time scale, with assessments at 0, 6, 12, 18, and 24 months. Mental health and psychosocial outcomes were assessed using standardized questionnaires.

Results: The 285 children were mean age 12.3 years, 52% female, with average time-on-treatment of 4.4 years. At baseline, 32% of the children reported that they knew their HIV status already (no difference between control and intervention groups). Disclosures in both control and intervention arms increased over follow-up, but the intervention arm had significantly more disclosures. Using child-reported disclosure, the prevalence of disclosure increased significantly between the baseline and 24 months of follow-up from 29.2% to 58.5% in the control arm and from 33.2% to 74.0% in the intervention arm (difference of 15.5%, 95% confidence interval: 3.7, 27.3). Overall, there were not significant differences in mental and behavioral health outcomes, although trends suggested mental and behavioral distress increased at month 6 in the intervention group as disclosures increased, and then decreased compared to controls thereafter.

Conclusions: This study provides evidence for an effective, clinic-based intervention to increase disclosure of HIV status to children living with HIV. Making counseling support available throughout the disclosure process may be particularly important to navigate increased psychological distress immediately after disclosure and move towards resilience.

THPDE02 Meeting the challenge: Community financing for a sustained response

THPDE0201

Empirical cost of community mobilization activities to support the scale-up of Universal Test and Treat in Swaziland

S. Khan[1], C. Wong[1], T. Maziya[1], F. Walsh[2], C. Lejeune[1], Y. Fleming[3], G. Khumalo[4], M. Zwane[5], V. Okello[6], T. Bärnighausen[7,8]

[1]Clinton Health Access Initiative (CHAI), Mbabane, Swaziland, [2]Clinton Health Access Initiative (CHAI), Boston, United States, [3]aidsfonds, Amsterdam, Netherlands, [4]Swaziland National Network of People Living with HIV/AIDS (SWANNEPHA), Mbabane, Swaziland, [5]SAfAIDS, Mbabane, Swaziland, [6]Ministry of Health, Mbabane, Swaziland, [7]Harvard T.H. Chan School of Public Health, Boston, United States, [8]Heidelberg Institute of Public Health, University of Heidelberg, Heidelberg, Germany

Background: Swaziland and many other countries in sub-Saharan Africa are adopting the 2015 World Health Organization (WHO) antiretroviral therapy (ART) guidelines and implementing universal test and treat (UTT). However, it has become increasingly clear that without successful community mobilization activities and demand generation, UTT will not lead to substantial increases in ART coverage. Here we present for the first time empirical cost estimates of community mobilization implemented as part of UTT in Swaziland.

Methods: From September 2014-August 2017, we collected comprehensive data from community partners supporting the transition of fourteen public health facilities from the previous standard-of-care (SOC) to UTT as part of a stepped-wedge implementation trial. The activities included community dialogues and mobilization events to educate both targeted and broader community as facilities introduced UTT. We carried out bottom-up costing of sub-activities for total unit cost estimation. The mean costs of each activity type are presented in USD ($).

Results: During the observation period, 311 events were carried out at a total combined cost of $90,448. Of this total, 54% were associated with community mobilization activities with mean cost of $348 (95% CI: 137,559) for activities ranging from dialogue with people living with HIV (PLHIV) to broader community. The cost of Information, Education and Communication (IEC) production and printing was $4,404 (95% CI: -7217, 16024) or 15% of total, while the cost of running a community advisory board (CAB) to ensure rights of clients was $348 (95% CI: 137,559) or 23% of total. Remaining costs were associated with orientation of the media and community leaders as well as monitoring and evaluation activities.

Conclusions: We present one of the first comprehensive set of estimates of the costs of community related activities carried outside the healthcare facilities to support UTT. The costs vary widely across broad categories due to mix of fixed (equipment rental) and variable costs (distance traveled, food), while CAB costs were high due to initial capital investment needed in training support. Future funding and planning should use these cost estimates to ensure that scarce resources for community mobilization are used to largest possible health and social benefit.

Events	Mean cost per event (USD) (95%CI)
General Orientation	$1,267
Media Orientation Workshop	$933
Information, Education and Communication (IEC) material	$4,404 (-7217, 16025))
Community Mobilization Events	$231 (198-265)
M&E	$145 (98-192)
Community Advisory Board (CAB)	$348 (137-559)

[Average cost of community events in support of UTT policy in Swaziland]

THPDE0202

Increased domestic financing of key population-led health services (KP-LHS): Lessons from Thailand's transition planning and response

K. Rungtanatada[1], S. Janyam[2], D. Linjongrat[3], S. Charoenying[4], K. Benjamaneepairjoj[4], M. Kim[5], M. Sanguankwamdee[5], S. Mills[4]

[1]National Health Security Office (NHSO), Bangkok, Thailand, [2]Ministry of Public Health (MoPH), Bangkok, Thailand, [3]Rainbow Sky Association of Thailand, Bangkok, Thailand, [4]LINKAGES/Thailand, FHI 360, Bangkok, Thailand, [5]United States Agency for International Development Regional Development Asia, Bangkok, Thailand

Background: As international donors such as The Global Fund (GFATM) and PEPFAR transition out of middle-income countries, there is an urgent need for domestic budgets of countries to increase their financial commitments to the HIV response. In Thailand, nowhere is this more urgent than with HIV cascade interventions for key populations (KPs) most successfully delivered by civil society organizations (CSOs) uniquely able to reach these often-marginalized persons affected and infected by HIV. Yet these critical KP-LHS have thus far failed to attract increased domestic financing because of poor targeting of scarce resources, pervasive stigma and discrimination towards KPs, and a lack of contracting mechanisms to fund CSOs providing KP-LHS.

Description: The Thailand National Health Security Office (NHSO) committed approximately $6 million starting in 2016 for initiatives to increase access to HIV testing and antiretroviral treatment among KPs. The initiative was designed to tap the expertise of KP-led organizations, many of whom have been traditionally financed by GFATM and PEPFAR. NHSO developed reimbursement schemes based on cost estimates of "reach-recruit-test-treat-prevention-retain" activities which vary for each KP group. These amounts were made available to organizations such as CSOs, hospitals, and provincial health offices providing services for KPs through contracts with NHSO.

Lessons learned: Despite the increases in government budgetary support for KP-LHS, certain gaps remain. An estimated 60% of the total were funds provided to CSOs and 40% were provided to hospitals. NHSO identified the following gaps and needs: strengthening of systematic management of funding and service monitoring; accreditation system

to ensure organizational and service capacity of CSOs; ensuring that unit cost reflects appropriate operational costs of CSOs; funds integration with other funding sources for greater coverage.
Conclusions/Next steps: NHSO will work with stakeholders to address these challenges through establishment of an accreditation process to ensure organizational capacity to manage funds and provide services, conducting of costing studies to ensure alignment of service reimbursement for KP-LHS under models applicable to each KP group and local epidemic contexts, and strengthening local fund management entities to manage and monitor NHSO funding.

THPDE0203

Last to be funded, first to be cut: An analysis of current funding trends to local community organisations in the Positive Action Network

N. Spicer[1], D. Kemps[2], S. Demellweek[3]
[1]ViiV Healthcare, Positive Action, London, United Kingdom, [2]ViiV Healthcare, Brentford, United Kingdom, [3]ViiV Healthcare, Positive Action, Brentford, United Kingdom

Background: To enable the global community to meet its own Fast Track targets, UNAIDS estimates that approximately US$ 26.2 billion will need to be spent on HIV responses in 2020. Despite this, there was a $51 million reduction in donor Government funding for HIV between 2015 and 2016. The critical role of community-based interventions in the fight against HIV has never been in question, but if funding squeezes are affecting these small groups in equivalent proportions, we could see transmission rates and HIV-related deaths rise as a result.
Description: ViiV Healthcare is conducting a comprehensive survey of organisations engaged in our Positive Action for Children Fund (PACF) and Positive Action for Girls and Women (PAGW) online communities. The survey of 350 current and former grantees and over 2000 community members seeks to understand funding trends since 2015, how grant durations are spread, and in what proportions different funder types are contributing to community HIV interventions in low resource settings.
Lessons learned: Preliminary findings from community based organisations (CBOs) indicate that funding opportunities are unchanged (less than 20% change) in the past two years, with commentary that the number of international funders funding local CBOs has also remained unchanged. This is despite the High Level Meeting in 2016 proposing increased funding to local communities to optimise investments in health services.
Offering a rare insight into funding levels in communities, these results are valuable in allowing us to quantify the recent funding trends for grassroots CBOs for the first time, and determine whether the globally reported percentages for funding to CBOs are reflected in the experiences of respondents on the ground.
Conclusions/Next steps: The results point to the urgency in prioritising funding to local communities if we are to meet funding commitments and ensure that investments in health systems are optimised. Further research will be needed to assess the intensity of fundraising required to achieve the current level of funding versus previous years.

THPDE0204

Post-global fund HIV financing: A promising transitioning model and the implementation of plan from the SHIFT (Sustainable HIV Financing in Transition) program in Thailand

R. Jommaroeng[1,2], Y. Somphoh[1], K. Uppakaew[1], A. Karakit[1], D. Linjonrut[2], C. Thongbai[3], P. Panitchpakdi[4], CSO Resource Mobilization (CRM) Coalition
[1]Thai National AIDS Foundation, Bangkok, Thailand, [2]Rainbow Sky Association of Thailand, Bangkok, Thailand, [3]Pink Monkey Organization, Lopburi, Thailand, [4]Raks Thai Foundation, Bangkok, Thailand

Background: Thailand has been a recipient country of the Global Fund to Fight against AIDS, Tuberculosis and Malaria (GFATM) since 2004 with the accumulative amount of US$287.4 million which sustains 95.0% of the programs implemented by civil society organisations(CSO) 5.0% is supported by the Subsidiary Fund of the Thai government. The country has been categorised as an upper-middle income country in 2011, partly resulting in the out-transitioning of GFATM, negatively affecting sustainability of CSO-implemented HIV programs.
Description: The initial of 30 CSOs, including MSM, transgender women, sex workers, PWID organizations, gathered in late 2015 to form CSO Resource Mobilization(CRM) under 'AIDS-Almost Zero' program to address HIV financing sustainability and currently supported by the SHIFT program to ensure increased fiscal space, allocative efficiency, effective transitioning plan and funding mechanisms for CSOs. We have been advocating the National Health Security Office(NHSO) for a regular annual scheme for CSOs working with key populations. The goal is to reach US$14.7 million/year and US$5.9 million has been successful allocated in 2018 and with the Disease Control Department to increase the Subsidiary Fund from US$1.5 million to US$ 3 million. To minimize the risks of sole government funding, the CRM have initiated a public-private partnership program to raise funds for US$1.5 million with an exponentially annual increase for five consecutive years.

[Thailand's Model of CSO Resource Mobilization on HIV Financing for Post-GFATM]

Lessons learned: Collaboration and partnership across all key stakeholders is essential for an effective HIV response. Formal dialogues help convey strategic information to the government but informal dialogues help change their perception towards CSOs, influencing favorable policy outcomes. Consistency in engaging with the government is crucial since government staff rotation is to be expected and trust cannot be earned over a few meetings. Instant messaging applications such as Facebook and LINE™ are used as informal but effective communication means, eventually leading to improved trust.
Conclusions/Next steps: We are fostering strengthened partnership with both central and local governments with a key message "Get yourselves invited in all policy dialogues, seen in all festive occasions, and perceived as highly reliable partners. In addition, a development of national CSO accreditation is in progress to ensure our effective management, accountability and that we deliver results.

Policies/ Mechanisms	Policy target	Themes	Achievements	Challenges
The US$14.7M Scheme for Key Populations	The National Health Security Office	Increased fiscal space, Allocative efficiency, CSO funding mechanism	US$5.9M is allocated annually in 2018. 15 CSOs working with MSM and SW receive direct funding and 9 CSOs through local government agencies	This challenges the Public Administration Reform in Thailand, hence this is innovative. More standardization on allocative efficiency is yet to be strengthened.
The US$3M Subsidiary Fund	The Ministry of Public Health Department of Disease Control	Increased fiscal space, Allocative efficiency	US$1.5M is allocated to CSOs in 2018. 500 projects are financed.	More strategic allocation is needed to increase fiscal space as the MoPH promises 500 projects to be funded as the only indicator.
The US$3M Public-Private Partnership Fund	Public Sector (Corporate and Individual)	CSO funding mechanism	US$0.79M has been raised so far.	HIV is no longer an appealing to the public.

[HIV financing policy progress monitoring]

THPDE0205

A sustainable approach to providing HIV services and information at the community level: A longitudinal exploration of female community health entrepreneurs' performances

R.A.J. Borst[1], M.O. Kok[1,2], F. Bucker[3], D. Muhangi[4]
[1]Erasmus University Rotterdam, Erasmus School of Health Policy & Management, Rotterdam, Netherlands, [2]Amsterdam Public Health, Vrije Universiteit Amsterdam, Health Sciences, Amsterdam, Netherlands, [3]Vrije Universiteit Amsterdam, Health Sciences (Student), Amsterdam, Netherlands, [4]Makerere University, Social Work and Social Administration, Kampala, Uganda

Background: Community health entrepreneurship is an innovative way of providing rural communities access to primary healthcare by harnessing the entrepreneurial skills of lay health workers. Previous research shows that community health entrepreneurs have a highly beneficial impact on communities' knowledge of HIV prevention. However, it remains unclear how the performance of these entrepreneurs evolve over time. Hence, this study aimed to longitudinally compare the performances of lay health workers and community health entrepreneurs. The findings of this study aim to contribute to the construction of a sustainable primary sexual and reproductive healthcare model.

Methods: Data were collected using a tablet-based performance survey in a six-month quasi-experimental study. The study aimed to sample 500 female lay health workers from two rural districts in East and Central Uganda who were recruited to become a community health entrepreneur. A random sample of 150 participants would receive their training directly, whereas the other 350 would start six months later. Mixed models were used to longitudinally asses the difference in performance indicators between the two groups. These indicators included their income, self-esteem, and availability of essential medicines and equipment.

Results: A group of 56 female community health entrepreneurs successfully completed their training directly, followed by a second group 77 six months later. After six months, the entrepreneurs showed sustained performance over the lay health workers. The community health entrepreneurs proved to have a key role in providing rural populations with basic services and products for sexual and reproductive health. The entrepreneurs had a higher availability of essential medicines (OR: 3.39, 95%-CI: 2.03; 5.65) and key equipment (OR: 1.87, 95%-CI: 1.03; 3.37). In addition, their Rosenberg self-esteem score increased with 1.24 points (95%-CI: 0.09; 2.39) more than that of lay health workers, whereas their weekly overall income increased with $8.96 (95%-CI: $3.59; $14.32) more than that of lay health workers.

Conclusions: Female lay health workers who were trained to become a community health entrepreneur showed an increased and sustained performance in the medium-term. This study provides the first evidence that community health entrepreneurship may be a sustainable and lasting model through which to organise sexual and reproductive healthcare.

THPDE0206

Building a constituency of advocates for sustainability: Identifying the capacity needs of HIV CSOs and key populations to advocate for HIV financing and sustainability in Indonesia, Malaysia, Philippines and Thailand

J. Bagas
APCASO, Bangkok, Thailand

Background: In response to declining donor funding for HIV, the Sustainable HIV Financing in Transition (SHIFT) Programme is supporting HIV financing advocacy for CSOs in four middle-income countries in Southeast Asia through capacity building and strategic information.

APCASO, a regional sub-recipient of SHIFT, conducted a needs assessment for CSOs and key population (KP) groups in Indonesia, Malaysia, Philippines and Thailand in 2017 to identify their capacity needs in relation to HIV financing advocacy.

Description: APCASO developed a tool for a two-day focus group discussion where participants representing SHIFT SRs, HIV CSOs, and KP groups scored or assessed their capacities in five areas: programmatic capacity; organisational capacity; individual capacity; linkages to HIV financing stakeholders; and enabling environment.

48 participants from 28 CSOs and KPs took part of the FGDs: Philippines = 5 groups; Malaysia = 8; Indonesia = 8; and Thailand = 7. They represented the following communities and KPs: PLHIV (5 groups); MSM (10); TGs (8); SWs (3); PWUDs (5); women PLHIV (1), and YKPs (1). 7 organisations reported representing broad constituencies or all KPs.

Lessons learned: Here are some of the major findings of the needs assessment:

- Almost all groups reported moderate to weak capacity on key HIV financing topics, such as transition policies, UHC, and budget cycles.
- Advocacy is perceived as an add-on to service delivery despite prevailing notion that advocacy is their core mandate.
- There is limited or no engagement with critical government decision-makers, such as the Finance ministry, treasury, or major political leaders.
- Spaces for HIV financing advocacy presented by decentralisation are not maximised. Existing government funding mechanisms for CSOs are not fully understood.
- HIV networks present a means to mitigate KP-specific barriers (such as criminalisation). However, capacity to advocate for KP-specific programmes varies across groups.

Conclusions/Next steps: To address these gaps, APCASO worked with the SRs and SHIFT regional partners to design in-country advocacy trainings that covered national HIV funding landscapes, UHC, budget cycles, CSO funding mechanisms, as well as advocacy skills on HIV financing. APCASO also developed a set of tailored technical assistance activities for the four countries to continue enhancing capacities on HIV financing.

THURSDAY 26 JULY

Poster Exhibition

Eliminating/Silencing latency

THPEA001

The Mitochondrial Antiviral Signaling protein plays an essential role in the activity of several latency-reversing agents

I. Sarabia[1], C. Novis[2], A.B. Macedo[1], R. Nell[3], B. Shakya[4], H.L. Schubert[4], C.P. Hill[4], A.B. De Paula-Silva[2], A.M. Spivak[3], V. Planelles[2], A. Bosque[1]
[1]George Washington University, Microbiology, Immunology and Tropical Medicine, Washington, United States, [2]University of Utah, Department of Pathology, Division of Microbiology and Immunology, Salt Lake City, United States, [3]University of Utah, Department of Medicine, Division of Infectious Diseases, Salt Lake City, United States, [4]Univerisity of Utah, Department of Biochemistry, Salt Lake City, United States

Background: The Mitochondrial Antiviral Signaling protein (MAVS) is part of the cell's innate immune mechanism of defense. MAVS plays an important role in activating NF-B after the cytosolic RNA sensors retinoic acid-inducible gene I (RIG-I) and melanoma differentiation-associated protein 5 (MDA5) recognize viral infections. MAVS can also sense cellular stress and activate an anti-oxidative stress (AOS) response through the activation of NF-B. Because NF-B is a main transcription factor for HIV, we wanted to address what role MAVS and the AOS response plays in HIV reactivation from latency.
Methods: We first tested whether activation of the AOS response reactivates latent HIV using a tumoral latency model, a primary cell model of latency, and cells from aviremic participants. Next, we generated a clone lacking MAVS in the tumoral cell model of latency JLAT using CRISPR/Cas9. Using this system, we further characterized the role of MAVS in viral reactivation mediated by the AOS response. We then addressed whether MAVS plays a role in viral reactivation mediated by several known latency-reversing agents (LRAs). Finally, complementation studies were performed to demonstrate the requirement of MAVS for the activity of several LRAs.
Results: Our results indicate that the AOS response can reactivate latent HIV through the activation of NF-B in a MAVS dependent manner. Interestingly, several LRAs with different putative mechanisms of action, such as HDAC inhibitors and PKC agonists, exert part of their anti-latency activity by inducing an AOS response and require MAVS to fully reactivate latent HIV.
Conclusions: Our results indicate that the activity of many clinically relevant LRAs is partially due to their induction of an AOS response and NF-B activation and suggest a central role of the mitochondria and MAVS in controlling HIV transcription in response to cellular stress.

THPEA002

Potency of latency-reversing agents and CTL exhaustion balance the killing of HIV inducible provirus

A. Ruiz de Andrés[1], O. Blanch-Lombarte[1], E. Jimenez-Moyano[1], R. Peña[1], M. Genescà[2], B. Mothe[1,3], P. Goulder[4], B. Clotet[1,3], J.G. Prado[1]
[1]AIDS Research Institute IrsiCaixa, Hospital Universitari Germans Trias i Pujol, Universitat Autònoma de Barcelona, Badalona, Spain, [2]Hospital Universitari Vall d'Hebrón, Institut de Recerca (VHIR), Universitat Autònoma de Barcelona, Department of Infectious Diseases, Barcelona, Spain, [3]Universitat de Vic-Universitat Central de Catalunya, Vic, Spain, [4]University of Oxford, Peter Medawar Building, Department of Paediatrics, Oxford, United Kingdom

Background: The clinical use of Latency-reversing agents (LRA) in HIV cure interventions has demonstrated detectable perturbations on the viral reservoir with no measurable reductions. Thus, many questions regarding immune surveillance of HIV-reactivated cells continue unanswered. Here, we aim to determine magnitude and kinetics of recognition of HIV-reactivated cells by CTL, and to evaluate the impact of CTL exhaustion as a balancing factor of the magnitude of the killing of inducible provirus.
Methods: We developed an HIV "Resting-Like cell model" (RELI) that allowed simultaneous monitoring of "HIV shock and CTL kill". Briefly, RELI cells were treated with LRA for 48h. After that, cells were washed and co-cultured for 20h with CTL clones or bulk CD8+ T-cells from HIV-infected patients. We monitored the potency of LRA-inducible HIV reactivation by intracellular p24 staining and assessed the magnitude of CTL killing by differences in frequency of p24+ cells in the absence or presence of CTL/CD8+. We measured the kinetics of CTL recognition and killing of reactivated cells at 3, 6 and 20h post co-culture. We evaluated exhaustion of CTL/CD8+ by PD-1, LAG3, TIM3 and CD39 expression.
Results: We demonstrated an increase in the magnitude of the killing of HIV-infected cells by CTL through reactivation with SAHA or Panobinostat ($p< 0.01$). Our findings were confirmed in co-cultures of bulk CD8+ from HIV-infected patients ($p< 0.05$, $n=7$). The kinetics experiment revealed early recognition of HIV-inducible provirus by CTL starting at 3h, where the speed of killing correlated with the magnitude of reactivation ($r2=0.82$, $p< 0.005$ at 3h; $r2=0.93$, $p< 0.0005$ at 6h). Besides, magnitude of CTL killing in response to HIV-reactivation was reduced upon the co-expression of three or more exhaustion markers ($p< 0.05$). In bulk CD8+, we observed a correlation between the magnitude of killing and the lack of exhaustion markers.
Conclusions: Our results support the contribution of CTL responses to the clearance of HIV-inducible provirus upon LRA treatment. Moreover, our findings indicate the importance to maximize LRA potency for the rapid recognition and killing of HIV-reactivated cells by CTL, together with the evaluation of CTL exhaustion in HIV-infected patients to optimize "shock & CTL kill" strategies.

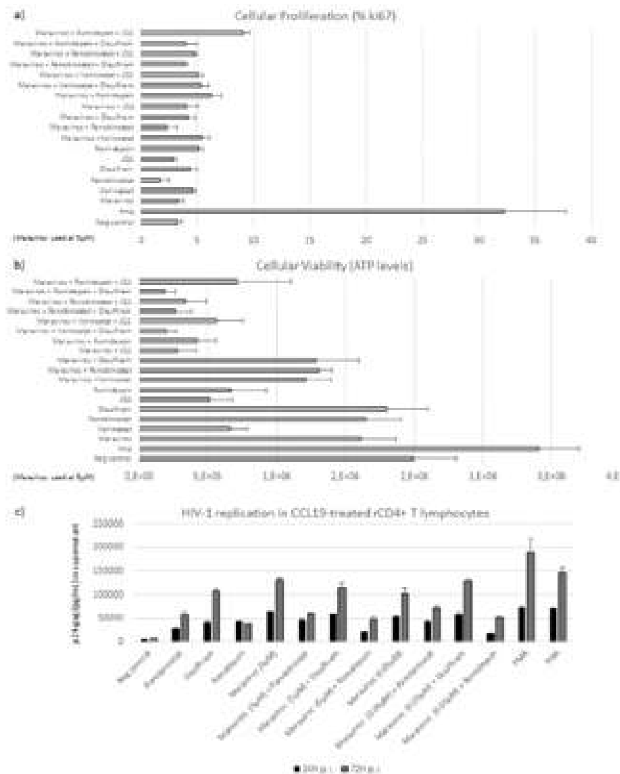
THPEA003

Combinations of maraviroc with other latency reversing agents to activate latent HIV-1 in rCD4+ T lymphocytes

M.R. López-Huertas, L. Jimenez-Tormo, L. Luna, S. Moreno
Hospital Universitario Ramón y Cajal - Instituto Ramón y Cajal de Investigación Sanitaria, Infectious Diseases Service, Madrid, Spain

Background: HIV-1 remains incurable due to latent reservoirs established in non-activated CD4+ T cells. Current efforts to achieve a functional cure rely on immunomodulatory strategies focused on enhancing the functions of cytotoxic cells. Implementation of these actions required a coordinated activation of the viral transcription in latently infected cells so that the reservoir became visible and accessible to cytotoxic cells. As no latency-reversing agent (LRA) has been shown to be completely effective so far, new combinations are of increasing importance. Recent data show that maraviroc, the CCR5 antagonist with clinic use, is a new LRA due to its ability to activate NF-B and to induce viral replication in latently infected cells. Our objective was to find combinations of maraviroc with other LRAs that potently reactivate HIV-1.
Methods: rCD4+ T cells were stimulated with maraviroc (0.05, 0.5 μM) alone or combination with other LRAs including vorinostat (335 nM), panobinostat (30 nM), romidepsin (40 nM), JQ1 (0.5 mM) and disulfiram (500 nM). PMA or PHA were used as positive control. Cellular viability and proliferation were measured by quantifying ATP and ki67 levels, respectively. Then, a latently model based on treating primary resting CD4+ (rCD4+) T cells with CCL19 (29nM) before in vitro HIV-1 infection with X4-NL4.3 was used. HIV-1 replication was assessed by quantifying p24 antigen in the culture supernatant 24h and 72h post-stimulation.
Results: Cell cycling was not detected in any of the double or triple combinations tested except for maraviroc+romidepsin+JQ1 (Fig. 1a). However, most of the triple combinations reduced cellular viability and were rejected (Fig. 1b). Maraviroc 5 and 0.05 μM were both efficient in reactivating HIV-1 replication but 5 μM was slightly superior. Maraviroc (5 μM) reactivates HIV-1 replication with the same potency as positive controls after 24h and 72h stimulation, which was around 10- and 18-fold, respectively (Fig. 1c). Maraviroc plus disulfiram is the only combination maintaining these levels.

Conclusions: Maraviroc reactivates HIV-1 replication in vitro. A combination of maraviroc plus disulfiram maintains the effect without resulting in cellular toxicity or proliferation. Ex vivo studies are required to highlight the importance of this combination before moving into in vivo assays.



[Figure 1. HIV-1 replication in CCL19-treated rCD4+ T cells after stimulation with maraviroc]

THPEA004

Getting the "kill" into "shock and kill": The role of PI3K inhibitors

Y. Kim[1], J.L. Anderson[2,3], A. Solomon[1], J. Ali[4], P.U. Cameron[1,5], S.R. Lewin[1,5]
[1]The Peter Doherty Institute for Infection and Immunity, The University of Melbourne and Royal Melbourne Hospital, Melbourne, Melbourne, Australia, [2]The Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [3]The University of Melbourne, Microbiology and Immunology, Melbourne, Australia, [4]Infinity Pharmaceuticals, Cambridge, United States, [5]Dept Infectious Diseases, Monash University, The Alfred Hospital, Melbourne, Australia

Background: One strategy to eliminate latently infected CD4+ T cells in HIV+ individuals on antiretroviral therapy (ART) is to use latency reversing agents (LRAs) to reactivate virus expression. However, additional strategies to kill reactivated cells are needed. Phosphoinositide 3-kinases (PI3K) promote cell survival by preventing apoptosis. We hypothesised that PI3K inhibitors in combination with LRAs will increase the sensitivity of latently infected cells to apoptosis.

Methods: Using the latently infected cells line JLat6.3 and CD4+ T cells from HIV-infected individuals on ART, we evaluated virus expression and cell death following administration of isoform-specific PI3K inhibitors (IPI-XXXX, IPI-3063: Infinity Pharmaceuticals), a panPI3K inhibitor (Wortmannin) and a Bcl-2 inhibitor (Venetoclax), together with a panel of LRAs including vorinostat, panobinostat, romidepsin, bryostatin, JQ1 or disulfiram or T cell activation with PMA/PHA. Toxicity was evaluated by a violet cell death stain. HIV expression was quantified by flow cytometry for EGFP in J-Lat6.3 cells, and HIV integrated DNA was measured by qPCR.

Results: In J-Lat6.3 T cells, PI3Ki alone or combined with LRAs did not enhance cell death. Contrary to our hypothesis, there was a reduction in cell death with bryostatin+IPI-XXXX (68% decline relative to DMSO) and panobinostat+IPI-XXXX (21% decline relative to panobinostat alone). Given that activity of PI3Ki may be different in an immortalised cell line, we also evaluated these drugs in CD4+ T cells from HIV-infected individuals on ART (n=4). In one of four participants, compared to DMSO or either drug alone, there was a reduction in HIV integrated DNA *with* IPI-XXXX and romidepsin (5% decline) and Wortmannin and PMA/PHA (24% decline). Venetoclax induced a decline in HIV DNA alone and this was not increased by the addition of RMD or PMA/PHA.

Conclusions: PI3K inhibitors together with LRAs have minimal effects on apoptosis in the J-Lat6.3 cell line while in CD4+ T-cells from HIV-infected individuals on ART, a reduction in HIV DNA in one individual was observed. Further work is needed to define the optimal combination of LRAs with PI3K inhibitors to reduce latently infected cells.

Immunotherapy

THPEA005

Use of the immunomodulatory activity of tyrosine kinase inhibitors to elicit cytotoxicity against HIV-1 infection

S. Rodriguez-Mora[1], G. Bautista[2], M.R. Lopez-Huertas[3], E. Mateos[1], V. Garcia-Gutierrez[3], J.L. Steegmann[4], J. Ambrosioni[5], N. Climent[5], F. Cervantes[5], J.M. Miro[5], M. Plana[5], V. Planelles[6], J. Alcami[1], M. Coiras[1]
[1]Instituto de Salud Carlos III, AIDS Immunopathology, Madrid, Spain, [2]Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain, [3]Hospital Ramon y Cajal, Madrid, Spain, [4]Hospital Universitario de La Princesa, Madrid, Spain, [5]Hospital Clinic, IDIBAPS, Barcelona, Spain, [6]University of Utah, Salt Lake City, United States

Background: Due to reservoirs, HIV-1 infection cannot be cured with current ART, even in the presence of latency reversal agents (LRAs). Cytotoxic cells such as NK and CD8+ T lymphocytes should be activated to destroy latently infected cells. However, attempts to reactivate the reservoir with LRAs cannot be effective in the absence of a potent cytotoxic response. We previously described that tyrosine kinase inhibitors (TKIs) imatinib and dasatinib, successfully used for treating chronic myeloid leukemia (CML), impede HIV-1 replication. TKIs also increase populations of NK (CD3-CD56+), NK-LGL (CD56+CD57+), and T-LGLs (CD3+CD57+) cells in CML patients. In this work, we analyzed whether TKIs may promote cytotoxicity to destroy HIV-infected cells.

Methods: CD4+ T-cells isolated from PBMCs of healthy donors (n=6) and activated with PHA/IL-2 for 3 days were cocultured with autologous NK and CTLs, previously treated with imatinib 10mM or dasatinib 37.5nM, and then infected with NL4-3_Renilla. Same procedure was performed with PBMCs from patients with CML treated with dasatinib (n=6) or imatinib (n=6), except for TKI treatment in vitro.

Results:

1) CD8+ T-cells and NKs isolated from healthy donors and treated in vitro with imatinib or dasatinib showed an average cytotoxic potential >2-fold against HIV-1 infection, regarding the same cells untreated, when cocultured with autologous CD4+ T-cells infected with HIV-1.

2) CD8+ T-cells and NKs isolated from CML patients on treatment with imatinib or dasatinib for more than 6 months showed cytotoxic potential >5-fold against autologous CD4+ T-cells infected ex vivo.

3) These PBMCs from CML patients treated with dasatinib showed 4.1-, 1.5-, 4.9-, and 5.6-fold increase of CD56+/CD16+, CD56+/CD57+, CD56+/NKG2D+ and CD56+/CD158f+ cells, respectively. PBMCs from CML patients treated with imatinib showed 2.7-, 2.0-, and 2.0-fold increase of CD56+/CD16+, CD56+/CD57+, and CD56+/NKG2D+, respectively, with no changes in CD56+/CD158f+ population, regarding healthy controls.

4) Synthesis of IFNg in response to CEF peptides was 5.1- and 2.0-fold increased in PBMCs of CML patients treated with dasatinib or imatinib, respectively.

Conclusions: TKIs such as imatinib and dasatinib may act as immunomodulators, increasing cytotoxicity of NK and CTLs in vivo. Once the provirus is activated by LRAs, co-treatment with TKIs may destroy latently HIV-infected CD4+ T-cells.

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THPEA006

Administration of rhIL-15 in combination with anti-PDL1 (Avelumab) in SIV-infected RM

P. Chen[1], H. Chen[2], M. Moussa[1], T. Li[1], J. Chen[1], J. Lifson[3], M.C. Sneller[2], L. Krymskaya[4], S. Godin[5], H.C. Lane[2], M. Catalfamo[1]
[1]*Georgetown University School of Medicine, Washington, United States,* [2]*CMRS/Laboratory of Immunoregulation, NIAID, NIH, Bethesda, United States,* [3]*AIDS and Cancer Virus Program, Retroviral Pathogenesis Section, Leidos Biomedical Research, Frederick National Laboratory, Fredrick, United States,* [4]*Laboratory of Human Retrovirology, Leidos Biomedical Research, Inc., Federick, United States,* [5]*Smithers Avanza Toxicology Services, Gaithersburg, United States*

Background: During chronic HIV/SIV infection, there is persistent immune activation accompanied by accumulation of virus-specific cells with terminally differentiated phenotypes and expression of down-regulatory immune modulatory receptors such as PD1. These observations led to the hypothesis that blockade of this pathway may restore the immune system leading to control/elimination of the viral reservoir. In addition, previous studies from our group had established that continuous infusion of IL-15 leads to expansion of CD8 T cells with effector memory phenotype. In the present study, we hypothesized that expansion of CD8 T cells with IL-15 in combination of anti-PD-L1 may be a potential therapeutic strategy to control viral replication in SIV-infected rhesus macaques (RM).
Methods: We investigated the effects of administration of recombinant human IL-15 in combination with a fully human anti-PD-L1 mAb (SB0010718C, Avelumab, EMD-Serono, Inc., Rockland, Massachusetts, USA) in SIV_{mac239}-infected RM receiving cART with suppressed viremia. The treatment group (n=6) received cART for 11 weeks followed by 2 x 10-day cycles of continuous infusion of rhIL-15 at a dose of 10µg/kg/day and weekly administration of 20 mg/kg of Avelumab. cART was interrupted at 8 weeks and administration of Avelumab continued for an additional 16 weeks. Viral load, CD4 counts, lymphocyte subsets and chemistry were monitored during the study.
Results: Administration of IL-15 and anti-PDL1 was well tolerated, and no clinically significant changes in body weights, hematologic, or chemistry parameters were observed during the study. There was no impact of the experimental interventions on CD4 count or viral load. In contrast to previous studies of IL-15 alone, no expansion of the CD8 T cell pool was observed although an increase in the proportion Ki67+ effector memory phenotype CD8 was noted at the time of the IL-15 cycles (compare controls and treatment groups). A reduction of the proportion of PD1+ effector memory phenotype CD8 T cells was accompanied by an increase in the proportion of CXCR3+ CD8 T cells.
Conclusions: Administration of IL-15 and anti-PD-L1 in chronic SIV-infected RM was well tolerated. The failure to observe the same substantial CD8 T cell expansions seen with IL-15 alone highlight the challenges encountered in evaluating combinations of immunomodulatory therapies.

Vaccines

THPEA007

Impact of a dendritic cell based therapeutic vaccine on microRNA expression profile

R. Pastor[1], C. Feher[1,2], O. Tort[1], T. Escribà[1], P. Aloy[2], H. van den Ham[3], R. Guters[3], A. Andeweg[3], M. Arnedo[1], F. García[1]
[1]*Group of Genomics and Pharmacogenomics, Laboratory of Retrovirology and Viral Immunopathogenesis. IDIBAPS. Infectious Disease Department, Hospital Clinic de Barcelona, Barcelona, Spain,* [2]*Institut de Recerca Biomèdica de Barcelona, Barcelona, Spain,* [3]*Department of Virology, Erasmus MC, Rotterdam, Viroscience, The Netherlands, Rotterdam, Netherlands*

Background: We have reported a monocyte-derived dendritic cell (MD-DC) based vaccine elicits T-cell responses associated with a reduction of viral load set-point around 94% in chronic HIV-1 infected patients after 12 weeks of an analytical therapy interruption (ATI). To better understand the efficacy of this vaccine, we assessed the impact on differential expression of microRNA.
Methods: 35 chronically -HIV-1 infected patients on ART were randomized 1:1:1 to receive: 3 doses of MD-DCs pulsed with inactivated autologous HIV-1 separated by two weeks interval (weeks 0,2,4) and ATI w0 (ATIw0-DC-HIV-1, n=12) vs the same immunogen and ATI w4 (ATIw4-DC-HIV-1, n=12) vs 3 doses of non-pulsed MD-DCs and ATI w4 (DC-control, n=12). Total RNA from frozen PBMC was used to perform the *Affymetrix 4.1 Array Strips*. Differential miRNA (DEmiRNA) expression and enrichment analisys was performed using t-test as implemented in the Bioconductor. MiRwalk v2.0 and DAVID softwares were used to identify validated gene targets and functional annotation pathways respectively.
Results: After normalization, 45 differential expressed DEmiRNA were found in ATIw0-DC-HIV-1 and 66 DEmiRNA in ATIw4-DC-HIV-1 groups, respectively, as compared with the DC-control group. Fourteen of these DEmiRNAs were shared by both DC-vaccine groups (ATIw0-DC-HIV-1 and ATIw4-DC-HIV-1) (p-value< 0.05; -0.5>FC>0.5). 4/14 DEmiRNA had the highest significance (p-value< 0.005; -0.5>FC>0.5) and were selected for the enrichment analysis (hsa-miR-4708-5p;hsa-miR-4731-5p;hsa-miR-767-5p;hsa-miR-6770-5p). These DEmiRNA target a total of 378 validated genes that are involved mainly in the humoral immune response and in the regulation of regulatory T-cell differentiation pathways.
Conclusions: The vaccination with a MD-DC based immunogen against HIV-1 infection was associated with the expression of 4 miRNA involved in the in the humoral immune response and in the regulation of regulatory T-cell differentiation pathways.

Genetherapy

THPEA008

Differences in antiviral efficacy and expression profile of anti-HIV RNAs expressed from the RNA polymerase III promoters U6, 7SK and H1

R. Goguen[1,2], O. Del Corpo[2,3], C. Malard[1,2], A. Daher[2], S. Colby Germinario[2], R. J. Scarborough[1,2], A. Gatignol[1,2,3]
[1]*McGill University, Microbiology and Immunology, Montreal, Canada,* [2]*Lady Davis Institute, Montreal, Canada,* [3]*McGill University, Experimental Medicine, Montreal, Canada*

Background: AIDS remains a globally distributed disease, despite the various drugs available to treat HIV infection. An alternative approach to classical treatments is to use gene therapy vectors to deliver antiviral molecules to hematopoietic stem cells (HSCs) and make all major HIV producing cells resistant to HIV replication. This could be achieved by engineering HSCs to permanently produce antiviral RNAs and eliminate the need for daily medication.
While clinical trials are already in progress with this approach, there are conflicting results reported in the literature as to the optimal promoter for expression of anti-HIV RNAs. We hypothesize there will be an optimal promoter for each RNA candidate to ensure maximal antiviral efficacy and minimal toxic effects.
In this study, two anti-HIV short hairpin (sh) RNA were compared for their effects on HIV production, cellular toxicity and metabolite profile, when expressed from different RNA polymerase (Pol) III promoters.
Methods: Co-transfections were performed in HEK293T cells with an HIV-1 molecular clone (pNL4-3) and a plasmid expressing shRNAs from modified H1, 7SK or U6 RNA Pol III promoters. Viral production was quantified by HIV-1 reverse transcriptase activity in co-transfected cell supernatants. Cellular toxicity was measured by metabolic enzyme activity and the metabolic profile of shRNAs was evaluated by RNA sequencing in shRNA transfected cells.
Results: For both shRNA candidates, the U6 and 7SK promoters produced more effective anti-HIV RNAs. Changing the sequence of the U6 and H1 promoter to their natural sequences resulted in the expression of less effective shRNAs. Transfection of shRNAs expressed from different RNA Pol III promoters did not change effects on cellular toxicity but had major effects on their metabolite profile.

Conclusions: Our results suggest that RNA Pol III 7SK and U6 promoters express more effective anti-HIV shRNAs compared to H1 promoters with no further improvement when changing the promoters to their natural sequence. We also demonstrate the metabolite profile of anti-HIV shRNAs is variable when expressed from the different promoters. Combination anti-HIV RNA gene therapy is among the top approaches to cure HIV infection and our results will help in the selection of optimal promoters for the expression of anti-viral RNAs.

THPEA009

Cell-based gene therapy to treat HIV-1/AIDS

E. Herrera-Carrillo, B. Berkhout
Academic Medical Center of the University of Amsterdam, Department of Medical Microbiology, Amsterdam, Netherlands

Background: HIV-1 drug therapies are effective at suppressing the viral load in patients to block disease progression, but drugs cannot eradicate HIV-1 from an infected individual and therefore have to be taken life-long. Because there is also no protective vaccine available, it remains important to develop more durable therapeutic approaches against HIV-1. A gene therapy to protect cells against HIV-1 would seem ideal as it requires only a single treatment. The gene therapy can be based on diverse methods for gene silencing (e.g. RNAi) or gene disruption (e.g. CRISPR-Cas) and we have tested such anti-HIV genes that act in a strictly sequence-specific manner. However, these antivirals do not block infection by the virus particle and do not prevent integration of the viral DNA genome into that of the host cell.
Methods: In order to realize an early block, we designed a gene therapy based on anti-HIV-1 peptides that block the membrane fusion process during virus infection. We evaluated the efficacy of three generations of anti-HIV peptides (C46, T1249 and T2635), which were produced by the engineered cells either as membrane-anchored or secreted protein.
Results: Both peptide forms exhibit robust and broad spectrum anti-HIV activity and the third generation peptide was more active than the first and second generations. Under HIV-1 pressure, the membrane-anchored peptides conferred a profound selective survival over control cells. The secreted peptides also demonstrated potent antiviral activity and were in addition able to protect non-modified bystander cells.
Conclusions: The anti-HIV-1 peptides block virus infection at the virus entry step. A small percentage of modified cells may suffice to stop virus replication and disease progression because the survival advantage is predicted to lead - over time - to a majority of HIV-resistant cells. Secreted peptides have the additional advantage of protecting bystander cells. In conclusion, anti-HIV-1 peptide-based gene therapeutics may provide a strong benefit to AIDS patients and could present an attractive alternative to current antiretroviral drug regimens.

HIV controllers (including post-treatment controllers) and long term non-progressors

THPEA010

HLA-B*57+ HIV controllers demonstrate an efficient antibody profile

J. Klingler[1], A. Rouers[2], G. Laumond[1], S. Schmidt[1], C. Ducloy[1], L. Mayr[1], T. Decoville[1,3], N. Salomé[1], A. Samri[4], V. Avettand-Fenoel[5,6], F. Boufassa[7], C. Rouzioux[5,6], O. Lambotte[8,9,10], B. Autran[4,11], A. Moris[2], C. Moog[1,3], ANRS CO21 Cohort
[1]INSERM UMR_S 1109, Strasbourg, France, [2]Sorbonne Universités, UPMC Univ Paris 06, INSERM U 1135, CNRS ERL 8255, Center for Immunology and Microbial Infections - CIMI-Paris, Paris, France, [3]Vaccine Research Institute (VRI), Créteil, France, [4]Sorbonne Universités, UPMC Univ Paris 06, INSERM U 1135, Center for Immunology and Microbial Infections - CIMI-Paris, Paris, France, [5]EA 7327, Univ Paris Descartes, Sorbonne Paris-Cité, Faculté de Médecine, Paris, France, [6]APHP, Hôpital Necker Enfants-Malades, Laboratoire de Virologie, Paris, France, [7]INSERM, U 1018, Faculté de Médecine Paris Sud, Le Kremlin-Bicêtre, France, [8]Université Paris Sud, AP-HP, Service de Médecine Interne-Immunologie Clinique, Hôpitaux Universitaires Paris Sud, Le Kremin Bicêtre, France, [9]INSERM UMR-1184, Center for Immunology of Viral Infections and Autoimmune Diseases, Le Kremlin Bicêtre, France, [10]CEA, DSV/iMETI, Division of Immuno-Virology, IDMIT, Fontenay-aux-Roses, France, [11]AP-HP, Hôpital Pitié-Salpêtière, Department of Immunology, Paris, France

Background: Current HIV vaccination strategies strive to induce anti-HIV antibodies (Abs), of which several types are of interest. Among them, neutralizing Abs are able to protect macaques against experimental infection but are difficult to induce by vaccination.
HIV Controllers (HICs; undetectable viral load without treatment) constitute an interesting cohort for Ab profiling. Indeed, the polyfunctional activities of IgG1s and IgG3s and the induction of anti-gp41 IgG2s were associated with HIV control and slower disease progression. Recently, HIV-Env-specific memory B cells frequency was found to correlate with neutralization breadth in HICs positive for the HLA-B*57 protective allele. This suggests that a specific Ab profile participating in the control of HIV might have been induced in HICs.
Methods: Our study aims to characterize Ab isotypes and their functional responses in the sera of 37 HICs (separated in HLA-B*57+ and HLA-B*57-), compared to 21 chronic progressors (evolving to disease). We analyzed isotype distribution in the different cohorts by ELISA and neutralization activities using TZM-bl neutralization assays. The correlation between anti-HIV Ab detection and functional activities was analyzed by a Spearman rank correlation.
Results: We found no differences between the induction of anti-HIV IgAs in HICs and chronic progressors. Chronic progressors induce more anti-HIV IgGs and anti-HIV-IgG2s while HICs induce higher proportions of anti-HIV IgG3s. Notably, HICs display neutralizing activities against several HIV strains including transmitted/founder viruses, despite low antigen detection. Remarkably, these neutralizing activities positively correlate with IgG subtype detection in HLA-B*57+ HIC subgroup, but not in HLA-B*57- HICs or chronic progressors.
Study of Ab function according to their isotypes is in progress.
Conclusions: These results demonstrate that HIC patients display an unexpected Ab isotype profile. Anti-HIV Ab detection is associated with neutralizing activity in HLA B*57+ HICs, suggesting that neutralization may contribute to HIV control in this patient subgroup. Conversely, the absence of correlation between Ab profile and neutralization in HLA B*57- HICs further suggests that additional Ab functions may be involved. An in-depth characterization of said Ab profile will guide the design of new immunogens for a future vaccine.

Founder viruses/transmission bottleneck

THPEA011

Envelope biological properties of early and late HIV-1 variants issued from a same transmission cluster

M. Beretta[1], A. Moreau[1], A. Essat[2], C. Goujard[2], M.-L. Chaix[3], L. Meyer[2], F. Barin[1], M. Braibant[1], on behalf of the ANRS 06 Primo Cohort
[1]*INSERM - U 966, Tours, France,* [2]*INSERM - U 1018, Paris, France,* [3]*INSERM - U 941, Paris, France*

Background: Recent studies suggested that during the sexual transmission of HIV-1, a single transmitted/founder (T/F) virus among the numerous viral variants present in the donor is transmitted most often. This results in a genetically restricted viral population at the beginning of infection. The aim of our study was to compare the biological properties of envelope glycoproteins of HIV-1 variants circulating during the early and late phase of infection within a transmission cluster. Our hypothesis was that, if transmitted variants have a selective advantage, envelopes of viruses found at the early stage of infection should share some biological properties.
Methods: A transmission cluster of 4 patients infected by subtype B viruses was included in the ANRS Primo cohort, with available early (< 3 months) and late (18/24 months after infection) plasma samples for each patient. We produced Env-pseudotyped viruses expressing the envelope glycoproteins representative of the viral population infecting each patient at the early (early viruses) and late (chronic viruses) stage of infection, and compared their sensitivity to a panel of broadly neutralizing antibodies (bNAbs) and entry inhibitors.
Results: We observed that early viruses of the 4 patients used exclusively the CCR5 coeceptor, whereas chronic viruses of 2 subjects were able to use the 2 co-receptors CCR5 and CXCR4. Early viruses were more sensitive than chronic viruses to bNAbs PGT121 and 10-1074 targeting the V3 region, as well as to the mini-CD4 M48U1. Conversely, they were more resistant to the fusion inhibitor T20. This observation may reflect a better ability of early viruses to fuse with their target cells. Interestingly, differences in sensitivity/resistance between early and late viruses were associated with identical envelope amino acids changes in all four patients.
Conclusions: The analysis of early and late variants of HIV-1 circulating within a transmission cluster allowed us to compare the evolution of closely related viral variants in 4 different patients. We observed that envelopes of early and late viruses of all 4 patients shared similar biological properties, associated with identical molecular features, suggesting a common viral evolution in the 4 patients.

THPEA012

Chronic binge alcohol consumption influences the establishment of founder virus populations in rhesus macaques mucosally-inoculated with SIV_{mac251}

S. Robichaux[1], N. Lacour[1], A.M. Amedee[2]
[1]*Louisiana State University Health Sciences Center, Microbiology, Immunology, & Parasitology, New Orleans, United States,* [2]*Louisiana State University Health Sciences Center, Microbiology, Immunology, & Parasitology, and Alcohol and Drug Abuse Center of Excellence, New Orleans, United States*

Background: Alcohol abuse is highly prevalent among HIV-infected and at-risk people, resulting in increased risk of HIV transmission and adverse effects on disease. Using SIV-infected rhesus macaques exposed to chronic binge alcohol (CBA), our studies have shown that CBA enhances susceptibility to rectal mucosal SIV challenge and increases set-point viremia. We hypothesized that CBA altered early virus:host interactions, affecting the establishment of transmitted/founder virus populations and their subsequent replication dynamics to impact disease progression.
Methods: To address our hypothesis, alcohol was delivered daily via gastric catheters to 13 male rhesus macaques beginning 3 months prior to SIV-inoculation. Peak blood alcohol levels of 50-60mM were obtained following administration, while sucrose was administered to 11 controls. Following rectal infection with SIVmac251, founder virus populations in animals were characterized using single genome amplification (SGA) of SIV-gp160 and compared to inoculum genotypes. To more thoroughly assess viral populations and monitor evolution, we utilized a novel next generation deep sequencing assay targeting envelope V1-V2. De novo cluster and principal coordinate tools in *Mothur*, were used to analyze and compare virus populations, with a mean of 7500 sequences from each animal. Viral RNA levels in plasma and lymph node cells were measured by qPCR.
Results: Within the SIV inoculum, 17 unique V1-V2 genotypes which clustered into three main genotypes (G1, G2, G3) were identified by SGA. Analysis of founder virus populations revealed that CBA animals expressed a more diverse founder virus population when compared to controls ($p < 0.001$), with a predominance of G1 and a significant reduction in G3 sequences observed in CBA animals. At 10 weeks SIV, we observed a small increase in viral diversity among control animals, while CBA animals showed a significant reduction in diversity ($p < 0.001$) and selection for G1 sequences. Concomitantly, CBA animals showed significantly higher levels of viral RNA in both plasma and lymph node cells ($p < 0.05$).
Conclusions: These observations suggest that CBA mitigates early innate host selective pressures to establish more diverse virus population in tissues of CBA animals. The establishment of genotypes that are expressed at higher levels plays an important role in accelerating disease progression in CBA animals.

Preclinical drug development, including prophylactic drug and microbicide development

THPEA013

Pharmacokinetics of VM1500A long acting injectable formulations for HIV-1 infections treatment and prevention after repeat-dose administration in dogs

A. Koryakova[1], R. Karapetyan[1], A. Khvat[2], B. Rogovoy[2], I. Nikoulin[3], S. Sankar[3], G. Yakatan[3], N. Trankova[2], I. Ivashchenko[2], K. Klumpp[4], N. Savchuk[2], V. Bichko[2]
[1]*Chemical Diversity Research Institute, Moscow, Russian Federation,* [2]*Viriom, Inc, San Diego, United States,* [3]*IriSys, LLC, San Diego, United States,* [4]*Riboscience, LLC, Sunnivale, CA, United States*

Background: VM1500A is a new, potent non-nucleoside HIV-1 reverse transcriptase inhibitor (NNRTI). Its orally-bioavailable prodrug, Elsulfavirine (Elpida®, VM1500), is currently marketed in Eastern Europe as an oral QD regimen for HIV/AIDS treatment. Unique pharmacokinetic properties ($T_{1/2}$ ~ 9 days) of VM1500A suggest a possibility for long-acting formulation development.
Methods: VM1500A was subjected to polymorph analysis *via* generation of corresponding amorphous forms and evaporative/low-temperature crystallization from 50 different solvents. Two aqueous nanosuspensions of VM1500A polymorph I with particle size distribution (PSD d90) of 306 or 411 nm were prepared by wet milling. Formulation safety and pharmacokinetics (PK) were studied in beagle dogs, following three once-monthly 10 mg/kg dose administration by intramuscular (IM) injection. Three animals were studied per formulation. Blood samples were collected frequently up to 72 h after administration and every week up to 3 months after last administration. VM1500A plasma concentrations were measured using LC-MS/MS.
Results: A total of twenty morphoforms of VM1500A were identified. Out of those, two (morphoforms I and X), were found to be stable. Morphoform I was selected for further studies. All studied formulations were well-tolerated, no adverse reactions were observed, including at the injection site. Dosing with 306 nm-formulation provided more stable drug plasma concentrations than dosing with that of 411 nm. Following three once-monthly 10 mg/kg IM injections of 306 nm VM1500A formulation, drug plasma levels were maintained above 40 ng/ml for at least for 4 month. These levels exceeded the clinically-efficacious VM1500A plasma concentrations.
Conclusions: This study supports further development of VM1500A long-acting injectable formulations to enable infrequent dosing.

THPEA014

Membrane cholesterol maintains structural stability of the HIV-1 envelope glycoproteins and their resistance to antibody neutralization

J. Johnson, H. Salimi, M. Flores, H. Haim
University of Iowa, Iowa City, United States

Background: Diverse strains of HIV-1 differ in their sensitivity to neutralization by patient sera. Tier-1 isolates and lab adapted strains are globally sensitive whereas Tier-2 and Tier-3 isolates are more resistant. We have recently shown that global sensitivity to antibody neutralization is associated with structural stability of the Env trimer. Multiple interactions in the ectodomain of Env control its resistance to structure-perturbing treatments. We hypothesized that interactions between Env and the lipid membrane may also affect stability of Env. Specifically, we examined the effects of membrane cholesterol on Env structure, function and neutralization sensitivity.
Methods: Diverse Tier-2-like strains of HIV-1 were treated with the cholesterol-depleting agent methyl beta cyclodextrin. To quantify changes in Env conformation we measured the effect of cholesterol depletion on binding of monoclonal antibodies to virus particles using a luminescence-based assay. We also examined the effects of cholesterol depletion on virus sensitivity to structure-perturbing treatments, including exposure to 0°C and antibodies.
Results: Depletion of cholesterol from viruses enhances exposure of multiple partially-cryptic epitopes, including the coreceptor-binding site (CoR-BS) and membrane-proximal ectodomain region (MPER) of gp41. Conformational effects were isolate-specific and corresponded well with measured changes in virus infectivity. Structurally-unstable Env variants that assume a CD4-bound conformation were highly sensitive to depletion of cholesterol. Similarly, cholesterol depletion acted in synergy with cold, which also induces an "open" form of the trimer, to effectively inactivate the virus. Importantly, we found that mild depletion of cholesterol from viruses enhanced their sensitivity to neutralization by antibodies that target the CoR-BS, V3 loop of gp120 and MPER at concentrations that are otherwise non-inhibitory.
Conclusions: Resistance of Tier-2 HIV-1 isolates to antibody neutralization is associated with stability of the Env trimer. Depletion of cholesterol from Tier-2-like viruses destabilizes the trimer and sensitizes the virus to host antibodies. This destabilization-based approach can be combined with microbicides or vaccine strategies to reduce mucosal transmission of HIV-1.

THPEA015

Release and safety profile of drug loaded innovative bioadhesive vaginal microbicide gels to prevent HIV and HSV infections

G. Shankar
SRI International, Pharmaceutical Sciences, Menlo Park, United States

Background: Epidemiological studies have demonstrated that there is a strong synergy between HSV and HIV; HSV infection also increases the risk of HIV acquisition. A combination of antiretroviral tenofovir along with antiherpetic acyclovir for vaginal mucosal delivery is an attractive prophylaxis. Further a bioadhesive gel requiring fewer applications can increase the adherence of microbicide; and help in prevention of both HIV and HSV.
Methods: Drug loaded polymeric gel formulations were characterized for pH, osmolality, viscosity and mucoadhesion to porcine vaginal mucosal tissue. The release profile study of drugs from the gels were carried out using porcine vaginal mucosa. In the current study we have also screened for vaginal toxicity of drug loaded gel after intravaginal administration in mice and compared with Nonoxynol-9 (N9) gel, a positive control agent for tissue toxicity and safety.
Results: The pH and osmolality of drug-loaded vaginal gel was found to be 4.82 ± 0.011 and 55 ± 5.3 mOsm/kg respectively. Ideally, it is recommended that the osmolality of a personal lubricant not exceed 380 mOsm/kg in order to minimize any risk of epithelial damage. Mucoadhesive strength of the drug-loaded vaginal gel measured by texture analyzer using porcine tissue with and without mucin disc was found to be 561.4 ± 56.43 dynes/cm² and 368.09 ± 50.80 dyne/cm² respectively. In-vitro drug release in phosphate buffered saline of pH 7 resulted in about 5.0 ± 1.18% (53.36 ± 12.67 µg) of tenofovir and 0.5 ± 0.14% (23.54 ± 6.88 µg) of acyclovir released in 6 h from a 100 µl of drug-loaded vaginal gel. Further about 3.33 ± 1.19% (35.67± 12.76 µg) of tenofovir and 2.01± 1.35% (95.53± 64.21 µg) of acyclovir was retained in the porcine vaginal mucosa after 24 h of release study. From our biomarker analysis of both vaginal brush and tissue samples, we have determined that drug loaded SR-2P gel demonstrates a significantly improved toxicity profile compared to N9 gel when administered intravaginally.
Conclusions: We conclude that this gel prototype is well tolerated and is capable of delivering both acyclovir and tenofovir in vaginal tissues at levels that could provide protection against both HSV and HIV infection.

Immunotherapy (including broadly neutralizing antibodies)

THPEA016

Bovine monoclonal antibodies with human CDRH3 size neutralize heterologous HIV viruses

B. Heydarchi[1], N. Salazar Quiroz[1], C. Mackenzie[1], C. Gonelli[1], M. van Gils[2], R. Sanders[2], D. Purcell[3]
[1]*University of Melbourne at Peter Doherty Institute, Melbourne, Australia,* [2]*University of Amsterdam, Academic Medical Center, Amsterdam, Netherlands,* [3]*University of Melbourne at Peter Doherty Institute, Microbiology and Immunology, Melbourne, Australia*

Background: Cloned immunoglobulin (Ig) genes from HIV-1 infected patients with elite antibody responses yield potent and broad HIV neutralizing antibodies (bnAb) with unusually long and highly mutated CDRH3 domains. Passive infusions with these bnAb give sterilising protection against lentiviral infection in animal transmission models. A vaccinated cow with HIV Env-gp140 produced antibodies that neutralised 90% of 27 Env-pseudotyped reporter viruses including Env from clade A, B and C reference panels. The antibodies from this cow inhibited human broadly neutralizing antibody VRC01 and PGT121 binding to CD4bs epitope.
Methods: In this study, we used HIV Env antigen scaffold and trimer proteins to isolate anti-HIV memory B cells. The Cells were FACS sorted and variable heavy (VH) and light (VL) genes were amplified and cloned into human constant region expression vector. The antibodies were expressed and characterised for envelope binding and neutralisation activity.
Results: In total, 52 monoclonal antibodies were isolated belonging to 4 main clonal families. The antibodies in each clonal family had the same VH but different VL genes. The antibodies had VH size of between 121 a.a (CDRH3: 13 a.a) and 134 a.a (CDRH3: 26 a.a). Out of all expressed antibodies, nine monoclonal antibodies were selected for further characterisation. Five antibodies were able to bind RSC3 but not RSC3 Δ373I/P363N but only one of these antibodies (124b) with a short CDRH3 (13 a.a) could neutralise AD8 pseudovirus specifically. This antibody also showed heterologous neutralization against tier 1 pseudoviruses (MN and SF162), so far. The antibody was specific for CD4bs of HIV Env protein.
Conclusions: Though it is shown in a previous study that an Env immunogen with a native-like structure (SOSIP) is more efficient in eliciting heterologous neutralising antibodies than other forms of Env, we showed that cows vaccinated with AD8 soluble gp140 were alsoable to elicit neutralising antibodies. Interestingly, we also showed that bovine antibodies with even a human-sized short CDRH3 could neutralise different HIV viruses.

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Adjuvants

THPEA017

IL-7 as an adjuvant for mucosal vaccine development

M. Rancez[1], S. Logerot[1], S. Figueiredo[1], B. Charmeteau-de-Muylder[1], I. Bourgault-Villada[1], A. Couëdel-Courteille[2], R. Cheynier[1]
[1]Institut Cochin - INSERM U 1016 - CNRS UMR 8104 - Université Paris Descartes, Sorbonne Paris Cité, Paris, France, [2]Institut Cochin - INSERM U 1016 - CNRS UMR 8104 - Université Paris Descartes, Sorbonne Paris Cité - Université Paris Diderot, Paris, France

Background: Despite considerable research efforts, mucosal immunity remains particularly difficult to stimulate through vaccines. Systemic injection of IL-7 stimulates chemokines-induced recruitment of circulating T-cells into mucosae.
Methods: The optimal dose of IL-7 to be sprayed on mucosal surface was defined on 14 rhesus macaques. On mucosal biopsies collected after IL-7 administration, we quantified local transcription of 19 chemokines by qRT-PCR and cell infiltration by immunochemistry plus image analysis. Six macaques were immunized with antigens (DT and the HIV-1 gp41-P1 peptide) applied directly on the vaginal mucosa, two days after either IL-7 or PBS administration. The immunizations were repeated thrice, four months apart, and the macaques were euthanized 2 weeks after the last immunization. Antigen-specific IgA and IgG productions were quantified in vaginal secretions by ELISA. Antigen-specific plasma cells were detected by reverse immunohistochemistry in tissue, and by B-cell ELISPOT in PBMCs.
Results: A significant overexpression of twelve chemokines was observed 48 hours after mucosal administration of 10µg of IL-7. Subsequently, mDC, macrophage, NK, B- and T-cell numbers significantly raised in the IL-7-treated mucosae, suggesting massive chemokine-driven infiltration. Administration of antigens led to a stronger mucosal immune response in the IL-7-treated macaques as compared to animals immunized with antigens alone. Robust production of antigen-specific IgAs and IgGs was detected in vaginal secretions. The immunizations repeated thrice sustained mucosal specific immune responses. Antigen-specific-antibody secreting cells were recovered from PBMC and more DT-specific plasma cells were found in the vaginal mucosae (IgA isotype) and the draining lymph nodes (IgG isotype) of IL-7-treated macaques. Tertiary lymphoid organs were observed in vaginal mucosae from IL-7-treated macaques only.
Conclusions: Pre-treatment by non-traumatic vaginal administration of IL-7 (10µg by spray), allows for the development of a strong mucosal immune response in macaques following subsequent mucosal vaccination, through local chemokine expression and the recruitment of immune cells in the vaginal mucosa. The mucosal localization of IgA-specific plasma cells argues for their main contribution in the high levels of specific-IgAs evidenced in the vaginal secretions. These data suggest that IL-7 could be used as a mucosal adjuvant to elicit vaginal antibody response, the most promising way to confer protection to numerous STD.

Novel vectors and strategies

THPEA018

A novel vaccine platform using Env-incorporated particles for induction of broader anti-HIV antibody responses

H. Ishii[1], M. Nakamura-Hoshi[1,2], M. Inoue[3], T. Hironaka[3], T. Shu[3], T. Matano[1,2]
[1]National Institute of Infectious Diseases, AIDS Research Center, Tokyo, Japan, [2]University of Tokyo, Institute of Medical Science, Tokyo, Japan, [3]ID Pharma CO., Ltd., Ibaraki, Japan

Background: Efficient antibody induction is a principal strategy for the development of effective vaccines toward global HIV-1 control. Virus particles carrying Env trimers may be a promising immunogen for effective anti-HIV antibody induction, but inactivated HIV virions that carry only 10-20 molecules of Env trimers are not good for immunogen. In the present study, we developed novel vaccine using Sendai virus (SeV)-based particles carrying Env trimer antigen for efficient anti-Env antibody induction.
Methods: We designed a novel chimeric HIV Env antigen, HIV EnvF, consisting of the extracellular region (gp140) of HIV Env and the transmembrane/cytoplasmic tail region of SeV F. By using HIV BG505 (Clade A) and AD8-EO (Clade B) strains, we obtained BG505 EnvF and AD8EO EnvF, respectively. We constructed F-deleted SeV vector expressing EnvF (SeV-EnvF) and non-infectious SeV particles carrying EnvF (NVP-EnvF). BALB/c mice received the first vaccination with SeV-BG505 EnvF, the second with NVP-BG505 EnvF, and the third with NVP-BG505 EnvF or NVP-AD8EO EnvF. Anti-HIV-1 Env gp120 antibodies in plasma after vaccination were examined by ELISA using BG505 and BaL (Clade B) gp120 antigens.
Results: EnvF was shown to form trimers and be efficiently incorporated into SeV-based particles.
Anti-BG505 gp120 antibody responses were efficiently induced after the first vaccination with SeV-BG505 EnvF and boosted after the second with NVP-BG505 EnvF in mice. Comparison of two groups receiving NVP-BG505 EnvF and NVP-AD8EO EnvF at the third vaccination indicated more efficient induction of antibodies specific to Clade B (BaL) gp120 than those specific to Clade A (BG505) gp120 by NVP-AD8EO EnvF immunization, implying the multiple immunization with NVP-EnvFs derived from varieties of HIV strains to induce broader antibody responses.
Conclusions: Our vaccine system may provide a novel vaccine platform using Env-incorporated particles for induction of broader anti-HIV antibody responses.

Antibodies

THPEA019

HIV-1 lineage envelope proteins based on viral sequences from elite neutralizers

A. Schorcht[1], T. van den Kerkhof[1], T. Rijkhold Meesters[1], G. Ozorowski[2], J. Burger[1], E. Schermer[1], S. de Taeye[1], A. Torrents de la Peña[1], J. Torres[2], C. Cottrell[2], A. Yasmeen[3], A.-J. Behrens[4], P.J. Klasse[3], M. Crispin[4], A. Ward[2], J. Moore[3], M. van Gils[1], R. Sanders[1,3]
[1]Academic Medical Center Amsterdam, Amsterdam, Netherlands, [2]The Scripps Research Institute, La Jolla, United States, [3]Weill Medical College of Cornell University, New York, United States, [4]University of Oxford, Oxford, United Kingdom

Background: Cleaved, native-like Env trimers can induce autologous Tier 2 neutralizing antibody responses in animals. The challenge now is to broaden these responses to target heterologous Tier 2 isolates by inducing broadly neutralizing antibodies (bNAbs). The evolving envelope trimers in individuals that are naturally infected with HIV and that develop bNAbs can be taken as blueprints for vaccine design.
Methods: We generated recombinant envelope trimers based on early viral sequences from two elite neutralizers participating in the Amsterdam Cohort Studies on HIV/AIDS and infected with subtype B viruses, termed AMC009 and AMC011. The introduction of SOSIP and additional stabilizing mutations allowed for the generation of stable native-like trimers with desirable antigenic properties.
Results: Rabbits immunized with AMC011 trimer or a trivalent cocktail of Env trimers developed autologous as well as sporadic heterologous Tier 2 neutralizing antibody responses. Heterologous neutralization could be depleted by the corresponding Env trimers, proving that the neutralization stemmed from trimer-directed antibodies. We also generated recombinant trimers based on viral sequences from subsequent time points to generate lineage immunogens.
Analysis of the AMC009 lineage proteins suggests viral escape from multiple antibody specificities, whereas the AMC011 lineage was under pressure from the recently isolated bNAb ACS202 targeting the gp120-gp41 interface including the fusion peptide.
Conclusions: Lineage immunogens based on the evolving Env sequences in elite neutralizers might be attractive vaccine candidates.

THPEA020

Characterization of serum- and colostrum-derived antibodies in dairy cows vaccinated with HIV-1 gp140 envelope proteins

N. Salazar-Quiroz[1], B. Heydarchi[1], J. Edwards[2], C. Mackenzie[1], M. van Gils[3], R. Sanders[3], D. Macinnes[4], B. Muller[4], B. Wales[5], C. Gonelli[1], G. Khoury[1], D.F.J. Purcell[1]
[1]The Peter Doherty Institute for Infection and Immunity / The University of Melbourne, Microbiology and Immunology, Melbourne, Australia, [2]The University of Melbourne, Microbiology and Immunology, Melbourne, Australia, [3]University of Amsterdam, Academic Medical Center, Amsterdam, Netherlands, [4]Reef Pharmaceuticals, Victoria, Australia, [5]Department of Agriculture, Melbourne, Australia

Background: Dairy cows can produce antibodies with neutralizing activity against heterologous tier 2 viruses from different clades. Previously we have shown that these antibodies have high affinity for clade B envelope proteins and compete with the monoclonal antibodies b12 and VRC01, indicating they target CD4 binding site (CD4bs), a feature of neutralizing antibodies. We assessed the reproducibility of these high quality vaccine responses in a larger number of cows, and tested whether other Env gp140 trimer immunogens could increase the breadth or potency of the bovine antibodies.
Methods: 32 cows were vaccinated with recombinant HIV-1 gp140 envelope uncleaved trimers (clade B AD8, clade B PSC89, clade C MW) and clade A KNH1-SOSIP cleaved trimer. A first dose was given several weeks before conception, followed by 3 boosts during pregnancy in a period of 52 weeks. Sera and colostral milk were collected from each cow and their immune response was evaluated for gp140 binding breadth, binding site analysis, neutralizing activity and antibody-dependent immunity.
Results: The fully glycosylated chronic B-clade AD8 Env gp140 elicited the highest binding potency and breadth against different envelope proteins. These cows generated antibodies that compete with neutralizing antibodies such as VRC01, B12 (CDbs-specific) and PGT121 (V3 glycan), and display neutralizing activity against a panel of HIV-1 pseudoviruses. Moreover, a boost with the modified Env BG505 SOSIP gp140 enhanced the neutralizing activity of bovine serum, while the same modification in the AD8 protein (AD8 SOSIP gp140) only increased binding breadth. Finally, the Fc portion of these bovine antibodies bind to the cellular receptor FcgRIIa, allotype R131 and interact with different cell types.
Conclusions: The vaccine formulated with AD8 gp140 generated antibodies with the highes titre and affinity and broadest binding for envelope proteins of different clades. The neutralizing activity correlates with the presence of antibodies that bind to CD4bs and V3-glycan neutralizing epitopes. Binding to FcgRIIa associates with the generation of antibody-dependent cellular phagocytosis (ADCP). All these features are applicable to produce a topic microbicide that can be used when other preventive treatments, such as PREP drugs, are less effective in preventing HIV transmission.

THPEA021

Similar antibody responses elicited in BG505 SHIV infected and BG505 SOSIP trimer immunized non-human primates

J. van Schooten[1], M. van Haaren[1], C. Cottrell[2], D. Sok[2], G. Shaw[3], D. Burton[2], A. Ward[2], R. Sanders[1], M. van Gils[1]
[1]Academic Medical Center (AMC), Medical Microbiology, Amsterdam, Netherlands, [2]The Scripps Research Institute, San Diego, United States, [3]Perelman School of Medicine, University of Pennsylvania, Philadelphia, United States

Background: The human immunodeficiency virus (HIV) remains a global health threat and the development of an effective vaccine is highly desirable to eradicate the HIV/AIDS pandemic completely. The major focus of HIV vaccine development is to induce potent immunity that protect against infection. However, vaccines against HIV have not yet been able to induce such protective immune responses. Broadly neutralizing antibodies isolated from HIV-1 infected individuals have revealed that the human immune system is capable of eliciting responses that can protect against infection. Recently, soluble native-like HIV envelope glycoproteins (BG505 SOSIP.664 trimers) were developed, which induced neutralizing serum responses against the homologous virus in both macaques and rabbits. However, it is still unclear if these native-like trimers are capable of eliciting similar responses compared to natural infection.
Methods: Non-human primates (NHP) were immunized with BG505 SOSIP.v.5 trimers or infected with the homologous BG505 SHIV. Immunogen-specific IgG+ B cells from 2 BG505 SOSIP immunized and 4 BG505 SHIV infected NHP were single cell sorted to obtain monoclonal antibodies (mAbs). These antibodies were further characterized for their binding and neutralization characteristics using Enzyme-Linked Immuno Sorbent Assay (ELISA), Negative Stain Electron Microscopy and neutralization assays. The viral population from the BG505 SHIV infected NHP were sequenced over time as well.
Results: We were able to isolate over 50 mAbs with a diverse set of characteristics from 5 of the 6 NHP. Both neutralizing and non-neutralizing mAbs were isolated with distinct epitopes such as the fusion peptide and strain-specific glycan holes. mAbs elicited by the BG505 SOSIP trimer showed similar characteristics compared to the mAbs from the BG505 SHIV infected NHP, however mAbs from the SHIV infected NHP showed more neutralization and no mAbs that target the base of the trimer.
Conclusions: The results suggest that immunizing with the BG505 SOSIP trimer mimics infection correctly, however the BG505 trimers also elicit non-neutralizing mAbs to the base of the trimer in addition to neutralizing mAbs to more relevant epitopes, such as the fusion peptide. The knowledge obtained in this study will help design immunization strategies to broaden the response after vaccination.

THPEA022

Monoclonal antibodies from vaccinated rabbits reveal an immunodominant epitope at the gp41 subunit of soluble HIV-1 envelope trimers

M.M. van Haaren[1], C. Cottrell[2], L.E. McCoy[2], P. Van der woude[1], A. Yasmeen[3], S. de Taeye[1], A. Torrents de la Pena[1], P.J. Klasse[3], D.R. Burton[3], A.B. Ward[2], R.W. Sanders[1], M.J. van Gils[1]
[1]AMC, Amsterdam, Netherlands, [2]The Scripps Research Institute, San Diego, United States, [3]Weill Medical College of Cornell University, New York, United States

Background: To overcome HIV-1 viral diversity a vaccine needs to induce broadly neutralizing antibodies (bNAbs). Although bNAbs can be found during natural infection, they are generally not elicited by vaccination. Characterizing the immune responses elicited by soluble antigenic mimics of the surface expressed Envelope (Env) trimer will provide a better understanding which epitopes are targeted and why there is limited breadth.
Methods: Monoclonal antibodies (mAbs) were isolated from four AMC008 SOSIP.v4.2 protein immunized rabbits. AMC008 SOSIP.v4.2 is a subtype B based, stabilized, soluble Env trimer. mAb were isolated by single-cell sorting of B cells and subsequent amplification and cloning of the heavy and light chain variable regions of the expressed antibody. mAb characteristics were determined by neutralization assay, ELISA, and negative stain-electron microscopy (NS-EM).
Results: We isolated 21 HIV-specific mAbs, of which 16 bound heterologous Env trimers. Four mAbs from two rabbits showed homologous neutralization and cross-neutralization of another subtype B virus. Three of these mAbs were clonal family members. Varying ELISAs revealed that the four mAbs targeted the same epitope on the gp41 subunit of the Env trimer.
Deeper analysis by NS-EM indicated an upward angle of approach for the clonal family members as well as binding near a strain specific glycan hole. Interestingly, mutant and competition ELISAs showed that several non-neutralizing mAbs isolated from the same rabbits target the gp41 subunit in a comparable fashion, although with slightly different approach angles and glycan dependencies.
This region might be less accessible on viruses with all glycans in place, explaining the lack of cross-neutralization. In addition, the Fc part of mAbs with such approach angles is expected to clash with the viral membrane. However, these mAbs show neutralizing capacity suggesting that Env trimers on the viral surface have remarkable flexibility.

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Conclusions: Thus, AMC008 SOSIP.4.2 Env trimer immunization induced NAbs and non-NAbs targeting the gp41 subunit of the Env trimer. Viral variability of this region and the suboptimal angle of approach, provide an insight in the lack of neutralization breadth and will guide future immunogen design.

Correlates of immune protection

THPEA023

DNA+protein co-immunization regimens combined with TLR-4 based adjuvants induce immune responses controlling infection of tier 1 SIV_{smE660}

S. Singh[1], E. Ramirez[1], R. Doueiri[1], A. Valentin[1], M. Rosati[1], F. Dayton[1], J. Bear[1], X. Hu[1], B. Chowdhury[1], C. Alicea[1], B. Keele[2], S. Shen[3], G. Tomaras[3], G. Ferrari[3], C. LaBranche[3], D. Montefiori[3], J. Das[4], G. Alter[4], H.V. Trinh[5], M. Rao[5], J.D. Lifson[2], K.E. Broderick[6], N.Y. Sardesai[6], C. Fox[7], S.G. Reed[7], D.J. Venzon[8], V.M. Hirsch[9], G.N. Pavlakis[1], B.K. Felber[1]
[1]National Cancer Institute at Frederick, Frederick, United States, [2]AIDS and Cancer Virus Program, Leidos Biomedical Research, Inc., FNLCR, Frederick, United States, [3]Duke Human Vaccine Institute, Durhum, United States, [4]Ragon Institute of MGH, MIT and Harvard University, Cambridge, United States, [5]US Military HIV Research Program, Walter Reed Institute of Research, Silver Spring, United States, [6]Inovio Pharmaceuticals, Inc., Plymouth Meeting, United States, [7]Infectious Disease Research Institute, Seattle, United States, [8]Biostatistics and Data Management Section, CCR, NCI, Rockville, United States, [9]Laboratory of Molecular Microbiology, NIAID, Bethesda, United States

Background: We developed a method of simultaneous vaccination with DNA and protein resulting in high and durable cellular and humoral immune responses with efficient dissemination to mucosal sites and protection against SIV infection in macaques. To further optimize vaccine-induced immunity and efficacy of the DNA+protein co-immunization vaccine regimen, a SIV_{mac251} based vaccine was tested using two TLR-4-based liposomal formulations as adjuvants (TLR-4+TLR-7 or TLR-4+QS21) in macaques.
Methods: Macaques were vaccinated with DNA plasmids expressing SIV_{mac251} derived mac239 and M766 env gp120 and membrane-bound gp120, SIV gag and macaque IL-12, administered by in vivo electroporation. The DNA vaccine was co-administered into the same muscle with HEK293-produced soluble monomeric SIV M766 gp120 Env protein, adjuvanted with liposomal formulations of a combination of TLR-4 and TLR-7 agonists or with a combination of TLR-4 agonist and QS21. The animals received 3 vaccinations (0, 2, 6 months) and were challenge 5 months later with heterologous SIV_{smE660} via the rectal mucosal route.
Results: The vaccines induced similar robust levels of immune responses to vaccine-matched SIV_{mac251} and heterologous SIV_{smE660}, including responses recognizing V2. Upon heterologous SIV_{smE660} challenge, a trend of delayed viral acquisition was found in the vaccinees, which reached statistical significance in animals with the TRIM-5a resistant genotype. Vaccinees were preferentially infected by SIV_{smE660} transmitted founder T/F virus carrying the neutralization resistant A/K mutation, demonstrating a strong vaccine-induced sieve effect. Delay in virus acquisition was directly correlated with SIV_{smE660}-specific systemic neutralizing antibody to the neutralization-sensitive virus, mucosal gp70-V1V2 binding antibodies. These data support contributions of immune responses and genetic make-up to protection efficacy. Reduction of viremia inversely correlated with humoral responses targeting V2 (cyclic V2, gp70-scaffolded V1V2) and with SIV-specific cellular responses. Although both DNA+protein vaccine groups show delay of virus acquisition, the TLR4+7 adjuvanted vaccine induced stronger protective responses (lower number of T/F; SIV_{smE660}-specific bAb and NAb, association with ADCP effector function and Env glycosylation structure G2S2FB; lower peak and chronic viremia).
Conclusions: Combination of DNA and gp120 Env protein vaccine regimens using two different protein adjuvants induced high, durable and potent cellular and humoral responses contributing to controlling heterologous challenge.

Co-infection: TB and other mycobacteria

THPEA024

Factors associated with the occurrence of deaths in patients co-infected with HIV and TB at the three health districts of Casamance (Senegal)

K. Diallo[1], N.M. Manga[2], A. Diatta[3]
[1]Hopital de la Paix de Ziguinchor, Infectious Diseases, Ziguichor, Senegal, [2]Assane Seck University of Ziguinchor, Infectious Diseases, Ziguinchor, Senegal, [3]Assane Seck University, Pneumology, Ziguinchor, Senegal

Background: HIV infection remains the leading cause of increased incidence of tuberculosis. We performed this work to describe socio-demographic characteristics and identify factors associated with death in patients coinfected with TB and HIV.
Methods: This was a descriptive and analytical retrospective cohort study. It concerned all HIV-infected patients with all forms of tuberculosis confirmed by bacteriology and / or the Xpert-MTB / Rif test and who were included and monitored at the services of the health districts of Bignona, Ziguinchor and Oussouye from 1 January 2014 to 31 December 2016.
Results: A total of 126 cases were collected during the study period. The mean age of patients was 41.77 ± 12.16 years with extremes ranging from 19 to 87 years. Females were predominant (53.1%) with a sex ratio of x, x. Clinically, 88% (n =.) Of patients were in severe immunosuppression (CD4 < 200 / mm3). The isolated lung form accounted for 91.26% (n = 115) followed by the multifocal 4.8% (n = 6) and the extra-pulmonary form 4.0% (n = 5). The mean CD4 + T cell count was 262 ± 243 / mm3 with extremes of 2 to 989 / mm3. Twenty-three percent (23%) of the patients had severe immunosuppression (CD4 < 200 / mm3). All patients had received antituberculous treatment and 96% of them had started ARV treatment. The overall cure rate was 74.34%. In multivariate analysis with binomial regression, four (4) factors were significantly associated with the occurrence of death: WHO clinical stage 3 and 4 at baseline (OR = 3.12, 95% CI: 1.44 at 6.76), late delay> 3 weeks of ARV treatment after the start of antituberculous treatment (OR = 3.12, 95% CI: 1.44 to 6.76), male sex (OR = 3) , 59, 95% CI: 1.100 to 11.735).
Conclusions: This study has shown that the high case-fatality rate in co-infected patients, when the discovery of HIV infection is late (WHO stage III and IV) and / or when the ARV treatment delay is greater than 3 weeks. It is therefore necessary to strengthen HIV testing of TB patients and to provide early treatment for HIV infection.

Co-infection: Viral hepatitis

THPEA025

HIV and hepatitis B virus (HBV) co-infection leads to an increase in intracellular hepatitis B surface antigen and HBV DNA in hepatocytes: A potential mechanism for adverse liver outcomes

W. Zhao[1], K. Singh[2,3], V. Sozzi[4], P. Revill[4], S. Lewin[1,3]
[1]The Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [2]The Peter Doherty Institute for Infection and Immunity at Royal Melbourne Hospital, Victorian Infectious Diseases Service, Melbourne, Australia, [3]Alfred Hospital and Monash University, Department of Infectious Diseases, Melbourne, Australia, [4]The Peter Doherty Institute for Infection and Immunity, Victorian Infectious Diseases Reference Laboratory, Melbourne, Australia

Background: HIV infection significantly alters the natural history of chronic hepatitis B (HBV). Compared to HBV mono-infection, HIV-HBV infected individuals experience accelerated progression of liver disease and increased liver-related mortality. HBV-active antiretroviral therapy (ART) including tenofovir has improved rates of virological control, however liver related mortality and morbidity remains increased.

We hypothesized that direct interactions between HIV and HBV in the hepatocyte, in the presence and absence of HBV-active ART, drives adverse liver outcomes.
Methods: The hepatocyte cell lines HepG2.2.15 and AD38 (expressing HBV) or HepG2 cells (not expressing HBV) were infected with laboratory strains of wild-type (WT) HIV (NL4-3) or vesicular stomatitis virus (VSV)-pseudotyped HIV expressing enhanced green fluorescent protein (EGFP). Sodium taurocholate co-transporting polypeptide (NTCP)-expressing HepG2 cells were infected with HBV inoculum derived from AD38 and subsequently with HIV. EGFP expression was quantified by flow cytometry; integrated HIV DNA and mRNA level of HBV-related transcription factors by qPCR; intracellular HBsAg by western blotting; and HBV DNA by southern blotting. Comparisons between conditions were made using a student t-test.
Results: VSV-pseudotyped HIV infection of hepatocytes resulted in 70% of cells expressing EGFP after 4 days. The administration of raltegravir and efavirenz prior to infection led to a reduction and elimination of EGFP expression respectively. Both drugs results in elimination of integrated DNA. No EGFP expression was observed following infection of hepatocytes with WT. VSV-pseudotyped HIV infection resulted in a significant increase in intracellular HBsAg, HBs RNA and HBV DNA.
Conclusions: HIV-HBV co-infection of hepatocytes significantly increased intracellular HBsAg, HBs RNA and HBV DNA. Therefore, these adverse effects on HBV replication may contribute to accelerated liver disease in individuals with HIV-HBV co-infection.

Novel assays of immune responses

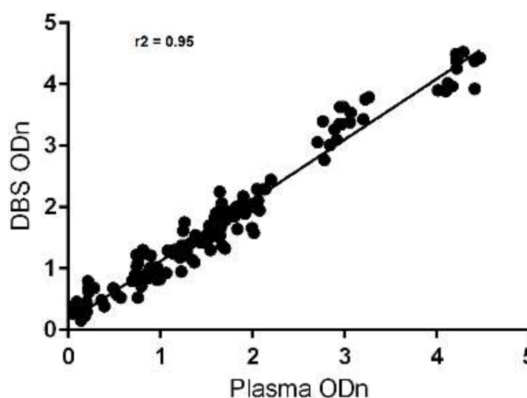
THPEA026

Could DBS specimens reduce overestimation of HIV incidence using BED CEIA assay?

H. Syed Iqbal[1], M. Selvakumar[1], P. Nandagopal[1], S.S. Solomon[1,2], P. Balakrishnan[1]
[1]YRG CARE, Infectious Diseases Laboratory, Chennai, India, [2]Johns Hopkins University, Baltimore, United States

Background: The established algorithm for HIV incidence estimation is screening HIV positive specimens with BED™ CEIA assay followed by Avidity assay. The 'Aware™ BED™ CEIA HIV-1 incidence test (IgG-Capture HIV-EIA)' is reported to overestimate HIV incidence. Also shipping to developing countries, logistic issues and cold-chain maintenance of plasma specimens from remote areas is major disadvantage. The efficacy of dried blood spots (DBS) must be studied, which can serve as better alternative for plasma specimens. Use of DBS provides minimally invasive specimen collection and simple processing steps when compared to plasma specimens. In this study, we compared matched plasma and DBS specimens on BED™ CEIA assay and the results were confirmed with modified BioRad GS HIV-1/2 Plus O Avidity based Assay.
Methods: Parallel DBS and plasma specimens were collected from 152 HIV infected injecting drug users across 7 different sites from north India. Both these plasma and DBS specimens were run on BED™ CEIA. Quantitative values (i.e) normalized optical density (Specimen/Calibrator = OD-n) obtained from plasma and DBS specimens in BED™ CEIA assay were compared to derive r^2 values and mean difference. The categorical results between plasma and DBS were compared to derive Cohen's kappa co-efficient (). Apart from this, specimens with discrepant results between plasma and DBS were run on BioRad Avidity assay using plasma specimens.
Results: The co-efficient of determination (r^2) (Figure 1) and mean difference for quantitative OD-n values between plasma and DBS specimens was 0.95 and -0.11, respectively. A higher OD-n values were obtained from DBS specimens compared to plasma specimens. The Cohen's kappa co-efficient () value derived between plasma BED and DBS BED was 0.9. Six specimens are classified recent using plasma specimens were marked long term (LT) in DBS specimens. These results were confirmed to be LT in BioRad Avidity assay.

Conclusions: Plasma and DBS specimen OD-n values were highly correlated, However, plasma specimens were found to be overestimating HIV incidence than DBS specimens using BED™ CEIA assay. The DBS specimens could be a better alternative method for estimating HIV incidence in resource-limited settings. Added advantage with the DBS specimen is sample collection procedure with finger prick.



[Correlation graph obtained from results of matched plasma and DBS specimens tested with BED-CEIA assay]

THPEA027

The clinical performance and diagnostic accuracy of an instrument-free low-cost point-of-care CD4 test (VISITECT® CD4) as performed by nurses, counsellors and laboratory staff among pregnant women in South Africa

S. Luchters[1,2,3], K. Technau[4], Y. Mohamed[1,3], M.F. Chersich[2,5], S. Khan[4], P.A. Agius[1,3], M.D. Pham[1], M.L. Garcia[1], J. Forbes[6], A. Shepherd[6], B.A. Haile[1], A. Coovadia[4], S.M. Crowe[1,7], D.A. Anderson[1]
[1]Burnet Institute, Melbourne, Australia, [2]Ghent University, International Centre for Reproductive Health, Department of Obstetrics and Gynaecology, Ghent, Belgium, [3]Monash University, Department of Epidemiology and Preventive Medicine, Melbourne, Australia, [4]University of the Witwatersrand, Empilweni Services and Research Unit, Department of Paediatrics & Child Health, Rahima Moosa Mother and Child Hospital, Faculty of Health Sciences, Johannesburg, South Africa, [5]University of the Witwatersrand, Wits Reproductive Health and HIV Institute, Faculty of Health Sciences, Johannesburg, South Africa, [6]Omega Diagnostics, Alva, United Kingdom, [7]Monash University, The Alfred Hospital and Department of Infectious Diseases, Melbourne, Australia

Background: CD4 testing continues to be important for triaging care after an HIV diagnosis and during treatment. The VISITECT® CD4 is the first-ever instrument-free low-cost point-of-care CD4 test. The test is semi-quantitative, providing a result of above or below 350 CD4+ve Tcells/mm^3. Results are interpreted visually after 40 minutes by comparing the intensity of the test line with the reference line.
Methods: We assessed the clinical performance and diagnostic accuracy of the VISITECT CD4® test among HIV-infected pregnant women in South Africa. Nurses performed testing at the point-of-care using both venous and finger-prick blood, and counsellors and laboratory staff tested venous blood in the clinic laboratory (four tests/participant). Staff attended three days training. Performance was compared to mean CD4 count from duplicate CD4 flow cytometry tests (FACSCalibur Trucount).
Results: At Rahima Moosa Mother and Child Hospital, 156 patients were enrolled between March and June 2017, providing a total of 624 VISITECT® CD4 tests (468 venous and 156 finger-prick). Of 624 tests, 28 (4.5%) were inconclusive (eight invalid results and 20 incorrectly performed). A Generalised Linear Mixed Model performed on 539 valid reference results and VISITECT® CD4 results showed a better diagnostic performance of the VISITECT® CD4 on venous blood (sensitivity=81.7%, 95%CI=72.3-91.1; and specificity=82.6%, 95%CI=77.1-88.1) as compared to finger-prick blood (sensitivity=60.7%, 95%CI=45.0-76.3; and specificity=89.5%, 95%CI=83.2-95.8; p=0.001). Importantly, there was no difference in the performance of the VISITECT® CD4 by cadre of health workers

(p=0.113). Inter-observer reliability between the first read-out and the second read-out of the same test-strip by two health workers showed excellent agreement (kappa statistic=100%).
Conclusions: Consistently good performance of the VISITECT® CD4 with different operators and at the point-of-care, in combination with the fact that no electricity and no instrument is required for conducting the test, shows the potential utility of this device. It may especially be useful for decentralization of CD4 testing services in rural areas. Considerable clinical and financial benefits associated with obtaining an immediate test result at the point-of-care may outweigh the risks associated with a proportion of false negative results.

THPEA028

Dried blood spots stored at room temperature should not be used for incidence testing

A.L. Eisenberg[1], Z. Packman[2], R. Fernandez[2], E. Piwowar-Manning[2], Y. Agyei[2], E.L. Hamilton[3], J. Wang[4], K. Kahn[5], A. Selin[6], F.X. Gomez-Olive[7], C. MacPhail[8], J. Hughes[9], A. Pettifor[6], S. Eshleman[2], O. Laeyendecker[10]
[1]National Institute of Health, NIAID, Bethesda, United States, [2]Johns Hopkins University, Baltimore, United States, [3]FHI 360, Durham, United States, [4]SCHARP, Seattle, United States, [5]University of the Witwatersrand, Johannesburg, Johannesburg, South Africa, [6]University of North Carolina at Chapel Hill, Chapel Hill, United States, [7]University of the Witwatersrand, Johannesburg, Mpumalanga, South Africa, [8]University of Wollongong, Wollongong, NSW, Australia, [9]University of Washington, Seattle, United States, [10]National Institute of Health, NIAID, Baltimore, United States

Background: We investigated the effectiveness of using dried blood spots (DBS) stored at room temperature (18-25°C) for cross-sectional HIV incidence testing using two serologic assays. DBS results were compared to results obtained with plasma samples.
Methods: Matched DBS and plasma samples (306 paired samples) were collected in the HPTN 068 trial in South Africa (2012 to 2014). Samples were shipped to the United States and were stored with desiccant at room temperature prior to testing. Two assays were evaluated: the Maxim HIV-1 Limiting Antigen Avidity EIA (LAg-Avidity, measured in normalized optical density [OD-n]) and a modified BioRad HIV-1/2 Plus O Avidity-based assay (BioRad, measured in percent avidity). The following assay cutoffs were used to indicate recent HIV infection: BioRad < 40%; LAg-Avidity < 1.5 OD-n. The performance of stored plasma and DBS specimens was compared for each assay. In addition, the effect of storage time at room temperature was assessed for DBS.
Results: Compared to plasma, the median absolute percent difference in avidity obtained with DBS samples was -47.0% (IQR: -13.5, -75.0) for the BioRad assay and -62.2% (IQR: -30.3, -73.3) for the LAg-Avidity assay. A higher percentage of samples had results below the assay cutoffs when DBS samples were used for testing compared to plasma: 53% (160/306) vs. 17.3% (53/306) for BioRad; 63.1% (193/306) vs. 18% (55/306) for LAg-Avidity. The percentage of samples with results below the assay cutoffs was also higher using DBS samples for individuals who were HIV-infected for >1 year: 38.8% (47/121) vs. 0.8% (1/121) for BioRad; 46.3% (56/121) vs. 5.0% (6/121) for LAg-Avidity. For the LAg-Avidity assay, for each log increase in viral load there was a 21% increase in the absolute difference between DBS to plasma OD-n values; no such effect was seen with the BioRad assay. For the DBS BioRad assay, there was a significant increase in false-recent misclassification for individuals infected >1 year with each additional year of sample storage (yearly Prevalence Ratio: 1.67 [95% CI: 1.18, 2.37]).[JH3] This was not seen with the plasma samples.
Conclusions: DBS samples stored at room temperature should not be used for cross-sectional HIV incidence estimation using serologic incidence assays.

Novel approaches to assess viral load and ARV resistance/tropism

THPEA029

Pooled nucleic acid testing strategy for monitoring HIV-1 treatment in resource limited settings

J. Boobalan[1], T. Dinesha[1], S. Gomathi[1], S. Sivamalar[1], S. Poongulali[1], A. Pradeep[1], K.G. Murugavel[1], S. S. Solomon[1,2], N. Kumarasamy[1], P. Balakrishnan[1], D. Smith[3], S. Saravanan[1]
[1]Y.R. Gaitonde Centre for AIDS Research and Education (YRG CARE), Chennai, India, [2]John Hopkins Univesity school of Medicine, Baltimore, United States, [3]University of Califfonia, San Diego, United States

Background: In treated HIV-1 infected patients, quantification of the viral burden and identification of drug-resistant mutations are important tools to monitor the outcomes. However, in resource-limited settings like India viral load quantification and drug resistance assay is still hampered by the high cost. Here we standardized a more efficient combined pooled nucleic acid amplification (NAT) test and drug resistance (DR) assay to monitor patients receiving ART.
Methods: 325 participants on first line ART with virologically suppressed at wk-24 were followed up until wk-48. Participants were screened for suppressed plasma viral load (PVL) using Abbott RealTime HIV-1 assay (40-1000000 copies). All the plasma samples were pooled by combining five samples of 200µL each for a total of 1mL in each pool were subjected to quantitative PCR to amplify HIV-1 RT region and positive minipool were deconvuluted by individually testing forquantitative PCRfollowed by genotyping.
Results: Of these 325 participants, 277 (55.4%) were females with the median age of 39 (IQR 33-44) and majority of the patients were on Tenofovir+ Lamuvidine+ Efavirenz regimen with the median PVL of 4369 (IQR 179-67155). Out of 65 pools,13 were positive. Testing of all samples individually revealed that one of the pool contained two positive samples. All positive samples had viral load > 1000 copies/mL; thereby meeting the definition of failing ART (4.3%). Altogether, the NAT pools had a negative predictive value and positive predictive value of 100%. Similarly, the sensitivity for detecting patients failing therapy was 100% (95% CI 76.84% to 100%), with a specificity of 100% (95%CI 98.82% to 100%) and there would have been 3 times cost saving with pooling NAT PCR compared to individual PCR. Of the patients failing first-line ART, 28.5% had NRTI and 71.4% had NNRTI resistance mutations and K103N (57.14%) was the predominantly found NNRTI mutation.
Conclusions: Pooled NAT+DR assay is a reliable strategy to drastically reduce the cost and sustainability of the virologic monitoring and can thereby facilitate the scale-up of successful HIV treatment programs in resource-limited settings.

THPEA030

Diagnostic accuracy of Filtered Dried Plasma Spot (FDPS) for HIV viral load testing using a newly developed plasma separator device

M. Pham[1,2], B. Haile[1,3], I. Azwa[4], N. Raman[4], A. Saeidi[4], M. Kahar Bador[4], M. Tan[4], Y. Feng[5], J. Zhu[5], J. Elliot[3], M. Garcia[1], F. Li[1], S. Luchters[1,3,6], D. Anderson[1,5]
[1]Burnet Institute, Melbourne, Australia, [2]Hanoi Medical University, Institute for Preventive Medicine and Public Health, Hanoi, Vietnam, [3]Monash University, Melbourne, Australia, [4]University of Malaya Medical Centre, Kuala Lumpur, Malaysia, [5]Nanjing BioPoint Diagnostics, Nanjing, China, [6]Ghent University, International Centre for Reproductive Health, Department of Obstetrics and Gynaecology, Ghent, Belgium

Background: Dried blood spot (DBS) is a recommended sampling method to improve patients' access to HIV viral load (VL) testing in resource-constrained settings where only centralised laboratory services are available. However, DBS suffers significant decrease in VL test accuracy as compared to plasma, particularly at 1,000 copies/ml cut-off, the recommended threshold for diagnosis of treatment failure. We assessed diagnostic performance (sensitivity and specificity to identify VL>1,000 copies/ml) of the newly developed "VL-Plasma" device, a simple, afford-

able and equipment-free lateral flow strip in a cartridge for the separation of plasma from whole blood, resulting in a Filtered Dried Plasma Spot (FDPS).

Methods: The "VL-Plasma" device uses specific membranes for the sequential removal of red and white blood cells, and a Whatman 903 membrane for plasma collection. HIV-infected patients attending the infectious disease clinic, University of Malaya, were enrolled. Each patient provided 100µl, 70µl and 1ml of whole blood for preparation of FDPS, DBS, and fresh plasma samples, respectively. Dried blood samples (FDPS & DBS) were dried overnight and stored in plastic bags with desiccants for 3-4 weeks at ambient temperature before testing. All samples were run on the Roche COBAS AmpliPrep/TaqMan 48 system.

Results: Reference fresh plasma identified treatment failure in 20/132 patients (15%). Sensitivity of FDPS for detection of treatment failure was 100% (95% confidence interval (95%CI=83.2%-100%) and specificity 100% (95%CI=96.8%-100%). In contrast, sensitivity and specificity for DBS were 100% (95%CI=96.8%-100%) and 34.8% (95%CI=26.1-44.4%), respectively. Positive predictive value and negative predictive value for treatment failure were 100% (95%CI=83.2%-100%) and 100% (95%CI=96.8%-100%) for FPDS, and 21.5% (95%CI=13.7%-31.2%) and 100% (95%CI=91%-100%) for DBS, respectively. Two DBS samples and one FDPS sample failed to provide VL results. Positive predictive value of DBS was only marginally improved by using higher thresholds for treatment failure, 37.7% (95%CI=24.8%-52.1%) at 3,000 copies/ml and 57.6% (95%CI=39.2%-74.5%) at 5,000 copies/ml.

Conclusions: Compared to DBS, FDPS from the "VL-plasma" device can significantly improve identification of virologic failure at 1,000 copies/ml, and minimize unnecessary switching to second-line ART and/or compliance interventions. The "VL-plasma" device will increase patients' access to VL testing, improving the effectiveness of HIV treatment in resource-constrained settings.

THPEA031

A compelling alternative to dried blood spots - Pplasma separation card for the quantification of HIV-1 RNA viral load

S. Carmona[1,2], B. Seiverth[3], D. Magubane[2], L. Hans[1,2], M. Hoppler[3]
[1]University of the Witwatersrand, Molecular Medicine and Haematology, Johannesburg, South Africa, [2]National Health Laboratory Service, Johannesburg, South Africa, [3]Roche Diagnostics International AG, Rotkreuz, Switzerland

Background: Plasma HIV viral load (VL) testing is the preferred means of monitoring response to antiretroviral treatment (ART) and programme performance. While Dried Blood Spots (DBS) hold considerable logistical advantages over plasma-based VL, performance based limitations still remain. DBS VL can lead to misclassifications of virological failure at 1000 cp/mL and have higher limits of detection (LOD) than plasma assays. We aim to evaluate the usability by health care workers (HCW) and analytical performance of a novel plasma separation card (PSC) versus plasma for the quantification of HIV-1 RNA.

Methods: HCW collected 140µL of finger-prick capillary blood from ~50 HIV-infected patients and transferred to the PSC, immediately after, venous EDTA whole blood was drawn by venipuncture. In addition, residual venous EDTA whole blood from ~400 adult HIV-infected patients was spotted onto PSC. We determined LOD using WHO International-Standard, specificity and sensitivity at 1000 cp/mL and specimen stability at a range of temperatures and storage durations in both COBAS® Ampliprep COBAS TaqMan® (CAP/CTM) and cobas® 8800 systems using the PSC. PSC performance was assessed in relation to EDTA plasma in both assays.

Results: Overall HCW rated sample collection positively, the lancet was considered easy to use, as were the capillary tube and blood transfer to PSC. Of ~100 specimens with quantitative values in both PSC and plasma, the mean log_{10} difference between EDTA-plasma and PSC was 0.05 cp/mL (95%CI = -0.01 to 0.11). The LOD for cobas® HIV-1 was determined at 790.2 cp/mL and for CAP/CTM HIV-1 v2 737.9 cp/mL. At 1000 copies/mL, the sensitivity of PSC samples was 97.0% (128/132) and specificity 97.2% (343/353) for cobas® HIV-1 and showed an excellent correlation to plasma (Deming R^2 = 0.90) over the linear range. PSC results were unaffected by different temperature and storage conditions (table1).

Conclusions: PSC collected samples are easy to prepare, correlate well with plasma VL and have demonstrated adequate sensitivity and specificity in a real world/clinical setting. The card provides an alternative sample collection to DBSs and, by minimising cell-associated viral nucleic acid contamination, leads to more accurate result. This PSC supports the 90-90-90 VL scale-up.

	CAP/CTM HIV-1 v2	cobas® HIV-1
Sample type	Dried plasma spot	Dried plasma spot
Input volume	1 spot with 140 µL	1 spot with 140 µL
Limit of detection	737.9 cp/mL	790.2 cp/mL
	(95% CI: 614.3 – 938.5)	(95% CI: 658.9 - 1003.6)
Correlation to EDTA plasma	Correlation: 0.05 log10	Correlation: 0.05 log10
Specificity (at 1000 cp/mL)	99%(95% CI: 98-100%)	97% (95% CI: 95-99%)
Sensitivity (at 1000 cp/mL)	91% (95% CI: 84-96%)	97% (95% CI: 93-99%)
	(n=325)	(n=485)
Specimen stability	28 d @ 45°C & 85% rH	28 d @ 45°C & 85% rH
	56 d frozen or @ 2°-30°C	56 d frozen or @ 2°-30°C

[Table 1: Analytical and clinical performance of Plasma separation card]

THPEA032

Provision of a clinical HIV-1 drug-resistance service by Next-Generation Sequencing (NGS) - assay development and full validation

L. McCrae[1], H. Wu[1], O. Lancaster[1], S. Wilson[1], R. Myers[2], S. Graham[1], J. Workman[1], E. Smit[1]
[1]PHE Public Health Birmingham Laboratory, Birmingham, United Kingdom, [2]PHE Infectious Disease Informatics, London, United Kingdom

Background: Sanger population sequencing is the current standard methodology for routine clinical HIV drug resistance testing. Using this method, a single consensus sequence is generated representing the predominant HIV quasispecies within the sample. In contrast, Next-Generation Sequencing (NGS) is capable of sequencing diverse HIV quasispecies and potentially achieving the early detection of emerging minority drug-resistant variants.

Over the past two years, progress has been made to bring forward the vision of an NGS-based HIV-1 resistance testing clinical service.

Methods: RNA extracts from 58 retrospective clinical samples were randomly selected.

The *Pol* genes of the samples were sequenced in parallel twice (batch A & B) by both Sanger and MiSeq. Sanger data were compared with NGS at 20%, 10%, 5% and 2% minority detection levels.

A further 386 clinical samples were also sequenced in parallel during the validation process.

Sequence concordance and resistance interpretations were analyzed and any difference in nucleotide base calls that resulted in amino acid changes, including complete and partial differences in mixture calling, were recorded as mismatches.

Results: All (22) MiSeq runs were successful and quality metrics were consistent with more than 80% passing filters; Q scores ³ Q30 were also well above the required 80%. All key mutation sites associated with Protease, NRTI and NNRTI resistance were represented by more than 100,000 reads.

A total of 3,712 amino acids (64 mutation codons each from 58 samples) were analysed. A total of 4 amino acid mismatches (4 samples at 3 codons in batch A and 4 samples at 4 codons in batch B) were identified (20% level) with a concordance of 99.9%.

With one exception, all 368 additional samples were successfully sequenced by MiSeq. A total of 32 amino acid mismatches in 29 samples at 15 codons were identified. Of these 15 codons, one PI (I54VTALM), two NNRTI (Y181CIV and E138KAGQR) and four NRTI (K65R, T215FY, T69SAIE and M184VI) mutations conferred major drug resistance. The concordance between NGS (at the 20% level) and Sanger was 99.9%.

Conclusions: An NGS-based HIV resistance-testing assay has been developed, fully validated and is considered ready for implementation into routine clinical service.

In-vitro activity

THPEA033

Efficacy of a novel entry inhibitor in combination with neutralizing antibodies against HIV-1 infection

S. Harada[1], M. Yokoyama[2], Y. Hikichi[1,3], H. Sato[2], T. Matano[1,3], K. Yoshimura[1]
[1]National Institute of Infectious Diseases, AIDS Research Center, Shinjuku, Japan, [2]National Institute of Infectious Diseases, Pathogen Genomics Center, Musashimurayama, Japan, [3]University of Tokyo, Institute of Medical Science, Minato, Japan

Background: Both neutralizing antibodies (NAbs) and entry inhibitors can inhibit HIV-1 infection by acting at different stages of the entry process. The combination of NAbs with entry inhibitor(s) may offer a therapeutic advantage and may be advantageous in overcoming resistance to them. Recently, we performed structure-based *in silico* screening of a chemical library to identify novel entry inhibitors (NEIs). In this study, we evaluated the *in vitro* anti-HIV-1 activity of NEI as a single agent or in combination with various classes of NAbs.
Methods: All entry inhibitors were docked into the CD4 binding site of HIV-1 Env gp120 using the MOE Dock tool, and ranked by London dG scoring. The susceptibility of infectious HIV-1 clones to NEIs and neutralization sensitivity to NAbs were determined using the TZM-bl assay. Additionally, we investigated the combined effect of NAbs with NEIs, by Combination Indexes (CIs) using the Chow and Talalay method.
Results: The TZM-bl assays revealed that NEIs 50b, 16b and 01c exhibited significant activity against HIV-1 with IC_{50} values ranging from 0.80 to 45 μM, and the most potent inhibitor was 50b, with IC_{50} value of 0.80, 1.2, 1.2 and 45 μM for HIV-1 NL4-3, 89.6, JR-FL and the primary isolate, KP-5mvcR, respectively. All three NEIs interfered with viral infection at the entry step. We further examined the combined effect of NEIs and NAbs targeting different domains in Env (VRC01, b12, PG9, PG16, 2G12 and 2F5). Synergistic anti-HIV activity (CI = 0.31 to 0.90) was demonstrated with a large number of combinations. In particular, potent synergy was observed for 50b in combination with either 2G12 or 2F5. These results suggest that combination of NEI with NAb can result in increased sensitivity to NAbs.
Conclusions: Novel entry inhibitors 50b, 16b and 01c can inhibit HIV-1 entry and combinations of a NEI with NAbs are efficacious against HIV-1. Our results support further investigation into NAb-based therapeutics and the HIV-1 entry process.

Tissue penetration

THPEA034

Plasma, CSF and brain tissue concentrations of raltegravir in ABCB1 and/or ABCG2 knockout rats

K. Tsuchiya[1], M. Ohuchi[2], A. Hamada[2,3], S. Oka[1,4], H. Gatanaga[1,4]
[1]National Center for Global Health and Medicine, AIDS Clinical Center, Tokyo, Japan, [2]National Cancer Center Research Institute, Division of Molecular Pharmacology, Tokyo, Japan, [3]Kumamoto University Graduate School of Medical Sciences, Department of Medical Oncology and Translational Research, Kumamoto, Japan, [4]Kumamoto University, Center for AIDS Research, Kumamoto, Japan

Background: HIV-1 infection in brain is associated with long-term neuronal damage and neurocognitive disorders. Raltegravir (RAL), one of the preferred integrase strand transfer inhibitors in the current antiretroviral therapy guidelines, is highly effective in penetrating the central nervous system. The ATP-binding cassette transporter B1 (ABCB1) and G2 (ABCG2) are both expressed at the blood-brain barrier and the blood-cerebrospinal fluid (CSF) barrier, and contribute to active transport of drugs. Recently, RAL was identified to be a substrate of both transporters. In the present study, we analyzed the relations between plasma, CSF and brain tissue concentrations of RAL in Abcb1 and/or Abcg2 knockout (KO) rats.
Methods: Wild-type (WT) male Sprague-Dawley (SD) rats (n=8), Abcb1-KO male SD rats (n=8), Abcg2-KO male SD rats (n=8), and Abcb1/Abcg2-KO male SD rats (n=8) were administered an intravenous dose of RAL 100 mg/kg. Plasma, CSF and brains were taken 10 min after RAL intravenous dosing. Plasma, CSF and sliced brain tissue concentrations of RAL were measured by the liquid chromatography-tandem mass spectrometry (LC-MS/MS). Localization of RAL in sliced brains were analyzed using matrix-assisted laser desorption ionization mass spectrometry imaging (MALDI-MSI).
Results: Mean plasma RAL concentrations±standard error (SE) of WT, Abcb1-KO, Abcg2-KO, and Abcb1/Abcg2-KO rats were 79.6±17.6, 117.9±13.9, 118.1±26.6, and 120.2±7.7 μg/ml, respectively. Mean CSF RAL concentrations±SE were 2666.5±806.4, 5864.7±1003, 2836.5±826.9, and 6719.2±362.1 ng/ml, respectively. Mean brain tissue RAL concentrations±SE were 0.033±0.007, 0.105±0.02, 0.071±0.023, and 0.144±0.014 ng/μg of protein, respectively. MALDI-MSI data showed that RAL were localized around the choroid plexus in Abcb1-KO, Abcg2-KO, and Abcb1/Abcg2-KO rat brains.
Conclusions: Mean CSF and brain tissue RAL concentrations of Abcb1-KO and Abcb1/Abcg2-KO rats were significantly higher than WT rats. The observed association between high CSF and brain tissue concentrations of RAL and Abcb1-KO and Abcb1/Abcg2-KO may be explained by increased RAL flow in the blood-brain barrier as the result of reduced expression of ABCB1. Then, localization of RAL in each KO rat brains are observed in the choroid plexus. These results suggest that choroid plexus may work as a barrier for RAL transport between capillary blood and CSF, and there may be a transporter for RAL at the choroid plexus.

ART in acute infection

THPEB035

Outcomes of expedited initiation of antiretroviral therapy (ART) in individuals with acute HIV infection, British Columbia, Canada

M. Hull[1], T. Grennan[2], J. Wong[2], S. Guillemi[1], W. Zhang[1], V. Lima[1], T. Consalacion[2], P. Sereda[1], M. Gilbert[2], M. Krajden[2], J. Montaner[1], R. Hogg[3], G. Ogilvie[2]
[1]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada, [2]BC Centre for Disease Control, Vancouver, Canada, [3]Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada

Background: Diagnosis of acute HIV infection may allow for interventions to reduce risk of transmission. British Columbia has implemented pooled HIV NAT testing and individual NAT testing for weakly positive EIA samples, with expedited linkage to care for acute HIV diagnoses. Outcomes of individuals with acute infection were evaluated.
Methods: Individuals with HIV diagnosis April 2009 - June 2016 were assessed to determine stage at diagnosis. Individuals classified as acute HIV infection using Fiebig staging (Stage I-IV) were included in the analysis. Baseline variables included risk group (men who have sex with men [MSM] vs. not, and regimen type (standard 3 drug regimen or intensified 4 drug regimen [IR]) was ascertained through linkage with the BC HIV Drug Treatment Program. Factors associated with time to ART uptake from diagnosis were determined using an adjusted Cox proportional hazards model.
Results: Overall 247 individuals with acute HIV infection initiated ART; n=50 (20%) were Fiebig I/II, n=58 (23%) were Fiebig III and139 (57%) Fiebig IV. Median age was 33 years, 1st-3rd quartile [Q1Q3] 27 - 44 years, 89% were male, 73% were MSM. Median time to ART initiation was 28 days (Q1Q3 15 - 67) for Fiebig I/II and 51 days (Q1Q3 15 - 124) for Feiibig III/IV (p = 0.115). Overall n=39 (16%) individuals received an IR at median 7 days (Q1Q3 6 - 11 days) and achieved suppression at 55 days (Q1Q3 32 - 95 days) vs. n= 208 (84%) who received standard ART at median 55 days (Q1Q3 26 - 139 days) and achieved suppression at 127 days (Q1Q3 80 - 183 days), p < 0.001. Faster time to ART uptake was associated with being Fiebig I/II and receiving IR (aHR 14.09; 95% CI 6.13 - 32.36), Fiebig III/IV and receiving IR (aHR 7.93; 95% CI 5.10 - 12.33) and being MSM (aHR 1.60; 95% CI 1.09 - 2.35).

Conclusions: One fifth of acute HIV infections were identified early at Fiebig stages I/II, and initiated immediate ART. The combination of systematically identifying acute HIV cases and expedited linkage to treatment results in rapid control of HIV viraemia which can reduce risk of onward transmission.

ART in first- and second-line therapies

THPEB036

Prezent - pilot study of darunavir boosted by cobicistat in combination with rilpivirine in HIV+ treatment naïve subjects - final 96 week results

J. Gathe Jr[1], S. Letendre[2], Q. Ma[3], S. Woods[4], C. Mayberry[5], V. Davis[5], C. Swindle[5], E. Diejomaoh[6]
[1]Therapeutic Concepts, PA, Houston, United States, [2]University of California at San Diego, Department of Medicine, San Diego, United States, [3]University at Buffalo, Department of Pharmacy Practice, Buffalo, United States, [4]University of Houston, Department of Psychiatry, Houston, United States, [5]Therapeutic Concepts, P.A., Houston, United States, [6]Therapeutic Concepts, P.A., Research, Houston, United States

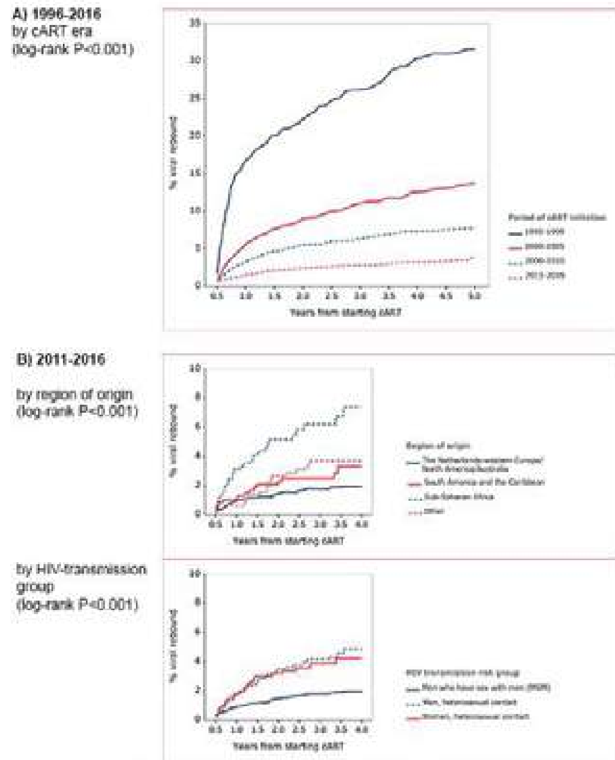
Background: Treatment strategies with two drug regimens are being studied in an effort to control viral replication for less cost and potentially less toxicity. Prezent, the first study of the novel two drug combination of darunavir boosted by cobicistat and rilpivirine in ARV naïve subjects demonstrated virologic control both in plasma (93%) VL ≤ 50 and the CNS (100%) VL < 20 at 48 weeks. Further, CSF concentration of both DRV and RPV exceeded IC90 in all subjects studied and was associated with significant neurocognitive improvement by MOCA score.
This study assess the durability of the regimen to 96 weeks.
Methods: Extension to 96 weeks of a Phase IV open/label pilot study of HIV positive, ARV naïve subjects age ≥ 18 years VL ≥ 5000 with any CD4 count at baseline. Exclusions included hepatitis B co-infection, active AIDS defining illness or baseline resistance to study drugs. Extension eligible subjects were all with VL ≤ 50 at 48 weeks. Primary endpoint was % subjects VL ≤ 50 at 96 weeks (ITT M=F). Secondary endpoints included change in CD4 counts and MOCA scores.
Results: At week 48, 28/30 subjects had VL ≤ 50 and were eligible for the extension phase. All 28 enrolled and completed the 96 week study. 28/28 (100%) had VL ≤ 50 by the end of the study with increased CD4 counts (median 258 cells). MOCA scores were ≥ 26 in 93% of subjects and there were no significant AE reports.
Conclusions: The novel combination of DRV/Cobi and RPV demonstrated durable control of virologic replication with 100% of eligible subjects VL ≤ 50 at week 96. CD4 counts continued to increase and cognitive improvement as measured by MOCA scores were sustained. The regimen remained well tolerated without significant AE. Based on this successful pilot study, this durable, cost effective treatment strategy warrants larger clinical trials.

THPEB037

Substantial decline in virological failure after combination antiretroviral treatment (cART) initiation in treatment-naïve HIV-positive adults in the Netherlands from 1996 to 2016

T.S. Boender[1], F.W.N.M. Wit[1,2,3], A. van Sighem[1], K. Brinkman[4], C. van Nieuwkoop[5], A.M.J. Wensing[6], P. Reiss[1,2,3],
on behalf of the ATHENA National Observational HIV Cohort
[1]Stichting HIV Monitoring, Amsterdam, Netherlands, [2]Academic Medical Center, and Amsterdam Center for Infection and Immunity, Department of Internal Medicine, Division of Infectious Diseases, Amsterdam, Netherlands, [3]Academic Medical Center, and Amsterdam Institute for Global Health and Development, Department of Global Health, Amsterdam, Netherlands, [4]OLVG, Department of Internal Medicine, Amsterdam, Netherlands, [5]Haga Teaching Hospital, Department of Internal Medicine, The Hague, Netherlands, [6]University Medical Center Utrecht, Department of Virology, Utrecht, Netherlands

Background: We evaluated the incidence of, and factors associated with, virological failure (VF) after combination antiretroviral therapy (cART) initiation in adults in the Netherlands, since the introduction of cART in 1996.
Methods: We assessed the incidence of VF (i.e. the first of two consecutive viral load measurements ≥200 copies/ml after >6 months of cART) among HIV-1 positive, ART-naïve, non-pregnant adults in the ATHENA-cohort between 1996-2016. Time was censored at the date of last contact with HIV-care, or at the last date of cART when cART was interrupted for >2 weeks. We assessed the incidence of VF since cART initiation, and assessed socio-demographic and clinical factors associated with time-to-VF specifically for cART initiation between 2011-2016 using Cox regression.



[Kaplan-Meier estimates of time-to-virological failure]

Results: During 1996-2016, 1,807 (10.6%) out of 17,044 adults experienced VF after a median of 1.4 [IQR 0.7-3.4] years since cART initiation. The likelihood of VF decreased substantially by year of cART initiation: unadjusted hazard ratio (uHR) 12.6 (95%CI 10.4-15.2) in 1996-1999, 5.2 (4.3-6.3) in 2000-2005, and 2.6 (2.1-3.2) in 2006-2010, respectively compared to 2011-2016 (*Figure A*).

During 2011-2016, 133 (2.1%) out of 6,228 people who initiated cART experienced VF after a median of 1.6 (IQR 0.7-2.0) years. Before VF, 106 out of 133 people had ≥1 VL measurement available, of whom 66 had an undetectable VL. HIV-transmission risk group and region of origin were independently associated with VF: adjusted hazard ratio (aHR) 1.7 (95%CI 1.0-2.7) for men with heterosexual acquired HIV-1 compared to men who have sex with men (MSM), and aHR 2.3 (1.3-4.1) for people originating from sub-Saharan Africa compared to Western Europe/North America/Australia (*Figure B*).

Additionally, a higher VL (aHR 1.5 [95%CI 1.2-2.0] per $\log_{10}$ cps/ml) and lower CD4-cell count (aHR 2.3 [1.0-5.1] for < 50 cells/mm³, and aHR 2.1 [1.0-4.5] for 50-199 cells/mm³, compared to >500 cells/mm³) at cART initiation were independently associated with VF.

Conclusions: VF after cART initiation has decreased substantially over the last two decades in the Netherlands. While the risk of VF continues to decline, additional support for non-MSM, late-presenters, and those originating from sub-Saharan Africa is warranted to further optimize cART outcomes.

THPEB038

B/F/TAF versus ABC/DTG/3TC or DTG + F/TAF in treatment-naïve adults with high baseline viral load or low baseline CD4 count in 2 Phase 3 randomized, controlled clinical trials

D. Podzamczer[1], H.-J. Stellbrink[2], C. Orkin[3], A. Pozniak[4], J.R. Arribas[5], E. Koenig[6], M. Ramgopal[7], A. Baumgarten[8], X. Wei[9], A. Cheng[9], D. Sengupta[9], H. Martin[9], E. Quirk[9]
[1]*Hospital Universitari de Bellvitge, HIV and STD Unit Infectious Disease Department, Barcelona, Spain,* [2]*ICH Study Center, Hamburg, Germany,* [3]*Barts Health NHS Trust, Royal London Hospital, Ambrose King Centre, London, United Kingdom,* [4]*Chelsea and Westminster Hospital NHS Foundation Trust, London, United Kingdom,* [5]*Hospital Universitari de Bellvitge, Barcelona, Spain,* [6]*Instituto Dominicano de Estudios Virologicos IDEV, Santo Domingo, Dominican Republic,* [7]*Midway Immunology and Research Center, Fort Pierce, United States,* [8]*Zibp Zentrum fur Infektiologie Berlin Prenzlauer Berg, Berlin, Germany,* [9]*Gilead Sciences Inc., Foster City, United States*

Background: Treatment-naïve, HIV-1-infected individuals with high viral load and/or low CD4 count may be difficult to treat. In two Phase 3 studies of fixed-dose combination bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) vs. dolutegravir comparators, there were no treatment differences between arms for subgroups with HIV-1 RNA >100,000 copies (c)/mL or CD4 < 200 cells/ µL at baseline. No participant failed with resistance. To further characterize efficacy of B/F/TAF, we analyzed pooled results from these trials for those with high HIV-1 RNA or low CD4 count at baseline.

Methods: Treatment-naïve, HIV-1-infected adults were randomized 1:1 to receive blinded treatment with B/F/TAF (50/200/25 mg) vs. dolutegravir/abacavir/lamivudine (DTG/ABC/3TC) (study 1489) or DTG (50 mg) + F/TAF (200/25 mg) (study 1490). Participants were recruited in North America, Europe, and Australia.

To evaluate the efficacy of B/F/TAF specifically in these populations, we conducted a per-protocol (PP) analysis, which included participants randomized who received ≥1 dose of study medication but excluded those without on-treatment results in the week (W) 48 window (unless discontinued for lack of efficacy) or who had low medication adherence (< 2.5th percentile).

We present W48 virologic responses by FDA snapshot algorithm for participants with baseline HIV-1 RNA >100,000 c/mL or CD4 count < 200 cells/µL using the PP analysis set.

Results: 629 adults were randomized in study 1489 (B/F/TAF n=314, DTG/ABC/3TC n=315) and 645 in study 1490 (B/F/TAF n=320, DTG+F/TAF n=325). Pooled, 198 participants (PP analysis set) had baseline HIV-1 RNA >100,000 copies/mL (B/F/TAF n=103/634 [16%], DTG/ABC/3TC n=46/315 [15%], DTG+F/TAF n=49/325 [15%]), and 132 (B/F/TAF n=73/634 [12%], DTG/ABC/3TC n=27/315 [9%], DTG+F/TAF n=32/325 [10%]) had baseline CD4 count < 200 cells/µL. For both high VL and low CD4 subgroups, rates of participants with HIV-1 RNA < 50 c/mL at W48 were similarly high for B/F/TAF, DTG/ABC/3TC, and DTG+F/TAF (table). No participant failed with resistance to any components of study drug.

Conclusions: B/F/TAF demonstrated potent viral suppression with no treatment-emergent resistance in treatment-naïve adults with high baseline HIV-1 RNA or low CD4 count. These data provide further evidence that B/F/TAF is an appropriate treatment for a wide range of patients, including late presenters who have been historically more difficult to treat.

Baseline HIV-1 RNA >100,000 c/mL	B/F/TAF (n=103)	DTG/ABC/3TC (n=46)	DTG + F/TAF (n=49)
HIV-1 RNA < 50 c/mL	99% (102/103)	98% (45/46)	98% (48/49)
HIV-1 RNA ≥ 50 c/mL	1% (1/103)	2% (1/46)	2% (1/49)
Discontinued due to lack of efficacy	0	0	0
Baseline CD4 count <200 cells/µL	**B/F/TAF (n=73)**	**DTG/ABC/3TC (n=27)**	**DTG + F/TAF (n=32)**
HIV-1 RNA < 50 c/mL	99% (72/73)	96% (26/27)	100% (32/32)
HIV-1 RNA ≥ 50 c/mL	1% (1/73)	4% (1/27)	0
Discontinued due to lack of efficacy	0	0	0

[Week 48 Outcomes by Baseline HIV-1 RNA >100,000 c/mL and CD4 count <200 cells/ µL (PP Analysis Set)]

THPEB039

Virologic outcomes among treatment naïve HIV+ patients initiating common first antiretroviral therapy core agents in the OPERA observational database

A. Mills[1], L. Brunet[2], J. Fusco[2], M. Wohlfeiler[3], C. Garris[4], A. Oglesby[4], J. Mrus[4], P. Lackey[5], G. Fusco[2]
[1]*Southern California Men's Medical Group, Los Angeles, United States,* [2]*Epividian, Durham, United States,* [3]*AIDS Healthcare Foundation, Miami, United States,* [4]*ViiV Healthcare, Inc., Research Triangle Park, United States,* [5]*Carolinas Healthcare System, Charlotte, United States*

Background: The efficacy of the commonly used core agents dolutegravir (DTG), elvitegravir (EVG), raltegravir (RAL) and darunavir (DRV) has been evaluated in clinical trials, but assessments of clinical effectiveness in real-world settings are needed. Virologic failure (VF) following core agent initiation was compared in ART-naïve patients in the Observational Pharmaco-Epidemiology Research and Analysis (OPERA) cohort.

Methods: The study population consisted of ART-naïve OPERA patients initiating DTG, EVG, RAL, or DRV between 08/12/2013 and 07/31/2016, with follow-up to 07/31/2017. VF was defined as (i) 2 consecutive HIV viral load (VL) ≥200 copies/mL after 36 weeks of ART, or (ii) 1 VL ≥200 copies/mL with core agent discontinuation after 36 weeks, or (iii) 2 consecutive VL ≥200 copies/mL after suppression (VL ≤50 copies/mL) before 36 weeks, or (iv) 1 VL ≥200 copies/mL with discontinuation after suppression before 36 weeks. Patient characteristics including baseline mortality index and VF frequency during follow-up were described. Survival analyses were conducted with Kaplan Meier methods and multivariate Cox Proportional Hazards modeling (covariates described in Figure 1).

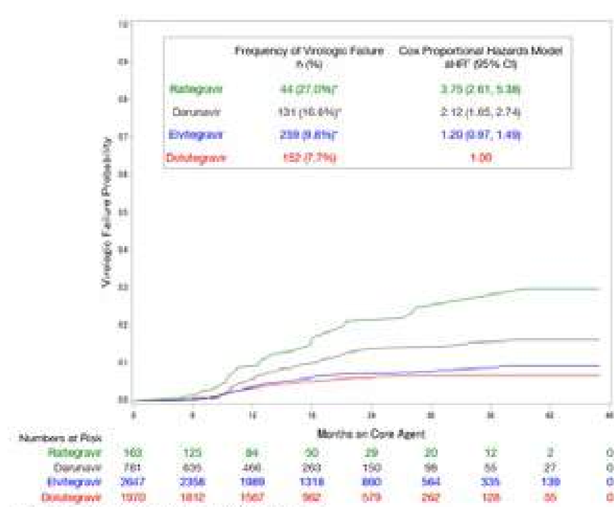
Results: There were 5,561 ART-naïve patients who initiated DTG (35%), EVG (48%), DRV (14%) or RAL (3%). Median follow-up time was 18.4 months (IQR: 12.6-27.4). Compared to DTG, EVG users were younger, more likely to be male or from the southern U.S. and had lower baseline mortality index; DRV and RAL users were older, less likely to be male or Hispanic, more likely to be African American and had lower baseline CD4 cell count or mortality index; RAL users were also more likely to be from the southern U.S. and had higher baseline VL (Table 1). VF was experienced by 7.7% DTG, 9.8% EVG, 16.8% DRV and 27.0% RAL users (Figure 1). Compared to DTG, the 47-month adjusted hazard ratio for VF was 1.20 (95% CI: 0.97, 1.49) for EVG, 2.12 (1.65, 2.74) for DRV, and 3.75 (2.61, 5.38) for RAL (Figure 1).

Conclusions: In this assessment of ART-naïve patients in a real-world clinical setting, DTG users were statistically significantly less likely to experience VF compared to RAL and DRV users, and marginally less likely to experience VF compared to EVG users.

	Dolutegravir, n=1970 (35.4%)	Elvitegravir, n=2654 (47.7%)	Darunavir, n=781 (14.0%)	Raltegravir, n=163 (2.9%)
Age, Median years (IQR)	32 (25, 42)	31 (25, 41)*	38 (28, 47)*	42 (31, 49)*
Male, n (%)	1702 (86.4%)	2314 (87.2%)*	627 (80.3%)*	111 (68.1%)*
African American, n (%)	860 (43.7%)	1199 (45.2%)	397 (50.8%)*	88 (54.0%)*
Hispanic, n (%)	532 (27.0%)	722 (27.2%)	174 (22.3%)*	28 (17.2%)*
Receiving care in the southern U.S., n (%)	1192 (60.5%)	1714 (64.6%)*	467 (59.8%)	106 (65.0%)*
Baseline Viral Load log10, Median (IQR)	4.7 (4.2, 5.1)	4.7 (4.2, 5.1)	4.6 (4.3, 5.0)	4.8 (4.3, 5.2)*
Baseline CD4 cell count, Median cells/µl (IQR)	372 (206, 532)	368 (209, 527)	241 (95, 449)*	213 (66, 381)*
VACS Mortality Index Score†, Median (IQR)	23 (13, 35)	20 (13, 35)*	35 (20, 57.5)*	35 (20, 54)*

* p-value <0.05 for the comparison with dolutegravir. † VACS Mortality Index: Scored by summing pre-assigned points for age, CD4 cell count, HIV-1 RNA, hemoglobin, platelets, aspartate and alanine transaminase, creatinine, and viral hepatitis C infection. A higher score is associated with a higher risk of 5-year all-cause mortality.

[Table 1. Baseline Patient Characteristics by Core Agent]



[Figure 1. Adjusted Cumulative Probability of Virologic Failure Following Core Agent Initiation]

THPEB040

Superior efficacy of dolutegravir (DTG) plus 2 nucleoside reverse transcriptase inhibitors (NRTIs) compared with lopinavir/ritonavir (LPV/r) plus 2 NRTIs in second-line treatment - 48-week data from the DAWNING Study

M. Aboud[1], R. Kaplan[2], J. Lombaard[3], F. Zhang[4], J. Hidalgo[5], E. Mamedova[6], M. Losso[7], P. Chetchotisakd[8], C. Brites[9], J. Sievers[1], D. Brown[10], J. Hopking[11], M. Underwood[12], M.C. Nascimento[1], M. Gartland[12], K. Smith[12]

[1]ViiV Healthcare, Brentford, United Kingdom, [2]Desmond Tutu HIV Foundation, Cape Town, South Africa, [3]Josha Research, Bloemfontein, South Africa, [4]Beijing Ditan Hospital, Beijing, China, [5]VÍA LIBRE, Lima, Peru, [6]Kiev AIDS Centre, Kiev, Ukraine, [7]Hospital J M Ramos Mejia, Buenos Aires, Argentina, [8]Srinagarind Hospital, Khon Kaen University, Khon Kaen, Thailand, [9]Federal University of Bahia, Salvador, Brazil, [10]ViiV Healthcare, Abbotsford, Australia, [11]GlaxoSmithKline, Uxbridge, United Kingdom, [12]ViiV Healthcare, Research Triangle Park, United States

Background: DAWNING is a non-inferiority study comparing DTG+2NRTIs with a current WHO-recommended regimen of LPV/r+2NRTIs in HIV-1 infected adults failing first-line therapy (HIV-1 RNA ≥400 copies [c]/mL) of a non-nucleoside reverse transcriptase inhibitor + 2 NRTIs (ClinicalTrials.gov: NCT02227238). Prior to a 24-week interim analysis, the Independent Data Monitoring Committee (IDMC) recommended discontinuation of the LPV/r arm due to superior efficacy of DTG+2NRTIs based on available data; the study protocol was amended to allow ongoing LPV/r subjects to switch to the DTG arm.

Methods: Subjects were randomised (1:1, stratified by Screening plasma HIV-1 RNA and number of fully active NRTIs) to 52 weeks of open-label treatment with DTG or LPV/r combined with 2 investigator-selected NRTIs, including at least one fully active NRTI based on Screening resistance testing. The primary endpoint was the proportion of subjects achieving HIV-1 RNA < 50 c/mL at Week 48 (Snapshot algorithm).

Results: 624 adults were randomized and treated. Subjects were well matched for demographic and baseline characteristics. The IDMC decision had limited impact on the primary endpoint as all LPV/r subjects who switched or discontinued due to the IDMC decision had a viral load value at Week 48/52. At Week 48, 84% (261/312) of subjects on DTG versus 70% (219/312) on LPV/r achieved HIV-1 RNA < 50 c/mL (adjusted difference 13.8%, 95% CI: 7.3% to 20.3%, p < 0.001 for superiority). The difference was primarily driven by lower rates of Snapshot virologic non-response (VL ≥50 c/mL) in subjects on DTG. The overall safety profile of DTG+2NRTIs was favourable compared to LPV/r+2NRTIs with more drug-related adverse events reported in the LPV/r group. Of 11 DTG subjects who met protocol-defined virologic withdrawal criteria through Week 52, one had treatment-emergent primary integrase-strand transfer inhibitor (INSTI) and NRTI resistance mutations while another had INSTI mutations only; in comparison, 30 LPV/r subjects met virologic withdrawal criteria, and 3 had emergent NRTI but no protease inhibitor mutations.

Week 48 outcomes	DTG (N=312)	LPV/r (N=312)
Snapshot virologic success	261 (84%)	219 (70%)
Snapshot virologic non-response	30 (10%)	68 (22%)
Data in window not <50 c/mL	18 (6%)	34 (11%)
Discontinued for lack of efficacy	6 (2%)	20 (6%)
Discontinued for other reason while not <50 c/mL or change in ART	6 (2%)	14 (4%)
Snapshot no virologic data	21 (7%)	25 (8%)
Discontinued due to AE or death	7 (2%)	17 (5%)
Discontinued for other reasons or missing data during window but on study	14 (4%)	8 (3%)
Drug-related AEs	50/314 (16%)	119/310 (38%)

[Week 48 outcomes]

Conclusions: In DAWNING, DTG+2NRTIs demonstrated superior efficacy at Week 48 and a favourable safety profile compared with LPV/r+2NRTIs confirming interim 24-week results. The study provides important information to help guide second-line treatment decisions in resource-limited settings.

THPEB041

Virological failure through the R263K pathway to a first line Doluegravir containing regimen

M.J. Pena[1], N. Chueca[2], M. Hernández-Febles[1], J.A. Fernandez Caballero[2], F. Garcia[2], J.M. Zarzalejos[1]

[1]Hospital Universitario de Gran Canaria Dr Negrin, Las Palmas, Spain, [2]Hospital Universitario San Cecilio, Granada, Spain

Background: Virological failure to Dolutegravir (DTG) containing regimens is a rare event. So far only a few cases have been reported in treatment-experienced individuals, commonly associated with emergence of R263K in the integrase, a substitution that confers low-level resistance against DTG and disminishes HIV DNA integration and viral fitness. In first line therapy, DTG shows a higher barrier to resistance with no reported mutations at 96 or 148 weeks. Here we report a case of early virological failure in an antiretroviral naïve patient that started a DTG based first line therapy.

Methods: A 49 year old woman was diagnosed of HIV-1 infection while admission in June 19th 2017 for lumbar spine surgery. At diagnosis CD4+ count was 39 cells/µl and plasma HIV-1 RNA was 457.000 copies/ml. ART was started one week later with TDF/FTC and DTG 50 mg BID, as she was taking rifampicin,. On July 23th, VL was 3461 copies/ml and CD4+ increased to 113 cells/µl. On August 22nd, rifampicin was removed due

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to a cutaneous adverse reaction and DTG was given QD. On September 14th, CD4+ count was 42 cells/µl and VL had increased to 126.393 copies/ml. Adherence was confirmed both by hospital records and patient interview, and virological failure was confirmed in a second sample (VL 208.518 c/ml).

Results: Sanger sequencing in RT and Integrase genes was performed at all time points, showing the sequential emergence of M184I (replaced by M184V), R263K, E157Q and K70E. Treatment was changed to TDF, darunavir/cobicistat (DRV/cob) and rilpivirine (RPV), with a VL decrease to 25 copies/ml and a CD4+ increase to 302 cells/µl. A summary of resistance findings is shown in table 1. Deep sequencing of *pol* and *env* revealed infection by a recombinant CRF14_BG form.

Conclusions: To our knowledge, this is the first report of first-line treatment failure with DTG with the selection of mutations in the integrase. Using deep sequencing we were able to trace the development and replacement of mutations. Interestingly we have shown, for the first time in vivo, the restoration of viral fitness that E157Q exerts on R263K containing viruses.

Week	0	4	12	14	18	22	30
Treatment	Naïve	TDF/FTC DTG BID	TDF/FTC DTG QD	TDF/FTC DTG QD	TDF/ DRVc/ RPV	TDF/ DRVc/ RPV	TDF/ DRVc/ RPV
Viral load (cop/ml)	457.021	3.461	126.393	208.518	3.148	595	25
CD4 (cells/µl)	39	113	42	ND	68	177	350
Sanger Sequencing	WT	ND	ND	M184V R263K	M184V R263K	ND	ND
Deep Sequencing (relative prevalence%)	WT	M184I (39,57%)	M184I (41,57%) M184V (57,32%) E157Q (3,83%) R263K (97,26%)	M184I (14,24%) M184V (85,05%) E157Q (7,61%) R263K (98,02%)	K70E (7,59%) M184I (5,8%) M184V (44,93%) E157Q (19,85%) R263K (98,38%)	ND	ND

[Table1]

THPEB042

Patient satisfaction, tolerability and acceptability of Cabotegravir (CAB) and Rilpivirine (RPV) Long-Acting (LA) therapy in HIV-1 infected adults: LATTE-2 week 96 results

M. Murray[1], F. Pulido[2], A. Mills[3], R. Moti[4], R. Leblanc[5], H. Jaegar[6], V. Chounta[1], D. Dorey[7], S. Griffith[8], J. Mrus[8], V. Cannon[9], D. Margolis[8], W. Spreen[8]

[1]ViiV Healthcare, Brentford, United Kingdom, [2]Hospital Universitario 12 de Octube, Madrid, Spain, [3]Anthony M. Mills Internal Medicine, West Hollywood, United States, [4]Midway Immunology and Research Center, Fort Pierce, United Kingdom, [5]Royal Victoria Hospital, McGill University Health Centre, Immunodeficiency Service Division of Hematology, Montreal, Canada, [6]MUC Research GmbH, Munich, Germany, [7]GlaxoSmithKline, Mississauga, Canada, [8]ViiV Healthcare, Research Triangle Park, United States, [9]Janssen Pharmaceutica, Beerse, Belgium

Background: The objective of the LATTE-2 study was to assess the long-term efficacy and safety of the intramuscular IM combination therapy of Cabotegravir LA + Rilpivirine LA every 4 weeks (Q4W) or every 8 weeks (Q8W) for maintenance of HIV-1 viral suppression through 96 weeks compared to oral CAB + abacavir/lamivudine (ABC/3TC). Secondary objectives include satisfaction, tolerability and acceptability of Cabotegravir LA + Rilpivirine LA.

Methods: LATTE-2 is an open-label study in ART-naïve HIV-1 infected adults. Patients who were virally suppressed with oral CAB+ABC/3TC during the 20-week Induction Period were randomized 2:2:1 to IM CAB LA + RPV LA Q4W, Q8W, or to remain on daily oral CAB + ABC/3TC (PO) in the Maintenance Period (MP). Tolerability and acceptability were self-assessed with the HIV-Medication Questionnaire (HIV-MQ) while satisfaction was measured with the adapted HIV-Treatment Satisfaction Questionnaire (HIV-TSQ).

Results: LATTE-2 randomized 286 patients into MP. At week 96, 87% (Q4W) and 94% (Q8W) of patients maintained HIV-1 RNA < 50 c/mL compared to 84% on PO (ITT-ME). Drug-related AEs included injection site pain which was the most frequently reported adverse event in the IM groups (97% in Q4W, 95% in Q8W). Patients in the Q8W group reported the highest and patients in the PO group reported the lowest levels of satisfaction with their HIV Treatment through Wk96 (HIVTSQs mean total score for Wk96 was 62.9 in the Q8W group (p=0.001) and 61.7 in the Q4W group (p=0.02) versus 58.1 [from a possible 66] in the PO group; p-values calculated as post-hoc analyses). In the HIVMQ, 37% of patients in the PO group did not find the treatment inconvenient or difficult to adhere, versus 72% of patients in the Q8W and Q4W groups.

Conclusions: Within the MP up to 96 weeks, patients receiving the IM combination therapy of Cabotegravir LA + Rilpivirine LA consistently demonstrated higher levels of satisfaction, tolerability and acceptability in both the Q4W and Q8W groups compared to patients on the PO group. Patients on the Q8W group demonstrated numerically higher levels of satisfaction compared to those in the Q4W group.

THPEB043

Elsulfavirine-based antiretroviral treatment in combination with two NRTIs: 96 weeks

R. Murphy[1], A. Kravchenko[2], E. Orlova-Morozova[3], F. Nagimova[4], O. Kozirev[5], T. Shimonova[6], M. Deulina[2], N. Vostokova[7], O. Zozulya[7], N. Trankova[8], I. Ivashchenko[8], N. Savchuk[8], V. Bichko[8]

[1]Northwestern University, Chicago, United States, [2]Russia AIDS Federal Center, Moscow, Russian Federation, [3]Moscow Region AIDS Center, Moscow, Russian Federation, [4]Republic Tatarstan AIDS Center, Kazan, Russian Federation, [5]Volgograd Region AIDS Center, Volgograd, Russian Federation, [6]Moscow City AIDS Center, Moscow, Russian Federation, [7]IPHARMA LLC, Moscow, Russia, Moscow, Russian Federation, [8]Viriom Inc, San Diego, United States

Background: Elpida® / Elsulfavirine (VM1500) is the prodrug of VM1500A, a new potent non-nucleoside reverse transcriptase inhibitor with unique pharmacokinetic properties ($T_{1/2}$ ~ 9 days). A 20 mg once daily dosing was chosen for further study based on 12-week efficacy, pharmacology and safety data; 48 week data comparing Elpida 20 mg to Efavirenz-based therapy plus tenofovir/emtracitabine (TDF/FTC) has been reported effective and safe. The objective of this study was to assess the efficacy and safety of an ART regimen including Elpida 20 mg plus two NRTI during 96 weeks.

Methods: In the parent Phase IIb randomized, double-blind, multicenter study, ART-naïve HIV-1-infected patients, treated initially for 48 weeks with Elpida plus TDF/FTC, continued the study treatment for up to 96 weeks. During this period they received Elpida 20 mg and various two NRTI regimens.

Results: After initial 48 weeks of treatment, 81% of patients on Elpida 20 mg and 73.7% patients on Efavirenz had VL < 50 c/mL (MITT). A total of 81out of 87 (93%) patients, treated with Elpida in the main study, continued in the follow-up study for additional 48 weeks. A total of 73 out of 87 (84%) patients had VL < 50 c/mL and 79/87 (91%) had < 400 c/mL at week 96. 3 patients receiving Elpida had VL >1000 c/mL during the study, presumably due to poor compliance; none had NNRTI resistance mutations. A CD4+ T-lymphocyte count increased by 246 ± 175.3 cells/mm³ during 96 weeks of treatment. Median CD4/CD8 ratio increased from 0.40 to 0.82. There were no new significant AEs, related to Elpida, after 48 weeks of treatment. New AE were mainly related to the changes of two NRTI regimen, including 2/89 (2.2%) patients with Grade 3 events (i.e. decreased appetite, irritability, dyspnea and rash). No drug-related SAE were reported. Total exposure to Elpida was 151.7 patient-years.

Conclusions: This study demonstrated that Elpida was safe and well tolerated to 96 weeks, with continued virologic efficacy, immunologic improvement and favorable resistance profile. Elpida-based therapy is a safe and effective long term strategy with many potential advantages over current therapies.

ART in highly treatment-experienced persons

THPEB044

Identifying heavily treatment experienced patients in the OPERA cohort

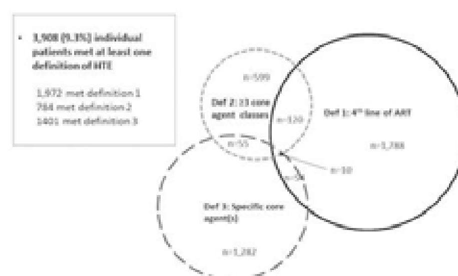
R. Hsu[1,2], C. Henegar[3], J. Fusco[4], V. Vannappagari[3], C. Llamoso[5], P. Lackey[6], G. Pierone[7], G. Fusco[4]
[1]New York University School of Medicine, Internal Medicine, New York, United States, [2]AIDS Healthcare Foundation, New York, United States, [3]ViiV Healthcare, Research Triangle Park, United States, [4]Epividian, Inc., Durham, United States, [5]ViiV Healthcare, Branford, United States, [6]Carolinas Healthcare System, Charlotte, United States, [7]Whole Family Health Center, Fort Pierce, United States

Background: Despite the availability of highly effective combination ART, a subset of HIV+ patients have had exposure to multiple different treatments and have limited future treatment options remaining due to development of resistance and/or intolerance. It is important to identify the prevalence of heavily treatment-experienced (HTE) patients and associated clinical characteristics to support and guide development of new therapies for this unique and under-served patient population.
Methods: Adult HIV+ patients actively followed in the OPERA care network were identified. Patients with ≥1 visit(s) in the year prior to 12/31/2016 were considered active in care. From this population, prevalence of HTE was estimated using three separate definitions; definition 1: currently on 4th line of ART, definition 2: exposure to ≥3 ART core agent classes prior to current regimen, definition 3: currently on core agents suggestive of HTE. Drugs from non-NRTI drug classes were considered core agents. Point prevalence (PP) and 95% confidence intervals (CI) were calculated for each definition. Overlap between definitions was explored and patient demographic and clinical characteristics were described for each definition.
Results: Of the 41,939 patients alive and in care, 1,972 (PP=4.7%; 95% CI: 4.5%, 4.9%) met definition 1, 1,784 (PP=1.9%; 95% CI: 1.7%, 2.0%) met definition 2, and 1401 (PP=3.3%; 95% CI: 3.2%, 3.5%) met definition 3. A total of 3,908 (9.3%) OPERA patients were captured by at least one definition for HTE; 239 (0.6%) patients were included in more than one definition and 10 (0.02%) patients met all three definitions. [Figure 1] The patients defined by these definitions were similar in age and sex but differed substantially in race, ethnicity, and route of infection. History of AIDS-defining illness and time since ART initiation were greatest for the patients in Definition 2 with far more initiating therapy more than 10 years ago and experiencing AIDS. [Table 1]
Conclusions: Three proposed definitions for identifying HTE patients in an observational database resulted in a prevalence of 1.9-4.7% of patients active in care. Minimal overlap of patients identified as HTE by these criteria suggests multiple definitions may be required to fully capture this complex and varied population in need of new therapeutic approaches.

	Definition 1: On 4th line of ART[3] N=1,972	Definition 2: ≥3 core agent classes[4] N=784	Definition 3: ART regimens of interest[5] N=1,401
Prevalence (95% CI)	4.7% (4.5, 4.9)	1.9% (1.7, 2.0)	3.3% (3.2, 3.5)
Age, median years (IQR)[6]	48.9 (41.8, 55.1)	50.9 (44.8, 57.2)	48.3 (39.5, 54.5)
Female, n (%)	351 (17.8%)	139 (17.7%)	258 (18.4%)
African American, n (%)	666 (33.8%)	256 (32.7%)	655 (46.8%)
Hispanic, n (%)	578 (29.3%)	259 (33.0%)	298 (21.3%)
MSM[7], n (%)	1015 (51.5%)	468 (59.7%)	574 (41.0%)
History of AIDS-defining Illness[8], n (%)	552 (28.0%)	380 (48.5%)	308 (22.0%)
Median months (IQR) from ART initiation	88.0 (52.8, 136.0)	141.6 (89.9, 206.1)	31.7 (9.8, 70.5)

[1]Prevalence calculated using a denominator of adult patients in care (n=41,939) defined as at least one clinic visit between 1/1/2016 and 12/31/2016 [2]Baseline characteristics evaluated on 12/31/2016 [3]Definition 1: On 4th line of ART; a change in core agent = a change in line of therapy [4]Defintion 2: ≥3 core agent classes; started and discontinued core agents from at least three separate ART classes including PI, NNRTI, INSTI, AI, or FI [5]Defininition 3: ART regimen of interest; patients taking any of the following: DTG twice daily, DRV twice daily, ETR + DTG, INSTI + PI, MVC, or ENF [6]IQR=Interquartile range [7]MSM=Men who have sex with men [8]AIDS-defining illness at or prior to 12/31/2016

[Prevalence[1] and baseline[2] demographic characteristics of various HTE definitions]



[Overlap of HTE patients identified according to definitions 1, 2, and 3]

THPEB045

Phase 3 study of fostemsavir in heavily treatment-experienced HIV-1-infected participants: BRIGHTE week 24 subgroup analysis in randomized cohort subjects

G. Pialoux[1], M. Kozal[2], J. Aberg[3], P. Cahn[4], M. Thompson[5], J.-M. Molina[6], B. Grinsztejn[7], R. Diaz[8], A. Lazzarin[9], G. Latiff[10], M. Gummel[11], A. Pierce[12], C. Llamoso[13], M. Lataillade[13], P. Ackerman[13]
[1]Hopital Tenon, Paris, France, [2]Yale University School of Medicine, New Haven, United States, [3]Icahn School of Medicine at Mount Sinai, New York, United States, [4]Fundación Huesped, Buenos Aires, Argentina, [5]AIDS Research Consortium of Atlanta, Atlanta, United States, [6]Hôpital Saint Louis, Paris, France, [7]Instituto de Pesquisa Clínica Evandro Chagas FIOCRUZ, Rio de Janeiro, Brazil, [8]Federal University of São Paulo, São Paulo, Brazil, [9]Ospedale San Raffaele, Milan, Italy, [10]Maxwell Centre, Durban, South Africa, [11]GlaxoSmithKline, Biostatistics, Upper Providence, United States, [12]ViiV Healthcare, Clinical Development, Research Triangle Park, United States, [13]ViiV Healthcare, Clinical Development, Branford, United States

Background: The BRIGHTE study evaluates fostemsavir (FTR), a first-in-class attachment inhibitor, in HIV-1 infected heavily treatment-experienced (HTE) patients with limited treatment options (≤2 antiretroviral [ARV] classes remaining) and who are failing their current ARV therapy. Fostemsavir demonstrated superior efficacy relative to placebo (0.79 $\log_{10}$ c/mL for FTR vs 0.17 $\log_{10}$ c/mL for placebo; p< 0.0001) after 8 days of functional monotherapy.
Fifty-four percent of subjects in the Randomized Cohort (1-2 remaining ARV classes at baseline), receiving FTR plus optimized background therapy (OBT), achieved virologic suppression (HIV-1 RNA < 40 c/mL) at Week 24 (W24). The mean CD4+ T-cell count increased by 90 cells/μL from baseline at W24.
Methods: Here we present a subgroup analysis of immunologic response (observed mean change in CD4+ count at W24) and of virologic efficacy (adjusted mean change in $\log_{10}$ HIV-1 RNA at Day 8 and percent with HIV-1 RNA < 40 c/mL at W24 by snapshot algorithm) in participants within the Randomized Cohort.
Results: Increase in mean CD4+ counts at W24 was similar regardless of subgroup, including baseline CD4+ category. Participants with baseline CD4+ counts < 20 cells/μL averaged an increase of 97 cells/μL at W24, which is comparable in magnitude to mean change in all other baseline CD4+ categories. Reduction in baseline viral (VL) at Day 8 of FTR monotherapy was also similar across all subgroups. A lower virologic response rate at WK24 was observed in participants with a baseline VL ≥100,000 c/mL (38%) vs. VL < 100,000 c/mL (60%) and in participants with a baseline CD4+ < 50 cells/μL (37%) vs. CD4+ ≥50 cells/μL (63%).
Conclusions: In fostemsavir-treated HTE participants with 1 or 2 remaining ARV classes, improvement in CD4+ count through W24 was clinically significant and similar for all subgroups; including participants with very low incoming CD4+ counts at baseline (< 20 cells/μL). Virologic response at W24 was similar across subgroups except high baseline VL (≥100,000 c/mL) and low baseline CD4+ count (< 50 cells/μL); two well-recognized determinants of virologic response.

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	Day 8 (FTR + Failing Regimen)				Week 24 (FTR + OBT)			
	HIV-1 RNA Log10 (c/mL) Adjusted Mean ΔDay 1^a (95% CI)				HIV-1 RNA <40 c/mL		CD4+ Count (cells/µL)	
	n	Fostemsavir	n	Placebo	N	n (%)	n	Mean ΔBL (SD)
Total Randomized Cohort	201^b	-0.79 (-0.88,-0.70)	69	-0.17 (-0.33,-0.01)	272	146 (54)	248	90 (112)
Subgroups								
Age(years)								
<35	45	-0.75 (-0.94,-0.57)	15	-0.26 (-0.58,0.07)	60	29 (48)	55	113 (101)
35 to <50	79	-0.82 (-1.00,-0.64)	31	-0.05 (-0.32,0.22)	102	52 (51)	94	92 (129)
≥50	88	-0.80 (-0.93,-0.67)	23	-0.22 (-0.46,0.03)	110	65 (59)	99	78 (96)
Gender								
Male	141	-0.82 (-0.92,-0.71)	57	-0.14 (-0.31,0.03)	200	105 (53)	182	83 (116)
Female	60	-0.74 (-0.93,-0.55)	12	-0.29 (-0.71,0.14)	72	41 (57)	66	109 (99)
Race								
White	135	-0.76 (-0.88,-0.64)	47	-0.21 (-0.41,-0.01)	184	92 (50)	162	89 (113)
Black, AA	42	-0.82 (-1.00,-0.63)	18	-0.05 (-0.34,0.23)	60	36 (60)	58	94 (119)
Geographic Region								
North America	79	-0.74 (-0.90,-0.58)	29	-0.12 (-0.39,0.14)	108	56 (52)	97	74 (104)
Europe	39	-0.78 (-1.00,-0.56)	13	-0.33 (-0.71,0.05)	52	29 (56)	46	106 (139)
Rest of World	83	-0.84 (-0.96,-0.71)	27	-0.13 (-0.37,0.11)	112	61 (54)	-	-
BL Viral Load (c/mL)								
<1,000	21	-0.22 (-0.46,0.03)	10	0.11 (-0.26,0.47)	31	21 (68)	28	22 (139)
1,000 to <10,000	29	-0.70 (-0.93,-0.47)	14	0.07 (-0.26,0.40)	44	28 (64)	38	91 (124)
10,000 to <100,000	96	-0.87 (-1.01,-0.72)	21	-0.26 (-0.57,0.05)	117	67 (57)	108	89 (100)
≥100,000	55	-0.93 (-1.11,-0.74)	24	-0.33 (-0.61,-0.05)	80	30 (38)	73	119 (101)
BL CD4+ (cells/µL)								
<20	53	-0.58 (-0.80,-0.36)	17	-0.32 (-0.71,0.07)	72	24 (33)	64	97 (95)
20 to <50	17	-0.82 (-1.06,-0.59)	8	0.07 (-0.31,0.45)	25	12 (48)	22	107 (81)
50 to <100	28	-0.88 (-1.13,-0.63)	10	0.14 (-0.29,0.56)	39	20 (51)	34	83 (72)
100 to <200	46	-0.93 (-1.09,-0.77)	18	-0.21 (-0.49,0.07)	63	40 (63)	58	103 (109)
≥200	62	-0.81 (-0.97,-0.66)	20	-0.20 (-0.46,0.07)	73	50 (68)	66	71 (157)
Fully Active ARVs in Initial OBT	Not applicable as initial OBT commences after the Day 8 endpoint							
ARV = 1					131	79 (60)	123	91 (107)
ARV = 2					118	59 (50)	107	88 (118)

a) Mean adjusted by Day 1 log10 HIV-1 RNA
b) Two subjects receiving FTR in the Randomized cohort were missing Day 1 HIV-1 RNA results and were excluded from this analysis.
Note: ΔBL (change from baseline), c/mL (copies per milliliter), CI (confidence interval), SD (standard deviation), OBT (optimized background therapy), ARV (antiretroviral), FTR (fostemsavir), AA (African American)

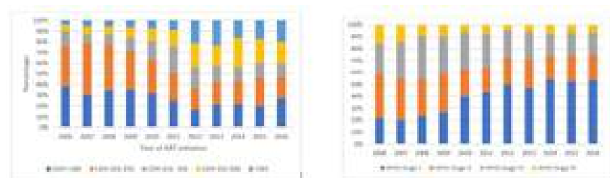
[Efficacy and Immunologic Responses by Subgroup at Day 8 and at Week 24 (Randomized Cohort)]

THPEB046

Impact of improved baseline immune status on early mortality after initiating anti-retroviral therapy among HIV-infected adults in Uganda

V. Ssempijja[1], E. Namulema[2], R. Ankunda[2], M. Kayiso[2], S.J. Reynolds[3,4]
[1]Leidos Biomedical Research Inc, 1. Clinical Research Directorate/Clinical Monitoring Research Program, Frederick, United States, [2]Mengo Hospital, HIV Counseling and Home Care Clinic, Kampala, Uganda, [3]Johns Hopkins University, Johns Hopkins School of Medicine, Baltimore, United States, [4]National Institutes of Health, Division of Intramural Research, National Institute of Allergy and Infectious Diseases, Bethesda, United States

Background: In Uganda, criteria for anti-retroviral therapy (ART) initiation among HIV-infected persons has progressed from prioritizing AIDS patients with pre-ART CD4+ T-cell count (CD4) ≤200 cells/ul and/or WHO stage IV in 2004, increasing to ≤350 cells/ul in 2010, then to ≤500 cells/ul in 2013, and treating all HIV-infected persons regardless of CD4 in 2017. In addition, option B+ for pregnant mothers and ART initiation for all HIV/TB patients were adopted beginning 2011. Low CD4 count and/or AIDS defining illness are associated with higher mortality after ART initiation.
We assessed changes in baseline CD4 and WHO stage over time as ART initiation guidelines changed, and examined their impact on mortality in the first 12 months after ART initiation.
Methods: We retrospectively identified HIV-infected adults aged 18+ years who started ART between 2005 and 2014 at the urban Mengo Hospital HIV clinic. We estimated trends in mortality rates during the first 12 months after ART initiation and identified risk factors associated with mortality using cox proportional regressions methods.
Results: We identified 7314 HIV infected adults who initiated ART between 2005 to 2016, including 5101 (70%) females; the majority (45%) were aged 25-34 years. Between 2005 and 2016, median CD4 at ART initiation increased from 136 (IQR=55-250) to 274 (IQR=95-450), proportion of patients initiating ART with WHO stage III or IV significantly decreased from 42% to 26%, and mortality rates 12 months after ART initiation significantly decreased from 8.4 deaths/100 pys to 4.0 deaths/100pys. Adjusted hazard ratio of death was 0.84(0.4-1.7) in 2006 and 0.45(0.2-1.1) in 2016 when compared to 2005. Compared to clients with CD4≤100 cell/ul, clients with CD4=101-250 cells/ul had a death adjusted hazard ratio (aHR)=0.38(0.2-0.6), with CD4=251-350 cells/ul aHR=0.13(0.0-0.3), with CD4=350-500 cells/ul aHR=0.09(0.0-0.3) and with CD4≥501 cells/ul aHR=0.12(0.0-0.4).
Conclusions: Baseline immune status of patients initiated on ART has improved with time, and early mortality has reduced substantially, however a substantial proportion of HIV patients still initiate ART with CD4< 100 cells/ul, even in 2016. Strategies to implement timely ART initiation before advanced immune suppression occurs should be prioritized to reduce early mortality and improve survival.



[Distribution of baseline CD4 count and WHO stage by year of ART initiation]

Regimen simplification and switch studies

THPEB047

Durable suppression 2 years after switch to DTG+RPV 2-drug regimen: SWORD 1&2 studies

M. Aboud[1], C. Orkin[2], D. Podzamczer[3], J. Bogner[4], D. Baker[5], M.-A. Khuong-Josses[6], D. Parks[7], K. Angelis[8], L. Kahl[1], E. Blair[9], M. Underwood[9], B. Wynne[9], K. Vandermeulen[10], M. Gartland[9], K. Smith[9]
[1]ViiV Healthcare, Brentford, United Kingdom, [2]Royal London Hospital, London, United Kingdom, [3]Ciudad Sanitaria y Universitaria de Bellvitge, Barcelona, Spain, [4]Leiter der Sektion Klinische Infektiologie, Munich, Germany, [5]East Sydney Doctors, Sydney, Australia, [6]CHG - Hôpital Delafontaine, Saint Denis Cedex, France, [7]Central West Clinical Research, St Louis, United States, [8]GlaxoSmithKline, Stockley Park, United Kingdom, [9]ViiV Healthcare, Research Triangle Park, United States, [10]Janssen Pharmaceutica, Beerse, Belgium

Background: Reducing long-term cumulative toxicity becomes more important in an era of near normal life expectancy for PLWHIV. Treatment modalities that reduce long term cumulative ARV exposure in the form of 2-drug regimens (2DR) are an area of active research. At 48 weeks, efficacy of DTG+RPV as a 2DR for maintenance of virologic suppression was non-inferior to 3DRs in SWORD 1&2. Improvements in bone, renal biomarkers and neutral effects on inflammatory biomarkers were demonstrated. We summarize outcomes through week 100.
Methods: Two identical open-label, global, phase III, non-inferiority studies evaluated efficacy and safety of switching from CAR to DTG+RPV once daily in HIV-1-infected adults, with HIV-1 RNA< 50c/mL (VL< 50c/mL) for ≥6 months and no history of virologic failure. Participants were randomized 1:1 to switch immediately to DTG+RPV (Early Switch group) or continue CAR. Participants randomised to CAR with confirmed suppression at Week (Wk)48 switched to DTG+RPV at Wk52 (Late Switch group). Secondary endpoints included proportion of participants with VL< 50c/mL at Wk100 using Snapshot algorithm for ITT exposed (ITTe) population and safety evaluations.
Results: 1024 participants were randomized and exposed (DTG+RPV 513; CAR 511), across both studies. At Wk100 in the Early Switch group, 456 (89%) had VL < 50c/mL; low rate of snapshot virologic non-response was observed (3%); 6 (1.2%) participants met Confirmed Virologic Withdrawal (CVW) criterion. The Early Switch group demonstrated a stable safety profile consistent with each individual component; 34 participants (7%) experienced AEs leading to withdrawal. At Wk100 in Late Switch group, 444 (93%) had VL < 50c/mL; 2 (< 1%) participants met CVW criterion. Safety profile of the Late Switch group was comparable to the Early Switch group at Wk48 (Table 1). One participant with RPV resistance at CVW (Early Switch group, Wk100) had pre-existing NNRTI mutations at baseline. No participants developed INSTI resistance.
Conclusions: The novel once daily 2DR of DTG+RPV demonstrated durable maintenance of HIV suppression through Week 100, following switch from 3DR in virologically suppressed HIV-1-infected adults. The safety profile of DTG+RPV was consistent with their respective labels. A DTG+RPV 2DR offers potential for reduction in cumulative ARV exposure, without increased risk of virologic failure.

	Early Switch Group		Late Switch Group
Outcomes	DTG + RPV (N=513) n (%) Day 1 to Week 48	DTG + RPV (N=513) n (%) Day 1 to Week 100	DTG + RPV (N=477) n (%) Week 52 to Week 100
Virologic success	486 (95%)	456 (89%)	444 (93%)
Virologic nonresponse	3 (<1%)	13 (3%)	10 (2%)
No virologic data	24 (5%)	44 (9%)	23 (5%)
Disc. due to AE or death	17 (3%)	27 (5%)	11 (2%)
Disc. for other reasons	7 (1%)	17 (3%)	9 (2%)
Missing data during window but on study	0	0	3 (<1%)
Key safety*			
AEs leading to withdrawal	21 (4%)	34 (7%)	15 (3%)
Drug-related Grade 2-4 AEs	29 (6%)	29 (6%)	13 (3%)
Serious AEs	27 (5%)	58 (11%)	30 (6%)

AE, adverse event; DTG, dolutegravir; ITTe, intent-to-treat exposed; RPV, rilpivirine.
*These results are based on the safety population who received ≥1 dose of DTG + RPV and represent all safety data available in the database at the time of the data cutoff.

[Table 1. Pooled SWORD-1 and SWORD-2 Efficacy and Key Safety Results at Week 100 (ITTe)]

THPEB048

Genital HIV-1 shedding with Dolutegravir (DTG) plus Lamivudine (3TC) dual therapy

S. Gianella[1], T. Wilkin[2], B. Berzins[3], P.E. Sax[4], C. Moser[4], V. Marconi[5], C.J. Fichtenbaum[6], C.A. Benson[1], M. Vargas[1], M.F. Oliveira[1], B.O. Taiwo[3]
[1]*University of California San Diego, La Jolla, United States,* [2]*Weill Cornell Medicine, New York, United States,* [3]*Northwestern University, Chicago, United States,* [4]*Harvard Medical School, Boston, United States,* [5]*Emory University, Atlanta, United States,* [6]*University of Cincinnati Medical Center, Cincinnati, United States*

Background: Antiretroviral therapy (ART) suppresses HIV RNA and prevents viral transmission. Genital HIV RNA shedding occurs in 2-20% of individuals on standard 3-drug ART. The incidence of genital HIV RNA shedding with the novel two-drug regimen of DTG+3TC is unknown.
Methods: Virologically suppressed participants randomized to either arm of the ASPIRE study (switch to DTG+3TC versus continue standard 3-drug ART) and ART-naïve participants who initiated DTG+3TC in the single-arm ACTG A5353 study were eligible for this genital substudy. Participants provided genital samples (semen or vaginal swabs) at week 24 and/or later timepoints through 48 weeks after study initiation to quantify genital HIV RNA, herpes simplex virus (HSV) and cytomegalovirus (CMV) DNA by real-time PCR. HIV genotyping and urine analysis for Gonorrhea and Chlamydia were performed in genital HIV shedders. Plasma HIV RNA results were obtained from parent studies.
Results: Fifty-one participants (ASPIRE DTG+3TC arm (N=16); ASPIRE 3-drug ART arm (N=22); and A5353 (N=13)) contributed 90 samples (77 semen, 13 vaginal swabs) at weeks 24-36 (N=41) and 48 (N=49). Median (range) time on ART before ASPIRE entry was 5.8 (1.3-17.6) years, and the pre-randomization regimens included a protease inhibitor (32%), non-nucleoside reverse transcriptase (RT) inhibitor (26%) or integrase inhibitor (42%). HIV RNA was not detected in any of the vaginal swabs.
During the 48 weeks of follow-up, three participants had seminal HIV shedding: 1/22 (4.5% [95%CI:0.1%,22.8%]) in the ASPIRE 3-drug ART arm, 1/16 (6.3% [0.2,30.2]) in the ASPIRE DTG+3TC arm and 1/13 (7.7% [0.2,36.3]) in the A5353 study (table 1).
For participant #2, no integrase drug-resistance mutation was detected in seminal HIV RNA (RT sequencing unsuccessful). Genital HSV and bacterial infection were not detected in the three participants with seminal HIV RNA shedding, while high CMV levels were detected in participant #2 at both assayed time-points.
Overall, genital CMV was detected in 17/51 (33%) and HSV was detected in 5/51 (9.8%) participants.
Conclusions: In this study, we detected genital HIV RNA shedding in virologically suppressed individuals who switched to DTG+3TC and ART-naïve participants treated with DTG+3TC at similar rates as 3-drug ART. Dual-drug regimen appears to be safe to use but more testing is needed.

PID	Parent Study	Study week	ART regimen	Genital HIV RNA (copies/ml)	Plasma HIV RNA (copies/ml)	CMV DNA (copies/ml)	HSV DNA (copies/ml)	Gonorrhea RNA	Chlamydia RNA
1	ASPIRE	48	RPV, TDF, FTC	42	179	Not detected	Not detected	Not detected	Not detected
2	ASPIRE	36	DTG, 3TC	488	<20	314607	Not detected	Not detected	Not detected
		48	DTG, 3TC	79	31	88090	Not detected	Not detected	Not detected
3	A5353	24	DTG, 3TC	48	<40	NA*	NA*	Not detected	Not detected

RPV: Rilpivirine, TDF: Tenofovir, FTC: emtricitabine, DTG: Dolutegravir, 3TC: Lamivudine.
NA = not available. *not enough semen sample to run these additional tests.

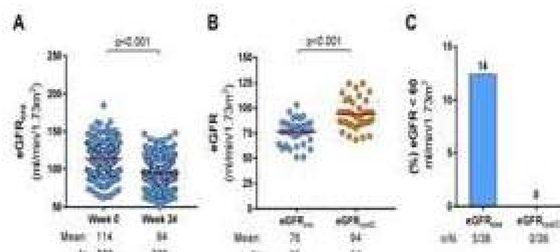
[Table 1. Summary of HIV RNA Shedders.]

THPEB049

Renal function after switching to dolutegravir in an acute HIV cohort in Thailand

C. Sacdalan[1], C. Austin[2], S. Pinyakorn[3,4], E. Kroon[1], D. Colby[1], P. Chan[1], O. Goh[1], J. Intasan[1], T. Luekasemsuk[1], M. Robb[3,4], N. Chomchey[1], N. Phanuphak[1], J. Ananworanich[1,4,5], SEARCH010/RV254 Study Group
[1]*The Thai Red Cross AIDS Research Centre, SEARCH, Bangkok, Thailand,* [2]*Washington University School of Medicine at St. Louis, St. Louis, United States,* [3]*The Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States,* [4]*United States Military HIV Research Program, WRAIR, Silver Spring, United States,* [5]*University of Amsterdam, Department of Global Health, Amsterdam, Netherlands*

Background: There are limited data on dolutegravir-based antiretroviral therapy (ART) from Asia. Dolutegravir (DTG) prescribing information reports a 9% decrease in estimated renal function on people taking DTG 50mg once a day. DTG inhibits organic cation transporter 2 leading to elevated creatinine and reduced estimated glomerular filtration rate ($eGFR_{cre}$), but does not affect cystatin C ($eGFR_{cystC}$). We describe changes in $eGFR_{cre}$ after switching to DTG in an Asian cohort, and $eGFR_{cystC}$ in those with low $eGFR_{cre}$.
Methods: Participants in the SEARCH010/RV254 cohort who had started ART during acute HIV infection (AHI) were switched to DTG and had $eGFR_{cre}$ pre- and 24 weeks post-switch. $eGFR_{cre}$ was calculated using the MDRD equation adjusted for Thais. Those with grade 3 low $eGFR_{cre}$ (< 60 ml/min/1.73m^2 or decrease of >30%) using DAIDS adverse event grading table were tested by $eGFR_{cystC}$. Paired t-test and McNemar's exact test were used to compare continuous and binary variables respectively.
Results: 328 AHI participants were included. At time of DTG switch, most participants were on efavirenz (>95%) with median (IQR) ART duration of 124 (71-195) weeks, CD4 of 640 (523-729) cells/mm^3 and 307/328 (94%) had VL< 50 copies/ml. Mean $eGFR_{cre}$ significantly decreased by 17% from 114 to 94.2 ml/min/1.73m^2 24 weeks after switching to DTG (p< 0.001) (Figure1A).
Thirty-six (11%) of 328 participants had grade 3 $eGFR_{cre}$ decline at 24 weeks post-switch. Mean renal function as measured by $eGFR_{cystC}$ was in the normal range for all participants and was significantly higher than $eGFR_{cre}$ (p< 0.001) (Figure1B). Furthermore, eGFR < 60 ml/min/1.73m^2 was observed in 5/36 using $eGFR_{cre}$ but in none when measured by GFR_{cystC} (Figure 1C).
Conclusions: In this cohort of predominantly young Thai MSM, estimated renal function by $eGFR_{cre}$ decreased greater than stated in prescribing information. Low eGFR 24 weeks after switching to DTG was common when calculated by serum creatinine but was not observed with cystatin C measurements, indicating no true renal function deterioration. Therefore, the use of cystatin C for those with marked $eGFR_{cre}$ declines might be of clinical importance in evaluating renal function in Asian individuals taking DTG and in mitigating unnecessary ART modifications.



[Figure 1A. $eGFR_{cre}$ pre and 24 weeks post DTG switch, 1B. Comparison of $eGFR_{cre}$ and $eGFR_{cystC}$ 24 weeks after DTG switch, 1C. Participants with eGFR <60 24 weeks after (DTG) switch using $eGFR_{cre}$ and $eGFR_{cystC}$]

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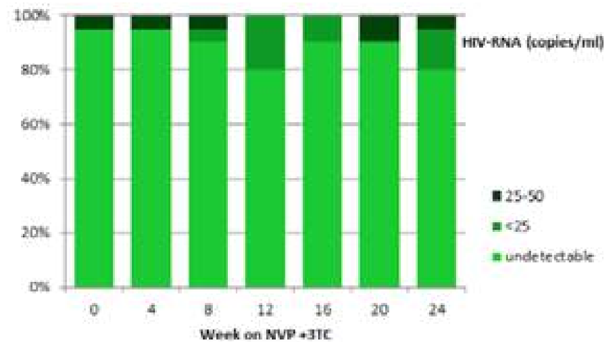
THPEB050

Nevirapine plus Lamivudine maintain HIV-1 suppression through week 24

C.R. Kahlert[1,2], M. Cipriani[1], P. Schmid[1], P. Vernazza[1]
[1]Cantonal Hospital St. Gallen, Clinic for Infectious Diseases & Hospital Epidemiology, St. Gallen, Switzerland, [2]Children's Hospital of Eastern Switzerland, Infectious Diseases and Hospital Epidemiology, St. Gallen, Switzerland

Background: Simplification of HIV maintenance therapy may reduce adverse events and cost. The effect of boosted protease-inhibitor monotherapy is limited as shown by increased rates of viral blips and HIV-RNA detection in cerebrospinal fluids, most likely due to insufficient compartment penetration. For 80% of the patients with no hypersensitivity reaction at treatment initiation, Nevirapine (NVP) is characterized by an excellent long-term tolerance. For this single center pilot study we hypothesized, that a combination of NVP and Lamivudine (3TC), two active compounds with excellent compartment activity may provide an optimal HIV maintenance therapy. The aim of this pilot study is testing feasibility and efficacy of this strategy before evaluation in a larger trial.
Methods: Patients with fully suppressed HIV plasma viral load (pVL) >24 months whereof >6 months on a NVP containing regimen and without previous failure of any non-nucleoside reverse transcriptase inhibitor regimen were switched to NVP and 3TC. HIV pVL was monitored monthly until week 24. The primary outcome was confirmed viral failure (RNA >100 copies/ml). The frequency of low level detection of HIV- RNA in plasma (< 20, 20-50, >50 cp/ml) was compared in each patient with pre-study viral load measurements.
Results: Twenty patients (15 male) were included and reached week 24. After a total of 480 observation weeks, none of the 20 patients experienced HIV pVL >50 copies/ml (figure 1).



[Figure 1. Frequency of low HIV-RNA detection w0-w24]

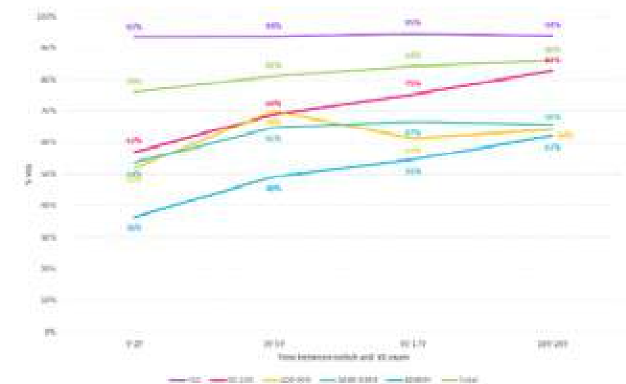
The frequency of low level HIV-RNA detection < 20 copies/ml (10/120) and 20-50 copies/ml (5/120) was not different from the period before randomization.
Conclusions: Our findings do not falsify the study hypothesis. This indicates that dual-treatment with NVP and 3TC warrants further evaluation as a potentially interesting maintenance strategy. A properly sized study to investigate non-inferiority of NVP/3TC bi-therapy to standard triple therapy is planned. If successful, this would result in a maintenance strategy with significant benefits in cost and reduced long-term side effects.

THPEB051

Virological monitor of the switch from RAL-containing to DTG-containing regimens in Brazil: Data from a real-world cohort

G. Mosimann Júnior[1], A.R. Pati Pascom[2], F. Rick[2], F. Barros Perini[2], M. Veloso[2], A. Benzaken[2], F. Fernandes Fonseca[3]
[1]MOH Brazil, HIV Department, Brasilia, Brazil, [2]MOH Brazil, Brasilia, Brazil, [3]MOH Brazil, HIV, STI, Viral Hepatitis, Brasilia, Brazil

Background: In January 2017, Brazilian MoH recommended switch to Dolutegravir-containing (DTG-C) from Raltegravir- containing (RAL-C) regimens for cases of people living with HIV (PLWHIV).
This study aimed to assess virological effectiveness of switch from RAL-C to DTG-C regimens in a real life cohort from Brazilian public health system and to investigate factors associated with viral load suppression (VLS) after the switch.
Methods: We used programmatic individual-level information on viral load (VL), CD4 and antiretroviral therapy (ART) from PLWHIV, aged 18+, with RAL-C regimen who switched to DTG-C, in 2017. We assessed VLS comparing VL up to one year after the switch and time between the switch and VL from zero to 270 days. Furthermore, was conducted uni and multivariable logistic regression to assess the association of demographics and clinical factors with VLS, among those who presented at least one VL done after switch.
Results: A total of 8,790 PLWHIV presented previous VL up to one year before the switch, and of those 5,970 regimen presented previous VL up to one year before the switch and have a VL measure at least one month after the switch and were included in the analysis. Overall, median age of 49yo (IQR=14), 62% men; 42% non-black; and median of 10 years on ART. Among those who switched with VL< 50 copies/mL, 94% maintained VLS during follow-up period. The longer the time using DTG-C regimen, the higher VLS rates, even among those who switched with higher pre-switch VL (Figure 1).
Despite the association observed in the univariate analysis for all variables, the multivariable analysis showed the following variables were positively associated with VLS: increasing age (60+ aOR 3.3 95%CI=2.47-4.49, compared with 15-24); non-black race/color (aOR 1.36 95%CI=1.17-1.58, compared with black); and high CD4 at baseline (500+ aOR 6.65 95%CI=5.32-8.39, compared with < 100).
Conclusions: DTG-C regimen showed early VLS at switch on those with detectable VL and VLS was maintained on those with undetectable pre-switch VL. Hence, DTG- C is an effective choice for switch on PLWHIV using RAL-C regimen. Finally, this switch might be reproduced in other low middle-income settings.



[Percentage (%) of PLWHIV aged 18+ with viral load suppression after the switch from RAL-containing to DTG-containing regimens according to the time (i)]

THPEB052

Uptake and effectiveness of two-drug compared to three-drug antiretroviral regimens among HIV-positive individuals in Europe

A. Pelchen-Matthews[1], B. Neesgaard[2], on behalf of the EuroSIDA Study in RESPOND
[1]University College London, Centre for Clinical Research, Epidemiology, Modelling and Evaluation (CREME), Institute for Global Health, London, United Kingdom, [2]University of Copenhagen, CHIP, Department of Infectious Diseases, Copenhagen, Denmark

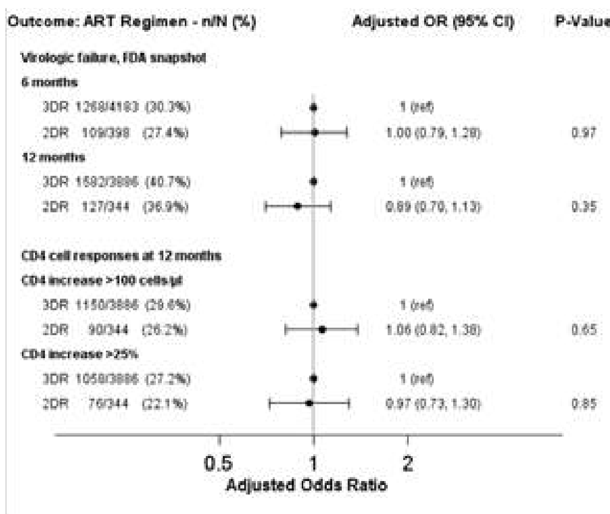
Background: Although two-drug antiretroviral regimens (2DR) have been assessed in several randomized controlled trials, there is little information on uptake and outcomes of these regimens in routine clinical practice.
Methods: Logistic regression was used to analyse the uptake and outcomes among persons in the EuroSIDA cohort who started a 2DR with a boosted protease inhibitor (bPI), integrase inhibitor (INSTI) or bPI+INSTI,

compared to those on a 3-drug regimen (3DR) with one of these antiretrovirals (ARVs) between 1/7/2010 and 31/12/2016. Virologic failure was defined using the FDA snapshot algorithm at 6 or 12 months after starting (treatment failure: viral load (VL) ≥400 copies/ml or no VL at 6 or 12 months ±16 weeks, change of ARV regimen, AIDS or death). Immunologic response was defined as a 100 cell/µl increase in CD4 count at 12 months ±16 weeks in those with available data.

Results: 423 (9%, 8 ARV-naïve) individuals started a 2DR and 4347 (91%, 566 ARV-naïve) started 3DR. Compared to those starting 3DR, those on 2DR tended to be older (median age 52 (IQR 46, 58) versus 46 (38, 53)), have higher CD4 counts (median 552 (381, 788) versus 536 (341, 743) cells/µl) and controlled VL(< 400 copies/ml, 87.5% versus 74.4%). 98% of those on 2DR were treatment-experienced, with higher cumulative exposure to all the main ARV classes. Those on 2DR also had higher levels of comorbidities including diabetes, cardiovascular disease, liver-related events and chronic kidney disease(p< 0.001 for all).

After adjustment, there was no significant difference in the odds of virologic failure comparing 2DR and 3DR at 6 or 12 months (adjusted odds ratio [aOR] 1.00 (95% CI 0.79-1.28) and 0.89 (0.70-1.13) respectively; Figure). Likewise, there were no differences in the odds of immunologic response at 12 months (aOR 1.06 (0.82-1.38)). Similar results were seen when immunologic response was defined as a 25% increase in CD4 counts (Figure).

Conclusions: 2DR were largely used by individuals with well-controlled viremia and high CD4 counts. Virologic and immunologic outcomes were in line with results from clinical trials and suggest immunologic and virologic responses to 2DR were similar to 3DR, although confounding by indication cannot be excluded.



Proportions of individuals failing the FDA snapshot or with improved CD4 cell counts (n) as a fraction of all participants in EuroSIDA on 2DR or 3DR ART (N), and odds ratios (OR) for virologic failure or CD4 cell response, adjusted for age group (<50 or ≥50 years), gender, race (Caucasian vs. other), region of Europe (South, Central, North or East), HIV risk group (MSM, intravenous drug user, heterosexual contact or other), recent HIV diagnosis (prior 2 years), baseline CD4 cell counts (<200, 200-350, 350-500 or ≥500 cells/µl), baseline viral load (<400 or ≥400 RNA copies/ml), prior ART (vs. treatment naive), liver-related events and chronic kidney disease.

[Figure: Virologic failure and immunologic responses for individuals on 2DR versus 3DR ART]

THPEB053

Immediate vs. deferred switching from a boosted Protease Inhibitor (PI/r) to Dolutegravir (DTG) suppressed patients with high cardiovascular risk or age ≥50 years: Final 96 weeks results of NEAT 022

J.M. Gatell[1], L. Assoumou[2], G. Moyle[3], L. Waters[4], M. Johnson[5], P. Domingo[6], J. Fox[7], E. Martinez[8], H.-J. Stellbrink[9], G. Guaraldi[10], M. Masia[11], M. Gompels[12], S. de Wit[13], E. Florence[14], S. Esser[15], F. Raffi[16], A. Pozniak[3], on Behalf of NEAT 022 Study Group

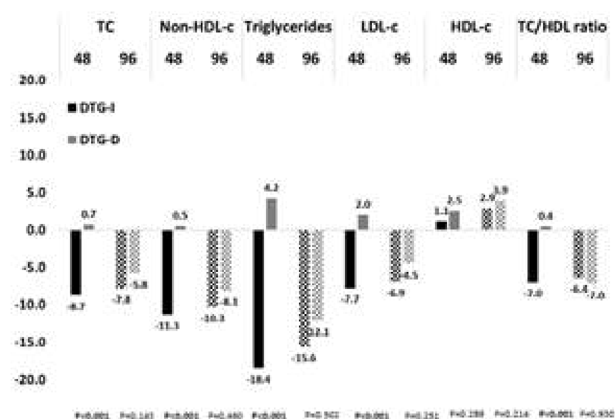
[1]Hospital Clinic. University of Barcelona, Infectious Diseases, Barcelona, Spain, [2]INSERM. UPMC, Institute Pierre Louis, Paris, France, [3]Chelsea & Westminster Hospital, London, United Kingdom, [4]Mortimer Market Center, London, United Kingdom, [5]Royal Free Hospital, London, United Kingdom, [6]Hospital de Sant Pau, Barcelona, Spain, [7]Guys and St Thomas Hospital, London, United Kingdom, [8]Hospital Clinic. University of Barcelona, Barcelona, Spain, [9]ICH Study Centrum, Hamburg, Germany, [10]University of Modena, Modena, Italy, [11]Hospital de Elche, Elche, Spain, [12]Southmead Hospital, Bristol, United Kingdom, [13]St. Pierre Hospital, Brussels, Belgium, [14]Institute of Tropical Medicine, Antwerp, Belgium, [15]Universitatklinikum, Essen, Germany, [16]University Hospital de Nantes, Nates, France

Background: Switching from a PI/r to DTG may improve convenience, lipids and cardiovascular risk.

Methods: NEAT022-NCT02098837 is a European, open label, randomized, non-inferiority trial. Adults ≥ 50 years or with Framingham score ≥10% were eligible if HIV RNA < 50 copies/mL for at least 24 weeks. Patients were randomized (1:1) to switch the PI/r component to DTG immediately (DTG-I) or to deferred switch at week 48 (DTG-D) . Week 96 end-points were: proportion of patients with HIV RNA < 50 copies/ml, percentage change of total plasma cholesterol and other lipid fractions and adverse events.

Results: 415 patients were randomized: 205 to DTG-I and 210 to continue PI/r plus a deferred switch (DTG-D) at week 48 . 89% were men, 87 % were ≥50 years, 74 % had a baseline Framingham score >10%, and suppressed viremia for a median of 5 years. At week 96, in the ITT analysis, treatment success rate was 92.2 % in DTG-I arm and 87% in DTG-D arm (difference 5.2%, 95%CI -0.6 to 11, non-inferiority demonstrated). There were 5 virological failures in the DTG-I arm (range 51 to 130 copies/mL) and 5 (1 while on PI/r and 4 after switching to DTG) in the DTG-D arm (range 64 to 3373 copies/mL) without selection of resistance. There was no significant difference in terms of grade 3 or 4 AE´s or treatment modifying AE´s (8 in DTG-I arm - 6 were due to mood disturbances or insomnia- and 12 in the DTG-D arm of whom 9 occurred after switching to DTG with 7 of the 9 due to mood disturbances or insomnia). Total cholesterol and other lipid fractions (except HDL) significantly (p< 0.001) improved both after immediate and deferred switching to DTG overall (See Fig 1) and regardless of baseline PI/r strata. Between 30% and 34% were on lipid lowering agents at weeks 0, 48 and 96 in both arms.

Conclusions: Both immediate and deferred switching from a PI/r to a DTG regimen in suppressed HIV patients ≥ 50 years old or with a Framingham score ≥10% was highly efficacious, well tolerated and significantly improved the lipid profile.



[Fig 1. Changes in lipid fractions at 48 and 96 weeks]

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THPEB054

Switching tenofovir/emtricitabine/efavirenz (TDF/FTC/EFV) to TDF/FTC/rilpivirine (RPV) versus continuing TDF/FTC/EFV in HIV-infected patients with complete virological suppression: A randomized controlled trial

S. Wiriyatanakorn[1], S. Sungkanuparph[2]
[1]Ramathibodi Hospital, Mahidol University, Department of Medicine, Faculty of Medicine, Bangkok, Thailand, [2]Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Samut Prakan, Thailand

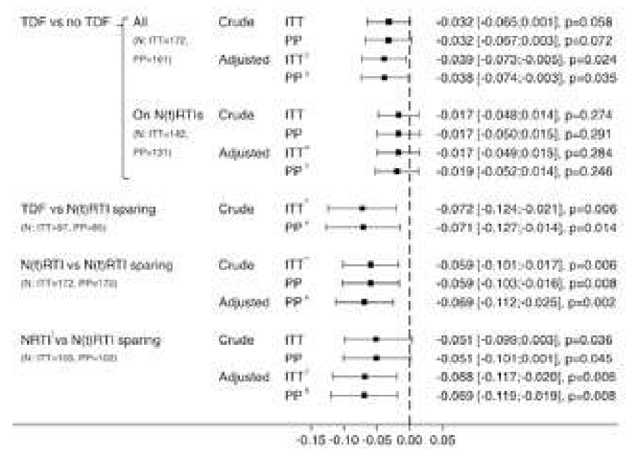
Background: Tenofovir/emtricitabine/efavirenz (TDF/FTC/EFV) is currently recommended as the preferred first-line antiretroviral therapy (ART) in resource-limited countries. Central nervous system (CNS) side effects and dyslipidemia are commonly associated with EFV use. Rilpivirine (RPV) has shown non-inferiority to EFV in treatment-naïve patients. This study aimed to compare the efficacy and adverse effects between switching from TDF/FTC/EFV to TDF/FTC/RPV and continuing TDF/FTC/EFV in patients with complete viral suppression.
Methods: A randomized controlled non-inferiority trial was conducted in HIV-infected patients currently on TDF/FTC/EFV with undetectable HIV RNA (< 50 copies/ml). Patients were randomized to switch from TDF/FTC/EFV to TDF/FTC/RPV (Group A) or continue TDF/FTC/EFV (Group B), and were followed up for 24 weeks. The primary endpoint was the proportion of patients with undetectable HIV RNA (non-inferiority margin of 12%). Changes in CD4 cell count, lipid profiles, and adverse events were also analyzed. (ClinicalTrials.gov NCT03251690)
Results: 246 patients were enrolled, 124 in Group A and 122 in Group B. Mean age was 44.6 years and 63.0% were males. Mean baseline CD4 cell count was 565 cells/mm³. Baseline characteristics including age, sex, CD4 cell count, lipid profiles, duration of ART and CNS side effects between the two groups were similar (p>0.05). Mean baseline values for total cholesterol (TC), LDL, HDL, and triglycerides (TG) were 196, 117, 47, and 148 mg/dl, respectively. At 24 weeks, 95.9% of patients in Group A and 97.6% of Group B had maintained HIV RNA < 50 copies/ml (difference -1.68%; 95%CI, -7.06 to 3.35), showing non-inferiority of switching to TDF/FTC/RPV. Mean CD4 cell count was 564 and 581 cells/mm³ in Group A and B, respectively (p=0.604). Mean change in lipid profiles (Group A vs B) were: TC, -22.4 vs -1.8; HDL, -4.2 vs +0.5; LDL, -6.4 vs +3.2; and TG, -29.4 vs +0.3 mg/dl (all p< 0.05). CNS side effects persisted in 0% and 6.5% of patients in group A and B, respectively (p< 0.001).
Conclusions: Switching TDF/FTC/EFV to TDF/FTC/RPV is non-inferior to continuing TDF/FTC/EFV in maintaining viral suppression at 24 weeks, and provides better lipid profiles and CNS side effects. Switching to TDF/FTC/RPV should be considered in HIV-infected patients on TDF/FTC/EFV with complete viral suppression.

THPEB055

Antiretroviral treatment maintenance strategies and blood telomere length change

R. Montejano[1], N. Stella-Ascariz[1], S. Monge[1], J.I. Bernardino[1], I. Pérez-Valero[1], M. Montes[1], L. Martín-Carbonero[1], J. González-García[1], J. Rodriguez-Centeno[1], B. Rodes[1], B. Alejos[2], R. de Miguel[1], A. Esteban-Cantos[1], R. Perona[3], J. Arribas[1]
[1]Hospital La Paz Institute for Health Research, Madrid, Spain, [2]Institute of Health Carlos III, Madrid, Spain, [3]Institute of Biomed Research Alberto Sols, Madrid, Spain

Background: We have evaluated the impact of Nucleoside Reverse Transcriptase Inhibitors (NRTI) and/or tenofovir disoproxil fumarate [N(t)RTIs] on blood telomere length (TL) in aviremic HIV infected persons.
Methods: Prospective cohort of HIV-1 infected participants with suppressed virological replication on a stable antiretroviral treatment for at least one year, comparing participants with current exposure to tenofovir disoproxil fumarate (TDF group) versus those never exposed to TDF (non TDF group) and receiving other antiretrovirals [NRTI containing and N(t)RTI sparing]. TL was measured in whole blood by monochrome quantitative multiplex PCR. We estimated change in TL during follow-up (both by intention to treat and by per protocol analysis) using a multivariable estimative linear regression adjusted by baseline TL and significant confounders and a predictive model to identify independent predictors.
Results: 172 participants: 67 in the TDF-group (64 TDF/FTC, 2TDF-3TC, 1 TDF-FTC-D4T) and 105 in the non-TDF group [75 receiving NRTI (71 ABC, 3 AZT, 1 ddI, 74 3TC), 30 receiving N(t)RTI sparing (25 without any N(t)RTI and 5 with 3TC as the only N(t)RTI]. Mean baseline age, % of females, years since HIV diagnosis, CD4 and years with viral load ∠ 50 copies/mL (TDF/non-TDF): 49/50, 30/25,18/16, 744/846, 7.2/6.7 After two years of follow-up mean TL increased 0.042 units in the whole cohort (p = 0.030). The N(t)RTI group had significantly smaller gains in TL than the N(t)RTIs sparing group. The TDF group had significantly smaller gains in TL than the non-TDF group and the N(t)RTI sparing group. The NRTI group had significantly smaller gains in TL than the the N(t)RTIs sparing group. When analysis was restricted to participants receiving N(t)RTIs, TDF exposure was not associated with an independent negative effect (Figure). In the predictive model, factors significantly associated with blood TL changes were N(t)RTIs at baseline (difference -0.070, p=0.001) female gender (0.042, p=0.019), and time since HIV diagnosis (-0.018 , p=0.006)
Conclusions: Our results reflect in vivo the in vitro inhibitory capacity of TDF and abacavir upon telomerase. After two years, N(t)RTI sparing ART, compared to TDF and/or abacavir containing ART, had greater gains in blood TL suggesting enhanced recovery from immunosenescence.



[Mean difference in TL (adjusted by baseline telomere length) after two years]

THPEB056

Efficacy and safety of switching from boosted protease inhibitor-based regimens to darunavir/cobicistat/emtricitabine/tenofovir alafenamide for treatment of HIV-1 infection: Subgroups analysis by baseline regimen

P.-M. Girard[1], G. Huhn[2], E. DeJesus[3], D. Luo[4], R. Petrovic[5], K. Brown[6], E.Y. Wong[6]
[1]University Pierre and Marie Curie, Paris, France, [2]The Ruth M. Rothstein CORE Center, Chicago, United States, [3]Orlando Immunology Center, Orlando, United States, [4]Janssen Research & Development, LLC, Titusville, United States, [5]Janssen Research & Development, Beerse, Belgium, [6]Janssen Scientific Affairs, LLC, Titusville, United States

Background: Darunavir/cobicistat/emtricitabine/tenofovir alafenamide (D/C/F/TAF) 800/150/200/10 mg is a once-daily, single-tablet regimen approved in Europe and under regulatory review in the US for the treatment of HIV-1 infection. In the pivotal EMERALD trial of HIV-1-infected adults, switching to D/C/F/TAF led to non-inferior cumulative virologic rebound at Week 48 compared to continuing use of a boosted protease inhibitor (bPI)+emtricitabine/tenofovir disoproxil fumarate (control); favorable renal/bone safety was seen with D/C/F/TAF versus control. Results were consistent across age, gender, and race subgroups. Here we report Week 48 results in subgroups based on baseline bPI and boosting agent.

Methods: The phase 3, randomized (2:1), non-inferiority EMERALD trial enrolled treatment-experienced, virologically suppressed HIV-1-infected adults with viral load (VL) < 50 copies/mL for ≥2 months (one 50≤VL< 200 copies/mL allowed in prior 12 months). Previous non-darunavir virologic failure was allowed. The primary endpoint was proportion of patients with virologic rebound (confirmed VL ≥50 copies/mL or premature discontinuation with last VL ≥50 copies/mL) cumulative through Week 48. Virologic response was VL < 50 copies/mL (FDA snapshot). Safety was assessed by adverse events (AEs). Results were evaluated in subgroups based on bPI (darunavir [with ritonavir or cobicistat] vs atazanavir [with ritonavir or cobicistat] or lopinavir [with ritonavir]) and boosting agent (ritonavir vs cobicistat) used at baseline.

Results: A total of 1141 patients were randomized and treated. At screening, use of darunavir (70% of patients) was more common than atazanavir or lopinavir (30% combined), and boosting with ritonavir (85%) was more common than cobicistat (15%). In the overall population, similar rates of virologic rebound (2.5% vs 2.1%, respectively) and virologic response (94.9% vs 93.7%) were seen with D/C/F/TAF and control; results were consistent across subgroups based on bPI and boosting agent used at screening (**Table**). No patients developed resistance to study drugs. The incidence of serious AEs, grade 3-4 AEs, and AE-related discontinuations were generally similar for D/C/F/TAF and control overall and across subgroups.

Conclusions: Virologically suppressed, treatment-experienced HIV-1-infected adults who switched to D/C/F/TAF had low, non-inferior cumulative virologic rebound rates versus continuation of prior therapy. Efficacy and safety results were similar between D/C/F/TAF and control regardless of baseline bPI and boosting agent used.

	Overall		bPI at baseline*				Boosting agent at baseline			
			DRV		ATV or LPV		rtv		COBI	
Parameter, %	D/C/F/TAF	Control	D/C/F/TAF	Control	D/C/F/TAF	Control	D/C/F/TAF	Control	D/C/F/TAF	Control
N	763	378	537	266	226	112	659	313	104	65
Efficacy										
Rebound†	2.5	2.1	2.0	2.3	3.5	1.8	2.6	2.2	1.9	1.5
Diff (95% CI)	0.4 (−1.5, 2.2)		−0.2 (−3.0, 1.9)		1.8 (−3.2, 5.5)		0.3 (−2.2, 2.3)		0.4 (−6.6, 5.5)	
Response‡	94.9	93.7	96.5	94.7	91.2	91.1	94.7	92.7	96.2	98.5
Diff (95% CI)	1.2 (−1.7, 4.1)		1.7 (−1.2, 5.4)		0.1 (−6.1, 7.7)		2.0 (−1.2, 5.8)		−2.3 (−8.4, 5.1)	
Safety										
Serious AE	4.6	4.8	3.5	4.9	7.1	4.5	4.4	5.1	5.8	3.1
Grade 3-4 AE§	6.8	8.2	6.1	7.1	8.4	10.7	7.1	8.0	4.8	9.2
Discont due to AE	1.4	1.3	0.7	0.8	3.1	2.7	1.5	1.6	1.0	0

bPI, boosted protease inhibitor; DRV, darunavir; ATV, atazanavir; LPV, lopinavir; rtv, ritonavir; COBI, cobicistat; D/C/F/TAF, darunavir/cobicistat/emtricitabine/tenofovir alafenamide; diff, difference; CI, confidence interval; AE, adverse event; discont, discontinuation; VL, viral load; c, copies. *DRV with rtv or COBI, ATV with rtv or COBI, and LPV with rtv. †Virologic rebound was confirmed VL ≥50 c/mL or premature discontinuation with last VL ≥50 c/mL (cumulative through Week 48). ‡Virologic response was VL <50 c/mL (FDA snapshot). §With ≥1 worst grade 3-4 AE.

[Table. Summary of efficacy and safety in EMERALD week 48 subgroup analyses based on bPI and boosting agent at baseline (Intention-to-Treat)]

THPEB057

Real-life impact of the onset of darunavir/cobicistat on estimated glomerular filtration rate

M.J. Perez Elias[1], M.M. Gutierrez[2], M.J. Vivancos[1], A. Ocampo[3], L. Garcia fraile[4], F. Lozano[5], M. Montero[6], A. Payeras[7], V. Boix[8], M.J. Galindo[9], C. Gonzalez-Domenech[10], J. Sanz[11], S. de La Fuente Moral[12], J. Troya[13], M. Torralba[14], M.A. Sepulveda[15], E. Negredo[16], H. Knobel[17], E. Rivera[18], L. Carbonero[19], B. Alejos[20], E. Martinez[21], Codar Study Group

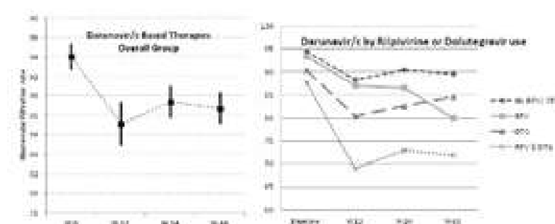
[1]Hospital Ramon y Cajal, Infectious Diseases, Madrid, Spain, [2]Hospital Santa Creu y San Pau, Barcelona, Spain, [3]Hospital Álvaro Cunqueiro, Vigo, Spain, [4]Hospital Universitario La Princesa, Madrid, Spain, [5]Hospital Virgen de Valme, Sevilla, Spain, [6]Hospital Universitario Y Politécnico La Fe, Valencia, Spain, [7]Hospital Sont Llatzer, Mallorca, Spain, [8]Hospital General Universitario de Alicante, Alicante, Spain, [9]Hospital Clínico Universitario de Valencia, Valencia, Spain, [10]Hospital Universitario Virgen de la Victoria, Malaga, Spain, [11]Hospital Universitario Principe de Asturias, Alcalá de Henares, Spain, [12]Hospital Universitario Puerta de Hierro, Majadahonda, Spain, [13]Hospital Universitario Infanta Leonor, Madrid, Spain, [14]Hospital Universitario de Guadalajara, Guadalajara, Spain, [15]Complejo Hospitalaraio de Toledo, Toledo, Spain, [16]Hospital Universitari Germans Trias i Pujol, Barcelona, Spain, [17]Hospital del Mar, Barcelona, Spain, [18]Hospital Universitari Vall d'Hebron, Barcelona, Spain, [19]Hospital Universitario La Paz, Madrid, Spain, [20]Instituto de Salud Carlos III, Madrid, Spain, [21]Hospital Clinic de Barcelona, Barcelona, Spain

Background: Ritonavir-boosted protease inhibitors such as lopinavir or atazanavir have been associated with a greater decrease in estimated glomerular filtration rate (eGFR) than that of darunavir (DRV). Cobicistat (c) is known to affect tubular creatinine secretion and hence eGFR. Data on the impact of DRV/c on eGFR is scarcely known.

Methods: Nation-wide retrospective cohort study of consecutive HIV-infected patients initiating DRV/c from June/2014 to March/2017. The eGFR was calculated with CKD-EPI in mL/min/1.73m2,baseline values and trend over time were described. The relationship between eGFR change over time and different HIV patient´s characteristics, socio-demographics, HIV severity, antiretroviraltreatment -ARV-, and concomitant medication other than ARV was explored through univariate and multivariate analyses. Ethics approval was obtained and patients signed informed consent.

Results: There were 761 patients (85% men, 91% Caucasian, 99% antiretroviral experienced, 34% HCV coinfected, 80% prior DRV/ritonavir, 32% prior AIDS, 84% HIV RNA < 50 copies/mL, 88% ≥200 CD4/mm3) from 21 Spanish HIV Units initiating DRV/c. Thirty-six (5%) patients were excluded due to the lack of eGFR data. Baseline (mean ±SD) eGFR was 94±19 and 4.83% had eFGR below 60 increasing to 8.47% at 48 week, while only 6/761 (0.8%) switched DRV/c therapy due to renal adverse event. Younger age and black ethnicity were independently associated with a better eGFR at baseline. Overall eGFR changes over time and by other drugs known to affect tubular creatinine are shown in the figure A and B respectively. Significant low level eFGR decreases were observed at 12, 24, and 48 weeks, up to 5.01. Concomitant therapy, with either rilpivirine or dolutegravir or both, led to higher not significant decreases of eGFR. After adjusting for other covariates, only RPV (n=21) led to a significant greater decreases of eGFR (mean ±SD) at 48 weeks than having not (n=463) (-11±11 vs. -5±13, P=0.021). Male gender and being treated with concomitant drugs other than antiretroviral therapy were independently associated with greater eGFR decreases at 48 weeks.

Conclusions: Initiation of DRV/c had an initial impact decreasing eGFR followed by a plateau. Male gender and having concomitant drugs other than antiretroviral therapy were associated with worse eGFR at 48 weeks.



[Fig A Overall eFGR, B eFGR according to ARV regimen]

THPEB058

Switching protease inhibitors to rilpivirine in HIV-infected patients with complete viral suppression and without prior HIV drug resistance: A randomized controlled trial

K. Palanuphap[1], S. Sungkanuparph[2]
[1]Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, [2]Faculty of Medicine Ramathibodi Hospital, Mahidol University, Chakri Naruebodindra Medical Institute, Samut Prakan, Thailand

Background: Prior to the availability of rilpivirine (RPV), patients who could not tolerate efavirenz and nevirapine were treated with ritonavir-boosted protease inhibitor (PI)-based antiretroviral therapy (ART). Dyslipidemia and other metabolic complications are commonly associated with PI use. RPV could be an alternative for switching therapy in this population.
Methods: A randomized controlled non-inferiority trial was conducted in HIV-infected patients receiving ritonavir-boosted PI-based regimens with undetectable HIV RNA (< 50 copies/ml) and without prior HIV drug resistance. Patients were randomized to switch from PIs to RPV (Switch Group) or continue ritonavir-boosted PI (Control Group). Primary endpoint was the proportion of patients with undetectable HIV RNA at 48 weeks, with a non-inferiority margin of 12%. Changes in CD4 cell count, lipid profiles, and adverse events were also analyzed.
Results: A total of 84 patients were enrolled, 42 in each group. Mean age was 47.7 years and 53.6% were males. Mean baseline CD4 was 609 cells/mm³. Baseline characteristics including age, gender, body weight, duration of ART, distribution of NRTI and PIs used, CD4, lipid profiles, glucose, alanine transaminase (ALT) and estimated glomerular filtration rate (eGFR) between two groups were similar (p> 0.05).
At 48 weeks, 95.2% of patients in Switch Group and 93.9% of Control Group had maintained undetectable HIV RNA (difference rate 2.4%; 95% CI, -9.6 to 14.7), showing non-inferiority of Switch Group. Mean CD4 was 611 and 641 cells/mm³ in Switch and Control Group, respectively (p=0.632). Mean change in lipid profiles (Switch vs Control Group) were: TG, -78.3 vs -29.5 (p=0.049); TC, -2.5 vs +4.8 (p=0.038); HDL, +2.7 vs +1.7 (p=0.574); and LDL, +4.0 vs +5.0 (p=0.703) mg/dl. Mean change of glucose and eGFR were similar (p> 0.05) between two groups.
Mean change of ALT was significantly greater in Switch Group (18.2 vs 4.0 U/L, p=0.017). One patient in Switch Group had clinical hepatitis at 14 weeks and got complete recovery after RPV discontinuation.
Conclusions: Switching PIs to RPV in patients without HIV drug resistance is non-inferior to continuing ritonavir-boosted PI in maintaining viral suppression at 48 weeks, and results in better triglycerides and total cholesterol. Close monitoring of liver function after switching is recommended.

Pharmacokinetics/pharmacodynamics/ pharmacogenomics and therapeutic drug monitoring

THPEB059

Antiretroviral adverse drug reactions pharmacovigilance in Harare City, Zimbabwe 2017

H.D. Mugauri[1], O. Mugurungi[2], T. Juru[3], N. Gombe[3], M. Tshimanga[4]
[1]Min of Health Zimababwe, AIDS and TB Unit, Bulawayo, Zimbabwe, [2]Min of Health Zimababwe, AIDS and TB Unit, Harare, Zimbabwe, [3]Zimbabwe FETP, Harare, Zimbabwe, [4]University of Zimbabwe, Community Medicine, Harare, Zimbabwe

Background: Key to pharmacovigilance is spontaneously reporting all Adverse Drug Reactions (ADR) during post-market surveillance. This facilitates identification and evaluation of previously unreported ADR's, acknowledging the trade-off between benefits and potential harm of medications. Only 41% ADR's documented in Harare city clinical records for January to December 2016 were reported to Medicines Control Authority of Zimbabwe (MCAZ). We investigated reasons contributing to underreporting of ADR's in Harare city.
Methods: A descriptive cross-sectional study and Centers for Disease Control (CDC) guided surveillance evaluation was conducted. Two hospitals were purposively included. Seventeen health facilities and 52 health workers were randomly selected. Interviewer-administered questionnaires, key informant interviews and WHO pharmacovigilance checklists were used to collect data. Likert scales were applied to draw inferences and Epi info 7 used to generate frequencies and proportions.
Results: Of the 52 participants, 32 (61.5%) distinguished the ADR defining criteria. Twenty-nine (55.8%) knew system's purpose whilst 28 (53.8%) knew the reporting process. Knowledge scored average on the 5-point-Likert scale. Thirty-eight (73.1%) participants identified ADR's following client complaints and nine (1.3%) enquired clients' medication response. Forty-six (88.5%) cited non-feedback from MCAZ for underreporting. Inadequate ADR identification skills were cited by 21 (40.4%) participants. Reporting forms were available in five (26.3%) facilities and reports were generated from hospitals only. Forty-two (90.6%) clinicians made therapeutic decisions from ADR's. Averaged usefulness score was 4, on the 5-point-Likert scale. All 642 generated signals were committed to Vigiflow by MCAZ, reflecting a case detection rate of 4/ 100 000. Data quality was 0.75-1.0 (WHO) and all reports were causally assessed.
Conclusions: The pharmacovigilance system was useful, simple, and acceptable despite being unstable, not representative and not sensitive. It was threatened by suboptimal health worker knowledge, weak detection strategies and referral policy preventing ADR identification by person place and time. Revisiting local policy, advocacy, communication and health worker orientation might improve pharmacovigilance performance in Harare city.

THPEB060

Single-dose fed bioequivalence study of Emtricitabine, Tenofovir Alafenamide and Dolutegravir Tablets (200mg/25mg/50mg) versus DESCOVY® tablets (200mg/25mg; Gilead Sciences) and TIVICAY® tablets (50mg; ViiV Healthcare) in healthy adult volunteers

D. Abhijit[1], C. Santanu[1], R. Chetan[1], G. Sachin[1], R. Bangaru[2], A.K. Datla[2], P. Deshpande[3], A. Kanda[3], E. Patras[3]
[1]Mylan Laboratories Limited, R&D, Hyderabad, India, [2]Mylan Laboratories Limited, Clinical Research Center, Hyderabad, India, [3]Mylan Laboratories Limited, Business Development, Hyderabad, India

Background: The combination of Dolutegravir (DTG) with the fixed dose combination (FDC) of emtricitabine (FTC) and tenofovir alafenamide (TAF) is one of the most frequently used recommended combinations for the treatment of HIV in high-income countries. WHO and several national guidelines recommend DTG as an alternative first- and third-line. The use of TAF is currently not recommended by WHO, also due to open questions on dosing in TB co-infection and pregnancy, however the positioning of the combination of DTG, TAF and FTC is still evolving.
The objective of this study was to compare the relative bioequivalence and safety profiles of Mylan's FTC/TAF/DTG 200mg/25mg/50mg FDC tablets (T) with the reference combination (R) of DESCOVY® (200/25 mg) and TIVICAY® (50 mg) tablets.
Methods: In this open label, randomized, two-period, two-treatment, cross-over, single dose evaluation, the relative oral bioequivalence was tested in 33 healthy adult human subjects under fed conditions. In each period, each subject received a single, oral dose of either Mylan's FTC/TAF/DTG tablets or R. Serial blood samples were collected predose and at 21 timepoints until 72 hours post dose. Subjects were monitored for safety and tolerability. Single-dose pharmacokinetic parameters for FTC/TAF/DTG were calculated using non-compartmental techniques.
Results: Statistical analyses of these data reveal that the 90% confidence intervals are within the acceptable bioequivalent range of 80.00% and 125.00% for the natural log transformed parameters, LNAUCL, LNAUCINF and LNCPEAK for emtricitabine, tenofovir (data not shown), tenofovir alafenamide, and dolutegravir. (Table 1)

Product	Parameter	Arithmetic Mean (%CV) T= Mylan	Arithmetic Mean (%CV) R = Reference	LSMEANS Ratio (T/R)	90% Confidence Interval
FTC	AUCL (ng•hr/mL)	10253 (18.23)	10276 (17.43)	1.00	98.14% - 101.40%
FTC	AUCINF (ng•hr/mL)	10523 (17.84)	10594 (17.31)	0.99	97.82% - 100.91%
FTC	CPEAK (ng/mL)	1986 (24.99)	1923 (27.21)	1.04	96.67% - 111.00%
TAF	AUCL (ng•hr/mL)	230.5 (38.42)	246.7 (46.53)	0.95	88.43% - 101.53%
TAF	AUCINF (ng•hr/mL)	231.7 (39.39)	249.3 (46.84)	0.95	88.41% - 101.07%
TAF	CPEAK (ng/mL)	173.7 (62.51)	180.7 (81.94)	1.00	84.47% - 119.20%
DTG	AUCL (ng•hr/mL)	83109 (30.84)	82440 (27.20)	1.00	95.69% - 104.44%
DTG	AUCINF (ng•hr/mL)	87840 (32.62)	87330 (29.65)	1.00	95.37% - 104.52%
DTG	CPEAK (ng/mL)	4097 (15.69)	4121 (17.35)	1.00	96.83% - 102.72%

[Table 1: Pharmacokinetic Results FTC, TAF and DTG]

The AEs were mild in severity. Overall both R and T were well tolerated when administered as a single, oral dose under fed conditions.
Conclusions: This study demonstrates that Mylan's FTC/TAF/DTG tablets are bioequivalent to a combination of DESCOVY® (200/25 mg) and TIVICAY® (50 mg) as separate tablets following administration of a single, oral dose administered under fed conditions.

THPEB061

Point-of-care drug level testing for adherence assessment of first and second line antiretroviral treatment in resource-limited settings

L.E. Hermans[1,2,3], M. Nijhuis[1], K.C. Kasper[4], R. O'Malley[4], S.J. Oh[4], R. Schuurman[1], H.A. Tempelman[3], W.D.F. Venter[2], D.M. Burger[5], A.M.J. Wensing[1], R. Ter Heine[5]
[1]University Medical Center Utrecht, Translational Virology, Department of Medical Microbiology, Utrecht, Netherlands, [2]University of the Witwatersrand, Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [3]Ndlovu Care Group, Groblersdal, South Africa, [4]ARK Diagnostics, Fremont, United States, [5]Radboud University Medical Center, Department of Pharmacy, Nijmegen, Netherlands

Background: In low and middle income countries, yearly viral load testing is recommended by the WHO for monitoring of antiretroviral treatment (ART). A detectable viral load implies treatment failure and may be caused by drug resistance or insufficient exposure. Point-of-care drug level testing can be useful to objectively assess recent drug intake and prevent unnecessary treatment switching. Our aim was to validate and implement a simple point-of-care drug level test for this purpose in a rural South African clinic.
Methods: We implemented immunoassays (ARK Diagnostics, Fremont, USA) for quantification of efavirenz and lopinavir on a benchtop chemistry system (Thermo-Scientific, Waltham, USA) at the Ndlovu Medical Centre (Elandsdoorn, South Africa). Internal validation was performed with the provided calibrators and controls. External agreement of the assay with a liquid chromatography assay with ultraviolet or mass-spectrometry detection in a reference laboratory was performed by Bland-Altman analysis, as well as calculation of the root mean square prediction error (RMSE%) and percentage mean prediction error (MPE%) in samples of patients treated with efavirenz and lopinavir. Laboratory turnaround time in routine practice was recorded to investigate feasibility.
Results: The immunoassays were accurate and precise. During replicate analysis of spiked control samples (n = 60) for both analytes, >95% of results remained within 20% CV of the reference value. Repeated analysis revealed no time-dependent variation of results. External validation revealed complete agreement between the immunoassay and reference method in classification of efavirenz and lopinavir of detectable versus undetectable levels.
External validation showed that RMSE were 0.26 mg/L for efavirenz and 0.91 mg/L for lopinavir. The MPE were -2.6% and -6.7%, respectively. Bland-Altman analysis showed agreement between assays within 20% in 100% of cases for efavirenz and 94.4% for lopinavir. Notably, 8.3% of patients on efavirenz and 57.4% of patients on lopinavir had undetectable drug levels, indicating non-adherence. During out-patient clinic visits, patient test results could be generated within 30 minutes.
Conclusions: We showed that objective monitoring of adherence to ART in a rural setting is feasible. We are currently prospectively testing the added value of drug level testing in a randomized clinical trial and are validating this assay for dolutegravir.

THPEB062

Female genital tract efavirenz exposure negatively correlates with serum estradiol levels in Malawian women

M.L. Cottrell[1], A.H. Corbett[1], L. Chinula[2,3], A. Msika[3], G. Tegha[3], F. Stanczyk[4], A.P. Kourtis[5], J.H. Tang[2]
[1]UNC Eshelman School of Pharmacy, Chapel Hill, United States, [2]University of North Carolina, Chapel Hill, United States, [3]UNC Project-Malawi, Lilongwe, Malawi, [4]University of Southern California, Los Angeles, United States, [5]Division of Reproductive Health, US Centers for Disease Control and Prevention, Atlanta, United States

Background: Estradiol and progesterone can increase expression and function of the drug transporter P-glycoprotein in the female genital tract (FGT), which could lead to decreased absorption or increased clearance of substrates like efavirenz. To understand whether FGT efavirenz exposure is modulated by endogenous hormones, we conducted a pharmacology substudy of women initiating hormonal contraception in a larger randomized trial (NCT03153709).
Methods: Serum, plasma and cervicovaginal fluid (CVF) obtained via Weck-Cel spears were collected from 58 HIV-infected Malawian women on efavirenz/lamivudine/tenofovir. Serum estradiol and progesterone were quantified using radioimmunoassay. Plasma and CVF efavirenz were quantified using HPLC-MS/MS methods. Spearman rank order correlation was performed to determine the relationship between endogenous hormones and efavirenz concentrations. Values below limits of quantification were imputed at half the lower limit. Data are reported as median (IQR).
Results: Forty-nine women had samples collected during both the follicular (n=58 observations) and luteal (n=49 observations) menstrual cycle phases prior to initiating hormonal contraception. Follicular vs luteal median serum progesterone levels were 0.1 (0.1, 0.295) vs 2.63 (0.3, 5.5)ng/ml; serum estradiol were 43.9 (29.7, 77.7) vs 66.1 (37.5, 99.7)pg/ml; plasma efavirenz were 3490 (2245, 6790) vs 2880 (2315, 6635)ng/ml; and CVF efavirenz were 95.6 (61.4, 227.8) vs 87.1 (43.6, 172.9)ng/swab. Plasma and CVF efavirenz concentrations positively correlated across both phases of the menstrual cycle (rho=0.54 to 0.85, p< 0.001). Efavirenz CVF concentrations negatively correlated with serum estradiol during the follicular (rho= -0.57, p< 0.001) and luteal (rho= -0.42, p=0.002) phases, but were not correlated with serum progesterone (rho= -0.2, p>0.05). Efavirenz plasma concentrations had a weaker, but still significant negative correlation with serum estradiol in the follicular phase (rho= -0.47, p< 0.001), and no correlation in the luteal phase or with serum progesterone (rho= -0.16 and -0.25, p>0.05).
Conclusions: CVF efavirenz concentrations were lower in women with higher estradiol concentrations across both menstrual cycle phases, suggesting more rapid FGT clearance due to hormonal modulation of local drug transporters. As our follicular phase measurements likely did not capture peak estradiol concentrations, future studies to characterize FGT efavirenz exposure within women at peak and trough estradiol exposure are needed to further explore this question.

Drug interactions

THPEB063

Prevalence and management of drug-drug interactions in a rural Tanzanian HIV cohort

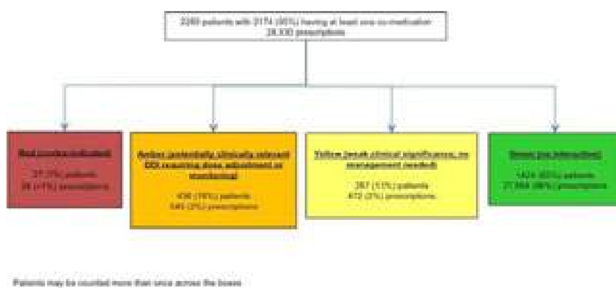
C. Schlaeppi[1], T.R. Glass[1,2], G. Sikalengo[3,4], F. Vanobberghen[1,2], R. Ndege[3,4], G. Foe[4], A. Kuemmerle[1,2], M. Battegay[1,5], C. Marzolini[1,5,6], M. Weisser[1,2,5]
[1]University of Basel, Basel, Switzerland, [2]Swiss Tropical and Public Health Institute, Basel, Switzerland, [3]Ifakara Health Institute, Ifakara, Tanzania, United Republic of, [4]St Francis Referral Hospital, Ifakara, Tanzania, United Republic of, [5]Department of Infectious Diseases & Hospital Epidemiology, Department of Clinical Research, University Hospital Basel, Basel, Switzerland, [6]Department of Molecular and Clinical Pharmacology, Institute of Translational Medicine, University of Liverpool, Liverpool, United Kingdom

Background: With widespread access to antiretroviral therapy (ART) and prolongation of life, comorbidities and use of co-medications among people living with HIV (PLWHIV) are increasing, necessitating a sound understanding of drug-drug interactions (DDI). We aimed to assess the prevalence and management of DDIs with ART in a rural Tanzanian setting.

Methods: We included consenting PLWHIV who initiated ART in the Kilombero and Ulanga Antiretroviral Cohort (KIULARCO) between January 2013 and December 2016. Medications, clinical and laboratory data are recorded prospectively in an electronic database. DDIs were classified using www.hiv-druginteractions.org as red (contra-indicated), amber (interaction of potential clinical relevance requiring dosage adjustment/monitoring), yellow (interaction of weak clinical significance unlikely to require further management) or green (no interaction expected). Management of amber DDIs was assessed by determining frequency of creatinine and blood pressure measurements and by evaluating correct dosing.

Results: Among 2289 participants, 2174 (95%) were prescribed ≥1 co-medication during a median follow-up of 2.6 years. 750 (33%) patients had ≥1 potential DDI with the highest grade being red in 27 (1%) patients, amber in 436 (19%) and yellow in 287 (13%). On a prescription level, of 28,930 co-medication prescriptions, 29 (< 1%) were classified red, 545 (2%) amber and 472 (2%) yellow (Figure). Red DDIs included rifampicin combined with a protease inhibitor or nevirapine. The most common amber DDIs were efavirenz/rifampicin (n=290, 53%), tenofovir/analgesics (diclofenac or ibuprofen; n=110, 20%) and efavirenz/nifedipine (n=49, 9%). The most common requirements for management of amber DDIs were: (a) dose adjustment (n=305 in 268 patients; mainly efavirenz/rifampicin requiring an efavirenz dose of 600mg,which was appropriately given in >90% of patients), (b) creatinine monitoring (n=101 in 85 patients; mainly analgesics (n=57) appropriate creatinine monitoring was performed in 15 (18%) of the patients, and (c) blood pressure monitoring (n=48 in 35 patients, among whom 57% had appropriate blood pressure monitoring.

Conclusions: Co-medication use is high and 19% of patients had amber DDIs requiring further management. Timely monitoring beyond routine care remains a challenge in rural Africa. Reasons might be distance to the clinics and associated costs for patients and health care systems.



[Figure. Drug-drug interactions (DDIs) in a cohort of people living with HIV in rural Tanzania.]

THPEB064

The effect of multivitamins and polyvalent cations on virologic suppression with integrase strand transfer inhibitors

C. James[1], S. Szabo[1], D. Kahal[1], N. Goldstein[2,3]
[1]Christiana Care Health System, HIV Community Program, Wilmington, United States, [2]Christiana Care Health System, Department of Pediatrics, Newark, United States, [3]Drexel University, Department of Epidemiology and Biostatistics, Dornsife School of Public Health, Philadelphia, United States

Background: Integrase strand transfer inhibitors (INSTI) are now widely accepted and utilized as preferred options for antiretroviral therapy (ART) in people living with HIV. Since 2014, clinicians have been increasingly advised of drug interactions with INSTI and polyvalent cations (PVC), such as calcium, iron and zinc. PVC are also included in many multivitamins (MVI) and metal-based antacid preparations, however the clinical significance of these interactions with INSTI has not been documented in the literature. The objective of our study was to evaluate the impact of PVC on virologic suppression with INSTI-based ART.

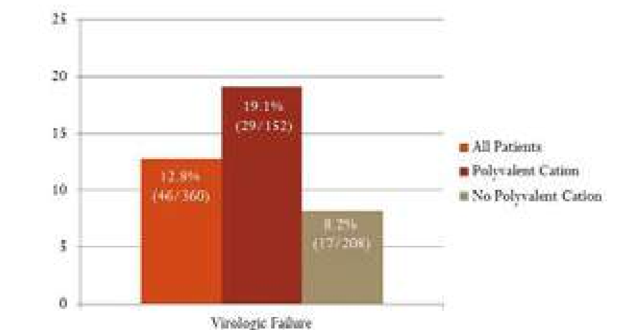
Methods: We conducted a retrospective chart review from July 2012 to September 2017 to identify all patients prescribed an INSTI for at least six months. Medication lists were then queried for concomitant administration of MVI and/or PVC. We evaluated our electronic medical record for any episodes of virologic failure (HIV RNA > 200 copies/ml). Patients with nonadherence, as documented by refill history, were excluded.

Results: Three hundred sixty patients received an INSTI for at least six months during the study period. Of 152 patients who reported taking a PVC (42% of cohort), 99 (65%) reported an MVI and 73 (48%) reported another source. Forty-six patients (12.8%) experienced virologic failure (VF) during follow-up (Figure 1). Patients receiving MVI/PVC had on average 2.4 times the risk of VF (95% CI: 1.4, 5.6; p< 0.01) compared to patients not reporting a PVC, controlling for age, race, and gender. This association was unchanged when accounting for the source of PVC or type of INSTI (dolutegravir, elvitegravir, or raltegravir).

Conclusions: The effect of co-administration of PVC and INSTI-based ART was significant, with more than double the rate of virologic failure in a real world setting. Although recommendations for appropriate separation were evolving over our study period, our data reinforce the importance of ongoing medication reconciliation and patient education. While a larger, prospective trial may be indicated, our study demonstrates that these interactions extend beyond theoretical concerns and have a clinically significant impact on virologic suppression.

	Polyvalent Cation (n=152)	No Polyvalent Cation (n=208)
Gender	Male 91 (60%); Female 61 (40%)	Male 153 (73.6%); Female 55 (26.4%)
Ethnicity	African American 97 (63.8%); Caucasian 41 (27%); Hispanic 14 (9.2%)	African American 144 (69.2%); Caucasian 43 (20.7%); Hispanic 20 (9.6%)
Mean Age	52 years	47 years
INSTI	Dolutegravir 48 (31.6%) Elvitegravir 91 (59.2%) Raltegravir 13 (8.6%)	Dolutegravir 67 (32.2%) Elvitegravir 132 (63.4%) Raltegravir 9 (4.3%)

[Baseline Demographics]



[Incidence of Virologic Failure on INSTI]

Antiretroviral drug resistance

THPEB065

Predicted efficacy of raltegravir, elvitegravir and dolutegravir in patients harboring mutations associated with integrase inhibitor resistance in Argentina: First interim survey

D.M. Cecchini[1,2], S. Castillo[3], G. Copertari[1], V. Lacal[1], C. Rodriguez[2], I. Cassetti[1]
[1]Helios Salud, Buenos Aires, Argentina, [2]Hospital Cosme Argerich, Buenos Aires, Argentina, [3]Laboratorio Dr. Stamboulian, Sección Biología Molecular, Buenos Aires, Argentina

Background: Integrase strand transfer inhibitors (INSTI)-based antiretroviral regimens are highly efficacious at suppression of HIV replication and are recommended for initiation of HIV therapy, as for subsequent regimens. However HIV can become resistant against INSTIs through the emergence of mutations within the integrase coding region. No data on the predicted efficacy of INSTIs in Argentina are available as access to these drugs (particularly, elvitegravir and dolutegavir) and to integrase genotypic resistance test remains limited. We aimed to evaluate the predicted efficay of raltegravir, elvitegravir and dolutegravir in patients harboring INSTI-associated mutations.

Methods: Retrospective multicentric study (period January 2011-November 2017) in Buenos Aires city, Argentina. Samples were processed through a validated *in house* RT-PCR and sequencing assay for detection of HIV-1 INSTI mutations (IRMs). Considering the genotype interpretation system (GIS) of Stanford HIVdb program (version 8.4), the predicted efficacy of each drug was classified within five categories: from susceptible to high-level resistance. The GIS categories "susceptible" and "potential low level resistance" were grouped together as "S" (susceptible), whereas "low level resistance" and "intermediate resistance" were grouped as "I" (intermediate) and the remaining as „R" (resistant).

Results: Sixty seven patients were included: 64.2% were male. The median (IQR) of age, viral load, and CD4 T-cell count were: 43 (23-52) years, 4465 copies/mL (859-27812) and 306/µL (153-499), respectively. Patients had a median of 5 (4-7) prior treatments. All patients had INSTI-containing regimens: median exposure of 22.5 (10-51) months; 94% were under raltegravir therapy. Eighty-two percent had concomitant resistance mutations in retrotranscriptase or protease genes (50% multidrug-resistant). Integrase gene sequencing was successful in 57 (85.1%): 71.9% had IRMs (median: 2 per patient). Predominat major IRMs: N155H (35.1%), Q148H/R (15.8%) and G140A/S (14%). Predominat accesory IRMS: G163R/K (31.6%) and T97A (19.3%). Predicted efficacy of INSTIs is shown in table1.

Category	Susceptible	Intermediate resistance	Resistant
Raltegravir (%)	2.4	21.9	75.6
Elvitegravir (%)	2.4	21.9	75.6
Dolutegravir (%)	68.4	29.3	2.4

[Predicted INSTI resistance in patients harboring integrase resistance mutations]

Conclusions: In a cohort of heavily pretreated, raltegravir-exposed patients in Argentina, extremely low and identical activity of elvitegravir and raltegravir is described, showing extensive cross-resistance. Dolutegravir remains either partially or fully active 97.7% of patients, constituting and extremely important therapeutic option for future regimens. In this context, access to dolutegravir should be warranted.

THPEB066

Long-term virological and immunological outcomes between HIV-infected patients with and without primary HIV drug resistance

K. Singsumran[1], S. Sungkanuparph[2]
[1]Faculty of Medicine Ramathibodi Hospital, Mahidol University, Department of Medicine, Bangkok, Thailand, [2]Faculty of Medicine Ramathibodi Hospital, Mahidol University, Chakri Naruebodindra Medical Institute, Samut Prakan, Thailand

Background: Primary HIV drug resistance (PHDR) has emerged after scaling-up of antiretroviral therapy (ART). Prior studies in Thailand have demonstrated the rate of PHDR at 4.9%-7.9%. There is an association between PHDR and risk of treatment failure and this may affect the survival. This study aimed to compare long-term virological and immunological outcomes between HIV-infected patients with and without PHDR.

Methods: An observational cohort study was conducted in HIV-infected patients who had genotypic resistance test performed prior to ART initiation. Patients were categorized into two groups: PHDR group (patients with PHDR) and control group (patients without PHDR) and followed up for 48 months after ART initiation. HIV RNA and CD4 cell count were evaluated every 6 months after ART initiation. Undetectable HIV RNA was defined as HIV RNA < 50 copies/ml.

Results: Of 112 patients, 13 were in PHDR group and 99 in control group. Mean age was 38.5±10.1 years and 54.5% were males. Baseline median (IQR) CD4 cell count was 179 (52-337) cells/mm^3. Demographics, risk of HIV acquisition, HBV or HCV co-infection, VDRL serostatus and ART regimens were similar between two groups (p > 0.05). Of 13 patients in PHDR group, 38.5%, 46.2% and 15.4% had NRTI, NNRTI and PI resistance mutations, respectively. At 6 months after ART initiation, 40.0% of patients in PHDR group and 79.3% in control group had undetectable HIV RNA (p=0.049). ART regimen was adjusted according to the results of genotypic resistance test and HIV RNA level. The proportions of patients with undetectable HIV RNA at 12, 24, 36, 48 months (PHDR vs control group) were 66.7% vs 94.8%, 100% vs 98.1%, 77.8% vs 100%, and 90% vs 98.7%, respectively (all p > 0.05). Mean CD4 change at the corresponding periods (PHDR vs control group) were +109 vs +210, +125 vs +255, +241 vs +330, +292 vs +333 cells/mm^3, respectively (all p > 0.05). No patient died or developed new opportunistic infection.

Conclusions: HIV-infected patients with PHDR have less early virological response than those without PHDR. Genotypic resistance test prior to ART initiation has contributed to the long-term virological and immunological success that similar to patients without PHDR.

THPEB067

High levels of HIV drug resistance in Nicaragua: Results from the first nationally representative survey, 2016-2017

R. Mendizabal-Burastero[1], S. Avila-Rios[2], A. Giron-Callejas[1], C. Garcia-Morales[2], S. Northbrook[3], G. Ravasi[4], G. Reyes-Teran[2], Nicaraguan HIVDR Group
[1]Universidad del Valle de Guatemala, Centro de Estudios en Salud, Guatemala, Guatemala, [2]National Institute of Respiratory Diseases, Research Center in Infectious Diseases, Mexico, Mexico, [3]U.S. Centers for Disease Control and Prevention, Central America Regional Office, Guatemala, Guatemala, Guatemala, [4]Pan-American Health Organization, Washington D.C., United States

Background: Low levels of viral load suppression and emergence of HIV drug resistance (HIVDR) might compromise efforts to achieve 90-90-90 targets by 2020. We conducted the first nationally representative survey to estimate the prevalence of pretreatment drug resistance (PDR) and acquired drug resistance among persons living with HIV on ART for 12±3 months (ADR12) and ≥48 months (ADR48) following WHO guidelines

Methods: The survey design was based on a probability proportional to proxy size sample considering 19 out of 45 ART clinics to participate in the survey (excluding ART clinics that represented < 10% of the national cohort of PLHIV on ART). We recruited eligible participants consecutively for 8 months in 2016. All patients provided written informed consent to participate in the survey. HIV Viral Load (VL) was measured using a

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RTqPCR assay. We assessed HIVDR using Sanger sequencing and the Stanford HIVdb algorithm at a WHO designated regional genotyping laboratory. All analysis accounted for the survey design.
Results: We enrolled 649 participants: 174 PDR, 115 ADR12, and 360 ADR48. Most of ART initiators were drug-naive (87.3%). Overall PDR prevalence was 23.7% (95%CI 17.9-30.6%), mostly related to NNRTI resistance (19.1 %). Among PLHIV on ART for 12±3 and ≥48 months viral suppression rate was 74.7% (95%CI 66.1-81.8%) and 67.2% (95%CI 62.2-71.9), respectively. ADR12 prevalence among patients with VL≥1,000 copies/ml was 82.1% (95%CI 64.4-92.1%), 75.0% to NNRTI, and 57.1% to both NNRTI and NRTI. ADR48 prevalence among patients with VL≥1,000 copies/ml was 80.0% (95%CI 71.7-86.3%), 75.6% to NNRTI, and 67.55% to both NNRTI and NRTI. ADR to at least one ARV of the preferred second-line regimen, among patients on first-line regimen with VL≥1,000 copies/ml, was 62.1% and 64.8% at 12±3 and >48 months, respectively.
Conclusions: High level of PDR associated with NNRTI resistance. Urgent consideration of non-NNRTI based first line regimens for ART initiators is needed. Viral load suppression rates were lower than 75% among patients on ART, with high proportion of HIVDR in patients with VL≥1,000 copies/ml. Our findings underscore the need to evaluate current ART regimens, and monitor ART adherence and timely VL monitoring to mitigate the impact of high HIVDR in Nicaragua.

THPEB068

Understanding the resistance profile of the HIV-1 NNRTI doravirine in combination with the novel NRTTI MK-8591

D. Hazuda, M. Xu, W. Ngo, M. Feng, C. Hwang, J. Grobler, M.-T. Lai
Merck Sharp & Dohme, West Point, United States

Background: Doravirine (DOR) is a novel nonnucleoside reverse transcriptase inhibitor (NNRTI) with improved potency against common NNRTI-associated resistance mutants as compared to the other approved NNRTIs. MK-8591 is a novel and potent nucleoside reverse transcriptase translocation inhibitor (NRTTI). The combination of DOR and MK-8591 is currently being studied in Phase 2. It has previously been reported that the NNRTI-associated substitution Y181C confers hypersusceptibility to MK-8591. This study aimed to characterize the effect of DOR-selected NNRTI resistant mutants from Phase 3 trials on MK-8591 as well as evaluate the resistance profile of DOR in combination with MK8591 in vitro.
Methods: HIV-1 mutant viruses were generated via a site-directed mutagenesis (SDM) method with gene synthesis and subcloning into plasmid RT112 (R8). These mutants were tested for susceptibility to MK-8591 and 3TC in MT4-GFP cells. In vitro resistance selection studies were performed with MT4-GFP cells in a 96-well plate format. The following combinations were evaluated: DOR/MK8591, DOR/3TC and DTG/3TC. For every passage, the plates were scanned to monitor viral replication by analyzing the intensity of green fluorescence. When evidence of virus breakthrough was observed, the supernatant was removed and the virus subjected to genotyping analysis of the HIV-1 RT region.
Results: In Phase 3 trials of DOR, seven of 747 (0.9%) patient developed NNRTI mutations, predominately F227C with additional substitutions. SDM viruses were generated with RT Y188L, A98G/F227C, V106I/F227C, V106I/H221Y/F227C, A98G/V106I/H221Y/F227C, V106A/P225H/Y318F, and V106M/F227C. Most of these mutants exhibited a fold change (FC) >100 (mutant$_{EC50}$ versus WT$_{EC50}$) to DOR. In contrast, viruses with F227C alone or in combination (A98G/F227C, V106I/F227C, V106M/F227C, and V106I/H221Y/F227C) were 2X or greater more susceptible to MK-8591 whereas no change in susceptibility to 3TC. The combination of DOR/MK8591 was less susceptible to breakthrough compared to either DOR/3TC or DTG/3TC. Mutations identified in DOR/MK-8591 combination were mostly DOR-associated mutations whereas M184V/I were identified with the DTG/3TC.
Conclusions: DOR-associated clinical mutants containing F227C, alone or in combination, are hypersusceptible to the NRTTI MK-8591. This hypersensitivity may, in part, explain the observation that the combination of DOR with MK-8591 has a higher barrier to resistance development than the combination of DOR/3TC or DTG/3TC in vitro.

THPEB069

HIV-1 subtype A1 and D polymorphisms associated with resistance to dolutegravir in INSTI-naïve individuals in Uganda

G.Q. Lee[1,2,3], S. McCluskey[3,4], K. Kamelian[2], Y. Boum[5], M.B. Bwana[5], C. Muzoora[5], P.W. Hunt[6], J.N. Martin[6], D.R. Bangsberg[7], J.E. Haberer[4], P.R. Harrigan[2], M.J. Siedner[3,4,5]
[1]Ragon Institute of MGH, MIT and Harvard, Cambridge, United States, [2]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada, [3]Harvard Medical School, Boston, United States, [4]Massachusetts General Hospital, Boston, United States, [5]Mbarara University of Science and Technology, Mbarara, Uganda, [6]University of California, San Francisco, United States, [7]Oregon Health Sciences University, Portland, United States

Background: In light of an alarming increase in pretreatment drug resistance (PDR) in sub-Saharan Africa, the World Health Organization organized a special meeting in 2017, which recommended large-scale roll-out of dolutegravir (DTG) as a component in first-line regimens in countries with over 10% PDR. However, little is known about the prevalence of natural resistance to DTG in circulating non-subtype B HIV-1 in the region. This study retrospectively examined HIV-1 integrase sequences from an integrase-inhibitor (INSTI) naïve cohort in Uganda to estimate the prevalence of baseline polymorphisms associated with DTG-resistance in HIV-1 subtypes A1 and D.
Methods: Specimens were drawn from the Uganda AIDS Rural Treatment Outcomes (UARTO) cohort and included 81 pilot subjects enrolled from Kampala during 2002-2004 and 500 subjects enrolled from Mbarara during 2005-2010. Samples were collected just prior to initiation of NNRTI-based antiretroviral therapy. HIV-1 integrase was amplified using nested-PCR and Sanger-sequenced (HXB2 4230-5093). Stanford HIV Drug Resistance Database HIVDB 8.4 was used to infer clinically significant INSTI-associated mutations.
Results: Samples from 58 treatment-naïve individuals in Kampala (subtype: 53% A1, 43% D), and 454 individuals in Mbarara (subtype: 52% A1, 41% D) successfully yielded HIV-1 integrase genotyping results. In Kampala and Mbarara respectively, 0/58 (0%) and 6/454 (1.3%) had any major INSTI-associated mutations. Of the six major INSTI mutations, two were E138T (both subtype A1; HIVDB "potential low-level DTG resistance"), three were E138E/K (all subtype D; HIVDB "potential low-level DTG resistance"), and one was T66T/I (subtype D; HIVDB "susceptible to DTG"). No subjects had mutations at the canonical Q148, Y143 or N155 sites that had been traditionally associated with high level of INSTI resistance.
Conclusions: In n=512 Ugandans infected with subtype A1 and D HIV-1, we detected no HIV-1 polymorphisms associated with high levels of dolutegravir resistance. However, we detected five cases of E138K/T, which when occur alone, do not confer DTG resistance, but in combination with Q148 mutations, is known to reduce DTG susceptibility up to 10-fold. Our results support a widespread rollout of DTG, but careful monitoring of patients with virologic failure is warranted to further classify the most relevant mutations for non-subtype B viruses.

THPEB070

Comprehensive analysis of the antiviral activity of cabotegravir against HIV-2 isolates and INI-resistant HIV-2 mutants

R.A. Smith[1], V.H. Wu[1], C.G. Zavala[1], D.N. Raugi[1], S. Ba[2], M. Seydi[2], G.S. Gottlieb[1], UW-Dakar HIV-2 Study Group
[1]University of Washington, Medicine/ AID, Seattle, United States, [2]SMIT, CHNU-FANN, UCAD, Dakar, Senegal

Background: Cabotegravir (S/GSK1265744; Shinogi/GlaxoSmithKline) is a second-generation integrase inhibitor (INI) in development for the prevention and treatment of HIV-1 infection. To evaluate the potential use of cabotegravir for HIV-2 treatment, or as a component of pre-exposure prophylaxis (PrEP) in HIV-2-endemic settings, we determined the antiviral activity of the drug against HIV-2 in both single-cycle and spreading infection assays. We also measured the activity of cabotegravir against a comprehensive panel of clinically-relevant, INI-resistant HIV-2 variants.

Methods: We tested a total of 14 HIV-2 isolates (8 group A and 6 group B) from treatment-naïve individuals and >50 site-directed HIV-2_{ROD9} integrase mutants (group A) for susceptibility to cabotegravir in the MAGIC-5A assay. A subset was further tested in six-day spreading infections of an immortalized T cell line (CEMss). In both assay formats, HIV-1 isolates and site-directed HIV-1 integrase mutants were included in the analysis as control/comparator strains.

Results: Cabotegravir inhibited HIV-1 and HIV-2 isolates with comparable potency; 50% effective concentrations (EC_{50}) ranged from 1.3-2.2 nM for HIV-1 and 0.9-4.1 nM for HIV-2 in the single-cycle assay (p=0.19, Welch's *t* test). In spreading infections, EC_{50} values for four HIV-2 isolates were comparable to that of HIV-$1_{NL4\text{-}3}$ (140-630 pM versus 150 ± 30 pM, respectively). HIV-2_{ROD9} variants with mutations in the Y143C/G/H/R pathway were fully susceptible or, in some cases, slightly hypersusceptible to cabotegravir. The Q148K change alone, or the combination of G140S with Q148H, K or R, resulted in high-level resistance to the drug (>100-fold increase in EC_{50}, relative to the parental HIV-2_{ROD9} clone). Resistance levels for N155H-pathway mutants of HIV-2_{ROD9} varied from 2-60-fold depending on the number and combination of secondary changes in the integrase protein.

Conclusions: Cabotegravir effectively interrupts the replication of HIV-2 isolates from treatment-naïve patients with EC_{50} values in the low-nanomolar to picomolar range. Cabotegravir also inhibits Y143 mutants of HIV-2 integrase; genotypes G140A/S+Q148H/K/R and E92A/Q+N155H+additional secondary changes confer moderate to high-level resistance to the drug. Cabotegravir is the second example (along with MK-8591 / EFdA) of a drug with potent antiviral activity against HIV-2 and the potential for long-acting parenteral administration.

THPEB071

Resistance through week 48 in the DAWNING study comparing dolutegravir (DTG) plus 2 nucleoside reverse transcriptase inhibitors (NRTIs) compared with lopinavir/ritonavir (LPV/r) plus 2 NRTIs in second-line treatment

R. Wang[1], J. Horton[2], J. Hopking[2], K. King[3], K. Smith[1], M. Aboud[4], B. Wynne[5], J. Sievers[4], M. Underwood[1]
[1]*ViiV Healthcare, Research Triangle Park, United States,* [2]*GlaxoSmithKline, Stockley Park, United Kingdom,* [3]*PAREXEL, Glendale, United States,* [4]*ViiV Healthcare, Brentford, United Kingdom,* [5]*ViiV Healthcare, Upper Merion, United States*

Background: DAWNING is a Phase 3b non-inferiority study comparing DTG plus 2 NRTIs with a WHO-recommended regimen of LPV/r + 2 NRTIs in HIV-1 infected adults failing first-line therapy (HIV-1 RNA ≥400 copies [c]/mL) of a non-nucleoside reverse transcriptase inhibitor (NNRTI) + 2 NRTIs (ClinicalTrials.gov: NCT02227238). This analysis explores 48-week resistance outcomes.

Methods: DAWNING is a Phase 3b non-inferiority study comparing DTG plus 2 NRTIs with a WHO-recommended regimen of LPV/r + 2 NRTIs in HIV-1 infected adults failing first-line therapy (HIV-1 RNA ≥400 copies [c]/mL) of a non-nucleoside reverse transcriptase inhibitor (NNRTI) + 2 NRTIs (ClinicalTrials.gov: NCT02227238). This analysis explores 48-week resistance outcomes.

Results: Eleven DTG subjects and 30 LPV/r subjects met CVW criteria through Week 48. Baseline NRTI mutation M184I/V alone, and pathways K65R or M184I/V +≥ one other major NRTI mutation were common (Table).

One subject receiving DTG+3TC+AZT with HIV-1 subtype C had NRTI mutations K70E+M184V at Baseline; NRTI mutation M184V and INSTI mutation mixture H51H/Y+G118R+E138E/K+R263R/K were observed at Week 48 CVW with DTG fold-change in IC50 vs wildtype (FC) = 15.

At Baseline and Week 48, INSTI replication capacity (RC) was 236 and 36, and RT/PR RC was 41 and 41, respectively. A second subject receiving DTG+FTC+TDF, with HIV-1 subtype B, had NRTI mutations M184V+K219K/E at Baseline; NRTI mutations D67N+M184V and INSTI mutation G118R were observed with DTG FC= 30 at Week 36 CVW.

At Baseline and Week 36 INSTI RC was 103 and 5.6 and RT/PR RC was 83 and 97, respectively. 3 LPV/r subjects had emergent NRTI but no PI mutations.

Conclusions: In DAWNING most subjects in each arm had Baseline M184I/V alone or with additional major RT mutations (82% across study). Despite this, three times fewer DTG subjects met CVW criteria than LPV/r subjects, and treatment emergent INSTI resistance was rare. The two patients with treatment emergent INSTI resistance substitutions showed increases in FC to DTG and substantial decreases in INSTI replication capacity.

Baseline NRTI Mutation(s)	DTG				LPV/r			
	N[1] (%)	CVW (n)	INSTI[2] (n)	NRTI[3] (n)	N (%)	CVW (n)	PI[3]	NRTI (n)
M184I/V only	77 (25%)	3	0	0	85 (27%)	10	0	0
M184I/V + ≥1 NRTI[4]	184 (59%)	4	2	1	167 (54%)	10	0	2[5]
K65R only or + ≥1 NRTI[6]	16 (5%)	1	0	0	17 (5%)	2	0	0
Other[7]	7 (2%)	1	0	0	8 (3%)	0	0	0
None[8]	30 (10%)	2	0	0	33 (11%)	8	0	1[9]
Total	314	11	2	1	310	30	0	3

1. Two subjects randomized to LPV/r arm received DTG and are counted here in the DTG arm. 2. From prespecified INSTI list (H51Y, T66A/I/K, L74M, E92Q/V/G, Q95K, T97A, G118R, F121Y, E138A/K/D, G140A/C/S, Y143C/H/R/K/S/G/A, P145S, Q146P, S147G, Q148H/K/R, V151I/L/A, S153F/Y, N155H/S/T, E157Q, G163R/K, S230R, R263K, L68V/I, L74I, E138T, V151I, G193E). 3. IAS major substitutions. 4. Including K65R. 5. Both subjects had K65R and M184I/V at Baseline, each with treatment emergent K219K/Q or with K219K/E+K70K/Q/R. 6. Excluding M184I/V. 7. IAS major NRTI substitutions, excluding M184I/V and K65R. 8. No IAS major NRTI substitutions. 9. Treatment-emergent K70K/R+M184V.

[Table 1]

THPEB072

Good short-term outcomes despite extensive pre-3rd-line HIV drug resistance in Kenya

S. Goodrich[1,2,3], A. Gardner[1,2,3], C. Ngetich[2,4], S. Ali[2,3], J. Humphrey[1,2,3], B. Jakait[2,4], R. Kantor[5]
[1]*Indiana University School of Medicine, Medicine - Infectious Diseases, Indianapolis, United States,* [2]*Academic Model Providing Access to Healthcare, Eldoret, Kenya,* [3]*Moi University School of Medicine, Medicine, Eldoret, Kenya,* [4]*Moi Teaching and Referral Hospital, Eldoret, Kenya,* [5]*Brown University Alpert Medical School, Providence, United States*

Background: Essential 3rd-line antiretroviral therapy (ART) is emerging in resource-limited settings (RLS), where limited access to medications and treatment monitoring exist. Characterizing resistance before guidelines-directed 3rd-line initiation, and post-initiation viral outcomes can assist treatment programs to successfully sustain long-term ART.

Methods: We investigated pre-3rd-line intermediate-high-level and low-intermediate-high-level resistance, and post-switch viral load (VL) and mortality at the HIV Resistance Clinic, which follows patients considered for 3rd-line ART at the Academic Model Providing Access to Healthcare (AMPATH) in Eldoret, Kenya, a large HIV program caring for >80,000 patients. Participants were included if they

(i) were followed at the Clinic between January 2015 (Clinic opening) and January 2018;

(ii) had ≥ 2 VLs >1,000 copies/mL despite enhanced adherence intervention on lopinavir/ritonavir- or atazanavir/ritonavir-based 2nd-line ART; and

(iii) had genotypic drug testing confirming multi-class resistance, required by World Health Organization (WHO) and Kenya guidelines to change to 3rd-line medications (darunavir, etravirine, raltegravir, dolutegravir).

Results: Of 227 patients on 2nd-line ART (37% male; median age 39 years (IQR 21-53) referred to the HIV Resistance Clinic, 29 (13%; mean time on ART 8 years; mean VL 166,506 copies/mL) required change to 3rd-line. Intermediate to high-level pre-3rd-line resistance was seen in 29/29 (100%) to two classes, and 19/29 (66%) to three classes. This extensive resistance involved 3rd-line medications darunavir (6/29; 21%), etravirine (13/29; 45%) and tenofovir (11/29; 38%). Low to high-level pre-3rd-line resistance to three classes was seen in 23/29 (79%), involving 3rd-line medications darunavir (11/29; 38%), etravirine (18/29; 62%) and tenofovir (20/29; 69%). All 29 3rd-line patients were living and 22/23 (96%) on 3rd-line ≥ 6 months had VL < 1,000 copies/mL. Of the 7 remaining, 6 were on 3rd-line < 6 months and 1 was severely stressed.

Conclusions: In a large Kenyan HIV-program most viremic patients on 2nd-line ART responded to continued 2nd-line ART with enhanced adherence counseling. Despite extensive pre-switch resistance, in the 14% eligible for 3rd-line switch per WHO guidelines mortality was 0% and viral suppression was 96% for those on 3rd-line ≥6 months . Longer follow-up is required to substantiate these findings, particularly significant with expected increase in 2nd and 3rd-line ART access in RLS.

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THPEB073

Antiretroviral drug resistance in cell-associated HIV-1 DNA during suppressive protease inhibitor (PI) - based second-line antiretroviral therapy (ART)

A. Abdullahi[1], J. Torimiro[2], O.M. Fopoussi[1,2], A. Beloukas[1], V.F. Defo[2,3], C. Kouanfack[3], A.M. Geretti[1]
[1]University of Liverpool, Institute of Infection and Global Health, Liverpool, United Kingdom, [2]Chantal Biya International Reference Centre for Research on HIV/AIDS Prevention and Management, Yaoundé, Cameroon, [3]Day Hospital, Yaoundé Central Hospital, Ministry of Public Health, Yaoundé, Cameroon

Background: Emergence of resistance is common after failure of first-line ART with 2NRTIs + NNRTI and is typically characterised by mutations affecting both drug classes. However, in sub-Saharan African populations, detection of NRTI resistance-associated mutations (RAMs), and specifically thymidine analogue mutations (TAMs) and the 3TC/FTC mutation M184V, has not been found to reduce the likelihood of virological suppression on second-line therapy with 2NRTIs + PI/r. To gain further insight into the significance of NRTI resistance, this study characterised the resistance profiles of patients established on second-line PI-based ART in Yaoundé and showing a stably suppressed plasma viral load (pVL), using HIV-1 DNA from peripheral blood mononuclear cells (PBMC).

Methods: HIV-1 DNA was quantified in PBMC by real-time PCR. RAMs in reverse transcriptase and protease were detected by Sanger sequencing of HIV-1 DNA. The genotypic susceptibility score (GSS) of the PI-based regimen was determined using the Stanford HIV drug resistance algorithm.

Results: Participants (n=94) had received PI-based ART for a median of 3.1 years (IQR 1.3, 5.4) and were predominantly receiving TDF/3TC (87/94, 93%; Table 1). pVL suppression (< 60 copies/ml) was documented by two measurements taken at a median of 7 weeks apart (IQR 5-12). No previous pVL measurements were available. HIV-1 DNA was measured and sequenced in all subjects. Overall, 53/94 (56%) patients had ≥1 major NRTI RAM (Table 2). The GSS score of the PI-based regimen was median 2 (IQR 2, 3). Among subjects on TDF/3TC, prevalence of predicted intermediate- or high-level TDF resistance was 8/87 (9%) and 4/87 (5%), respectively; ignoring co-occurrence of M184V (and its beneficial effect on TDF susceptibility) increased the prevalence of intermediate to high-level TDF resistance to 14/87 (16%). HIV-1 subtypes were CRF02_AG in 51/94 (56%) patients and highly diverse in the remaining population.

Conclusions: In this NRTI-experienced cohort receiving suppressive PI-based therapy most subjects retained predicted susceptibility to TDF, reflecting the predominance of mutational profiles that are known to have limited phenotypic effects on tenofovir.

Total number, n (%)	94 (100)
Female, n (%)	70 (74)
Age, median years (IQR)	44.3 (38.0, 51.7)
History of AIDS defining disease, n (%)	19 (20)
CD4 count, median cells/mm³ (IQR)	467 (341, 616)
Nadir CD4 count median cell/mm³ (IQR)	92 (36, 173)
HIV-1 DNA, median $\log_{10}$ copies/10^6 PBMC (IQR)	2.9 (2.4, 3.2)
Time since HIV diagnosis, median years (IQR)	8.5 (5.8, 10.4)
Duration of ART, median years (IQR)	7.5 (5.3, 9.4)
Duration of NNRTI-based ART, median (IQR)	3.8 (1.9, 6.0)
Duration of PI-based ART, median years (IQR)	3.1 (1.3, 5.4)
Exposure to AZT, n (%)	83 (88)
Duration of AZT, median years (IQR)	2.3 (1.4,4.6)
Exposure to d4T, n (%)	37 (39)
Duration of d4T, median years (IQR)	2.6 (1.3,4.1)
Exposure to TDF, n (%)	87 (93)
Duration of TDF, median years (IQR)	2.9 (1.6,4.7)
Exposure to 3TC, n (%)	94 (100)
Duration of 3TC, median years (IQR)	6.9 (5.0, 9.1)
Receiving TDF/3TC + LPV/r, n (%)	85 (91)
Receiving TDF/3TC + ATV/r, n (%)	2 (2)
Receiving ABC + ddI + LPV/r, n (%)	5 (5)
Receiving ZDV/3TC + LPV/r, n (%)	2 (2)
GSS of current regimen, median (IQR)	2 (2,3)

[Table 1: Study population]

	N, (%)		
NRTI RAMs	53 (56)	L74V/I	5 (5)
NNRTI RAMs	56 (60)	Q151 complex	3 (4)
PI RAMs[a]	3 (3)	T69 ins	1(1)
NRTI RAMs category			
M184V/I	48 (51)		
TAM profile 1 (41, 210, 215Y)	10 (11)	a	Three patient had D30N; none had previous exposure to nelfinavir or atazanavir; their sequences were not phylogenetically related
TAM profile 2 (67, 70R, 251F, 219)	20 (21)		
TAM mixed ½ profile	5 (5)		
K65R	3 (3)		

[Table 2: Resistance associated mutations (RAMs)]

THPEB074

Global registry of HIV-1 patients experiencing virological failure on dolutegravir containing antiviral regimens

L.M. Hofstra[1], J.J.A. Van Kampen[2], M. Nijhuis[1], A. Van Kessel[3], A.A.K. Samat[3], C. Devaux[4], C.A.B. Boucher[2], A.M.J. Wensing[1]
[1]University Medical Center Utrecht, Medical Microbiology, Utrecht, Netherlands, [2]Erasmus MC, Rotterdam, Netherlands, [3]European Society for Translational Antiviral Research, Utrecht, Netherlands, [4]Luxembourg Institute of Health, Infection and Immunity, Luxembourg, Luxembourg

Background: The genetic barrier to resistance for dolutegravir is reported to be higher than for first-generation integrase inhibitors (INI). In clinical trials of dolutegravir cART in therapy-naive individuals, selection of resistance in integrase was not observed. In trials in patients with prior failure of INI, a decreased virological response was observed in the presence of multiple integrase resistance mutations at baseline. In clinical practice, virological failure, although rare, is being observed for both naïve and INI pretreated patients often without selection of obvious resistance mutations. Recent data suggest that resistance may emerge outside the integrase encoding gene in the 3'-polypurine tract (3'-PPT) region. For a better understanding of dolutegravir resistance systematic analysis of otherwise scattered information on individual patient cases of dolutegravir therapy failure is urgently needed.

Description: The European Society for translational Antiviral Research (ESAR) has opened a global registry to which anonymised clinical cases of failure on dolutegravir containing regimens can be submitted. Submission forms can be retrieved via www.esar-society.eu. If samples are available genotypic sequencing of integrase and 3'-PPT is performed. In selected cases phenotypic integrase susceptibility analysis is performed (fold change (FC) in IC50 compared to HxB2). Participants receive full reports of results. Currently, 27 cases of dolutegravir failure in patients infected with various HIV-subtypes have been collected.

Lessons learned: While the registry is growing several preliminary conclusions can be drawn. Upon failure only secondary resistance associated mutations or mutations with unknown relevance are detected in integrase. In INI-naïve patients therapy failure can be observed in plasma as well as the CNS compartment with low level phenotypic resistance to dolutegravir (FC 1.3-1.6). In INI pretreated patients high level resistance to dolutegravir (FC 160-244) can be observed despite the absence of integrase mutations at position 140 and 148.

Conclusions/Next steps: Selection of resistance to dolutegravir is not impossible. Considering the envisioned global uptake of dolutegravir comprehensive information on resistance is essential. ESAR invites clinicians to submit cases of dolutegravir failure to this continuous and comprehensive global registry to assist guidelines and interpretation algorithms to ensure appropriate future application of the integrase drug class.

THPEB075

Predicting in vitro resistance phenotypes for HIV protease and integrase inhibitors using sequences from treated and non-treated individuals

V. Montoya[1], W. Zhang[2], A. Shahid[2], R.P. Harrigan[1]
[1]B.C. Centre for Excellence in HIV/AIDS, Vancouver, Canada, [2]University of British Columbia, Medicine, Vancouver, Canada

Background: A strategy for inferring the in vitro resistance phenotype was developed for HIV protease and integrase inhibitors based solely upon the population prevalence of mutations from previously treated and non-treated individuals.

Methods: The Stanford HIV database was used to retrieve subtype B HIV protease (n=57,138) and integrase (n=6,738) sequences along with their corresponding treatment information. Prevalence ratios were calculated for each position from treated (~16,453/ ~1,007) and non-treated (~ 42,177/~ 5,235) individuals. The logged sum of these ratios was used as a 'resistance score' for each individual and, for each drug available, was compared with PhenoSense and Antivirogram.

The ability of the resistance score to predict drug susceptibility was measured with receiver operating characteristic (ROC) and precision-recall (PR) curves using manufacturer-specific PhenoSense IC_{50} thresholds for decreased susceptibility.

The capacity of the resistance score to function as a genotypic algorithm was then assessed using an independent dataset composed of protease (33,600) and integrase (3,298) sequences from HIV infected individuals in British Columbia. Using the prevalence ratios generated from the phenotypic dataset, the resistance scores were compared with two genotypic resistance algorithms (Virco for protease and the Stanford HIVdb algorithm for integrase).

Results: For each drug, the correlation coefficients between the PhenoSense/Antivirogram IC_{50} values and the resistance score ranged from 0.47-0.84 (PhenoSense average: 0.66, Antivirogram average: 0.69). Separating the data into a training (75%) and validation (25%) dataset, a threshold generated from ROC curves (area under the curve 0.94) yielded a sensitivity of 0.95 and a specificity of 0.85 for classification. For the genotypic dataset, a strong correlation was also observed where sensitivities and specificities for protease inhibitors were ~0.95/~0.90 and ~0.95/~0.7 for integrase inhibitors, respectively.

Conclusions: These results suggest that mutation prevalence ratios from prior treatment data can be used to predict phenotypes without any other phenotypic data.

THPEB076

HIV antiretroviral treatment among 2+ drug class resistant patients in the US

J. Deemer, J. Spindel, D. Rogers
Ipsos, New York, United States

Background: Standard HIV treatment is typically comprised of at least three drugs to reduce the likelihood of the virus developing a resistance. As resistances develop, combination antiretroviral therapies (ARTs) become increasingly complex and thus increase the daily pill burden. Since 2016 there has been a visible trend of lowering the pill burden for patients with 2+ drug-class resistance (2+DCR). The objective of our study is to examine the benefits of a lower pill burden for 2+DCR treatment-experienced HIV+ patients in the US.

Methods: Data from the Ipsos HIV US Therapy Monitor, a syndicated retrospective patient chart audit running since 1994 was used for this analysis. Each quarter, ~200 physicians from across the nation provide demographic, disease and treatment data on ~4000 HIV+ patients.

Results: In 2017, Elvitegravir/Cobicistat/Emtricitabine/Tenofovir Alafenamide Fumarate +darunavir (E/C/F/TAF +DRV) was the most prescribed regimen among patients with 2+DCR in the US. The proportion of patients on this regimen increased significantly (p< 0.01) from 4.2% in 2016 to 13.3% in 2017. A significant decrease (p< 0.05) of E/C/F/TAF +DRV patients on their 3+ line of therapy was seen in 2017 compared with 2016, suggesting that 2+DCR patients switching to E/C/F/TAF +DRV are less likely to change regimens again.

In 2016, 89.4% of E/C/F/TAF +DRV patients were previously on 3+ pill regimens, with 64.3% taking 4+ pills. In 2017, 66.2% of E/C/F/TAF +DRV patients were previously on 3+ pill regimens, with 82.4% taking 4+ pills. Top reasons for switching to E/C/F/TAF +DRV include simplification and virologic failure. The top reason for prescribing is potency in reducing viral load.

Conclusions: E/C/F/TAF +DRV use increases as 3+ pill regimen prevalence decreases among 2+DCR patients. The greater usage suggests that a STR +DRV regimen is a viable option for 2+DCR patients seeking lower pill burdens.

THPEB077

HIV-1 subtype (B or non-B) had no impact on the efficacy of B/F/TAF or resistance development in five phase 3 treatment-naïve or switch studies

R. Acosta[1], K. White[1], W. Garner[2], X. Wei[2], K. Andreatta[1], M. Willkom[1], C. Kityo[3], A. Avihingsanon[4], S. Romanova[5], F. Maggiolo[6], Y. Yazdanpanah[7], C. Orkin[8], J. Rockstroh[9], E. DeJesus[10], D. SenGupta[11], T. Makadzange[11], H. Graham[11], H. Martin[11], E. Quirk[11]
[1]Gilead Sciences, Clinical Virology, Foster City, United States, [2]Gilead Sciences, Biostatistics, Foster City, United States, [3]Joint Clinical Research Centre, Kampala, Uganda, [4]Thai Red Cross AIDS Research Centre (HIV-NAT), Bangkok, Thailand, [5]Center for Prevention and Treatment of AIDS and Infectious Diseases, St. Petersburg, Russian Federation, [6]ASST Papa Giovanni XXIII - Azienda Ospedaliera Papa Giovanni XXIII, Bergamo, Italy, [7]Groupe Hospitalier Bichat Claude Bernard, Paris, France, [8]Barts Health NHS Trust, Royal London Hospital, London, United Kingdom, [9]Universitätsklinikum Bonn, Bonn, Germany, [10]Orlando Immunology Center, Orlando, United States, [11]Gilead Sciences, Clinical Research, Foster City, United States

Background: Globally, most people living with HIV are infected with non-B subtype HIV-1. Bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) is a potent, once-daily, single tablet regimen for treatment of HIV-1 infection, with in vitro activity against all B and non-B subtypes. Here, we present an expanded analysis of B/F/TAF efficacy by HIV-1 subtype and pre-existing resistance mutations in treatment-naïve and virologically-suppressed switch study participants.

Methods: Participants from five Phase 3 B/F/TAF studies—GS-US-380-1489 and GS-US-380-1490 (naïve; n=1274), and GS-US-380-1844, GS-US-380-1878, and GS-US-380-1961 (switch; n=1610)—were included. HIV-1 genotype and subtype were determined at baseline for all naïve study participants, and for a subset in the switch studies by historical or archive genotyping. Treatment response was assessed by FDA snapshot analysis at Week 48 (HIV-1 RNA < 50 copies/mL, HIV-1 RNA ≥ 50 copies/mL, or no virologic data).

Results: In the naïve studies, HIV-1 subtype B was predominant (1138/1274 [89%] B vs. 136/1274 [11%] non-B). Efficacy of B/F/TAF at Week 48 (HIV-1 RNA < 50 copies/mL) was similar for individuals with HIV-1 subtype B or non-B (91% vs. 89%) (Table 1). Similar efficacy by subtype was seen for the comparator groups (ABC/DTG/3TC and DTG+F/TAF). There was no emergent drug resistance in any participant regardless of subtype, pre-existing resistance, or treatment group. In the switch studies, non-B subtype was well represented (639/1610 [40%] B, 384/1610 [24%] non-B, 587/1610 [36%] unknown subtype [testing not performed]). The proportion of B/F/TAF or comparator group participants with HIV-1 RNA < 50 copies/mL at Week 48 was similar for those with subtype B or non-B (94% vs. 92% for B/F/TAF). There was no emergent drug resistance in any participant treated with a BIC- or DTG-based regimen, regardless of subtype or pre-existing resistance, but 2 participants (both subtype B) had emergent NRTI resistance in other comparator arms. The proportion of subtype B vs. non-B participants with pre-existing resistance was similar, and pre-existing resistance did not contribute to virologic failure or additional resistance development.

Conclusions: HIV-1 subtype (B or non-B) had no effect on the efficacy of B/F/TAF in treatment-naïve or switch studies. No participant developed resistance to B/F/TAF regardless of HIV-1 subtype or pre-existing resistance.

HIV-1 Subtype Category		Number of Subjects n (%)					
		B/F/TAF			Comparator Groups		
		HIV-1 RNA < 50 copies/ mL	HIV-1 RNA ≥ 50 copies/ mL	No data	HIV-1 RNA < 50 copies/ mL	HIV-1 RNA ≥ 50 copies/ mL	No data
Naïve Studies (GS-US-380-1489, GS-US-380-1490)	*All Subjects*	576/634 (90.9%)	17/634 (2.7%)	41/634 (6.5%)	595/640 (93.0%)	12/640 (1.9%)	33/640 (5.2%)
	B	513/563 (91.1%)	16/563 (2.8%)	34/563 (6.0%)	535/575 (93.0%)	11/575 (1.9%)	29/575 (5.0%)
	Non-B	63/71 (88.7%)	1/71 (1.4%)	7/71 (9.9%)	60/65 (92.3%)	1/65 (1.5%)	4/65 (6.2%)
Switch Studies (GS-US-380-1844, GS-US-380-1878, GS-US-380-1961)	*All Subjects*	755/806 (93.7%)	12/806 (1.5%)	39/806 (4.8%)	747/804 (92.9%)	10/804 (1.2%)	47/804 (5.8%)
	B	374/396 (94.4%)	7/396 (1.8%)	15/396 (3.8%)	223/243 (91.8%)	6/243 (2.5%)	14/243 (5.8%)
	Non-B	177/192 (92.2%)	4/192 (2.1%)	11/192 (5.7%)	183/192 (95.3%)	2/192 (1.0%)	7/192 (3.6%)
	Unknown	204/218 (93.6%)	1/218 (0.5%)	13/218 (6.0%)	341/369 (92.4%)	2/369 (0.5%)	26/369 (7.0%)

[Table 1]

THPEB078

Unrecognized protease inhibitor drug resistance mutations in HIV-1 subtype A

I. Alonso Correa[1], M. Sabino Cunha[1], M. Coetzer[2], L. Diero[3], M. Orido[3], A. Tanuri[4], L. Jesus da Costa[1], R. Kantor[2]
[1]Universidade Federal do Rio de Janeiro, Departamento de Virologia, Rio de Janeiro, Brazil, [2]Brown University, Division of Infectious Diseases, Providence, United States, [3]the Academic Model Providing Access to Healthcare (AMPATH), Eldoret, Kenya, [4]Universidade Federal do Rio de Janeiro, Departamento de Genética, Rio de Janeiro, Brazil

Background: Protease inhibitor (PI) based antiretroviral therapy is the most common 2nd-line therapy in developing countries. Failure of PI therapy despite good adherence without known PI-associated drug resistance mutations (DRMs) is poorly understood and suggests unknown mutations or alternative resistance mechanisms.
Methods: We investigated HIV-1 subtype A single genome clones obtained from patients at the Academic Model Providing Access to Healthcare (AMPATH) in Eldoret, Kenya, who were (i) failing lopinavir/ritonavir-based 2nd-line for >6 months, (ii) had prior >6 months of non-nucleoside reverse transcriptase (RT) inhibitor-based 1st-line, (iii) had RT but no PI DRMs, and (iv) had detectable plasma lopinavir levels. Protease amplicons from selected clones were used to generate recombinant viruses with a protease-deleted HXBII molecular clones in MT4 cells. Recombinant viruses were exposed to PIs in a phenotypic resistance testing assay and 50% effective concentration (EC_{50}) values were compared to subtype B NL4-3.
Results: Fourteen recombinant viruses were generated from six different patients. Seven recombinant viruses derived from six patients had higher lopinavir sensitivity (EC_{50} average of 1.05-1.63μM) when compared to subtype B (EC_{50} of 3.02μM); while five recombinant viruses derived from four patients were hypersensitive (EC_{50} 0.166-0.987μM) compared to controls. One of these recombinant hypersensitive viruses harbored the I93M mutation associated with this phenotype in HIV-1 subtype C. However, in the two remaining recombinant viruses derived from two patients, lopinavir EC_{50} values were 3-fold higher than the other subtype A recombinant viruses and the dose-response curve slope for these viruses showed lopinavir resistance. Upon comparison of these resistant single-genome subtype A clones to subtype B, the subtype A clones with lopinavir resistance harbored the protease C67Y or L63S mutation. These viruses were also tested against darunavir, tipranavir and atazanavir and the virus harboring L63S mutation had an EC_{50} 2-fold higher for darunavir when compared to the subtype B control.
Conclusions: In our data, HIV-1 subtype A proteases from western Kenya had unrecognized mutations that may lead to distinct patterns of PI resistance.

Adherence

THPEB079

Assessing stability criteria for eligibility into differentiated ART delivery models: Predictive values of clinical and CD4 cell criteria for community ART refill groups in Zimbabwe

D. Magure[1], S. Maponga[2], G. Fatti[3], A. Grimwood[3], N. Ngorima -Mabhena[4], O. Mugurungi[5]
[1]Khethimiplo Trust, Community Development, Harare, Zimbabwe, [2]Khethimpilo Trust, Community Development, Masvingo, Zimbabwe, [3]Equip Central, Cape Town, South Africa, [4]Equip Central, Johannesburg, South Africa, [5]Ministry of Health, Aids and TB Unit, Harare, Zimbabwe

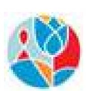
Background: Viral load (VL) testing is standard practice for determining stability of clients on antiretroviral treatment, however it is not readily available in low income countries like Zimbabwe. Community ART refill groups (CARG) for stable clients are a differentiated ART delivery strategy adopted in Zimbabwe to decongest health facilities. Where VL monitoring is unavailable, stability criteria for CARG eligibility are
(I) no current opportunistic infections,
(ii) CD4>200cells/mm3,
(iii) >6 months on current regiment.
With VL monitoring, clients are deemed stable if VL < 1000 copies/ml. Our study assessed if clinical and CD4 cell eligibility criteria reliably determined stability for CARG formation.
Methods: Clients screened for inclusion to a cluster randomized trial to assess the effectiveness of 3 and 6 monthly dispensing ART in CARGS received VL tests, having recently joined CARGS based on clinical and CD4 cell criteria. VL tests were taken from August - December 2017 at 18 facilities (4 urban, 14 rural), in 5 USAID-priority districts. Positive predictive value (PPV) for stability were calculated comparing clinical and CD4 eligibility to VL result.
Results: 2609 clients joined CARGS; 70% (1814) females, 30% males (795). 3%(80) were aged 18-25, 54% (1411) 25-45 years, and >45-years 1118 (43%). 81% from a rural setting. PPV was 86% (95% CI 85%-87%). 364 unsuppressed clients were removed from CARGS with 88% (322) received Enhanced adherence counselling. 18-25 year olds had a lower PPV 71% (95% CI 60-81%) compared to 25-45 years 86% (95% CI 84%-88%) and 45 year olds 87% (95 CI 85% - 89%), (p< 001). urban facilities had a PPV of 83% (95% CI 79-89%) compared to 87% (95% CI 85%-88%) at rural facilities (p= 0,04). PPV did not differ by gender or facility number on ART.
Conclusions: PPVs < 90% were found in the study and were lower in young people. client joining CARGS receive six monthly facility monitoring, increasing risk of treatment failure for unstable patients. VL testing should be scaled up to improve eligibility inclusion in differentiated models of Care. Further studies on the legibility criteria should be carried out to determine eligibility in the low income settings.

THPEB080

Predictors of ART Adherence in depressed pregnant women living with HIV in Tanzania. A cross-sectional study

J. Kamala[1], E. Larson[2], A. Komba[3], A. Mwimba[3], A. Kaale[3], A. Minja[3], H. Siril[4], M. Somba[3], Z. Aloyce[3], M.C. Smith Fawzi[5], S.F. Kaaya[6]
[1]Africa Academy for Public Health, Pragram, Dar es Salaam, Tanzania, United Republic of, [2]Harvard T.H Chan School of Public Health, Global Health and Population, Boston, United States, [3]Africa Academy for Public Health, Program, Dar es Salaam, Tanzania, United Republic of, [4]Management and Development for Health, Program, Dar es Salaam, Tanzania, United Republic of, [5]Harvard Medical School, Global Health and Social Medicine, Boston, United States, [6]Muhimbili University of Health and Allied Sciences, Psychiatry and Mental Health, Dar es Salaam, Tanzania, United Republic of

Background: Adherence to antiretroviral therapy (ART) is crucial to preventing mother-to-child transmission of human immunodeficiency virus (HIV) and ensuring the long-term effectiveness of ART. However, retention in HIV care for PMTCT-plus clients remains a challenge. This study



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explores predictors of self-reported ART Adherence in depressed pregnant women living with HIV in Tanzania.

Methods: We enrolled 742 HIV-positive pregnant women from 16 government facilities allocated in three urban districts. The PHQ-9 locally validated cut point defined probable depression at recruitment. Respondents completed a structured survey at baseline from April 2015-May 2016. Using baseline data from a larger randomized control trial, we assessed the prevalence and predictors of missing ART in the past four days, using generalized estimating equations with standard errors clustered at the facility level to estimate risk ratios.

Results: The 742 women were on average 29.6 years old (range 18-43). Approximately 70.8% of the population had a primary level of education or lower and 33.2% reported problems with food security in the past six months. Most women (83.1%) reported never missing their ART medication doses in the month prior to interview. About 14.1% reported missing all of their ART drugs on at least one of the past four days. Women were less likely to report missing their drugs if they were older (RR: 0.96, 95% CI: 0.94, 0.99) or scored higher on a four-level hope scale (RR: 0.66, 95% CI: 0.45, 0.96). They were more likely to report missing their ART drugs if they had any food insecurity in the past six months (RR: 1.32, 95% CI: 1.04, 1.68). There was no association between missing ART and education, marital status, and reported general self-efficacy.

Conclusions: While self-reported missed ART doses were low at 14.1%, interventions for improving ART adherence with components that target improving hope may improve adherence. Studies to better understand the interplay between food insecurity and adherence are needed in PMTCT-plus clients.

THPEB081

Engagement in bidirectional mobile messaging to support antiretroviral therapy (ART) adherence among peripartum women in Kenya

J. Unger[1], K. Ronen[1], W. Jiang[1], T. Perrier[1], D. Matemo[2], A. Drake[1], L. Osborn[2], J. Kinuthia[2], G. John-Stewart[1]
[1]University of Washington, Seattle, United States, [2]Kenyatta National Hospital, Nairobi, Kenya

Background: mHealth interventions show promise in improving ART adherence. However, mechanisms for their effect are poorly understood. We assessed participant engagement, and content of participant messages in an ongoing trial of an interactive SMS to support ART adherence among peripartum women.

Methods: Within the ongoing randomized trial of 2-way SMS vs. 1-way SMS vs. control (Mobile WACh X, NCT02400671), participants were recruited from public maternal child health (MCH) clinics in Nairobi and Nyanza region and were age ≥14, HIV-infected, pregnant and had daily access to a phone. Women received automated weekly SMS in pregnancy to 2 years postpartum. Messages addressed ART adherence and MCH care (ratio 2 adherence:1 MCH). Among women in the 2-way SMS arm, predictors of the number of SMS sent by participants per week were evaluated using univariate generalized estimating equation (GEE) with Poisson link clustered by participant. SMS adherence conversations were analyzed by content analysis.

Results: Between November 2015 and January 2018, 275 participants in the 2-way SMS arm received 15644 automated SMS. Median time in the study was 62 weeks (IQR 48-89). Median age was 27(23-31) and 196 (71.0%) owned their phone. The majority (82.9%) of women sent >1 SMS; participants sent a median of 0.41 SMS/week (IQR 0.13-0.68). Participants sent more messages during pregnancy than postpartum (0.74 SMS/week vs. 0.36 SMS/week, p< 0.0001). Engagement did not differ by phone ownership (0.50 SMS/week among phone-owners vs. 0.37 SMS/week among phone-sharers, p=0.19). Of 7718 participant messages, 1689 (21.9%) were about visit timing, 1308 (17.0%) were about ART adherence, 1283 (16.6%) about infant health and 881 (11.4%) about antenatal concerns. Of 1308 adherence SMS, 471 (36.0%) sought advice about adherence challenges while 759 (58.0%) reported no current challenges. Adherence challenges included medication side effects (114 SMS,24.2%), running out of medication (91,19.3%), infant medication administration and transmission concerns (79,16.8%), current illness (34,7.2%), clinic stock-outs (30,6.3%) and viral load and infant HIV testing (27,5.7%).

Conclusions: Engagement by SMS among HIV-infected peripartum women was high, particularly during pregnancy, and not dependent on phone ownership. Participants utilized SMS to gain advice about medication side effects and strategies for improving ART adherence for themselves and their infants.

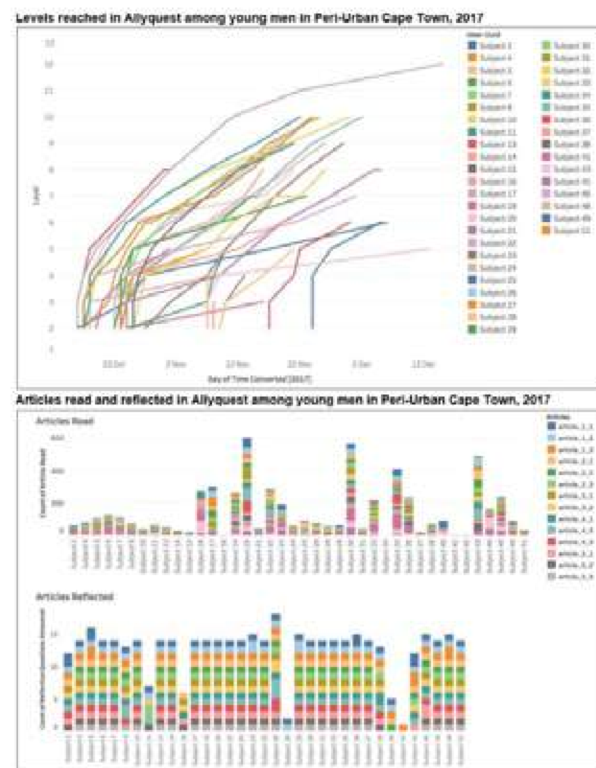
THPEB082

Characterising mobile gamification-based adherence strategies to support adherence to antiretroviral prevention and treatment strategies among young men in South Africa

N. Madubela[1], P. Smith[1], S. Strömdahl[2], C. Lyons[3], L. Hightow-Weidman[4], J. Jones[5], P. Sullivan[5], L.-G. Bekker[1], S. Baral[6]
[1]Desmond Tutu HIV Centre, Medicine, Cape Town, South Africa, [2]Uppsala University, Department of Medical Sciences, Stockholm, Sweden, [3]Johns Hopkins University School of Public Health, Baltimore, United States, [4]University of North Carolina at Chapel Hill, Chapel Hill, United States, [5]Emory University Rollins School of Public Health, Department of Epidemiology, Atlanta, United States, [6]Johns Hopkins University School of Public Health, Department of Epidemiology, Baltimore, United States

Background: In 2018, ART-based prevention and treatment are known to be efficacious. However, suboptimal HIV prevention and treatment outcomes among young men including young men who have sex with men in South Africa suggests implementation challenges including adoption and adherence. Concurrently, the world has moved online and interventions should integrate with emerging technologies to better serve youth. A limited-scale 4-week, implementation study, using mixed-methods was conducted to inform development of a mobile gamification app(MGAP) designed to improve ART/PrEP adherence among young men living with HIV or eligible for PrEP in peri-urban Cape Town, South Africa.

Methods: Stratified convenience sampling was used to recruit young men, 18 - 25, from the Desmond Tutu HIV Foundation HIV clinic sites. The MGAP called AllyQuest was available for Android and iOS and included health-related challenges and rewards, "brain games", social walls, articles, and a medication tracker. Quantitative data on usage were provided by the developer and then after 4 weeks of usage, participants completed semi-structured focus groups discussing implementation opportunities and challenges.



[Graph showing levels reached in AllyQuest]

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Results: MGAP usage was sustained with 85% of participants logging in at least once per day and spending an average of 10 minutes per day using the app. On average, there were 12.5 social wall posts per user, with all users setting up at least one medication to track and no logs of medications missed. Participants reached an average of level 6 and read an average of 70 articles. Qualitative data were rich with one respondent described their experience with the unlocking narratives/collections, as *"you have to have points and then be able to unlock that specific topic and then within the specific topic, I think it gives you the way of approaching if you in someone else's shoes -- if you were facing that challenge, you see.*

Conclusions: Addressing the needs of young men is fundamental in achieving an AIDS-free generation including in South Africa where HIV incidence has been sustained. Taken together, the results were very encouraging highlighting the interest, sustained uptake, and feasibility of the use of the MGAP to support adherence to ART for young men in peri-urban Cape Town.

THPEB083

Exploring pathways from violence and HIV disclosure without consent to depression, social support and HIV medication agency among women living with HIV

K. Deering[1,2], M. Braschel[2], A. Krusi[3], C. Logie[4], F. Ranville[2], P. Duff[3], A. Sernick[2], K. Shannon[2,3]
[1]*University of British Columbia, Vancouver, Canada,* [2]*Gender and Sexual Health Initiative, Vancouver, Canada,* [3]*University of British Columbia, Medicine, Vancouver, Canada,* [4]*University of Toronto, Factor-Inwentash Faculty of Social Work, Toronto, Canada*

Background: Increasing research suggests that HIV disclosure without consent and violence can increase HIV stigma and undermine HIV care among women living with HIV (WLWH). Our objective was to test a conceptual model using path analysis to investigate complex relationships between violence and HIV disclosure without consent to depression, social support and HIV medication agency among WLWH on antiretroviral therapy (ART) in Vancouver, Canada.

Methods: Data were drawn from two years of (four) follow-up surveys from a longitudinal community-based open cohort of 318 cis or trans WLWH who lived and/or accessed care in Metro Vancouver, Canada (2014-present)(Sexual Health and HIV/AIDS: Women´s Longitudinal Needs Assessment "*SHAWNA*"). Participants completed semi-annual interviewer-administered questionnaires by trained peer researchers/community interviewers and clinical questions by sexual health research nurses. We conducted path analysis using a weighted least-squares approach, with mean/variance adjustment to evaluate the hypothesized model. We tested direct relationships between HIV disclosure without consent and physical/verbal violence associated with participant's HIV-positive status, and three outcomes: depression, lacking social support and not feeling able to take ART (as prescribed). We tested indirect relationships via four HIV-related stigma dimensions (personalized, internalized, social/public attitudes and disclosure concerns). All variables were measured in the last six months.

Results: Overall, 194 women responded to >=1 follow-up survey with 464 total observations. Final model fit indices suggest the model well to the data (2[2]=2.856, P = 0.240; CFI = 0.997; RMSEA = 0.030). In the final model, the direct paths from HIV disclosure without consent and physical/verbal violence associated with participant's HIV-positive status to the three outcomes were not significant. Internalized stigma fully mediated the relationship between physical/verbal violence associated with participant's HIV-positive status and not feeling able to take ART. Personalized stigma fully mediated the relationship between HIV disclosure without consent and depression. In the final model, internalized stigma (ß=0.252 p=0.000) had a significant direct effect on not feeling able to take ART. The direct path from personalized stigma to depression was significant (ß=0.162; p=0.037).

Conclusions: Results suggest that strategies to improve sub-optimal adherence outcomes and improve mental health among WLWH should address structural drivers of HIV, including disclosure without consent, violence and stigma.

THPEB084

Patient adherence to long-acting CAB and RPV injections through 96 weeks of maintenance therapy in LATTE-2

K. Sutton[1], M. Shaefer[1], D. Margolis[1], D. Dorey[1], F. Zhang[2], V. Chounta[3], S. Griffith[1], V. Canon[4], W. Spreen[1]
[1]*ViiV Healthcare, Research Triangle Park, United States,* [2]*GlaxoSmithKline, Upper Merion, United States,* [3]*ViiV Healthcare, Brentford, United Kingdom,* [4]*Janssen Pharmaceutica, Beerse, Belgium*

Background: Cabotegravir (CAB) and rilpivirine (RPV) are under development as long-acting (LA) injectable suspensions and may provide novel treatment option for PLHIV. The adherence and injection experience of patients receiving LA therapy was examined in 230 LATTE-2 patients.

Methods: LATTE-2 is a Phase 2b, multicenter, open-label study in ART-naïve HIV infected adults. Participants completing the 20-week Induction Period were randomized 2:2:1 on Day 1 to IM CAB LA + RPV LA every 8 weeks (Q8W), every 4 weeks (Q4W) or oral CAB + ABC/3TC in the Maintenance Period. The target injection visit date for LA therapy dosing was projected from the Day 1 visit date. Adherence to LA therapy was calculated as the number of injection visits occurring within protocol-defined +/- 7-day dosing window for projected visit divided by number of expected dosing visits up to Week 96 or early withdrawal. Individual CAB and RPV injections administered at the same visit were counted once. Additional unscheduled injections were excluded. Patient reported medication adherence was assessed by HIV Medication Questionnaire (HIVMQ).

Results: LATTE-2 is a Phase 2b, multicenter, open-label study in ART-naïve HIV infected adults. Participants completing the 20-week Induction Period were randomized 2:2:1 on Day 1 to IM CAB LA + RPV LA every 8 weeks (Q8W), every 4 weeks (Q4W) or oral CAB + ABC/3TC in the Maintenance Period. The target injection visit date for LA therapy dosing was projected from the Day 1 visit date. Adherence to LA therapy was calculated as the number of injection visits occurring within protocol-defined +/- 7-day dosing window for projected visit divided by number of expected dosing visits up to Week 96 or early withdrawal. Individual CAB and RPV injections administered at the same visit were counted once. Additional unscheduled injections were excluded. Patient reported medication adherence was assessed by HIV Medication Questionnaire (HIVMQ).

Conclusions: In the LATTE-2 study, patients demonstrated high rates of adherence to injection visits and corresponding high rates of virologic response through 96 weeks of LA CAB + RPV maintenance therapy. These results suggest LA injectable therapy is feasible and well-accepted by study patients, enabling continued development of this HIV treatment modality.

Subject-level	Q8W IM (N=115)	Q4W IM (N=115)	IM- Subtotal (N=230)
Adherence to Dosing Window (projected visit dates relative to Day 1, +/- 7 days)[1]			
<75%	1/115 (<1%)	0/115	1/230 (<1%)
75% to <85%	5/115 (4%)	1/115 (<1%)	6/230 (3%)
85% to <90%	0/115	3/115 (3%)	3/230 (1%)
90% to <95%	16/115 (14%)	10/115 (9%)	26/230 (11%)
95% to <=99%	0/115	15/115 (13%)	15/230 (7%)
100%	93/115 (81%)	86/115 (75%)	179/230 (78%)
Number of Late Injections Outside of Dosing Window (> 7 days late relative to projected visit dates)			
0	96/115 (83%)	92/115 (80%)	188/230 (82%)
1	17/115 (15%)	14/115 (12%)	31/230 (13%)
2	1/115 (<1%)	5/115 (4%)	6/230 (3%)
3	0/115	3/115 (3%)	3/230 (1%)
>=4	1/115 (<1%)	1/115 (<1%)	2/230 (<1%)
Event-level (injection visits)	**Q8W IM (N=115)**	**Q4W IM (N=115)**	**IM- Subtotal (N=230)**
Timeliness of injections relative to date of projected dosing visits[2]			
Total Number of Expected Dosing Visits	**1449**	**2543**	**3992**
Early Out of Window Injection (more than 7 days)	6/1449 (<1%)	9/2543 (<1%)	15/3992 (<1%)
Within Window injection (+/- 7 days)	1416/1449 (98%)	2490/2543 (98%)	3906/3992 (98%)
Late Out of Window Injection (more than 7 days late)	23/1449 (2%)	38/2543 (1%)	61/3992 (2%)
Missed Injection without Oral Bridging[3]	1/1449 (<1%)	2/2543 (<1%)	3/3992 (<1%)
Missed Injection with Oral Bridging	3/1449 (<1%)	4/2543 (<1%)	7/3992 (<1%)

1. % Adherence = Number of injection visits occurring within the +/- 7-day dosing window from date of projected visit/number of expected dosing visits up to Week 96 or early withdrawal (excluding periods of oral bridging).
2. Calculated by using "actual injection visit date – projected visit date from Day 1".
3. Missed injections without oral bridging include instances where data entry conflicts with study records. All patients remained on study and remained virologically suppressed.

Note: Additional unscheduled injections are excluded from all derivations.

[Summary of Adherence to IM Dosing Windows in the Maintenance Period]

THPEB085

Does food insecurity affect adherence to antiretroviral therapy among caregivers of orphaned and vulnerable children in Tanzania?

A. Exavery[1], A. Barankena[2], J. Charles[1]
[1]*Pact/Tanzania, MERL, Dar es Salaam, Tanzania, United Republic of,* [2]*Pact/Tanzania, Programs, Dar es Salaam, Tanzania, United Republic of*

Background: Adherence to Antiretroviral Therapy (ART) is key to viral suppression for better health outcomes among HIV-infected individuals. While predictors of adherence to ART have been notably studied among the general population, little is said about the effect of food security especially for key and vulnerable populations, possibly due to lack of appropriate data. This analysis hypothesizes that food insecurity negatively affects adherence to ART among HIV positive caregivers of orphaned and vulnerable children (OVC) in Tanzania.

Methods: Data come from a community-based, USAID-funded *Kizazi Kipya* project that aims at increasing uptake of HIV/AIDS services by orphaned and vulnerable children (OVC) and their caregivers in Tanzania. HIV positive caregivers who were served by the project during January-July 2017, and reported that they are on ART were included. Using Stata, random-effects logistic regression model was fitted, with adherence to ART being the dependent variable and food security the main independent variable. ART adherence was considered as not having missed any ART dose in the past 30 days.

Results: The analysis included 12,217 HIV positive caregivers who were on ART. 72.1% were females and 27.9% were males. 20.5% of the caregivers were in food insecure households. Overall 91.1% of the caregivers reported being adherent to ART. Adherence to ART declined to 86.7% among food insecure caregivers, while so was as high as 92.4% among food secure caregivers (Figure 1), and the difference was statistically significant ($p< 0.001$). Multivariate analysis in Table 1 showed that the odds of being adherent to ART was significantly 35% lower among food insecure caregivers compared to their food secure counterparts (OR = 0.65, 95% CI 0.53-0.79, $p< 0.001$).

This observation was adjusted for caregiver sex, marital status, education, family size, place of residence, health insurance ownership, and clustering at ward level.

Conclusions: Food insecurity is a significant barrier to ART adherence among caregivers of OVC in Tanzania. This suggests that, to improve adherence to ART among caregivers of OVC, nutrition and/or food security interventions are necessary among others.

THPEB086

South African mothers living with HIV (MLH) do not sustain HIV Care over 5 years post-birth, especially when problematic alcohol use occurs

M.J. Rotheram-Borus[1], M. Tomlinson[2], T. Weichle[1], J. Stewart[2], S. Gordon[2], D. Swendeman[3]
[1]*University of California, Department of Psychiatry and Biobehavioral Sciences, Semel Institute, Los Angeles, United States,* [2]*Stellenbosch University, Department of Psychology, Stellenbosch, South Africa,* [3]*University of California (UCLA), Department of Psychiatry and Biobehavioral Sciences, Los Angeles, United States*

Background: While sub-Saharan countries have introduced life-long access to antiretroviral therapies (ART), it is unclear whether mothers living with HIV (MLH) will sustain uptake over time. Existing data is typically based on clinic samples, with substantial loss-to-follow-up. This study examines a population of MLH recruited in pregnancy and followed for the next five years. Comorbid conditions that are likely to affect HIV care and ART adherence (problematic alcohol use, depression, and intimate partner violence) were examined as predictors of HIV-related behaviors over time.

Methods: Almost all (98%) of pregnant women in 12 neighborhoods in Cape Town, South Africa (N=594) were recruited in pregnancy and reassessed five times over five years with high retention (83%-92%); 205 were MLH. MLH's uptake and adherence to HIV care over time and the impact of comorbid problematic alcohol use (AUDIT scores > 3), depression (assessed by the Edinborough Perinatal Depression Inventory, score > 13), and self-reported intimate partner violence were examined using mixed effects linear regressions.

Results: Only 22.6% of MLH were consistently linked to HIV care from six months to five years post-birth. At five years, 86.7% self-reported linkage to HIV care, 76.9% were receiving ART and 87% reported ART adherence. Problematic alcohol abuse, but not depression or partner violence, was significantly related to reduced uptake of HIV care and adherence to ART over time.

Conclusions: Broad uptake and adherence to lifelong ART by MLH will require a combination of structural and behaviorally-focused interventions. Alcohol abuse is not typically addressed in low and middle income countries, but will be critical to support MLH and is likely to also impact their children's outcomes, as well as those of the MLH.

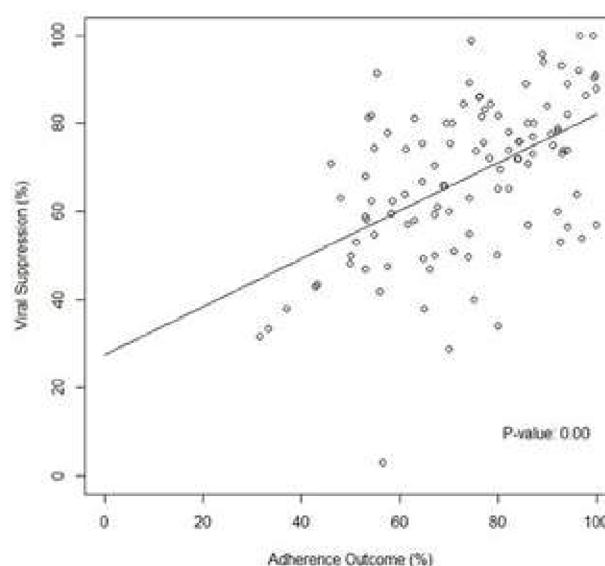
THPEB087

Quantifying the relationship between HIV patient and treatment characteristics, ART adherence and viral suppression using contemporary data

T. Ward[1], O. Darlington[1], D. Sugrue[1], P. McEwan[1,2], V. Chounta[3], M. Murray[3], N. Van de Velde[3], S.J. Anderson[4]
[1]*Health Economics and Outcomes Research (HEOR) Ltd, Cardiff, United Kingdom,* [2]*School of Human and Health Services, Swansea University, Swansea, United Kingdom,* [3]*ViiV Healthcare, Brentford, United Kingdom,* [4]*GlaxoSmithKline, Value, Evidence & Outcomes, Brentford, United Kingdom*

Background: Anti-retroviral therapy (ART) adherence is a significant driver of viral suppression (VS) and directly impacts treatment failure rates, drug resistance and treatment costs. Many patients still experience significant challenges in adhering to ART. The objective of this study was to quantify the relationship between patient and treatment characteristics, ART adherence and VS, using contemporary published data.

Methods: A literature review was undertaken to identify evidence quantifying this relationship. Data was extracted and analysed from both randomised control trials and real-world studies published after 01 January 2012. Available characteristics included country, age, sex, alcohol consumption, drug use, dosing frequency, pill burden, ART experience and ART class. Cohort level summary statistics (mean [min, max]) were reported, and univariate and multivariable linear regression, utilising step-wise variable elimination based on the Akaike information criterion, used to explore the relationship between patient and treatment characteristics, adherence and VS.



[Figure 1. Relationship between adherence and viral suppression across study populations (unadjusted)]

Results: Significant heterogeneity in population, ART experience, and definitions of adherence and VS was observed across the 70 identified studies. Across studies, mean age was 39.9 [27.0, 49.0], 67.6% [0.0%,

98.0%] were male, mean drug use was 35.1% [0.0%, 100.0%] and mean alcohol use was 31.9% [7.0%, 100.0%]. Mean daily ART pill burden was 4.7 [1.0, 15.4], the majority (62.5%) of studies observed ≥twice-daily dosing, with similar distributions of non-nucleoside reverse transcriptase inhibitor and protease inhibitor usage; integrase inhibitor data was limited and not included in analyses. In univariate analyses, ART experience, drug use and pill burden were most influential in predicting adherence; increasing ART experience was associated with a 6.9 percentage point (PP) reduction in adherence, drug use a 9.8 PP reduction and each additional pill a 0.2 PP reduction. Adherence and VS demonstrated high positive correlation (0.4 PP improvement in VS per adherence PP, p-value: 0.00, Figure 1). Similar results were obtained after adjustment for other variables in the multivariable analysis.
Conclusions: This study supports previous analyses suggesting that patient and treatment characteristics may be indicative of ART adherence, and that adherence predicts VS. The ability to quantify these relationships may allow for more accurate assessment of the real-world impact of HIV treatments.

THPEB088

Data-to-care program improves viral load suppression

R. Hewitt[1], D. Williams[1], R. Adule[1], I. Feldman[2], M. Alsumidaie[3]
[1]*MetroPlus Health Plan, HIV Services/Partnership in Care, New York, United States,* [2]*AIDS Institute, New York State Department of Health, Albany, United States,* [3]*AnnexClinical, New York, United States*

Background: Optimizing HIV treatment has benefits for both the health of the infected individual and the community. Treatment that results in sustained viral load suppression can lower transmission and reduce new cases of HIV infection. A broad community taskforce was assembled to create a blueprint to End the Epidemic (EtE) in New York State with the goal to lower the incidence of new HIV infections. A pilot program was created matching HIV surveillance data with Medicaid managed care rosters. MetroPlus Health Plan implemented their own target intervention using a two-pronged approach: Street Outreach and Peer Care Connection Interventions.
Methods: Members were separated into two groups: those with no viral load test result during the prior year (not engaged), and those with detectable viral loads. Collected data included demographics, program contact type and frequency, ARV usage (refill pattern), and HIV viral load values and ranges. A retrospective statistical analysis was conducted utilizing a one-sided t-test. A sub-analysis was also conducted to exclude members who were virally suppressed at baseline.
Results: MetroPlus received a roster totaling 1741 members, 1429 (82%) members were still enrolled in the plan, and 901 had two or more viral load values. Results from the Street Outreach Intervention will be presented in a separate abstract. Results for the January 2016 roster (cohort 1) were analyzed in this abstract. 10% of the members were utilizing supportive services, such as mental and behavioral care. In the first year of activity, Peer Care Connection Counselors made 1,750 contact attempts, completed 760 of them, including 358 in person contacts with EtE members. Overall viral load suppression for the first cohort was 45% after 21 months. Most patients enrolled in the EtE Program demonstrated a reduced current viral load (VL) where N=901, P< 0.1, In the sub-analysis, members moved from higher VLs (V2=200-1K to V5 = >100K) to lower VLs (V1< 200) where N = 316; P< 0.01.
Conclusions: The EtE program is an example of a successfully implemented Data-to-Care concept, and energized care coordination efforts within MetroPlus Health Plan. People with unsuppressed HIV viral load can achieve viral load suppression through intensified care coordination and support.

THPEB089

A social network platform helps maintain HIV viral load suppression

R. Hewitt[1], R. Adule[1], S. Jacques[1], J. Buck[2], M. Alsumidaie[3]
[1]*MetroPlus Health Plan, HIV Services/Partnership In Care, New York, United States,* [2]*VillageCare, New York, United States,* [3]*AnnexClinical, New York, United States*

Background: *Rango is* a web-based social network platform designed to support HIV patient adherence for NYC area government insurance beneficiaries.
Methods: *Rango* features include peer to peer sharing, discussion boards, virtual support groups, virtual health coaches, text message reminders for adherence and an active online community. All participants signed an informed consent and reported their insurance carrier. Participants received a monthly incentive for the first 12 months. All online activity was time-date recorded. HIV viral load values (VLs) were retrospectively collected from medical records by MetroPlus and were not known to the *Rango* team. Initiation VL was within 90 days before and after platform enrollment, and the last observation VL anytime before or within 90 days of program graduation. The impact of average monthly factors (i.e., number of sign-ins, number of friend requests, number of text message reminders, and number of Q&A messages) were evaluated against viral load levels at last observation using least-squares ANOVA regression models. We also visualized viral load movements from program initiation and program graduation using an independent 2-tailed T-Test.
Results: 640 active members were identified: 77 had missing VLs. 439 (78%) were virally suppressed
(< 200 copies/mL). 287 participants had values for program enrollment and termination graduation dates, and viral load values and dates. Of those participants, 91 had only one usable VL, and 196 had more than one VL (including last observation VL). This analysis focused on the 196 participants with valid records. Of those, 94% of participants who had suppressed VL (< 200 copies) at initiation, remained in the same VL range at last observation (P< 0.01), suggesting the program was effective at maintaining viral load suppression. The least squares ANOVA regression demonstrated multifactorial statistical significance with friend requests (P< 0.01), sign-ins (P< 0.01), and medication reminders (P< 0.01) having high impact on maintaining suppressed viral loads at program graduation.
Conclusions: Rango is an effective social network platform to maintain HIV VL suppression. High platform utilization helped maintain VL suppression. In particular, creating a virtual community of like-minded HIV patients appeared to be the most effective feature of the platform, as evidenced by friend requests.

THPEB090

Incomplete ART adherence is associated with higher interleukin-6 in individuals with HIV who achieved virologic suppression in the immediate arm of the Strategic Timing of Antiretroviral Treatment (START) study

J. Castillo-Mancilla[1], A.N. Phillips[2], J.D. Neaton[3], J. Neuhaus[3], S. Sharma[3], J.V. Baker[3], S. Collins[4], S. Mannheimer[5], S. Pett[2,6], V. Touzeau-Römer[7], M.N. Polizzotto[6], J.D. Lundgren[8], E.M. Gardner[9], INSIGHT START Study Group
[1]*University of Colorado-Anschutz Medical Campus, Division of Infectious Diseases, Aurora, United States,* [2]*University College London, London, United Kingdom,* [3]*University of Minnesota, Minneapolis, United States,* [4]*HIV i-Base, London, United Kingdom,* [5]*Columbia University, New York, United States,* [6]*Kirby Institute/University of New South Wales, Sydney, Australia,* [7]*University of Vienna, AKH, Vienna, Austria,* [8]*CHIP Rigshospitalet, Copenhagen, Denmark,* [9]*Denver Health Medical Center, Denver, United States*

Background: Heightened inflammation is predictive of serious non-AIDS events in treated HIV infection. Recently, incomplete ART adherence has been associated with chronic residual inflammation, even in the setting of viral suppression.

Herein, we evaluated whether this association is also observed in individuals who started ART with higher CD4+ T-cell counts (>500 cells/mm³) and achieved virologic suppression in the immediate arm of the START study.

Methods: Plasma levels of interleukin-6 (IL-6), D-dimer and C-reactive protein (CRP) were analyzed both at baseline and 8 months after ART initiation in treatment-naïve individuals with HIV enrolled in the immediate arm of START. Adherence was assessed by self-report and was determined to be incomplete if a participant reported not taking "all of my pills" in the preceding 7-days for any ART medication. Multivariable linear regression models were utilized to analyze the association between ART adherence and each biomarker at the 8-month visit (on a ln scale) in participants who achieved virologic suppression (< 50 copies/mL). Data are presented as fold differences in biomarker concentrations in individuals who reported incomplete vs. 100% adherence at the 8-month visit.

Results: Of the 2,325 participants in the immediate ART arm, a total of 1,627 participants (422 female, 718 White, 479 Black, 215 Hispanic, 149 Asian) who had virologic suppression (< 50 copies/mL), adherence data and biomarker concentrations on the same day at the 8-month visit were included in the analysis. The median age was 36 (IQR 29-44) years. Median CD4+ T-cell count and HIV viral load before ART initiation were 651 (IQR 585, 769) cells/mm³ and 13,123 (IQR 3,331, 42,169) copies/mL, respectively. Incomplete adherence was reported in 109 (7%) participants. Higher plasma concentrations of IL-6 were observed in participants who reported incomplete adherence in comparison with those who reported 100% adherence (Table).

Adjusted[a] fold difference in plasma concentrations of biomarkers of inflammation and coagulopathy in participants who achieved viral suppression (<50 copies/mL) and reported incomplete ART adherence after 8 months of therapy in the immediate arm of START.

Biomarker	Number of participants	Fold higher level vs. 100% adherence[b]	95% CI	P-value
IL-6 (pg/mL)	1,627	1.14	(1.01 - 1.28)	***0.03***
D-dimer (μg/mL)	1,622	0.97	(0.88 - 1.07)	0.55
CRP (mg/L)	1,627	1.25	(1.00 - 1.57)	0.05

[a]Models were adjusted for age, race, level of education, region, HIV risk group, hepatitis B or C co-infection and baseline levels of biomarkers.[b]100% adherence was defined as reporting taking "all of my pills" for all ART medication doses in the preceding 7-day period.

[Table]

Conclusions: Incomplete self-reported ART adherence was associated with higher concentrations of IL-6 in individuals with CD4+ T-cell >500 cells/mm³ who achieved virologic suppression by conventional assays early after initiation of therapy.

These findings are similar to previous observations and emphasize the need to aim for the highest possible level of adherence to maximize the biological benefit of ART.

THPEB091

Randomized trial of a 2-way cellphone intervention (CPI) to promote 3rd line antiretroviral (ART) adherence

R. Gross[1], J. Ritz[2], M. Hughes[2], R. Salata[3], P. Mugyenyi[4], E. Hogg[5], L. Wieclaw[6], C. Godfrey[7], C. Wallis[8], J. Mellors[9], V. Mudhune[10], S. Badal-Faesen[11], B. Grinsztejn[12], A. Collier[13], ACTG A5288 Study Team
[1]University of Pennsylvania, Medicine (ID) and Epidemiology, Biostatistics, & Informatics, Philadelphia, United States, [2]Harvard School of Public Health, Boston, United States, [3]Case Western Reserve University, Cleveland, United States, [4]Joint Clinical Research Centre, Kampala, Uganda, [5]Social & Scientific Systems, Silver Spring, United States, [6]Frontier Science & Technology Research Foundation, Amherst, United States, [7]National Institute of Allergy and Infectious Diseases, Bethesda, United States, [8]Lancet Laboratories, Johannesburg, South Africa, [9]University of Pittsburgh, Pittsburgh, United States, [10]Kenya Medical Research Institute, Kisumu, Kenya, [11]Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [12]Instituto de Pesquisa Clinica Evandro Chagas, Rio de Janeiro, Brazil, [13]University of Washington, Seattle, United States

Background: ART non-adherence causes treatment failure. Prior behavior may predict future behavior; individuals failing second-line ART may have subsequent non-adherence. 2-way CPI improved adherence in ART-naïves, but effects in ART-experienced individuals are unknown.

Methods: We did a 1:1 randomized trial of 2-way CPI + standard of care (SOC) adherence support compared with SOC alone nested in a 3rd line ART strategy study in low & middle income countries (LMIC). The 4 cohorts in the main study had regimens assigned based on prior ART and real-time genotype: Cohort A (without lopinavir resistance and susceptible to >1 NRTI) stayed on their 2nd line regimen. The other cohorts received regimens with >2 active drugs (see Table). Randomization was stratifed by cohort. Text messages for communication between participants and clinic staff tapered over 48 weeks from 7 to 1x/week. Participants were to respond to texts if taking ART without issues. Repeated non-response triggered sites for problem solving counseling. Primary and secondary endpoints were plasma HIV RNA ≤200 copies/mL at 48 weeks and virologic failure (VF: 2 consecutive HIV RNA >1000 copies/mL >24 weeks). Pre-specifed analyses compared randomized arms adjusted for cohort.

Results: Of the overall 545 participants, 521 (96%) enrolled in the CPI trial at 17 sites in 9 LMIC in Africa, Asia and the Americas: 52% males, median HIV RNA 4.4 log copies/mL (IQR: 3.5, 5.2). Week 48 HIV RNA ≤200 copies/mL occurred in 169/257 (66%) CPI+SOC and 164/264 (62%) SOC participants, estimated difference=3.6% (95% CI: −4.6% to 11.9%) and the odds ratio for CPI+SOC vs. SOC adjusted for cohort=1.23 (95% CI: 0.82, 1.84; p=0.315). VF occurred in 66 (26%) CPI+SOC and 89 (34%) SOC participants during median 72 weeks follow-up (adjusted p=0.027). Observed differences in VF favored CPI+SOC in all cohorts (Table). Challenges implementing CPI were volume of contacts needed from sites, network downtime, travel out of cellphone range, power outages, and inoperable phones.

Conclusions: A 2-way CPI with problem solving did not signifcantly improve week 48 suppression, but modestly impacted the secondary endpoint of VF. Adherence barriers in ART-experienced persons appear less amenable to primarily phone based contact. More effective, less work-intensive strategies are needed.

Cohort	ART Strategy	Study Arm	n	# (%) ≤ 200 copies/mL @ wk 48	# (%) confirmed virologic failure
A	Continue 2nd line ART	CPI+SOC	133	60 (45%)	60 (45%)
		SOC	136	55 (40%)	75 (55%)
B1	Best available NRTIs + DRV/r + RAL	CPI+SOC	36	32 (89%)	1 (3%)
		SOC	35	30 (86%)	5 (14%)
B2	DRV/r + RAL + ETR	CPI+SOC	35	31 (89%)	1 (3%)
		SOC	35	30 (86%)	2 (6%)
B3	DRV/r + RAL + TDF/FTC or TDF+3TC	CPI+SOC	3	3 (100%)	0 (0%)
		SOC	5	5 (100%)	0 (0%)
C	Best available NRTIs + DRV/r + RAL	CPI+SOC	34	31 (91%)	2 (6%)
		SOC	35	31 (89%)	3 (9%)
D	Best available local & study supplied ARVs	CPI+SOC	16	12 (75%)	2 (13%)
		SOC	18	13 (72%)	4 (22%)

[Table]

THPEB092

Factors associated with adherence to antiretroviral therapy in Brazil, in 2017

M.V. Meireles[1,2], A.R. Pascom[1], F. Perini[1], F. Rick[1], A. Benzaken[1]
[1]Ministry of Health of Brazil, Department of STI, AIDS and Viral Hepatitis, Brasilia, Brazil, [2]University of Brasilia, Faculty of Medicine, Brasilia, Brazil

Background: Adherence to ART is an important predictor of virological and clinical outcomes. We aimed to assess factors associated with adherence levels among adults on ART in 2017, in Brazil.

Methods: Programmatic data from two information systems from the Brazilian Ministry of Health were used; they gather data on every ART dispensation in the country and on viral load/CD4 counts performed within the country's public health system. ARV dispensations are typically made for 30 days, but can be extended for up to 90 days. Inclusion criteria was age≥15 y.o., and having at least two ARV pick-ups in a 180-day window, with the last one in 2017. Adherence was calculated retrospectively based on pharmacy pick-up data during the 180-day window, and dichotomized into ≥90% vs < 90% and ≥95% vs < 95%. Unconditional

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logistic regression models were performed, and all variables with a p-value< 0.20 in the univariable analyses were taken to the multivariable analysis.

Results: Among 499,976 individuals included in the study, 48,8% and 35,6% achieved adherence >90% and >95%, respectively, with median(IQR) adherence at 89.6%(73.6%-97.5%). Among the factors with the highest aOR[95%CI] for adherence >90% were age (gradient from 20-24y.o. 1.20[1.12-1.28] to >60y.o. 2.78[2.60-2.96], compared to 15-19y.o.); time on treatment (gradient from 3-5yrs 1.04[1.02-1.06] to < 1yr 1.42[1.37-1.46], compared to >8yrs), sex/transmission group (highest in males-parenteral 1.59[1.28-1.99] and MSM 1.45[1.42-1.48], lowest in females-IDU 0.85[0.78-0.93], compared to heterosexual females); educational level (12+ years of schooling 1.35[1.32-1.38], 8-11 1.13[1.11-1.15], compared to 0-7), race/colour (highest in white 1.32[1.30-1.34], lowest in indigenous 0.81[0.69-0.96], compared to brown) and drug class (highest in 2NRTI+1II 1.30[1.26-1.35]; lowest in 3NRTI+1PI/r 0.66[0.61-0.72], compared to 2NRTI+1NNRTI). aOR for the 95% cut-off were similar (not shown).

Conclusions: We identified several factors that affect patients' levels of adherence to ART and should be addressed to maximize treatment success. Recently-implemented in first-line in Brazil, 2NRTI+1II regimens predicted better adherence than the previously recommended 2NRTI+1NNRTI. Consistent with other studies, younger age is strongly associated with poorer adherence, and social indicators such as race and educational level also play an important role, reinforcing the need of focus adherence interventions on specific populations.

Baseline characteristics			Adherence	Multivariable analysis	
		n	% >90%	aOR	95% CI
Sex / transmission group	MSM	94211	55.4	1.45	(1.42-1.48)
	Heterosexual Male	79378	50.3	1.21	(1.19-1.24)
	Male IDU	9294	45.8	1.07	(1.03-1.12)
	Male - parenteral	331	56.2	1.59	(1.28-1.99)
	Male - mother-to-child	2362	31.8	1.09	(0.99-1.20)
	Male - unknown	133009	51.4	1.24	(1.22-1.26)
	Heterosexual Female	100012	44.3	1	
	Female IDU	2183	39.4	.85	(0.78-0.93)
	Female - parenteral	128	44.5	.93	(0.65-1.32)
	Female - mother-to-child	2558	30.1	.99	(0.90-1.08)
	Female - unknown	76510	42.4	.93	(0.92-0.95)
Age	15-19	6174	34.0	1	
	20-24	23641	44.2	1.20	(1.12-1.28)
	25-34	102656	47.5	1.48	(1.39-1.58)
	35-44	143099	46.4	1.68	(1.58-1.79)
	45-59	175808	50.4	2.09	(1.97-2.23)
	60+	48598	56.9	2.78	(2.60-2.96)
Race/colour	White	203929	53.6	1.32	(1.30-1.34)
	Brown	127244	45.4	1	
	Black	33884	42.8	.92	(0.90-0.94)
	Asian descent	3009	50.4	1.15	(1.07-1.23)
	Indigenous	614	40.4	.81	(0.69-0.96)
	Unknown	131296	46.3	1.07	(1.05-1.09)
Years of schooling	0-7	106108	45.6	1	
	8-11	94388	50.0	1.13	(1.11-1.15)
	12+	62168	57.9	1.35	(1.32-1.38)
	Unknown	237312	47.4	1.03	(1.01-1.04)
Time on treatment (years)	<1	29940	58.1	1.42	(1.37-1.46)
	1 |- 2	55442	51.9	1.22	(1.19-1.24)
	2 |- 3	55989	50.1	1.11	(1.08-1.13)
	3 |- 5	91786	48.2	1.04	(1.02-1.06)
	5 |- 8	91681	46.4	.99	(0.97-1.01)
	8+	175138	47.4	1	
Nadir CD4	0-99	69653	43.6	1	
	100-199	69790	45.5	1.04	(1.02-1.07)
	200-349	116628	48.0	1.15	(1.13-1.17)
	350-499	72904	49.4	1.17	(1.15-1.20)
	500+	86316	50.5	1.19	(1.16-1.21)
	Unknown	84684	56.2	1.43	(1.40-1.46)
Drug class	2 NRTI + 1 NNRTI	284603	51.8	1	
	2 NRTI + 1 PI/r	163466	42.2	.74	(0.73-0.76)
	2 NRTI + 1 II	19905	60.7	1.30	(1.26-1.35)
	2 NRTI + 1 PI/r + 1 II	9622	46.7	1.02	(0.97-1.07)
	2 NRTI + 1 PI	6074	48.3	.86	(0.82-0.91)
	3 NRTI + 1 PI/r	2810	38.1	.66	(0.61-0.72)
	Others	13496	51.5	1.02	(0.99-1.06)
Pills/day	1-2	239259	52.6	1.18	(1.14-1.22)
	3-5	230301	45.7	1.16	(1.13-1.20)
	6+	30416	42.9	1	

[Table: Baseline characteristics, % adherence>90% and results of the multivariable logistic regression model (n=499,976)]

Ethical issues in clinical trials and treatment strategies

THPEB093

Does burden associated with HIV explain preferences for several HIV Cure strategies? A French DCE survey among patients and physicians (ANRS-APSEC)

C. Protière[1], L. Fressard[1], L. Sagaon-Teyssier[1], M. Arnold[2], M. Mora[1], M. Préau[3], L. Meyer[4], O. Lambotte[5], B. Spire[1], M. Suzan-Monti[1], APSEC Study Group

[1]UMR 1252 INSERM-IRD-AMU, SESSTIM, Marseille, France, [2]Informing Change, Berkeley, United States, [3]Université Lumière Lyon 2, GRePS, Bron, France, [4]AP-HP, Service de Santé Publique, et INSERM 1018, Centre de Recherche en Épidémiologie et Santé des Populations (CESP), Université Paris-Sud, Villejuif, France, [5]AP-HP, INSERM, Université Paris Sud, Le Kremlin-Bicêtre, France

Background: Recent developments in HIV research have opened the way for HIV Cure-related clinical trials (HCRCT). However, the risks and uncertainty involved for patients living with HIV (PLWH) who have "normal" lives raises ethical issues. Consequently, research has explored and provided insights on motivations and barriers regarding PLWH and healthcare providers' participation in HCRCT. However, information is lacking about how stakeholders weigh up the attributes of different HCRCT, and whether their individual characteristics impact such trade-offs.

Methods: Between October 2016 and March 2017, a discrete choice experiment was conducted among 195 controlled PLWH and 160 physicians from 24 French HIV services. PLWH and physician profiles, based on personal characteristics, were elicited using hierarchical clustering. Trade-offs between five HCRCT attributes (trial duration, consultation frequency, moderate and severe side-effects, HCRCT outcomes) and values associated with four specific HCRCT strategies were estimated using a mixed logit model (accounting for heterogeneity and correlation in unobserved factors).

Results: Three profiles were elicited for both the PLWH and physicians, associated with different degrees of perception of HIV- and ART-associated burden (highest burden for physicians-1 and PLWH-3), a generational effect among physicians (physicians-2 and physicians-3 being the youngest and the oldest, respectively) and a gradient of both financial and psychological vulnerabilities among PLWH (highest vulnerability for PLWH3, comprising mainly women).

For all six profiles, the level of severe side-effects was the most important attribute (3.90 to 14.52, p< 0.000) followed by consultation frequency for PLWH-1 (3.29, p< .000), PLWH-2 (2.47, p< 0.000), PLWH-3 (2.38, p< 0.000), and physicians-3 (4.74, p< 0.000), and by HCRCT outcomes for physicians-1 (9.45, p< .000) and physicians-2 (5.86, p< 0.000). There were several other differences in the trade-offs made by each profile. For example, HCRCT outcomes varied from being the second most important to the least important attribute.

Conclusions: Results show that the level of severe side-effects was a more important attribute than outcomes when deciding whether to participate in HCRCT, even for physicians. Moreover, individual characteristics and perceived experience of life with HIV and ART impacted trade-offs, without necessarily resulting in a change in the values associated with each of the four HCRCT strategies.

THPEB094

Influence of experience with HIV and psychosocial factors on willingness to participate in HIV cure-related clinical trials - results from the ANRS APSEC acceptability study

M. Fiorentino[1], C. Protière[1], L. Fressard[1], O. Lambotte[2], L. Meyer[3], C. Goujard[3], B. Spire[1], M. Suzan-Monti[1]
[1]INSERM, AMU, IRD, SESSTIM, Sciences Economiques & Sociales de la Santé & Traitement de l'Information Médicale, Marseille, France, [2]INSERM, U1012, Université Paris-Sud 11, AP-HP, Hôpital de Bicêtre, Service de Médecine Interne, Le Kremlin-Bicêtre, France, [3]INSERM, U1018, Université Paris-Sud 11, AP-HP, Hôpital de Bicêtre, Département d'Epidémiologie, Le Kremlin-Bicêtre, France

Background: In high-income countries, HIV has become a chronic manageable infection. Enrolling patients with a sustained undetectable viral load into HIV Cure research clinical trials (HCRCT) is challenging, given the lack of direct individual benefit and the risks related to antiretroviral therapy (ART) interruption. Few data are currently available about the individual factors that might influence acceptability of HCRCT. The objective of the present study was to investigate the effect of personal experience with HIV and psychosocial characteristics on willingness to participate (WTP) in HCRCT.

Methods: The study enrolled 195 people living with HIV (PLWH), ART-treated and virologically suppressed, who were followed up in 19 French HIV services. Participants were presented different HCRCT scenarios with ART interruption and asked if they would participate in a HCRCT based on their preferred scenario. WTP was defined as answering "Yes, definitely" (vs. "Not at all", "Not really" or "Yes perhaps"). Correlates were assessed through logistic modelling.

Results: WTP in HCRCT (43% of participants) was positively associated with self-reported confidence about being HIV positive (OR 1.28 [1.11;1.48]), feeling very challenged by mandatory daily medication (OR 2.08 [1.05; 4.11]), the negative effect of HIV on one's working life (OR 2.69 [1.13; 6.43]), and suffering from depression during the previous 12 months (OR 2.73 [1.03;7.28]). PLWH with financial difficulties, a higher education degree, those feeling very challenged by having to use condoms during sex, and those self-reporting poorer health since HIV infection, all expressed lower WTP (OR 0.28 [0.09;0.83]; OR 0.39 [0.16;0.98]; OR 0.43 [0.22;0.85]; 0.37 [0.16;0.98], respectively).

Conclusions: PLWH challenged by condom use, and those with self-perceived poorer health due to HIV, might be reluctant to interrupt their ART because of the risks of HIV transmission and viral load rebound. In contrast, PLWH challenged by having to take daily medication may consider HCRCT an opportunity to avoid this necessity. These results must be compared with future "real-life" data on patient enrollment in HCRCT. Understanding factors that underlie participation in HIV Cure research, especially personal experience with the disease, may help to better target patients.

Immune-based therapy trials

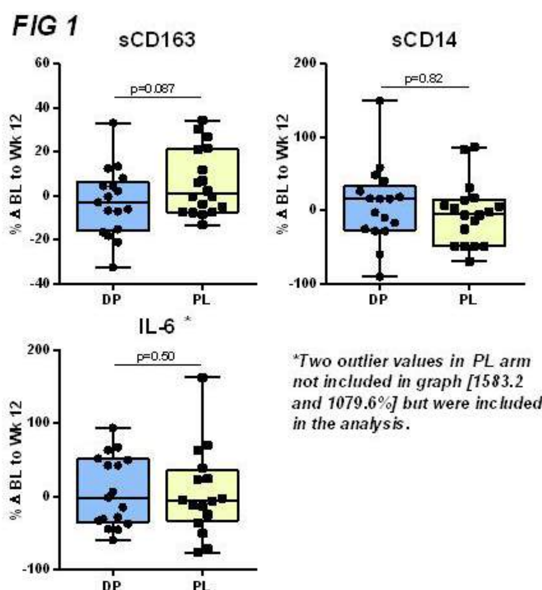
THPEB095

Enhancement of adenosine signaling using dipyridamole to decrease inflammation in HIV

B.J. Macatangay[1], E.K. Jackson[2,3], K.Z. Abebe[2,4], C. Klamar-Blain[1], L.A. Borowski[5], D. Gillespie[3], J.C. Cyktor[1], D. Comer[4], K. Holleran[4], K.K. Klingman[6], J.W. Mellors[1], C.R. Rinaldo[5], S.A. Riddler[1]
[1]University of Pittsburgh, Medicine/Infectious Diseases, Pittsburgh, PA, United States, [2]University of Pittsburgh, Medicine, Pittsburgh, PA, United States, [3]University of Pittsburgh, Department of Pharmacology and Chemical Biology, Pittsburgh, PA, United States, [4]University of Pittsburgh, Biostatistics, and Clinical and Translational Science, Pittsburgh, PA, United States, [5]University of Pittsburgh, Infectious Diseases and Microbiology, Graduate School of Public Health, Pittsburgh, PA, United States, [6]Division of AIDS, NIAID, NIH, Bethesda, United States

Background: Adenosine is a potent immunoregulatory nucleoside produced during inflammatory states to limit tissue damage. T-cell expression of ectoenzymes responsible for extracellular adenosine production are decreased during HIV infection. We hypothesized that dipyridamole, which inhibits cellular adenosine uptake, could raise extracellular adenosine concentration and dampen chronic HIV-associated inflammation.

Methods: In this double-blind pilot clinical trial, ART-treated participants with viremia suppression for at least 48 weeks and CD4$^+$ count >350 cells/mm^3 were randomized 1:1 to dipyridamole 100 mg po 4x/day or placebo for 12 weeks. All participants took open-label dipyridamole during weeks 12-24. We compared changes from baseline to week 12 for levels of monocyte (sCD14), macrophage (sCD163), and T-cell (HLA-DR$^+$CD38$^+$) activation, systemic inflammation (IL-6), T-cell cycling (Ki-67$^+$), and brachial artery reactivity (FMD). Plasma levels of dipyridamole and inosine (initial adenosine metabolite) were measured by mass spectrometry. Linear regression models on log-transformed outcomes were used for the primary 12 week analysis; linear mixed models were used for analysis out to 24 weeks.



[Figure 1]

Results: Forty participants were randomized. Compared to placebo, dipyridamole participants had more neurologic AEs (headache, dizziness; p=0.03) but all ≥ grade 2 AEs were similar between arms (p=0.19). Participants with data for baseline and week 12 were included in the primary analysis (17 dipyridamole, 18 placebo). There was a trend towards a difference in sCD163 from baseline to week 12 in dipyridamole vs placebo (median change -6.19 vs 5.42 ng/mL; p=0.087), but no significant differences in sCD14 (p=0.82) or IL-6 (p=0.50) [Fig 1]. There were small but non-significant decreases in CD8$^+$ T-cell activation from baseline to week 12 in DP vs PL (-0.82 vs 0.15%; p=0.21) and from week 12 to 24 in placebo during dipyridamole dosing (-0.30%). In post-hoc analysis, median plasma

inosine levels were higher at visits with detectable plasma dipyridamole, compared with each participant's baseline (p=0.03). No between-arm differences were observed for T-cell cycling, plasma viremia by single-copy assay, or FMD.
Conclusions: In this placebo-controlled trial, dipyridamole did not significantly decrease markers of systemic inflammation, monocyte activation, or T-cell cycling, but modest decreases in macrophage and $CD8^+$ T-cell activation were evident. Future studies to enhance adenosine signaling should be considered.

Cure interventions

THPEB096

How do participants experience analytical treatment interruption trails: Lessons learned from the HIV-STAR study

M.-A. De Scheerder[1,2], A. De Rick[1], E. Caluwé[1], S. Vanherreweghe[1], L. Vandekerckhove[1,2]
[1]UZ Gent, Algemene Inwendige Ziekten, Gent, Belgium, [2]UGent, HCRC, Gent, Belgium

Background: In HIV cure research, analytical treatment interruption trials have become a very important tool to evaluate new latency reversing agents (and other molecules that aim to reduce the viral reservoir). Furthermore these trials can give us broader insights on the origin of viral rebound and can help with the identification of potential biomarkers to predict viral rebound post-treatment. Although recent data supports the safety of these interventions, little is known about participants experience and satisfaction.
Description: We asked participants of the HIV-STAR study (NCT02641756) to fill-in two self-designed questionnaires, designed in collaboration with a master in psychology with ample experience in HIV care. The first (32 questions) was answered at inclusion and focused on expectations, motivation and fears. The second was answered at the final study visit, in average 3 months after the ATI (23 questions). Here, we assessed the overall satisfaction and experience.
Lessons learned: Participants were thoroughly screened and could only participate if understanding of the trial and motivation was estimated to be high after multidisciplinary discussion. We conducted a very intensive program of follow-up and guidance during the trial. Overall patient satisfaction was high (90%). This resulted especially in a high number of participants who would reenter this trial (90%) and zero drop-outs. Although initial screening revealed mostly fear of the extensive sampling interventions (63%), this did not appear to be a major burden at final evaluation (9%). However, most of the participants underestimated the treatment interruption phase, especially on a psychological level. No patients initially thought treatment interruption would be an emotional challenge and only 27% was preoccupied by the viral rebound whereas this was assessed as the more difficult phase of the study at evaluation (36%). Participants had very realistic expectations concerning outcome and benefits related to their participation (90%).
Conclusions/Next steps: ATI and extensive sampling were positively evaluated by the participants of the HIV-STAR study, resulting in zero drop-outs, high overall satisfactory scores and an increased interest and contribution in research projects. However, we believe that a strict inclusion policy, individual guidance and fierce organization play a major role in participants satisfaction.

THPEB097

Two cases of hematopoietic malignancies complicated by HIV infection treated with allogeneic hematopoietic stem cell transplantation in combination with a CCR5 inhibitor

T. Kotani
Ishikawa Prefectural Central Hospital, Kanazawa, Japan

Background: Although hematopoietic stem cell transplantation has been performed for patients with HIV infection worldwide, previous studies have shown that radical treatment for HIV infection cannot be achieved using this procedure alone. In 2009, a case in which HIV was eradicated after transplantation of stem cells from a CCR5Δ32-deficient donor was reported. Theoretically, hematopoietic stem cell transplantation along with the use of the CCR5 inhibitor maraviroc (MVC) is as effective as transplantation of stem cells from a CCR5Δ32-deficient donor. Herein we report two cases of hematopoietic malignancies complicated by HIV infection treated with hematopoietic stem cell transplantation in combination with MVC.
Methods: MVC was added one month before transplantation. Monitoring of HIV after transplantation was carried out with HIV-RNA levels and Proviral DNA analysis.
Results: Case 1: A man in his 50s developed treatment-related myelodysplastic syndrome, and underwent hematopoietic stem cell transplantation from a HLA-matched sibling donor. MVC was added to antiretroviral therapy (ART) containing raltegravir/etravirine before transplantation. After transplantation, the patient was unable to ingest drugs orally. ART was discontinued on day 11. Engraftment was achieved on day 26. However, the patient developed heart failure and renal impairment leading to multiple organ failure and died on day 48. On examination on day 40, HIV-RNA was not detected.
Case 2: A man in his 30s developed Philadelphia chromosome-positive acute lymphoblastic leukemia (Ph+ ALL) during the treatment of HIV infection. Remission was achieved with dasatinib combination chemotherapy. The patient underwent hematopoietic stem cell transplantation from a HLA-matched sibling donor. MVC was added to ART containing dolutegravir/truvada before transplantation. After transplantation, the absence of HIV was also confirmed by ProViral DNA analysis. ART was discontinued on day 65.
On examination on day 85, HIV-RNA was not detected. However, a significant increase in HIV-RNA was observed on day 120, and ART was restarted. Subsequently, HIV-RNA decreased rapidly. His Ph+ ALL remained in molecular remission during treatment.
Conclusions: Further investigation, with accumulation of more cases, is needed to ascertain whether permanent disappearance of HIV can be achieved employing combination therapy with CCR5 inhibitors. If long-tern treatment with CCR5 inhibitors becomes available, eradication of HIV may be possible.

THPEB098

Two case reports on safety and impact of 47 integrin monoclonal antibody in treated primary HIV infection on HIV reservoirs

J.P. Thornhill[1], J. Hoare[1], S. Peake[1], M. Khan[1], J. Skelton[1], M. Dorner[1], K. Williamson[2], C. Murray[3], J. Frater[2], S. Kinloch[3], S. Fidler[1], & the CHERUB Investigators
[1]Imperial College London, London, United Kingdom, [2]University of Oxford, Oxford, United Kingdom, [3]Royal Free NHS Foundation Trust, London, United Kingdom

Background: Gut-associated lymphoid tissue (GALT) is preferentially infected during primary HIV infection (PHI) & is a key site of HIV persistence. 47 integrin, a gut-homing receptor expressed on CD4 T-cells, facilitates CD4 T-cell trafficking to GALT. A monoclonal antibody against 47 integrin (Vedolizumab, VDZ) is used to treat inflammatory bowel disease (IBD). Data from ART-treated SIV-infected primates showed HIV viral control following VDZ administration. We present 2 cases of HIV+ individuals treated with ART in PHI, who received VDZ for IBD.

Methods: VDZ was administered as licensed for IBD - at 0,2,6 then every 8 weeks. Informed consent for blood sampling & gut biopsy was obtained. Routine clinical monitoring data was captured (CD4,CD8 & HIV VL). Paired blood and gut biopsy samples from the terminal ileum (TI) & rectum were collected at a single time-point from participant A. Comparisons with blood & GALT samples from the HEATHER cohort (15 ART-treated PHI individuals) were made for 7 expression & total HIV DNA measured by flow cytometry and qPCR, respectively.

Results: Clinical characteristics are shown in Table 1. No adverse events were reported, and both patients had clinical IBD response. For Participant A: 7 expression on blood CD4+ cells increased over the 3 study visits (12.7%, 13.7% & 22.1%, respectively); 7 expression on GALT CD4+ cells was lower for participant A compared to HEATHER participants & healthy controls. Blood total HIV DNA for participant A (at biopsy) was comparable to the mean HEATHER HIV DNA (3.4 vs 3.1 Log/10^6 CD4). Despite only 8 months of ART since PHI, total HIV DNA in GALT for participant A (TI 3.7, rectum 3.5 Log/10^6 CD4 was below the mean of HEATHER participants (TI 3.6, rectum 3.5 Log/10^6 CD4) whose median (range) time on ART was longer at 34 (15-96) months.

Conclusions: We report the first 2 cases of HIV+ individuals receiving Vedolizumab for IBD. It was shown to be safe, well-tolerated & associated with good IBD response. These preliminary data support further exploration of 47 integrin antibodies as a strategy to limit GALT HIV reservoir. It remains to be shown if longer treatment period may further impact on reservoirs.

Table 1. Clinical Characteristics	Participant A	Participant B
Age, years (sex)	31 (M)	53 (F)
IBD diagnosis	Crohn´s	UC
Year HIV diagnosis	2016	2000
Days from PHI to ART	28	10
Months from PHI to Vedolizumab	3.5	202
Months on ART at time of gut biopsy	8	NA
Current CD4 count (cells/mm^3)	419	1054
Current VL (CPM)	<20	<20
m, male; f, female; PHI, primary HIV infection; UC, ulcerative colitis; NA, not applicable; VL, viral load; CPM, copies per million		

[Clinical characteristics]

THPEB099

Antiretroviral treatment interruptions in HIV clinical trials: A systematic review

J.S.Y. Lau[1,2], M.Z. Smith[3,4], S.R. Lewin[3,4], J.H. McMahon[1,2]
[1]*The Alfred Hospital, Department of Infectious Diseases, Melbourne, Australia,* [2]*Monash University, Melbourne, Australia,* [3]*The Peter Doherty Institute for Infection and Immunity, Melbourne, Australia,* [4]*Melbourne University, Melbourne, Australia*

Background: Structured treatment interruptions (STIs) were previously used to determine effects of intermittent antiretroviral therapy (ART) in people living with HIV (PLHIV), but studies found this to be associated with worse outcomes. Recently, analytical treatment interruptions (ATI) have tested interventions aiming to achieve virological control without ART. We reviewed the practice of ATI and STI.

Methods: A systematic review was performed of clinical studies from 2000-2017 identified via Ovid MEDLINE, EMBASE and recent HIV conference abstracts. ATI studies assessed interventions aimed at achieving virological control without ART, STI studies investigated whether adverse effects of ART could be minimised. Extracted data included: demographics, frequency of CD4 and HIV viral load (VL) monitoring, criteria to restart ART, TI duration, and adverse outcomes. A descriptive analysis of TI parameters was performed stratifying ATI studies pre- and post-2014 when ART was universally recommended.

Results: The search identified 705 studies, with data extracted from 109 studies; 68(62%) STI and 41(38%) ATI; where therapy was interrupted in 8453 individuals. Most common monitoring strategies for VL and CD4 were: monthly for 18 STI studies and weekly or more frequently for 20 ATI studies (Table). The commonest threshold to restart ART in STI studies was CD4 < 350 cells/mm^3, with 42 STI studies reporting no VL threshold to restart ART. In ATI studies, the commonest threshold was a VL >1000 copies/mL and/or CD4 < 350 cells/mm^3 in 7 studies conducted after 2014, and a VL >50,000 copies/mL in 6 pre-2014 ATI studies. Reported median TI duration ranged from 7 days to 22 months in STI and from 14 to 106 days in ATI. TI-related adverse events pre-2014 were related to immunological decline. In 21 ATI studies post-2014 one adverse event of myocardial infarct was reported.

Conclusions: Marked heterogeneity was noted in study methodology and TI duration. ATI studies had more frequent monitoring and shorter TI duration, compared to STI studies. ATI studies were more likely to re-initiate ART based on VL monitoring and the VL threshold for this has decreased over time. Summary data will assist the design of future trials involving ATI and potentially in standardising an approach to this intervention.

	STI	ATI (pre-2014)	ATI (2014-17)
No. of studies	68	20	21
Frequency of assessing HIV viral load* (no. of studies)	2d to 16wkly (47/68)	twice wkly to 12wkly (15/20)	2d to 12wkly (14/21)
Most commonly reported frequency of VL assessment (no. of studies)	monthly (18/47)	wkly/more frequently (10/15)	wkly/more frequently (10/14)
Viral load threshold to restart ART*, c/mL (no of studies)	1000 to 500,000 (26/68)	5000 to 100,000 (14/20)	48 to 300,000 (13/21)
Most commonly reported VL threshold c/mL (no. of studies)	5000 (7/26)	50,000 (6/14)	1000 (7/13)
CD4 threshold to restart ART*, cells/mm^3 (no. of studies)	50 to 400 (39/68)	200 to 350 (12/20)	All studies that reported threshold used 350 (11/21)
Most commonly reported CD4 threshold, cells/mm^3 (no. of studies)	350 (16/39)	350 (5/12)	
Duration TI** (no. of studies)	7d to 22m (49/68)	6.3 to 96wks (4/20)	14 to 106d (7/21)
	9/49 studies ≥ 12m 27/49 studies ≥ 3m	14/15 studies ≥ 3m	6/13 studies ≥ 3m
Adverse events#	Reported in 25 studies^	Reported in 6 studies^	Reported in 1 study^

NOTE: * range, ** range of medians; # possibly or probably related to TI; ^ development of HIV resistance, acute retroviral syndrome, thrombocytopaenia, lymphadenopathy, severe AIDS defining conditions/death, HIV related event/symptoms, major organ disease, AIDS defining event not otherwise specified; ^ development of HIV resistance, acute retroviral syndrome, thrombocytopaenia, AIDS defining events, HIV related event/symptoms; ^ myocardial infarction; ART, antiretroviral therapy; ATI, analytical treatment interruption; c/mL, copies per milliliter; CD4, CD4+ T cells; d, days; m, months; STI, structured treatment interruption; TI, treatment interruption VL, HIV viral load, wks, weeks; wkly, weekly.

[Table: Parameters in Structured Treatment Interruption and Analytical Treatment Interruption Studies]

THPEB100

Statin use during effective ART is not associated with lower biomarkers of HIV persistence or immune activation/inflammation

R. Bedimo[1,2], H. Mar[3], R. Bosch[3], H. Drechsler[1,2], J. Cyktor[4], B. Macatangay[4], C. Lalama[3], C. Rinaldo[4], A. Collier[5], C. Godfrey[6], E. Hogg[7], C. Hensel[8], J. Eron[9], D. McMahon[4], J. Mellors[4], P. Tebas[10], R. Gandhi[3], A 5321 Study Team
[1]*VA North Texas Health Care System, Medicine, Dallas, United States,* [2]*University of Texas Southwestern Medical Center, Medicine, Dallas, United States,* [3]*Havard University, Cambridge, United States,* [4]*University of Pittsburgh, Pittsburgh, United States,* [5]*University of Washington, Seattle, United States,* [6]*Division of AIDS, NIAID, National Institutes of Health, Washington, D.C., United States,* [7]*Social & Scientific Systems, Silver Spring, United States,* [8]*Frontier Science & Technology Research Foundation, Inc, Amherst, United States,* [9]*University of North Carolina, Chapel Hill, United States,* [10]*University of Pennsylvania, Philadelphia, United States*

Background: Statins exert pleiotropic anti-inflammatory and immune-modulatory effects. They also have in vitro antiviral effects, and we have shown that statin use is associated with a reduced risk of virologic rebound in people on suppressive antiretroviral therapy (ART). This may reflect a statin-induced decreased HIV-reservoir size. We evaluated whether current statin exposure is associated with lower levels of markers of HIV persistence and immune activation/inflammation.

Methods: We analyzed samples from HIV-infected participants of ACTG A5321 who started ART during chronic infection and maintained virologic suppression (HIV-1 RNA levels ≤50 copies/mL) for ≥3 years. We measured: 1) three markers of HIV-1 persistence (cell-associated HIV RNA [CA-RNA], CA-DNA, and single copy assay [SCA] plasma HIV RNA) and 2) soluble markers of immune activation/inflammation: IL-6, IP-10, ne-

opterin, sCD14, sCD163 and TNF-alpha. Wilcoxon rank-sum tests compared markers between participants receiving versus not receiving statin therapy, and regression models adjusted for variables correlated with markers of HIV persistence.
Results: A total of 303 participants were analyzed. The median age was 48 yrs; 82% were male; 55% were white. At the time of biomarker measurements, median duration of suppressive ART exposure was 7.3 yrs (IQR: 6.1 - 10.1); median CD4 count was 681/mm^3 (515 - 864); 72 (24%) participants reported receiving statins. The median time on the current statin was 2.9 yrs (1.2 - 5.1). There were no differences between statin users and non-users in levels of CA-DNA (median 650 vs. 540 copies/10^6 CD4+ T cells; p=0.58), CA-RNA (53 vs. 37 copies/10^6 CD4+ T cells; p=0.12) or SCA (0.4 vs. 0.4 copies/mL; p=0.45). Similarly, there were no significant differences between statin users and non-users in markers of inflammation/activation, except for IP-10 (137 vs. 118 pg/mL; p=0.028). Findings were unchanged after adjustment for factors including pre-ART CD4 and HIV RNA, and years on ART.
Conclusions: In this cohort of persons on long-term suppressive ART, current statin use was not associated with lower levels of HIV persistence or immune activation/inflammation. These results do not support a major role for statins in reducing HIV persistence although an early transient effect cannot be excluded. Prospective, randomized studies are needed to confirm these findings.

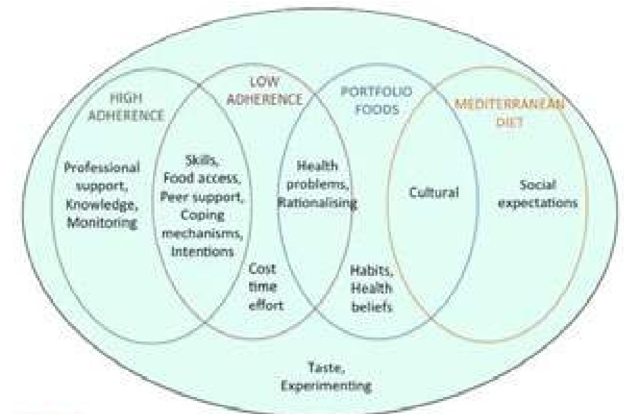
Nutrition

THPEB101

A qualitative analysis of the barriers and facilitators to adopting the Mediterranean diet with Portfolio cholesterol-lowering foods in those with HIV dyslipidaemia - interviews within a randomized controlled trial

C. Stradling[1], S. Taheri[2], N. Thomas[3], S. Taylor[4]
[1]University of Birmingham, Institute of Inflammation & Ageing, Birmingham, United Kingdom, [2]Weill Cornell Medicine in Qatar and New York, Qatar, Qatar, [3]University of Birmingham, Birmingham, United Kingdom, [4]Heart of England NHS Foundation Trust, Birmingham, United Kingdom

Background: Our Best Foods For your heart (BFF) trial found that LDL-cholesterol was 10% lower after 6 months on the Mediterranean Portfolio diet compared to a low saturated fat diet in adults with HIV dyslipidaemia (ISRCTN32090191). Assuming full adherence, complier average causal effect analysis suggested the LDL-cholesterol reduction might be as large as -0.87mmol/l (95%CI -1.79 to 0.05mmol/l). However, individual dietary adherence varied between 11 and 100%. Therefore, this study aimed to explore factors affecting adoption of the Mediterranean Portfolio diet in adults participating in the BFF RCT.
Methods: Sixteen of 29 participants randomized to the Mediterranean Portfolio arm (Mediterranean-style diet incorporating cholesterol-lowering foods: nuts, oats, soya, plant stanols and beans) were purposively sampled to reflect the diversity of the trial population. Semi-structured interviews were conducted and analysed iteratively using a thematic framework.
Results: Proportionally more women were enrolled in the RCT (52%) and 50% of participants were black African. Dietary adherence was high: Portfolio foods (59±21%); Mediterranean Diet Score (68±15%) with 24% improvement in diet quality over 6 months. Participants with high adherence (>70%) were keen to experiment with new tastes, valued the provision of unfamiliar foods and personalized support from a trusted professional. Barriers of cost/time/effort to access foods emerged repeatedly from participants reporting low adherence (< 60%). Participants also identified barriers potentially unique to this population: lack of autonomy in food selection, and fear of disclosure of HIV status when explaining reasons for food choices to friends and family (peer support in Figure).
Adoption of dietary components was approached differently. Plant stanol drinks were viewed as „medication", to compensate for high fat intake. Portfolio foods were generally added as snacks, allowing minimal disturbance to usual eating patterns. The concept of snacking was less acceptable to Africans because of cultural norms of proper meals. African participants embraced the transition towards a Mediterranean style diet by reversing acculturation and returning to their traditional foods.
Conclusions: The Mediterranean Portfolio diet was achievable in a multi-ethnic group. Dietary interventions need to identify and engage personal motivators, address cross-cultural issues, and accommodate social and educational needs. Matching diet style to the individual is important.



[Figure: Themes from participant interviews on barriers and enablers to adopting the Mediterranean Portfolio diet]

Diagnosis of HIV disease in paediatric and adolescent populations

THPEB102

Community-based HIV-free survival in high prevalence settings after introduction of Option B+: Results from Lesotho

A. Tiam[1,2], M. Gill[1], R. Machekano[1], V. Tukei[3], M. Mokone[4], M. Letsie[5], I. Seipati[6], M. Nei[7], F. Mohai[7], L. Guay[1,8]
[1]Elizabeth Glaser Pediatric Aids Foundation, Research, Washington, United States, [2]University of Bergen, Centre for International Health, Bergen, Norway, [3]Employer, Research, Maseru, Lesotho, [4]Elizabeth Glaser Pediatric Aids Foundation, Research, Maseru, Lesotho, [5]Ministry of Health, Disease Control, Maseru, Lesotho, [6]Ministry of Health, Family of Health, Maseru, Lesotho, [7]Elizabeth Glaser Pediatric Aids Foundation, Program, Maseru, Lesotho, [8]George Washington University, Milken Institute School of Public Health, Washington, United States

Background: Population-based HIV-free survival (HFS) at 18-24 months among HIV-exposed infants (HEI) in high prevalence settings with Option B+ is largely unknown. We conducted a community-based survey to determine outcomes of HEI at 18-24 months in Lesotho.
Methods: From November 2015 to December 2016, we conducted a survey among households with a child born 18-24 months before study initiation. Facility catchment areas from 25 health facilities in Butha-Buthe, Maseru, Thaba-Tseka and Mohale's Hoek districts were randomly selected using probability proportional to size sampling. Consecutive households were visited and eligible consenting caregivers were enrolled. Rapid HIV antibody testing was performed for mothers of unknown HIV status (never tested or HIV-negative >3 months prior) and children of HIV-positive or unknown status mothers. Mortality information for mothers and children who died were captured.
Categorical variables were summarized by frequencies and proportions in each category. Continuous variables were summarized using means and standard deviations or medians and interquartile range. The difference in survival between sub-groups of the sample was determined using the log-rank test. Comparisons included HIV-unexposed versus HIV-exposed children.

Results: Of the 11,169 households visited, 2,190 were eligible and 1,852 (84.6%) were enrolled. Of the 374 women documented to be on antiretroviral treatment, 36% (135/374) started ART before ANC and 88% (329/374) were still on treatment at the time of the study. The mother-to-child HIV transmission rate was 5.7% [95% CI: 4.0-8.0]. The mortality rate was 2.6% [95% CI: 1.6-4.2] and 1.4% [95% CI: 0.9-2.3] among HIV-exposed and HIV-unexposed children respectively. HFS was 91.8% [95% CI: 89.2 - 93.8] among HEI. Disclosure of mother's HIV status (aOR = 4.9, 95% CI: 1.3 - 18.2) and initiation of cotrimoxazole prophylaxis in the child (aOR = 3.9, 95% CI: 1.2 - 12.6) were independently associated with increased HIV-free survival while child growth problems (aOR = 0.2, 95% CI: 0.09 - 0.5) was independently associated with reduced HIV-free survival.
Conclusions: Even with Option B+, Lesotho has not reached elimination of mother-to-child transmission. With mortality of HIV-exposed children twice that of HIV-unexposed children, HIV-free survival was only 91.8%. Disclosure of maternal HIV status was associated with survival.

THPEB103

We have left the children behind in the 90- 90- 90 agenda. A case of Churches Health Association of Zambia

D. Mainza, P. Choonga, D. Menda, K. Sichinga
Churches Health Association of Zambia, Health Programs, Lusaka, Zambia

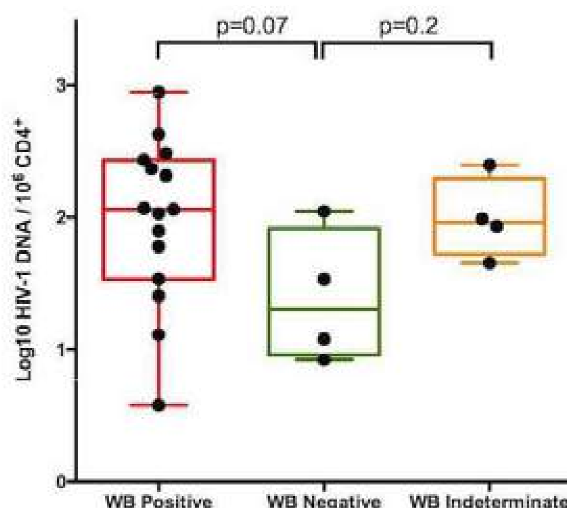
Background: There have been efforts to strengthen the elimination of Mother to Child Transmission (eMTCT) of HIV in church health institutions (CHIs) through strengthening of the Early Infant Diagnosis (EID) program. With Global Fund ATM support, the Churches Health Association of Zambia (CHAZ) has been a key implementing partner of the eMTCT program in Zambia since 2004. In 2016 alone, 54.8% infants were tested for HIV using the Nucleic Acid Test (NAT) at 6 weeks.
Methods: This was a cross sectional study which involved the review of data, from purposely selected nineteen (19) CHIs extracted from Safe Motherhood register, DBS tracking register and DBS laboratory requisition forms, for the period of January to December 2017.
Results: Review of the EID data showed that; in 2016, there were 1,238 HIV positive women who delivered live babies. 88% of these had a poor economic status and were mainly peasant farmers. Out of this number, only 87% infants had the DBS sent to PCR laboratories at 6 weeks. Only 81% results were received back at facilities and out of the results received, 2.9% were HIV positive and out of which only 60% were commenced on ART. Challenges to ART initiation includes infant death prior to ART initiation, and mothers not returning for the results. The average turnaround time for receipt of results by the health facilities in this study was 78 days.
Conclusions: Loss to follow up (LTFUP) at all stages of the EID testing and treatment cascade was identified as the major problem in EID resulting in failure to test and treat all HIV positive infants within two months of age. The other identified factor is the long turnaround time for the results. There is need to enhance the role of treatment supporters to avert the high LTFUP at all stages of the DBS testing and treatment cascade. DBS testing should also be decentralized to district and health facility level. Mother baby pairs should be followed up and no baby should be missed.

THPEB104

Western-blot negative for HIV as a marker of a low reservoir in vertically HIV-infected children

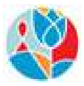
A. Tagarro[1], M.-A. Muñoz Fernández[2], C. Fortuny[3], M.-L. Navarro[4], M.J. Mellado[5], J.-T. Ramos[6], S. Jiménez-De Ory[7], T. Sainz[5], L.-M. Prieto[8], A. Noguera-Julián[9], P. Rojo[10], in behalf of EPIICAL Consortium
[1]Instituto de Investigación Hospital Universitario 12 de Octubre, Universidad Europea de Madrid, Pediatric Infectious Diseases, Madrid, Spain, [2]Sección de Inmunología, Laboratorio de Inmunobiología Molecular, Hospital General Universitario Gregorio Marañón, Biobanco Nacional de VIH, IiSGM, Madrid, Spain, [3]laudia Fortuny, Malalties Infeccioses i Resposta Inflamatòria Sistèmica en Pediatria. Unitat d'Infeccions, Servei de Pediatria. Institut de Recerca Pediàtrica Hospital Sant Joan de Déu, Departament de Pediatria, Universitat de Barcelona, CIBER de Epidemiología, Barcelona, Spain, [4]María Luisa Navarro, Unidad de Enfermedades Infecciosas Pediátricas, Servicio de Pediatría, Hospital Universitario Gregorio Marañón, Universidad Complutense de Madrid, CoRISpeS, Madrid, Spain, [5]Unidad de Enfermedades Infecciosas, Pediatría y Enfermedades Tropicales, Hospital Universitario La Paz-Carlos III, Universidad Autónoma de Madrid, Madrid, Spain, [6]Servicio de Pediatría, Hospital de Getafe, Universidad Europea, Servicio de Pediatría, Hospital Clínico San Carlos, Universidad Complutense de Madrid, Madrid, Spain, [7]Cohorte Nacional de Pacientes Pediátricos con VIH (CoRisPe), Madrid, Spain, [8]Servicio de Pediatría, Hospital de Getafe, Universidad Europea, Getafe, Spain, [9]Malalties Infeccioses i Resposta Inflamatòria Sistèmica en Pediatria, Unitat d'Infeccions, Servei de Pediatria, Institut de Recerca Pediàtrica Hospital Sant Joan de Déu, Universitat de Barcelona, CIBER de Epidemiologia y Sal, Departament de Pediatria, Barcelona, Spain, [10]Hospital Universitario 12 de Octubre, Pediatric Infectious Diseases, Madrid, Spain

Background: Early and continued treatment against HIV reduces the size of the reservoir in children with vertical transmission. HIV enzimmoimmunoessay (EIA) can be negative in children who initiate antiretroviral treatment (ART) early. The negativization of EIA has been proposed as an indirect marker of a reduced reservoir.
The objective of this study is to investigate if negative Western-Blot (WB) is related to a smaller size of the reservoir in children with vertical infection treated during the first year of life.
Methods: The humoral response to HIV and the reservoir size were analyzed in 23 children treated in the first year of life and with suppression (< 200 copies / mL) for at least one year. The size of the reservoir was determined by measuring total DNA copies of HIV-1 per million CD4 + cells, using digital droplet (dd) PCR. WB was performed on the same samples. The distribution of DNA in negative-WB patients was compared to positive-WB patients using the Mann Whitney (MW) and Kolmogorov-Smirnov (KS) test. Negative results of WB were compared with DNA < 10 copies / million by the chi2 and Fisher tests.



[Figure 1. Reservoir size distribution (Log10 DNA copies / million CD4 +) in patients with positive or undetermined WB versus patients with negative WB]

Results: The reservoir and the humoral response were performed after a median of 4.5 years of suppression [interquartile range (RIC): 3.3-6.9], with a median age of 8 years [RIC: 5.1-10]. Four patients (17%) presented



negative WB, and another 4 (17%) were indeterminate. The size of the reservoir was lower in WB-negative patients (12 copies / million CD4 +, [RIC: 6-72], Log10 = 1.07 [0.7-1.7]) than in the group of patients with positive or indeterminate WB (111 copies/million CD4+ [RIC: 56-255], Log10 = 2.04 [1.7-2.4], Figure 1, p = 0.009, KS, p = 0.02). DNA < 10 copies / million CD4 + was significantly associated with negative WB (OR, 0.14 [95% CI: 0.04-0.4], p = 0.04).
Conclusions: In this study with patients treated in the first year of life and well controlled, 17% of patients had negative WB. Negative WB was significantly associated with a smaller reservoir size. In this type of patient, negative WB could be considered an indirect data of small reservoir size.

THPEB105

Malnutrition, orphan hood, and TB diagnosis are strong predictors of HIV positivity among children less than 15 years in Uganda

A. Kekitiinwa[1], R. Ssebunya[2], D. Damba[2], G.P. Kisitu[2], H. Bitimwine[3], B. Asire[4], P.N. Ntege[2], J. Kabanda[5], E. Nazziwa[5], J. Kalamya[5], M.R. Adler[5]
[1]Baylor College of Medicine Children's Foundation, Pediatrics and Child Health, Kampala, Uganda, [2]Baylor College of Medicine Children's Foundation, Kampala, Uganda, [3]Ministry of Health Uganda, Kampala, Uganda, [4]United Nations Internaational Children's Emergency Fund, Kampala, Uganda, [5]Centre for Disease Control, Entebbe, Uganda

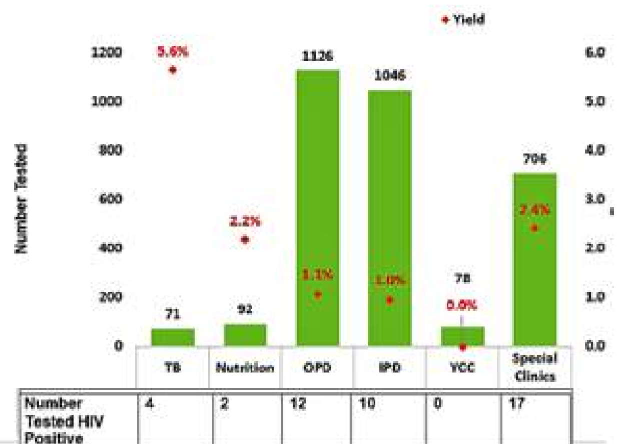
Background: Despite strides in improving pediatric HIV service coverage in Uganda, it is estimated that 32% of children living with HIV have not been identified. Identifying children with higher risk of HIV infection can improve efficiency of HIV testing among this population sub-group. We describe correlates for HIV positivity among children less than 15 years attending health facilities in Uganda.
Methods: HIV testing was offered to 3245 children in 8 health facilities from February 2017 to June 2017. Probability proportional to size was used to distribute the number of children recruited in each of the study sites and entry points. Consecutively sampled children who entered through out-patient department (OPD), in-patient department (IPD), malnutrition, TB and special (HIV, sickle cell, young child, and eye) clinics, whether patients themselves or accompanying patients, were reviewed for HIV status and offered a test if their status was unknown. Characteristics of children who tested positive were described and their correlates were analysed using a binomial generalised linear model factoring in level of facility.
Results: The HIV test uptake was 96% (3119/3245) with an overall yield of 1.4% (45/3119). Females accounted for 49.5% of the children and 49.5% were under 5 years. Children 10-15 years had significantly higher yield (2.5%) than children 18 months-4 years (1.2%, p= 0.0185) or 5-9 years (1.1%, p=0.0165). Yield did not differ by gender. Correlates for HIV positivity included: malnutrition (adjusted odds ratio (AOR)=2.14; 95% Confidence Interval (95%CI)=[1.6, 2.9]); orphan hood (single orphan: AOR=2.13; 95%CI=[1.02, 4.44], double orphan: AOR=6.97; 95%CI=[1.76, 27.66]); TB diagnosis (presumptive & confirmed: AOR=16.1; 95%CI=[13.57, 19.02]); older age (10-15 years: AOR=1.59; 95%CI=[1.56, 1.63]); children escorting their sick siblings (not sick: AOR=2.02; 95%CI=[1.92, 2.13]); and recurrent illness (AOR =2.71; 95%CI=[2.39, 3.08]).
Conclusions: The finding of higher yield in older children reflects the great success of EMTCT efforts in Uganda. Malnutrition, Opharnhood and TB diagnosis should be prioritized in the screening and identification of HIV in children. Furthermore, the significant HIV positive yield observed among children escorting their sick relatives provides an untapped opportunity to increase HIV identification amongst children.

THPEB106

High HIV testing yield found in children attending or accompanying those attending TB, malnutrition and HIV clinics in Uganda, 2017

H. Bitimwine[1], G.P. Kisitu[2], R. N. Ssebunya[2], D. Damba[2], P. Nahirya Ntege[2], B. Asire[3], J.K. Kabanda[4], E. Nazziwa[4], J. Kalamya[4], M. Adler[4], A. Kekitiinwa[2]
[1]Ministry of Health, AIDS Control Program, Kampala, Uganda, [2]Baylor College of Medicine Children's Foundation, Kampala, Uganda, [3]UNICEF, Kampala, Uganda, [4]Centers for Disease control and Prevention, Entebbe, Uganda

Background: Optimizing identification of undiagnosed HIV among children is critical in reducing the global burden of pediatric HIV/AIDS. Understanding the HIV testing yield among children at different facility-based entry points can inform more efficient pediatric HIV testing strategies. We assessed entry point HIV testing yield among children 18 months to 15 years in 4 regions of Uganda.
Methods: HIV testing was offered to 3245 children at 8 health facilities (4 regional referral and 4 district hospitals) from February 2017 to June 2017. All children who entered through outpatient department (OPD), inpatient department (IPD), malnutrition, TB and special (HIV, sickle cell, young child clinic(YCC), and eye clinics, whether patients themselves or accompanying patients, were reviewed for HIV status and offered a test if their status was unknown. A retest for verification was provided for every child that tested HIV positive. HIV testing yield was defined as the proportion of HIV positive children among those tested. Proportions, percentages, chi-square and fisher exact tests were used in the analysis of results.
Results: Uptake for HIV testing was 96% (3119/3245) with an overall yield of 1.4% (45/3119). Among entry points; TB, nutrition and special clinics had the highest HIV testing yield at 5.6% (4/71), 2.2% (2/92) and 2.4% (17/706) respectively (p=0.001). Among special clinics, HIV clinic had the highest yield at 52.9% (9/17). In spite of their low HIV testing yield, OPD 1.1% (12/1126) and IPD 1.0% (10/1046) accounted for the highest number of children testing HIV positive. YCC clinic had low testing volumes and no yield.
Conclusions: TB, nutrition and HIV clinic entry points had the highest HIV test yield while, OPD and IPD accounted for the largest number of HIV positive children identified. This finding further emphasizes the need for HIV testing for all children with TB, malnutrition, and those who have family members living with HIV. In OPD and IPD settings, however, introduction of a screening tool could maximize HIV testing yield while more efficiently utilizing limited testing resources.



[Figure 1: HIV positive yield at the various HTS entry points]

THPEB107

Early infant diagnosis (EID) positivity and time of test, USAID Boresha Afya Southern Zone Tanzania experience

C. Mbelwa[1], B. Christian[2], J. Gamaliel[1], J. Bisimba[3], E. Okechukwu[1], M. Njelekela[4]
[1]FHI 360, USAID Boresha Afya - Southern Zone Program, Dar es Salaam, Tanzania, United Republic of, [2]Management and Development for Health, USAID Boresha Afya - Southern Zone Program, Dar es Salaam, Tanzania, United Republic of, [3]United States Agency for International Development, USAID Boresha Afya - Southern Zone Program, Dar es Salaam, Tanzania, United Republic of, [4]Deloitte Consulting Limited, USAID Boresha Afya - Southern Zone Program, Dar es Salaam, Tanzania, United Republic of

Background: Life Long ART for Pregnant and Lactating women (LLAP-LA) reduces the risk of HIV transmission from mother to child. This depends on mothers' ARV medication adherence. Early Infant Diagnosis (EID) is critical in determining the success of the PMTCT interventions. However, EID for HIV Exposed infants (HEI) has been a major challenge in Tanzania because of the difficulty in reaching the HEIs. In this study, USAID Boresha Afya Southern Zone program assessed EID performance in the project supported facilities.
Methods: Pregnant positive women identified at ANC are followed up till delivery and thereafter as mother-infant pair till 'final outcome' is determined. HEIs are offered DNA-PCR test for EID at 1- 2 months of age. Mother-infant pair that missed the test are then tracked and brought back. EID annual program data (October 2016 - September 2017) from 599 supported facilities in five supported southern regions was extracted from DHIS2 and analyzed using Excel and MedCalc software. Risk of HIV acquisition among HEIs was compared to the time of the DNA-PCR HIV test. The positivity for the two groups was compared and risk assessed using Odds Ratio (OR).
Results: Out of 599 facilities data reviewed, 343 reported on EID. 4619 (94%) out of 5,569 HEIs registered were tested and 137 were found HIV positive with the positivity rate 2%. 84% of HEIs tested within 2 months of age while 16% tested at age 2 - 12 months. Among the tested HEI, those between 2 and 12 months of age had significantly higher positivity rate (7%) compared to HEIs age less than 2 month of age (2%). The Odds Ratio (OR) for HIV acquisition among the group that tested at age less than 2 months was 0.24 (CI 0.17- 0.33), p-value of < 0.0001.
Conclusions: The risk of HIV acquisition was lower among those tested early compared to those tested late (tracked and brought back). The mothers' poor adherence to EID appointment is a sign of poor ART adherence, thus explains the high acquisition rate among HEIs that tested late. Emphasis on medication adherence which should be evidenced by regular clinic appointments is very key.

				Age Less than 2 months			Age 2 - 12 months		
Period	Registered	Total Tested	Positive	Tested	Positive	Positivity	Tested	Positive	Positivity
Oct-Dec 2016	1733	1671 (96%)	34 (2%)	1384	13	1%	287	21	7%
Jan-Mar 2017	1653	1543 (93%)	48 (3%)	1306	32	2%	237	16	7%
Apr-Jun 2017	1316	1264 (96%)	27 (2%)	994	15	2%	270	12	4%
Jul-Sep 2017	1194	1091 (91%)	28 (3%)	935	15	2%	156	13	8%
TOTAL	**5896**	**5569 (94%)**	**137 (2%)**	**4619**	**75**	**2%**	**950**	**62**	**7%**

[HIV Positivity by Age of First DNA-PCR Test]

THPEB108

Screening tools to identify children and adolescents living with HIV: Increasing case finding in high HIV prevalence settings

J. Dunlop, S. Untiedt, C. Makura, L. Levin
Right to Care, Paediatric Programme, Johannesburg, South Africa

Background: South Africa has an HIV prevalence of 2.7% in children aged 5-14 years. While there are existing guidelines for testing children for HIV testing, these are poorly implemented. This screening tool, comprised of ten questions derived from the guidelines and integrated management of childhood illnesses manual, aimed at assisting healthcare workers to identify high risk children for being HIV-infected when they presented to health facilities in Johannesburg, South Africa.
Methods: The screening tool was implemented between April and September 2017 by child and adolescent HIV counsellors at eight health facilities. Screening was performed on children 0-19 years at health facilities, with children 5-14 years being targeted. Excluded on pre-screening were those known to be HIV-infected and those who had tested HIV-negative in the last six months. An unknown HIV status led to screening using the ten questions with a single positive answer being considered a positive screen. They were then consented, counselled and tested for HIV.
Results: Of the 604 children pre-screened, 22 (3.6%) were known to be HIV-positive, 79 (13.1%) were HIV-negative in the last six months and 503 (83.3%) had an unknown HIV status. Of those with an unknown HIV status, 388 (77.1%) had a positive screening question. Of those, 263 (67.8%) were tested for HIV and 17 were positive (testing yield 6%). The number screened to find one positive child was 30 (screening yield=3%). Of the children testing HIV-positive, 8/156 (yield=5%) were 5-9 years, followed by 6/67 19-59 months (yield=9%), 1/24 testing positive 10-14 years (yield=4%), 1/4 between 15-19 years (yield=25%) and one patient of unknown age. Of the 125 (32.2%) who did not test despite a positive screening question, 35 (28%) had the caregiver refuse, 21 (16.8%) the primary caregiver was not present and 69 (55.2%) "other" or "none stated".
Conclusions: Screening tools are useful in high HIV-prevalence settings to identify children requiring HIV testing. The highest yields were seen in children 18m to 9 years and in older adolescents, however the number tested was small (n=4). This screening tool allows HIV testing resources to be focussed on high-risk children.

Age	Total	0-18m	19-59m	5-9y	10-14y	15-19y	Not stated
Number pre-screened	604	20	167	325	75	15	2
A. Known positive	22	0	8	6	7	1	0
B. Negative in last 6 months	79	0	19	42	14	4	0
C. Unknown status	503	20	140	277	54	10	2
C.1 Screening could not be completed	28	0	8	13	7	0	0
C.2 Number with no positive screening question	87	1	7	68	7	4	0
C.3 Number with positive screening question	388	19	125	196	40	6	2
D. Number tested	287	11	67	156	24	4	1
D.1 Positive tests	17	0	6	8	1	1	1

[Table 1: Age disaggregated data for children and adolescents who underwent screening for HIV at primary health care facilities (n=604)]

THPEB109

Finding children and adolescents living with HIV in Johannesburg: Optimising HIV testing strategies

J. Dunlop[1], C. Tait[2], C. Fick[3], N. Chandiwana[3], L. Fairlie[3], R. Peters[2]
[1]Right to Care, Paediatric Programme, Johannesburg, South Africa, [2]Anova Health Institute, Paediatrics, Johannesburg, South Africa, [3]Wits Reproductive Health Institute, Paediatrics, Johannesburg, South Africa

Background: In high HIV-prevalence settings such as Johannesburg, South Africa, a substantial number of HIV-positive children may remain undiagnosed until clinical deterioration results in HIV diagnosis. Reasons for delayed diagnosis of older children include missed diagnostic opportunities with the previously suboptimal prevention of mother-to-child transmission (PMTCT) guidelines, poor uptake of paediatric HIV testing services and children that were known to be HIV-positive but dropped out of care. Additionally high HIV incidence rates in adolescent girls and young women are well described. The Paediatric and Adolescent Scale-up Project (PASP) sought to upscale testing of children and adolescents within primary healthcare (PHC) facilities using different approaches per age group.

Description: Between March 2016 and December 2017, HIV case finding interventions were implemented across 41 PHC facilities in Johannesburg. Children and adolescents were screened and tested when they accessed various service points by facility or PASP staff or were requested to come back for testing through index case finding by using an HIV-positive adult or sibling index patient. This data was then analysed to determine which age groups and entry points showed the highest yield.

Lessons learned: In total 14331 children and adolescents were tested, 376 were HIV-positive (yield=3%). Strategies with the highest yield included HIV testing of adolescents in primary care, (9%, n=110) particularly adolescent girls (15-19 years) accessing contraception services (15%, n=66). Index testing also had a high yield with 112/1885 (6%) HIV-positive siblings or children of HIV-infected patients, however testing uptake was low. Lower yields were seen in those < 5 years old and 5-14 years, including in acute care settings such as Integrated Management of childhood illness (IMCI) with the lowest yield in children of 18 months accessing immunisation clinics (1%; n=19).

Conclusions/Next steps: Current PMTCT implementation and immunization clinic-based early infant diagnosis testing is effective in reducing MTCT and identifying HIV-positive children. Targeted HIV-testing can improve identification of older HIV-positive children and adolescents who should particularly be offered PICT at contraception service points. Improved index case finding and testing is effective in identifying HIV-positive children and adolescents however innovative approaches for index testing are required to increase testing uptake in this high-risk group.

	Tested	Tested Positive	Yield
1. Index Patient	1885	112	6%
2. Entry Point	12446	264	2%
2.1. 15-19 years (General Clinic and Contraception Clinic)	1235	110	9%
2.1.1.Contraception Clinic	439	66	15%
2.1.2. General Clinic	796	44	6%
2.2. 5-14 years (General Clinic)	2949	68	2%
2.3. <5 years - Child Health (Immunisation clinic and IMCI)	8262	86	1%
2.3.1.Immunisation Clinic	2956	19	1%
2.3.2. IMCI	5306	67	1%

[Table 1: HIV testing outcomes of children and adolescents of different ages and entry points at the primary healthcare facility (n=14331)]

THPEB110

The impact of the family-centered approach on pediatric HIV in DRC

A. Bollinger[1], D. Chamla[2], F. Kitetele[3], F. Salamu[4], N. Putta[2], L. Tsague[5], S. Villeneuve[5]
[1]UNICEF, HIV and AIDS Section, Dakar, Senegal, [2]UNICEF, New York, United States, [3]Hospital of Kalembelembe, Kinshasa, Congo, Democratic Republic of the, [4]UNICEF, Kinshasa, Congo, Democratic Republic of the, [5]UNICEF, Dakar, Senegal

Background: Identifying HIV-positive children remains a challenge to fast-track pediatric ART in sub-Saharan Africa. In DRC, 70% of children living with HIV are not receiving ART (UNAIDS 2017); most of them have not yet been identified. While the family centered approach has been widely researched in relation to PMTCT, it has less been documented regarding outcomes for children.

Methods: Facility-based study in Kalembelembe and Heal Africa hospitals in Kinshasa and Goma, that employed two methodological designs: a cross-sectional review of the medical records of 748 children and 309 adults without active family HIV testing between 2008 and 2015, and longitudinal follow-up of 266 individuals with family screening using different approaches between August 2016 and February 2017.

Results: Out of 748 child index cases, 367 had 967 family members screened; 408 were found HIV-positive (42.2%) - of which 55.8% were biological mothers, 17% fathers, 16.4% siblings and 9.6% other relatives. In 60.9%, 30.3%, and 8.8% of cases, one, two and three family members were respectively found to be HIV-positive.

Among 309 adult index cases, 631 children were identified, 375 screened (59.4%) and 161 found HIV-positive (42.9%); 159 were put on treatment. 77% were found via their mother, 13.7% their father, 1.2% siblings and 1.2% other relatives.

Of 266 patients (182 children), 717 family members were identified, 309 screened, and 115 identified HIV-positive (38.2%). 91.5% accepted family testing (22% said they would do it later); the majority refused home testing (accepted by 9.3%). Biological mothers were identified in 63.7% and fathers in 18.7% of cases.

At enrollment, without active family screening, 64.2% of children were at WHO clinical stage III against 32% with active family screening.

Conclusions: Family testing improves early identification of children living with HIV, whether through adult or child index cases. Testing needs to be scaled up at health facility level as stigma still impacts on acceptance for home-based testing. While a higher proportion of children are diagnosed through adult index cases, many adults are found through children index cases, particularly biological mothers and fathers. This could have a boomerang effect on PMTCT (future pregnancies) and on children's treatment follow-up (prevention of orphanhood).

Pharmacokinetics/pharmacodynamics/ pharmacogenomics and therapeutic drug monitoring in paediatric and adolescent populations

THPEB111

Pharmacokinetics of intracellular stavudine-triphosphate in children after reduced-dose: Can we improve stavudine's safety profile?

L. van der Laan[1], S. Innes[2], M. de Kock[3], P. Anderson[4], M. Cotton[5], P. Denti[3]
[1]Desmond Tutu TB Centre and Family Clinical Research Unit, Paediatrics and Child Health, Cape Town, South Africa, [2]Family Clinical Research Unit (FAM-CRU), AIDS Clinical Trails Group (ACTG), Stellenbosch University, Paediatrics and Child Health, Cape Town, South Africa, [3]University of Cape Town, Clinical Pharmacology, Cape Town, South Africa, [4]University of Colorado Anschutz Medical Campus, Pharmaceutical Sciences, Colorado, United States, [5]Family Clinical Research Unit (FAM-CRU), AIDS Clinical Trails Group (ACTG), Paediatrics and Child Health, Cape Town, South Africa

Background: Stavudine is being phased out as a first-line ART option due to mitochondrial toxicity, but remains an important replacement option for HIV+ children in sub-Saharan Africa. At the recommended dose, it causes stigmatizing lipoatrophy. A lower adult dose of 20mg twice-daily maintains efficacy but with less mitochondrial toxicity. Although the adult dose was formally reduced in 2007, the children's dose was not correspondingly lowered due to concerns about efficacy. We therefore compared intracellular stavudine-triphosphate levels in children receiving a reduced dose to adults receiving 20 or 30mg twice-daily.

Methods: 24 HIV+ children and 24 HIV+ adults from South-Africa received stavudine at 0.5 mg/kg and 20mg twice-daily for 7 days, respectively. Stavudine suspension was used for children and capsules for adults. Blood samples were taken pre-dose and either at 1,2,6 or 3,4,8 hours post-dose. Intracellular stavudine-triphosphate in peripheral blood mononuclear cells was assayed using Liquid Chromatography Tandem Mass Spectrometry. A population pharmacokinetic model was developed to describe the data together with simulations to explore the effect of dose reduction in HIV+ children.

Results: Median (interquartile range) age and weight were 8(7,9) years and 23(20,26) kg in children and 36(30,40) years and 83(70,98) kg for adults. A bi-phasic disposition model with first-order appearance and disappearance described the pharmacokinetics of stavudine-triphosphate. Accounting for the effect of body size using allometric scaling based on fat-free body mass improved the model fit.

No significant differences other than those accounted for with allometric scaling were detected in any pharmacokinetic parameter between adults and children, although a non-significant trend towards children having lower bioavailability was observed.

Using a large unrelated adult dataset, simulations of 30mg twice-daily predicted similar median stavudine-triphosphate C_{min} and lower C_{max} values compared to simulations in HIV+ children receiving newly proposed weight-band dosing (0.5-0.75mg/kg).

	Adults	
Stavudine dose	30mg twice daily	0.5-0.75mg/kg twice daily
Characteristics (IQR= interquartile range)		
Median (IQR) age (years)	43 (31-56)	8 (5-9)
Median (IQR) weight (kg)	67 (56-81)	21 (16-25)
Stavudine-triphosphate concentrations		
Minimum (IQR) (fmol/10^6 cells)	14 (9-19)	14 (10-20)
Maximum (IQR) (fmol/10^6 cells)	45 (38-53)	58 (50-68)

[Simulations in HIV-infected children receiving a decreased stavudine dose compared to adults receiving the WHO recommended dose.]

Conclusions: Pharmacokinetic parameters of stavudine-triphosphate in children receiving the reduced stavudine dose of 0.5 mg/kg twice daily were similar to adults receiving 20mg twice-daily. The trend observed for a lower bioavailability in children may be due to different formulations used. Pharmacokinetic results of reduced weight-band dosing in children > 7 kg, suggest that viral suppression would be maintained with a decreased toxic effect.

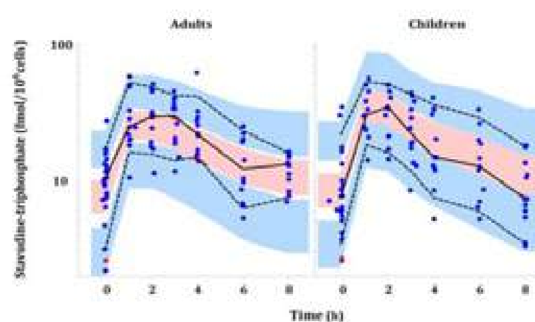


Figure 1. Visual predictive check of the pharmacokinetic model for stavudine-triphosphate stratified by children vs. adults, using 1000 simulations. Observed data are displayed as filled circles, including censored data points (LLOQ) in red. The solid and dashed lines represent the 10th, 50th and 90th percentiles of the observed data, while the shaded areas (pink and blue) are the model-predicted 90% confidence intervals for the same percentiles. The lines summarising the observed values are generally contained within the respective confidence intervals, indicating that the model fits the data well.

[Visual predictive check of the pharmacokinetic model for stavudine-triphosphate stratified by children vs. adults, using 1000 simulations.]

Drug formulations for infants and children

THPEB112

Implementing lopinavir/ritonavir pellets in Mbabane Swaziland: A better solution to the bitter solution?

J. Petrus[1,2], M. Beneus[1,2], M. Hlathswayo[2], N. Mthethwa[3]
[1]Baylor College of Medicine, Houston, United States, [2]Baylor Childrens Foundation Swaziland, Mbabane, Swaziland, [3]Swaziland National AIDS Program, Mbabane, Swaziland

Background: Adherence to Lopinavir/ritonavir (LPV/r) solution in young children living with HIV is challenging due to poor palatability. LPV/r pellets were developed as a hopeful alternative formulation. Tolerability and efficacy of pellets has not been widely documented. Here we describe a pilot of LPV/r pellet implementation within our clinic of children living with HIV in Mbabane, Swaziland.

Methods: 21 children cared for at the Baylor Centre of Excellence in Mbabane, Swaziland were transitioned from LPV/r solution to LPV/r pellets between November 2016- December 2017 due to intolerance, detectable viral load (DVL) or caregiver request. Caregivers were shown a video of pellet administration and were given specific instructions from the medical team. If appropriate, viral load was taken prior to and after the switch. Follow-up evaluations occurred 2-4 weeks post-initiation whereby adherence and tolerability were assessed by pill count and caregiver report.

Results: 21 children were initiated on pellets; 17/21 (81%) of caregivers requested return to solution or transition to tablet. Average age of all children was 2.1 years. Mean days prior to discontinuation was 62 but 10/17 (59%) stopped within 15 days. Of those returning to solution, the average age and dosage was 2.1 years, with a dose of 3.7 pellets twice daily. The reason given for 17/17 (100%) was spitting of the pellets. Adherence data for 6 children seen 3 months before and after initiation was unchanged. 6 children had VL before and after pellet initiation, mean VL log on solution was 3.6 vs. 4.3 on pellets. No children with DVL on solution suppressed or had a > 1 log decline in VL. One child became detectable after pellet initiation and resuppressed back on solution. 4 children were switched to nevirapine solution after intolerability of both formulations.

Conclusions: Among patients transitioned to pellets 81% of caregivers preferred LPV/r solution over pellets. No children with a DVL on LPV/r solution became undetectable or had a significant decline in VL on pel-

lets. Further work is needed to improve pellet administration techniques in order to improve the use of this formulation and retain it as a viable option for our most vulnerable children living with HIV.

THPEB113

Medication errors with Retrovir oral solution in neonates and infants ≤ 23 months

T. Perger[1], B. Shepherd[2], M. Shaefer[3], C. McCoig[4], K. Hayward[1], J. Double[2]
[1]ViiV Healthcare, London, United Kingdom, [2]GlaxoSmithKline, London, United Kingdom, [3]ViiV Healthcare, Research Triangle Park, United States, [4]ViiV Healthcare, Madrid, Spain

Background: Zidovudine (ZDV) is indicated for prevention of maternal-foetal HIV transmission in HIV-positive pregnant women and for primary prophylaxis of HIV infection in infants. Retrovir oral solution/syrup (OS) is available in 50mg/5mL concentration and the prophylactic dose in infants is 2mg/kg (0.2mL/kg) every 6 hours for 6 weeks, i.e. very small volumes of OS are required. Medication errors with ZDV OS was reviewed following reports of tenfold overdose in neonates.
Methods: Cumulative review of ZDV medication error from the company's safety database, disproportionality analysis and review of the published literature.
Results: Most medication error cases reported overdose (59%), most of which occurred in paediatrics ≤ 23 months (67%) using OS formulation. Characteristics of these cases are presented in Table 1. Most of the cases were from France, US, UK and Germany. 73% of cases reported a tenfold overdose. Majority of these were serious - mostly due to hospitalisation or prolongation of hospitalisation - and reported in young newborns. Consistent with the known safety profile of ZDV, the most commonly reported serious adverse events were anaemia, elevated liver enzymes and neutropenia. Most cases were resolved, resolved with sequelae or improved. Three cases were unresolved and two were fatal (one reported hyperlactataemia, the other neutropenia as ZDV associated events). While the underlying reasons were unclear or not reported in many cases, the use of an inappropriate sized syringe or confusion between mg and ml were reported in some.
ZDV overdose was not reported with a higher frequency relative to background reporting in the safety database.
While earlier articles identified in the literature indicated intentional overdoses in adults, a few, more recent publications reported unintentional overdose in neonates during prophylaxis, reflecting the change in ZDV use over time.
Conclusions: In the context of a large post-marketing exposure, tenfold neonatal overdose is rarely reported with ZDV. Sources of error leading to overdose are multifactorial and tenfold medication errors have been reported as a risk in children in general [Doherty, 2012]. Care should be taken when administering small doses of ZDV OS to neonates, including using an appropriate sized syringe, to ensure accurate dosing.

Patient Age (81%[1])	Range	Years	Birth (0) - 1.42
	Median	Days	4
Report Source	Health Care Professional	%	73
	Non-Health Care Professional /Consumer	%	27
Type of overdose	10-fold overdose	%	73
	Overdose other than 10-fold	%	17
	Unspecified/unknown overdose amount	%	10
Duration of error[2]	Repeated[3]	%	37
	Unspecified	%	35
	Single/once	%	29
Individual involved with prescribing/preparing/ administering ZDV overdose	Unspecified	%	66
	Non-healthcare professional[4]	%	18
	Healthcare professional[5]	%	16

1. Percentage of reports with available data used for the denominator
2. Numbers do not add up to 100% due to rounding
3. Includes errors ranging from twice in a single day to 20-day duration
4. Includes mother, father, parents, grandparents, babysitter and unspecified carer
5. Includes nurse, midwife, hospital physician, care staff, dispensing staff, prescribing staff, hospital staff involved with drug preparation

[Table 1: Characteristics of cases involving an overdose of ZDV OS in paediatrics ≤ 23 months]

Clinical trials in paediatric and adolescent populations

THPEB114

Emergence of resistance in HIV-1 Integrase (IN) following dolutegravir (DTG) treatment in 6 to 18 year old participants enrolled in the P1093 study

C. Vavro[1], T. Ruel[2], A. Wiznia[3], C. Alvero[4], S. Popson[5], T. Fenton[4], R. Hazra[6], E. Townley[7,8], A. Buchanan[1], P. Palumbo[9]
[1]ViiV Healthcare, Research Triangle Park, United States, [2]University of California, San Francisco, United States, [3]Jacobi Medical Center, Bronx, United States, [4]Harvard School of Public Health, Statistical & Data Analysis Center, Boston, United States, [5]Frontier Science and Technology Research Foundation (FSTRF), Inc, Amherst, United States, [6]Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), Pediatric, Adolescent and Maternal AIDS Branch, Bethesda, United States, [7]Division of AIDS NIAID/NIH, Maternal Adolescent Pediatric Branch, Rockville, United States, [8]Ctr. Columbus Technologies and Services Inc, Rockville, United States, [9]Dartmouth-Hitchcock Medical Center, Division of Infectious Diseases and International Health, Lebanon, United States

Background: P1093 is a phase I/II, multicenter, open-label pharmacokinetics (PK), safety, dose-finding study of DTG plus optimized background regimen in adolescents and children. Cohorts I and II (12-< 18 and 6-< 12 years old) have completed recruitment. Herein is provided an instream review of virologic failure (VF) for Cohorts I and II and the emergence of integrase strand transfer inhibitor resistance (INSTI) while receiving a dolutegravir containing regimen.
Methods: VF for P1093 is defined as confirmed decrease in HIV-1 RNA (VL) of < 1.0 log_{10} at/after week 12 (unless < 400c/mL), or confirmed >400c/mL at/after Week 24, or confirmed >400c/mL after initial confirmed < 400c/mL or confirmed >1 log_{10} increase above VL nadir (nadir =>400c/mL) At confirmed VF, population and clonal integrase (IN) genotypes and phenotypes and IN replication capacity (RC) were investigated. Adherence was assessed by 3-day recall per visit, and communication with site PI.
Results: P1093 recruited 23 participants each in Cohort I(tablets), and Cohort IIA (tablets) and 15 participants in Cohort IIB (dissolvable granules). VF rates were 12/23, 6/23, and 1/15, respectively. VF was associated with lack of adherence in most cases. For each cohort, treatment emergent INSTI resistance was detected in 2/12, 0/6, and 1/1, respectively. One participant (Cohort I) acquired R263R/K and remained on study for an additional >2 years with subsequent accumulation of additional linked IN substitutions and a modest increase in DTG susceptibility. Two participants acquired G118R mutations, one with L74M and G118R (Cohort I) and one with G118R and E138E/K (Cohort IIB). For each of these latter two participants, DTG susceptibility was decreased by 36- and 12-fold, respectively. A clonal analysis for each participant provides additional linkage information for the INSTI resistance detected (table). Median IN RC are provided, however, they were performed on HIV-1 IN only and may not provide complete characterization of viral fitness.

Patient/ Cohort	Timepoint	HIV-1 RNA c/mL	Clones Tested	IN Linked Substitutions/# clones	Clonal DTG Median FC	Clonal Median IN RC%
1*/Cohort I	Pre-treatment	7739	8	L74V / 4 clones;L74I / 1 clone; L74L / 3 clones	0.97	81
	Week 36	9978	8	R263K / 4 clones; V201I / 3 clones; V201I, R263R / 1 clone	1.26	97
	Week 136	1367	16	A49G, M50V, V201I, R263K / 12 clones; A49G, M50V, E138T, S147G, V201I, R263K / 4 clones	5.25	38
2/Cohort I	Pretreatment	17996	8	WT / 8 clones	0.98	88
	Week 192	1758	8	L74M, G118R / 8 clones	36	8
3/Cohort IIB	Pretreatment	96369	8	V151V / 8 clones	0.84	147
	Week 52	3313	8	V151I, G118R / 8 clones	12	26
*Results previously presented IAS 2015; FC = Fold Change; RC=Replicative Capacity						

[Table 1]

Conclusions: Among 6-18 year old participants receiving DTG containing regimen, INSTI resistance developed in 3 of the 19 who experienced VF. INSTI resistance in these children followed either of two mutational pathways, R263K and G118R, the latter having a greater impact on reduced DTG susceptibility.

THPEB115

Association of maternal viral load and CD4 count with perinatal HIV-1 transmission risk during breastfeeding in the PROMISE postpartum component

P. Flynn[1], T. Taha[2], M. Cababasay[3,4], K. Butler[3,4], M.G. Fowler[5], L. Mofenson[6], M. Owor[7], S. Fiscus[8], L. Stranix-Chibanda[9], A. Coutsoudis[10], D. Gnanashanmugam[11], N. Chakhtoura[12], K. McCarthy[13], C. Mukuzunga[14], B. Makanani[15], D. Moodley[16], T. Nematadzira[17,18], B. Kusakara[17,18], S. Patil[19], T. Vhembo[17,18], R. Bobat[10], B. Mmbaga[20], M. Masenya[21], M. Nyati[22], G. Theron[23], H. Mulenga[24], D. Shapiro[3,4], PROMISE Study Team
[1]St. Jude Children's Research Hospital, Infectious Diseases, Memphis TN, United States, [2]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [3]Center for Biostatistics in AIDS Research, Boston, United States, [4]Harvard T. H. Chan School of Public Health, Boston, United States, [5]Johns Hopkins University School of Medicine, Pathology, Baltimore, United States, [6]Elisabeth Glaser Pediatric AIDS Foundation, Washington, DC, United States, [7]Makerere University - Johns Hopkins University Research Collaboration, Kampala, Uganda, [8]University of North Carolina School of Medicine, Microbiology and Immunology, Chapel Hill, United States, [9]University of Zimbabwe, Paediatrics and Child Health, Harare, Zimbabwe, [10]University of KwaZulu-Natal, Paediatrics and Child Health, Durban, South Africa, [11]National Institutes of Health, Division of AIDS, National Institute of Allergy and Immunology, Washington, DC, United States, [12]National Institutes of Health, Maternal and Pediatric Infectious Disease Branch, Eunice Kennedy Shriver Institute of Child Health and Human Development, Washington, DC, United States, [13]FHI 360, Durham, United States, [14]University of North Carolina - Lilongwe, Lilongwe, Malawi, [15]University of Malawi, Department of Obstetrics and Gynecology, Blantyre, Malawi, [16]University of KwaZulu-Natal, Centre for the AIDS Programme of Research in South Africa and School of Clinical Medicine, Durban, South Africa, [17]University of Zimbabwe, Harare, Zimbabwe, [18]University of California, San Francisco, United States, [19]Byramjee Jeejeebhhoy Government Medical College and Johns Hopkins Clinical Trials Unit, Obstetrics and Gynecology, Pune, India, [20]Kilimanjaro Christian Medical Centre, Pediatrics, Moshi, Tanzania, United Republic of, [21]Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [22]Perinatal HIV Research Unit, Chris Baragwanath Hospital, Johannesburg, South Africa, [23]Stellenbosch University, Obstetrics and Gynecology, Cape Town, South Africa, [24]Centre for Infectious Diseases Research in Zambia, George Clinic, Lusaka, Zambia

Background: In the PROMISE 1077BF trial, breastfeeding women with CD4 >350 cells/mm^3 (or >country-specific ART threshold if higher) and their uninfected neonates were randomized to maternal ART (mART) or infant nevirapine prophylaxis (iNVP) until breastfeeding cessation or 18 months post-delivery, (whichever occurred first) and had low infant HIV-1 infection rates (0.7% overall). We assessed whether maternal viral load (MVL) or CD4 were associated with perinatal HIV transmission risk.
Methods: MVL was measured retrospectively on batched specimens collected at entry (7-14 days postpartum) and weeks 6, 14, 26, and 50 postpartum. CD4 was measured real-time at entry and weeks 14, 26, 38, and 50 postpartum. Infant HIV-1 NAT was obtained at weeks 1, 6, every 4 weeks until week 26, then every 12 weeks. Infant infection was defined as a positive HIV-1 NAT at any two post-entry timepoints. The associations of baseline and time-varying MVL and CD4 with transmission risk were assessed using proportional hazards regression models by randomized treatment arm, with MVL categorized as < 1000 or ≥1,000 copies/ml and CD4 categorized as < 500 or ≥ 500 cells/mm^3, and adjustment for mART receipt during pregnancy.
Results: 2431 mother-infant pairs were randomized. Baseline MVL and CD4 are shown in Table 1. Baseline MVL (p= 0.11) and CD4 (p=0.51) were not significantly associated with infant HIV-1 infection. Time-varying MVL was significantly associated with infant HIV-1 infection in the mART arm (hazard ratio (95% CI): 12.04 (2.54, 57.06) but not in the iNVP arm (hazard ratio (95% CI): 1.04 (0.20 - 5.52)). Time-varying CD4 was not significantly associated with infant HIV-1 infection in either arm (hazard ratio (95% CI): 0.29 (0.05-1.59) in mART arm and 0.33 (0.07-1.57) in iNVP arm). Of 7 postnatal infections in mART arm, 2 had proximal MVL< 40 copies/ml.
Conclusions: With iNVP, MVL was not significantly associated with HIV-1 transmission during breastfeeding. However, among women receiving mART, increased MVL during breastfeeding was associated with increased risk of infant HIV-1 infection. These data emphasize the important role of adherence to mART in controlling MVL and preventing infant infection and suggest that iNVP should be considered in situations with documented poor maternal ART adherence.

	mART n=1,220	iNVP n=1,211
Baseline CD4 count		
< 500 cells/mm3	162 (13%)	170 (14%)
≥ 500 cells/mm3	1,058 (87%)	1,041 (86%)
Baseline Maternal Viral Load		
<400 copies/mL	672 (55%)	604 (50%)
400 - 1,000 copies/mL	239 (20%)	210 (17%)
≥ 1,000 copies/mL	309 (25%)	397 (33%)

[Table 1]

THPEB116

Developmentally tailored adolescent HIV research: Perspectives from the National Institute of Mental Health

S. Allison[1], T. Senn[1], L. Stubbs[1], P. Brouwers[2]
[1]National Institute of Mental Health, Rockville, United States, [2]NIMH/NIH, Rockville, United States

Background: Adolescents and young adults (AYA) are some of the most vulnerable around the world for acquiring HIV and, among those who are living with HIV, AYA experience some of the worst outcomes along the HIV care continuum. As such, AYA are a high priority for HIV prevention and treatment research at the Division of AIDS Research at the National Institute of Mental Health (NIMH/NIH).
Description: The past two decades have seen an increase in developmentally appropriate HIV prevention and care interventions for AYA, with greater attention to AYA's cognitive abilities and social context. However, disparities in HIV acquisition and HIV health outcomes continue to exist for AYA. Our understanding of adolescence continues to grow and there have been a number of recent findings in adolescent development that have implications for AYA HIV research. For example, research has suggested that some adolescent risk behavior may be due, in part, to the more gradual maturation of cognitive control networks coupled with heightened sensitivity in neural reward systems. Future AYA HIV intervention research should capitalize on these recent findings from adolescent development research to design novel, developmentally-appropriate interventions.
Lessons learned: This presentation will review recent advances in adolescent development that have implications for AYA HIV research, review key developmental constructs from the individual to the structural that could benefit from increased attention in AYA HIV research, and discuss developmentally appropriate research approaches.
Conclusions/Next steps: Through greater attention to the unique developmental context of AYA, HIV prevention and care research will have a greater impact on the health of AYA who are vulnerable to acquiring HIV and those living with HIV.

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THPEB117

Immune activation in ART-naïve youth (ages 12-24) with acute or established HIV and high-risk seronegative populations from LA and New Orleans ATN cares: Preliminary results

J. Dock[1], R. Cortado[1], T. Kerin[1], K. Mitchell[1], J. Fournier[2], L. Kozina[2], B. Andrews[2], E. Arnold[3], M.J. Rotheram-Borus[4], S.E. Abdalian[2], K. Nielsen-Saines[1], Y. Bryson[1]
[1]David Geffen School of Medicine, University of California Los Angeles, Department of Pediatrics, Infectious Disease, Los Angeles, United States, [2]Tulane University School of Medicine, Department of Clinical Pediatrics, New Orleans, United States, [3]University of Central Florida, Center for Behavioral Health Research and Training, Orlando, United States, [4]Semel Institute for Neuroscience and Human Behavior, University of California Los Angeles, Department of Psychiatry and Behavioral Sciences, Los Angeles, United States

Background: Recent adult studies indicate early potent ART during acute HIV infection may reduce viral reservoir size, disrupt residual replication, mitigate chronic immune activation/dysregulation and facilitate better long-term HIV control. There is limited data on the large population of HIV infected and high-risk youth. In the ATN CARES study we assess the effect of early potent ART in acutely-infected (AI) youths (ages 12-24) vs established infection (EI) on enhanced immune normalization, viral suppression and reservoir size. Youths treated during AI may have an enhanced immune response presumably due to elevated thymic function and a more naïve immune profile.

Methods: Point-of-care assays screen/detect high-risk youth who are newly diagnosed with acute HIV and ARV naïve (Fiebig 1-6) or established infection > 6 months. In AI, ART is initiated and biomarkers are assessed serially. Three populations of high-risk youth included: ARV-naïve AI, EI and SN controls. Biomarkers assessed from peripheral blood: cell-surface markers of T cell activation/dysregulation, plasma markers of immune activation, pro-viral HIV-DNA, and TCR stability and repertoire perturbation.

Results: To date we have assessed cell surface markers of immune activation/dysregulation by flow cytometry on 31 high-risk youth with AI (n=3), EI (n=5) and high-risk SN controls (n=23). At baseline, AI and EI youth have elevated T cell markers of activation/dysfunction compared to high-risk SN controls (Table 1). Additionally, AI youths have a higher degree of immune activation/dysregulation than EI youths (Table 1). Preliminary follow-up of AI youth (1-3 months following infection) have shown reductions in immune dysregulation/activation and HIV viral RNA. Interestingly, the high-risk SN population had significantly lower CD4:CD8 ratio and higher markers of CD8 T cell activation than an older HIV negative adult population (ages 24-67) (Table 1).

Conclusions: This study demonstrates elevated levels of immune activation in AI and EI youth, which is mitigated by ART, and may help assess long term effects of early ART intervention in AI vs EI. In addition, the increase in immune activation in the high-risk SN group suggests that this population may be at higher risk of acquiring HIV due to young age, behavioral risk factors (STD, drugs) or both.

	AI (n=3) [mean]	EI (n=5) [mean]	SN (n=23) [mean]	SN Adult (n=39) [mean]
CD4:CD8 Ratio	0.4	0.9	1.8*,**	2.4****
CD8				
% CD45RA+CCR7+CD27+ (Naive)	19.1	29.7	45.1*,**	
% CD45RA-CCR7+ (CM)	3.8	2.8	3.7	
% CD45RA-CCR7- (EM)	45.0	20.0	15.5*,***	
% CD45RA+CCR7- (TM)	31.8	46.6	34.8	
% HLA-DR+CD38+ (Activated)	51.4	32.9	10.0*,**	4.8****
CD4				
% CD45RA+CCR7+CD27+ (Naive)	31.0	45.2	45.4	
% CD45RA-CCR7+ (CM)	36.5	28.1	24.9***	
% CD45RA-CCR7- (EM)	29.6	22.9	22.5	
% CD45RA+CCR7- (TM)	2.0	3.0	5.7	
% HLA-DR+38+ (Activated)	8.3	6.0	3.0*,**	2.9

Baseline T cell surface biomarkers from PBMC of high-risk youths (aged 12-24) were assessed via flow cytometry. For selected biomarkers, SN high-risk youth was compared to a SN control adults (range: 24-67 years mean : 40.8, n=39). P values < 0.05 considered significant. * AI vs SN; ** EI vs SN; *** AI vs EI. ****high-risk youth SN vs adult SN.

[Table 1: Cell-surface biomarkers of baseline peripheral blood T-cell dysregulation in high-risk youth]

THPEB118

Culturally-relevant and personalized disclosure intervention improves pediatric HIV status disclosure in Ghana: The Sankofa randomised controlled trial

E. Paintsil[1], T. Kyriakides[2], S. Antwi[3], L. Renner[4], A. Catlin[5], G. Gan[2], M. Lartey[4], N. Reynolds[6]
[1]Yale University, Pediatrics, New Haven, United States, [2]Yale University, New Haven, United States, [3]Komfo Anokye Teaching Hospital, Kumasi, Ghana, [4]University of Ghana School of Medicine and Dentistry, Accra, Ghana, [5]Purdue University, West Lafayette, United States, [6]Johns Hopkins University, Baltimore, United States

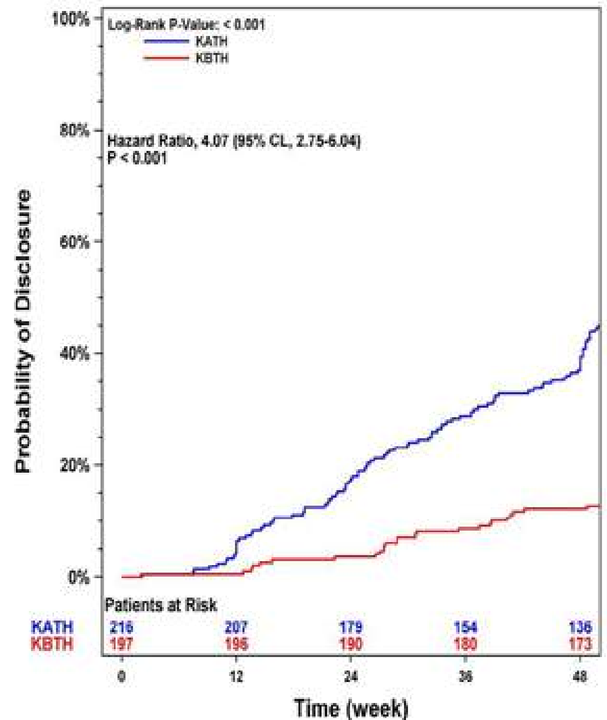
Background: Perinatally HIV-infected children now have access to life-saving antiretroviral therapy (ART) globally and are expected to live into adulthood. Changes in other inter-related elements of pediatric care such as disclosing their HIV status are also needed. We hypothesized that a theory-guided, structured, culturally-relevant, and personalized disclosure intervention would lead to an increase in HIV status disclosure at 48 weeks.

Methods: We randomly assigned two sites in Ghana, one to (Komfo Anokye Teaching Hospital, Kumasi) to receive the Sankofa Pediatric Disclosure intervention and the other (Korle-Bu Teaching Hospital, Accra) to receive enhanced usual care. HIV-infected children aged 7 to 18 years and their caregivers were enrolled. The intervention contained two key elements to target well-documented, modifiable barriers to promote disclosure:

(a) an **ad**herence and **d**isclosure **s**pecialist (**ADDS**); and;

(b) disclosure as a process.

We followed the caregiver-child dyads and assessed the primary outcome (disclosure of HIV to children). All analyses were carried out using a modified intention-to-treat approach. This trial is registered with ClinicalTrials.gov, number NCT01701635.



[Kaplan-Meier plot of pediatric disclosure at 48 weeks by sites (KATH, intervention; KBTH, control)]

Results: Enrollment was from January 23, 2013, to June 30, 2016, and we completed follow up on June 30, 2017. We enrolled 446 child-caregiver dyads (240 at intervention site and 206 at control site). 52% of the children were male, mean age 9.78 (±2.27) years. Compared to the control group, the intervention group had a statistically significant increase in HIV status disclosure at all study time points (12, 24, 36, and 48 weeks) (all p< 0.001). Disclosure at 48 weeks was significantly higher in the intervention group compared to the control group (52% vs 16.24%; p<0.001). Children to whom their HIV status was disclosed by week 48 were more

than 5 times likely to have been in the intervention group than the control group (OR=5.45, 95% CI, 3.43, 8.66). After adjusting for study site (p<0.001), age <11 years (p<0.001), HIV-infected caregiver (p< 0.001), and caregiver's education (p=0.01), the measure of association remained at the same magnitude and statistical significance (adjusted OR=5.11; 95% CI, 3.03, 8.62).
Conclusions: We demonstrate that barriers to disclosure by caregivers can be mitigated by structured, culturally-relevant, and personalized disclosure intervention.

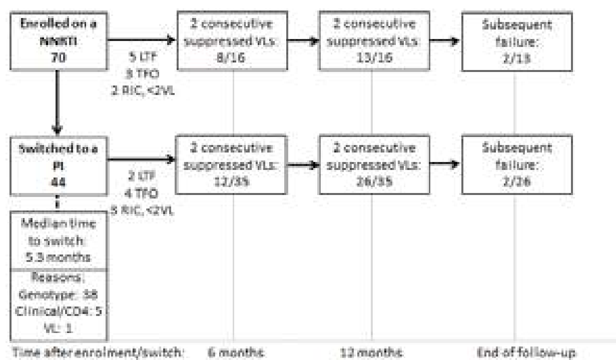
ARV management strategies in paediatric and adolescent populations

THPEB119

Time to Switch? Outcomes of children and adolescents failing NNRTI regimens

T. Cassidy[1,2], R. O'Connell[1], T. Makeleni[1], V. de Azevedo[3], T. Schulz[4], N. Dumile[1], M. Mantangana[1], S.J. Steele[5], N. Mkhosana[1], L. Trivino Duran[1], A. Boulle[6], J. Bernheimer[1]
[1]Médecins Sans Frontières, Khayelitsha, Cape Town, South Africa, [2]University of Cape Town, Division of Public Health Medicine, School of Public Health and Family Medicine, Cape Town, South Africa, [3]City of Cape Town, Department of Health, Cape Town, South Africa, [4]KESS, Western Cape Provincial Health Department, Cape Town, South Africa, [5]Médecins Sans Frontières, Cape Town, South Africa, [6]University of Cape Town, CIDER, School of Public Health and Family Medicine, Cape Town, South Africa

Background: Many children and adolescents failing ART do not access second line therapy in a timely manner. Delays in returning to clinic for confirmatory viral load testing and adherence support prior to treatment switch as required under current guidelines may contribute to delayed switching. Among those who resuppress on first line regimens the durability of resuppression is uncertain. Since 2013, Médecins Sans Frontières has run an enhanced adherence intervention program to address treatment failure in patients 0-19 years in Khayelitsha, South Africa. We describe the outcomes of participants who entered the program failing an NNRTI regimen.
Methods: Participants were enrolled from 2013-2016. Failure was defined as VL>1000 copies/ml once, or >400 on two consecutive occasions. The intervention included: clinical care, genotype, and adherence support via individual and group counseling. ART regimen change was indicated for clinical (advanced HIV), genotypic or virologic reasons. Program success was defined as VL< 400 on two consecutive occasions.
Results: Of 192 participants, 70 enrolled on an NNRTI (5-19 yrs; 53% male; median CD4 524; median time on ART: 4.3 yrs[IQR:2-7.6]). Of the 70 on an NNRTI, 44 switched to a PI (see Figure 1).



[Figure 1: Viral suppression among those switching and those remaining on a NNRTI.]

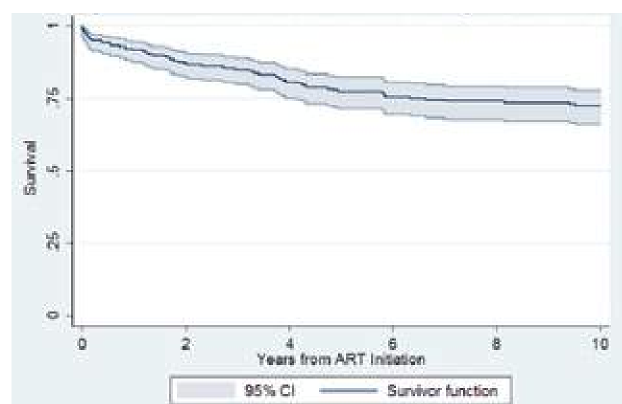
Median time to switch 5.3 months [IQR:3.3-6.4]. Reasons for switch included confirmed NNRTI resistance (n=38) and advanced HIV on entry (n=5). Those who switched were comparable to those who did not in terms of median baseline CD4 (525[IQR:293-797] vs 613 [IQR:442-903]) and age(13.1[IQR:11-15 vs 13.5[IQR:10-16]). Of the 26 who did not switch, 16 remained on an NNRTI for at least 2 VLs, of whom 13 suppressed with enhanced adherence alone. Of these 13, subsequent failure was seen in 2 participants.
Conclusions: Less than 20% of those failing an NNRTI in this programme achieved resuppression without a change of regimen. The need for a second VL among children failing an NNRTI should be reconsidered. During the continuation of our program, we aim to implement rapid switch after one VL>1000 and advocate for dolutegravir as a more robust first line treatment.

THPEB120

Who are the 10-year pediatric AIDS survivors on antiretroviral therapy in Haiti?

V. Rouzier[1], V. Rivera[1], L. Reif[2,3], E.J. Joseph[1], L.C. Francois[1], N. Alcenat[1], B. Charles[1], G. Julmiste[1], E. Abrams[4], D. Fitzgerald[2], J.W. Pape[1,2], M. McNairy[2]
[1]GHESKIO, Port-au-Prince, Haiti, [2]Weill Cornell Medicine, New York, United States, [3]Columbia University, New York, United States, [4]ICAP at Columbia University, New York, United States

Background: Access to antiretroviral therapy (ART) has significantly expanded in resource-poor settings, but long-term pediatric outcomes have not been reported. We describe the 10-year outcomes of the first cohort of children initiating ART in Haiti.
Methods: Children 0-15 years who initiated ART from 2003-2005 at GHESKIO were included. Retention was defined as in care 10 years from ART initiation; lost to follow-up (LTF) was defined as no visit >6 months from the 10-year date of ART initiation; death and transfers were ascertained from medical records. Viral suppression was defined as HIV-1 RNA < 1,000 copies/ml. Kaplan-Meier methods estimated survival. Risk factors were assessed using Cox modeling. Patients retained in care were interviewed on socioeconomic characteristics and assessed for viral load.
Results: Among 259 children, 54% were female, and median age 6 years (IQR 3-10). Median CD4% for patients < 2 years was 21% (IQR 17-26%); median CD4 count for children ≥2 years was 419 cells/uL (IQR 104-705), and 73% of all children had advanced WHO Staging (III/IV). 99% reported vertical transmission.
Ten years after ART initiation, 130 (50%) were retained, 63 (24%) were LTF, 64 (25%) had died, and 1% transferred care for an estimated 10-year survival of 72.4% (95% CI 64.7%-77.2%) (Fig 1).



[Figure 1. Cumulative Survival of Pediatric Patients Initiating ART 2003-2005]

Median time to death was 2 years (IQR 6.7 months to 4.2 years), and median age at death was 15 (IQR 11-18) after the majority of teens transitioned from the pediatric clinic. 85 patients (65% of 130 10-year survivors) completed a 10-year survey. Among this subgroup, median age was 16 (IQR 14-19), 54% were female, and median CD4 count was 606 cells/uL (IQR 398-853).
Half remained on first-line therapy, 61% were virally suppressed, and 33% had stunting (< -2 SD height-for-age by sex). CD4 count ≤200 cells/uL at ART initiation was the only significant predictor of death (p< 0.05).

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Conclusions: This analysis documents the effectiveness of an ART program among the first cohort of pediatric ART patients in the region. Excellent survival rates are tempered by suboptimal attrition from care and high mortality during the transition to adolescence underscoring the importance of effective transition models of HIV care.

THPEB121

Impact of anti-retroviral therapy on the immune status of HIV-infected children

X. Bi[1], A. Ishizaki[1], T.B. Nguyen[2], D.T. Nguyen[2], H.P. Nguyen[2], L.V. Nguyen[2], H.V. Pham[2], C.T.T. Phan[2], T.T.B. Phung[2], A.N. Pham[2], D.T.K. Khu[2], H. Ichimura[1]
[1]*Kanazawa University, Ishikawa, Japan,* [2]*National Hospital of Pediatrics, Hanoi, Vietnam*

Background: In a previous cross-sectional study of HIV-infected children, we reported that HIV infection caused a rapid decrease in regulatory T-cells (Treg) and early activation of CD8$^+$ cells, and antiretroviral therapy (ART) induced rapid Th1 recovery and early CD8$^+$-cell activation normalization. This study aimed to investigate the impact of ART on the immune status of HIV-infected children prospectively.

Methods: We have conducted a prospective study at the National Hospital of Pediatrics in Hanoi, Vietnam since 2014. Fifty-four HIV-infected children who newly started ART have been recruited, but 12 dropped out (11 died and 1 stopped ART) by 6 months after ART initiation. The immune status of the remaining 42 children (median age: 3.9 years, range 0.1-12.5 years; female/male 17/25) was analyzed every 6 months. Forty-nine HIV-uninfected children were recruited as healthy control (median age: 4.4 years, range 0.1-12.1 years; female/male 24:25). The CD4$^+$-cell subsets were identified using cell-surface markers: T helper type 1 (Th1, CXCR3$^+$CCR6$^-$CCR4$^-$CD4$^+$), Th2 (CXCR3$^-$CCR6$^-$CCR4$^+$CD4$^+$), Th17 (CXCR3$^-$CCR6$^+$CCR4$^+$CD4$^+$), and Treg (CD25$^+$CD127$^-$CD4$^+$). The activated CD8$^+$-cell were defined as CD38$^+$HLA-DR$^+$CD8$^+$. Wilcoxon signed-ranks test and Mann-Whitney test were used for statistical analysis with SPSS-v23.

Results: Before and after 6 (n=21), 12 (n=23), 18 (n=20), 24 (n=13) months of ART (ART0/ART6/ART12/ART18/ART24), the CD4$^+$-cell counts were 304/894/1039/934/886 cells/µl (control: 1379 cells/µl), Th1: 27/73/88/85/77 (93), Th2: 19/46/53/56/47 (77), Th17: 6/22/28/19/14 (32), and Treg: 23/51/74/71/62 (113), and the activated CD8$^+$-cell proportion was 47.6%/19.7%/13.2%/10.0%/11.4% (8.2%). Before ART, the CD4$^+$-cell and -subset counts were significantly lower than those of control, and the activated CD8$^+$-cell proportion was significantly higher than that of control (all $P< 0.05$). After ART initiation, the CD4$^+$-cell and -subset counts significantly increased, particularly Th1 recovered to control level at ART6, while the activated CD8$^+$-cell proportion decreased significantly and reached control level at ART18. The increased number of CD4$^+$-cells at ART6/12 was associated positively with CD4$^+$-cell counts, but negatively with the age of children at ART0.

Conclusions: Our results indicate that ART induced rapid Th1 recovery and early normalization of CD8$^+$-cell activation in HIV-infected children, and that ART should be initiated as soon as possible after HIV diagnosis in children, as WHO guideline 2016 recommends.

Immune status			HIV-infected			HIV-uninfected
	ART0	ART6	ART12	ART18	ART24	
CD4+ counts (cells/µL)	304 (0-1675)	894 (9-2412)	1039 (16-3249)	934 (12-2276)	886 (298-2572)	1379 (741-3144)
Th1 counts (cells/µL)	27 (0-218)	73 (0-274)	88 (2-399)	85 (2-282)	77 (35-204)	93 (42-203)
Th2 counts (cells/µL)	19 (0-79)	46 (1-137)	53 (1-169)	56 (2-119)	47 (14-107)	77 (41-187)
Th17 counts (cells/µL)	6 (0-83)	22 (0-61)	28 (1-142)	19 (1-57)	14 (3-77)	32 (13-68)
Treg counts (cells/µL)	23 (0-146)	51 (1-183)	74 (1-292)	71 (1-256)	62 (18-200)	113 (53-297)
Activated CD8+ (%)	47.6 (16.3-75.4)	19.7 (4..3-74.7)	13.2 (2.7-57.7)	10.0 (3.1-39.1)	11.4 (3.8-23.0)	8.2 (1.2-22.9)
CD4/CD8 ratio	0.2 (0-1.4)	0.4 (0-1.5)	0.5 (0-1.3)	0.8 (0-1.3)	0.7 (0.2-1.6)	1.2 (0.5-4.4)

[The immune status of HIV-infected children before and after ART initiation]

THPEB122

Improving ART initiation among HIV-infected infants in Manzini region of Swaziland

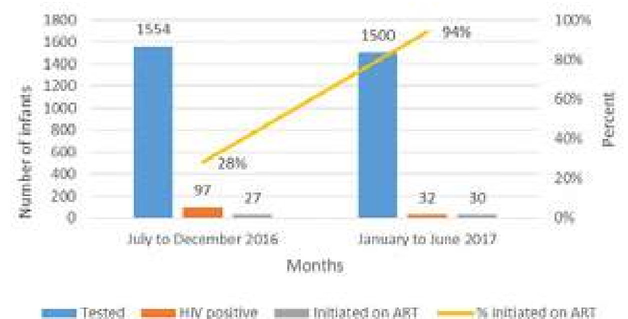
A. Mutiti[1], F. Tsiouris[2], W. Reidy[2], S. Mkhatshwa[1], N. Nxumalo[1], N. Mthethwa[3], R. Mudekereza[1], A. Kidane[1]
[1]*ICAP at Columbia University in Swaziland, Mailman School of Public Health, Mbabane, Swaziland,* [2]*ICAP at Columbia University Mailman School of Public Health, New York, United States,* [3]*Ministry of Health, Mbabane, Swaziland*

Background: Routine HIV testing for HIV-exposed infants (HEI) and prompt ART initiation for HIV-infected infants are both critical to prevent early HIV-related morbidity and mortality. However, in the Manzini Region of Swaziland, while HIV testing coverage among HEI routinely exceeds 95%, only 27% percent of infants diagnosed with HIV in July-December 2016 were initiated on ART. We describe efforts between key stakeholders to determine reasons for low ART initiation among HIV-infected infants in Manzini, and develop and implement interventions to increase timely ART initiation within this population.

Description: From January-June 2017, Swaziland Ministry of Health Regional Health Management Team for Manzini, health facility staff and ICAP, collaborated to conduct a rigorous data-driven performance review and bottleneck analysis of ART initiation among HIV-infected infants in Manzini. This effort informed the design and implementation of interventions, including intensified tracking strategies of HIV-infected infants from the laboratory to facility and community as well as mentorship on infant ART initiation. Additionally, program data reported for early infant diagnosis was validated with the information from laboratory and facility registers to identify reporting errors and improve their accuracy.

Lessons learned: Collaboration between key stakeholders was essential to effectively identify problems across health system elements (e.g., laboratory, facilities) that contributed to low infant ART initiation, and design and implement system-wide strategies to improve performance. A key tool was the use of testing to treatment data cascades, from blood sample collection, laboratory testing, identification of HIV-infected infants to ART initiation. Implementation of active tracking of infected infants was a critical intervention. Overall, ART initiation coverage reached 94% (30/32) for infants aged between 6 weeks -11 months diagnosed with HIV in January-June 2017. Finally, the program data validation identified and eliminated double counting of confirmatory DNA PCR tests.

Conclusions/Next steps: New HIV infections among infants remain evident and efforts must be made to find these infants through early infant testing. High coverage of early and timely ART amongst infants with HIV-infection is feasible provided, health care teams continue to monitor and improve, using quality data, outcomes of early infant diagnosis and ART initiation among this sub-population.



[Infant testing to treatment Cascade]

Cure strategies in paediatric and adolescent populations

THPEB123

Utilization of weekly short message service (SMS) surveys to identify vulnerable youth with acute HIV Infection: ATN CARES project

S.-J. Lee, M. Koussa, E. Almirol, W. Tang, D. Swendeman, M.J. Rotheram-Borus, Adolescent Medicine Trials Network (ATN) CARES
University of California, Psychiatry and Biobehavioral Sciences, Los Angeles, United States

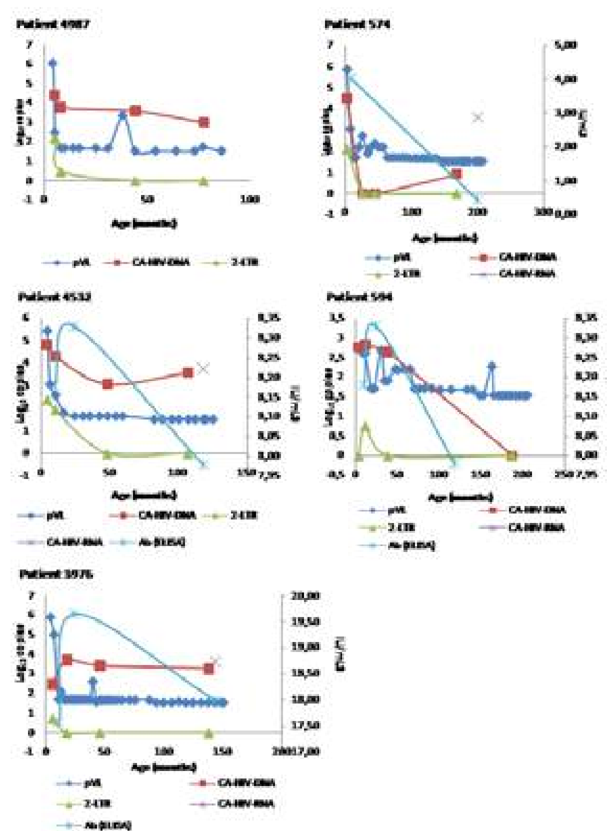
Background: The Centers for Disease Control and Prevention (CDC) estimates that 22% of new HIV infections diagnosed in 2015 were among youth 13 to 24 years of age. Early treatment of HIV infection in this vulnerable group may reduce the severity of acute disease, lower the viral set point, reduce the size of the viral reservoir, delay disease progression, and decrease the rate of viral mutation. However, because most are unaware of their HIV status, identifying acute/recent infections among youth is extremely challenging.
This study highlights ATN CARES' utilization of weekly short message service (SMS) to identify youth 12-24 years of age with acute HIV-infection.
Methods: Youth 12-24 years of age are being recruited through community based organizations serving the homeless, incarcerated, and LGBT youth in Los Angeles and New Orleans. For youth enrolled in the HIV-negative study, we administered a weekly SMS 7-item survey as part of an HIV biobehavioral intervention. HIV-like symptoms were asked as part of the 7-item SMS survey.
Results: To date, ATN CARES enrolled 506 HIV-negative youth and 469 had so far received at least one SMS survey. During the 7-month enrollment period, 262 participants responded to a weekly SMS survey at least once (56%). Among the 262 SMS responders, 157 participants reported potential HIV-like symptoms at least once via the weekly SMS survey (60%).
Once the HIV-like symptoms are reported, the field staff contacted participants for follow-up HIV test. A significantly higher proportion of youth with HIV-like symptoms concurrently reported no condom use (60%), compared to those who did not report symptoms (33%) (p< 0.01).
Those who reported HIV-like symptoms reported a significantly higher history of attending substance abuse treatment program (24%), compared to those who did not report symptoms (11%) (p< 0.01). Among those that came in for follow-up testing, all were HIV-negative.
Conclusions: To date, ATN CARES successfully recruited 11 youth with acute/treatment naïve recent HIV-infections. Despite the high false positive rates of HIV, the weekly SMS survey strategy holds promise to consistently engage and monitor vulnerable HIV-negative youth over time. This strategy optimizes timely identification of youth and enhances our efforts to achieve early treatment.

THPEB124

High level of circulating HIV-1 reservoirs in perinatally HIV-1 infected children with early effective antiretroviral therapy and sustained virological suppression

M. Moragas[1], D. Mecikovsky[2], R. Bologna[2], F. Salama[3], P. Aulicino[1], A. Mangano[1]
[1]Hospital de Pediatría 'Prof. Dr. Juan P. Garrahan', Laboratorio de Biología Celular y Retrovirus - CONICET, Buenos Aires, Argentina, [2]Hospital de Pediatría 'Prof. Dr. Juan P. Garrahan', Servicio de Epidemiología e Infectología, Buenos Aires, Argentina, [3]Hospital de Pediatría 'Prof. Dr. Juan P. Garrahan', Laboratorio Central, Buenos Aires, Argentina

Background: Early effective antiretroviral therapy (ART) limits circulating HIV-1 reservoirs, which is a goal for remission strategies. Our aim was to investigate the impact of early virological suppression (VS) on HIV-1 reservoir size in perinatally HIV-1-infected children with early ART initiation and more than six years of VS.
Methods: This study included 5 perinatally HIV-1 infected children ART-treated and followed up during sustained VS. Cell-associated HIV-1 DNA (CA-HIV-DNA) and two LTR (2-LTR) circles level were analyzed longitudinally: previous to ART initiation, at VS and throughout VS. Cell-associated unspliced HIV-1 RNA (CA-HIV-RNA) level was measured at last visit (after 6 years of VS). All these markers were quantified by semi-nested real time PCR. Antibody level was measured longitudinally (around 24 month of life, at VS and at last visit) using a commercial ELISA. All data were expressed as median (range).
Results: All infants received AZT as prophylaxis for 6 weeks, started ART and achieved VS at 4 (2-7) and 10 (8-11) months of life, respectively. Reservoir size, plasma viral load (pVL) and antibody measurements were illustrated per patient in Figure 1. CA-HIV-DNA showed a little decrease from ART initiation to last visit [time of VS 11 (6-16) yrs]: 4 (2.5-4.8) and 3 (0-3.6) log10 copies per million of peripheral blood mononuclear cells (cpm), respectively. The 2-LTR circles were detected in all, except one, patient at ART initiation [2.11 (0-2.4)], but it was undetectable in most cases throughout VS. Surprisingly, CA-HIV-RNA was detectable at last visit in all patients with a median of 3.6 (1.5-3.76) log10 copies per microgram of RNA. Finally, only one patient had absence of antibodies against HIV throughout the study, considered as a pediatric seroreversion case.
Conclusions: The size of circulating HIV reservoir in perinatally HIV-1 infected with more than 6 years of VS was still high for remission strategies. The high level of CA-HIV-RNA indicates viral activity despite sustained undetectable pVL. This work support the need for a very fast ART initiation, may be during the firsts hours of life, in order to limit significantly the reservoir size and HIV-1 potential replication.



[Figure 1]

Adherence in paediatric and adolescent populations

THPEB125

Characterizing adherence and drug level effects on viral outcomes in HIV-infected Kenyan children

R. Vreeman[1,2,3], W. Nyandiko[2,3], A. DeLong[4], M. Coetzer[5], J. Aluoch[2], C. McAteer[1,2], E. Sang[2], A. Ngeresa[2], S. Ayaya[2,3], J. Hogan[2,6], R. Kantor[5]
[1]Indiana University School of Medicine, Ryan White Center for Pediatric Infectious Disease and Global Health, Department of Pediatrics, Indianapolis, United States, [2]Academic Model Providing Access to Healthcare, Eldoret, Kenya, [3]College of Health Science, Moi University, Department of Child Health and Paediatrics, Eldoret, Kenya, [4]Brown University, Department of Molecular Biology, Cell Biology and Biochemistry, Providence, United States, [5]Warren Alpert Medical School of Brown University, Medicine, Providence, United States, [6]Brown University, Department of Biostatistics, Providence, United States

Background: In resource-limited settings, associations between pediatric antiretroviral therapy (ART) adherence and viral outcomes are not well-characterized, yet are important to inform interventions. We investigated such associations in perinatally-infected children in Kenya with extensive adherence monitoring.
Methods: Children ≤15 years on or starting NNRTI-based 1st-line ART were enrolled at the Academic Model Providing Access to Healthcare in Kenya. Adherence monitoring included MEMS® electronic monitors, drug levels and validated caregiver questionnaires. Nevirapine (NVP) or efavirenz (EFV) were placed in monthly-monitored MEMS® that electronically captured dose timing data. Blood samples were drawn after 1-3 months (timepoint 1; TP1) for NVP/EFV levels, CD4%, viral load (VL), and resistance, and after 6 months (TP2) for VL. MEMS® adherence was characterized by
(1) > or < 90% doses taken (bottle openings divided by doses prescribed); and
(2) treatment interruptions (TI; >48 hours without opening).
Associations between adherence measures and viral outcomes, adjusting for confounders and other enrollment characteristics, were done using logistic regression models.
Results: Among 207 children, 54% female, median age 8.4 years (range 1.8-15.1), 59% CDC class B/C, median CD4% 26 (range 1-53), on ART mean 2.1 years (range 0.04-8.4), 80% were on NVP-based ART, and 20% EFV. At TP1, 33% (n=68) had treatment failure (VL>1000 copies/mL); 45% had MEMS adherence < 90%, 31% had TI, 21% missed ART doses in past 30 days by caregiver report, and 14%/38%/48% had sub-therapeutic/therapeutic/supra-therapeutic drug levels. Treatment failure was significantly associated with < 90% MEMS adherence, younger age, less time on ART, lower CD4%, TI, and low NVP level. Of the 32/68 with ART failure who had genotyping, 81% had intermediate-high resistance to ≥1 drug. All had high resistance to current ART, and 75% to potential 2nd line ART, including 12% tenofovir, 19% etravirine, 56% rilpivirine. Among 176 children with VL at TP2, 15% had VL>1,000, significantly associated with < 90% MEMS adherence, viral failure at TP1 and TI.
Conclusions: Treatment failure among HIV-infected Kenyan children was associated with less than 90% adherence and TI, with high drug resistance among those failing. Interventions improving pediatric adherence could sustain ART.

THPEB126

Video directly observed therapy to improve adherence of human immunodeficiency infected children and adolescents to combination antiretroviral therapy: A pilot study

N. Nashid[1,2], F. Kordy[1], S. Khan[3,4], S. Read[1,2], G. McDougall[1], D. Louch[1], C. Arneson[1], S.A. Bitnun[1,2]
[1]The Hospital for Sick Children, Pediatric Infectious Diseases, Toronto, Canada, [2]University of Toronto, Pediatrics, Toronto, Canada, [3]McMaster University, Pediatric Infectious Diseases, Hamilton, Canada, [4]Hamilton Health Sciences, Hamilton, Canada

Background: Poor adherence to antiretroviral therapy (ART) is a major problem for adolescents living with HIV. We conducted a pilot study evaluating the feasibility and acceptability of using video directly observed therapy (VDOT) as a method of improving medication adherence in poorly adherent adolescents.
Methods: HIV infected adolescents with a history of poor adherence to ART were eligible for inclusion. The study consisted of four phases: VDOT daily (4 months), daily texting (2 months), weekly texting (3 months) and no intervention (3 months). Monthly clinic assessments were scheduled. Study is ongoing.
Results: Five of 8 eligible subjects consented to participate (median age 17 years [16-19]; 3 male, 2 female). All were perinatally infected and had dual (n=4) or triple class (n=1) resistance. Four were on drug holidays for 5-9 months pre-enrollment. Median baseline viral load and CD4 count were 6,342 copies/mL (82-34,657) and 218 cells/µL (72-265), respectively. Four participants achieved viral suppression in the VDOT phase and one came close (40 copies/ml). Three participants maintained viral suppression during the daily and weekly texting phases. Thus far, the two participants in the no intervention phase have maintained viral suppression. Two participants were withdrawn from the study due to protocol non-compliance during the daily texting phase. During the VDOT phase, the proportion of doses observed taken per-participant ranged from 42% to 98% (n=5). For the daily texting phase, text responses indicating medication taken were received for 96.7%, 85.2% and 44.4% of doses (n=3). For the weekly texting phase, text responses indicating medication taken were received for 91%, 91%, and 83% of doses (n=3). Two subjects fully complied with monthly pill count requirements - this showed 100% and 93% of pills taken (first three phases combined). Participants expressed general satisfaction with the intervention. Healthcare providers felt the intervention was at times burdensome.
Conclusions: VDOT is feasible and acceptable as an intervention to both adolescents living with HIV and care providers to improve adherence in select populations. Barriers to success include variable compliance and time burden for service providers.

THPEB127

Barriers and facilitators to retention in care for adolescents living with HIV in Western Kenya

L.A. Enane[1,2], E. Apondi[3], J.J. Toromo[2], C.I. McAteer[1,2], W.M. Nyandiko[2,4], R.C. Vreeman[1,2,4]
[1]Indiana University School of Medicine, Pediatrics, Indianapolis, United States, [2]Academic Model Providing Access to Healthcare (AMPATH), Eldoret, Kenya, [3]Moi Teaching and Referral Hospital, Eldoret, Kenya, [4]Moi University College of Health Sciences School of Medicine, Child Health and Paediatrics, Eldoret, Kenya

Background: Adolescents living with HIV (ALHIV, ages 10-19) experience poor rates of retention in care, resulting in poor clinical outcomes and HIV-associated mortality. As a global "treat all" strategy is implemented, it is critical to strengthen retention of vulnerable patients in HIV care. We sought to define barriers and facilitators to retention experienced by perinatally infected ALHIV in western Kenya.
Methods: This qualitative study was performed at Moi Teaching and Referral Hospital (MTRH) in Eldoret, Kenya, and the associated HIV treatment clinic, AMPATH MTRH Centre. We purposefully sampled ALHIV and caregivers of ALHIV from the following groups: hospitalized ALHIV (both engaged in care and not currently engaged in care) and ALHIV en-

gaged in outpatient care. A trained facilitator conducted semi-structured key informant interviews and focus group discussions (FGDs) in Kiswahili. These were recorded, and transcripts were coded by 2 study team members and analyzed through thematic analysis.

Results: We conducted interviews with 6 hospitalized ALHIV, 16 caregivers of hospitalized ALHIV, and 11 non-disclosed engaged ALHIV; 8 FGDs with 55 disclosed engaged ALHIV; and 4 FGDs with 28 caregivers of engaged ALHIV. Among 116 ALHIV and caregivers of ALHIV, barriers to retention included the following complex and frequently concomitant issues: poverty; maternal illness or death resulting in other relatives taking on the adolescent's care; non-disclosure to the adolescent or to close family members; family conflict; social isolation and stigma; and mental health challenges. Younger ALHIV were particularly vulnerable to these challenges experienced at the family level. Transportation costs were a frequently reported barrier. Relationships to clinic staff were influential to retention or disengagement from care. Facilitators to retention included motivation to be healthy, HIV education, peer groups, disclosure to the adolescent and to family, and the support that this enables. Participants desired more counseling and education about HIV, access to peer groups and disclosure support, and nutritional and financial support.

Conclusions: Retention and disengagement of ALHIV are influenced by complex, interwoven barriers at the levels of the adolescent, family, clinic, and society. Interventions are needed to mitigate these barriers for those ALHIV at high risk of disengagement.

THPEB128

Targeting the third "90": Are children and adolescents slipping through the net?

G. McHugh[1], V. Simms[2], E. Dauya[1], T. Bandason[1], H. Mujuru[3], S. Munyati[1], H. Weiss[2], A.M. Rehman[2], J. Odland[4,5], R. Ferrand[1,2]

[1]Biomedical Research and Training Institute, Harare, Zimbabwe, [2]London School of Hygiene and Tropical Medicine, London, United Kingdom, [3]University of Zimbabwe, Harare, Zimbabwe, [4]Arctic University of Norway, Tromso, Norway, [5]University of Pretoria, Pretoria, South Africa

Background: Achieving virological suppression is critical to ensure optimal outcomes and prevent onward transmission among people living with HIV (PLHIV). We investigated viral suppression among children and adolescents aged 6-19 years who were receiving antiretroviral therapy (ART) treatment for at least six months in public sector HIV clinics in Harare, Zimbabwe.

Methods: Participants were recruited at Harare Central hospital, from June 2016-December 2017. Socio-demographic and HIV history were recorded and CD4 count and viral load were measured. Risk factors for virological failure (viral load ≥400 copies/ml) were analysed using multivariate logistic regression to estimate adjusted odds ratios (aOR) and 95% confidence intervals (CI).

Results: All 155 participants recruited were perinatally infected. Just under half (n=69; 45%) were female, and the median age was 15 (IQR 12-17) years. The median age at ART initiation was 8 (IQR 5-11) years. The median duration on ART was 6 (IQR 4-8) years, with 58 (37%) taking second-line ART. The median CD4 count was 580 (IQR 366-801) cells/mm^3. Half the participants (n=81; 52%) were virally non-suppressed. The median viral load of those non-suppressed was 4,310 (IQR 1,360-43,100) copies /ml. Adolescents 12 years and older were more likely to have virological non-suppression than those under 12 years old (aOR=2.85; 95%CI 1.24-6.56). Being on second line ART was also associated with virological non-suppression (aOR=2.21; 95%CI 1.11-4.38). Sex and duration on ART were not associated with viral non-suppression

Conclusions: Adolescents are a high-risk group for virological non-suppression despite being established on treatment and on second line ART therapy. Interventions to support adolescents to adhere and manage their HIV infection are urgently required to ensure an AIDS free generation but also to prevent onward HIV transmission.

THPEB129

The paediatric continuum of HIV care in the Netherlands: From diagnosis in childhood to viral suppression in adulthood

C. Smit[1], T. Wolfs[2], T.S. Boender[1], A. van Rossum[3], P. Reiss[1,4,5], on behalf of the ATHENA National Observational HIV Cohort

[1]Stichting HIV Monitoring, Amsterdam, Netherlands, [2]UMCU, Department of Paediatrics, Wilhelmina Children's Hospital, Utrecht, Netherlands, [3]Erasmus MC, Department of Paediatrics, Sophia Children's hospital, Rotterdam, Netherlands, [4]Academic Medical Center, and Amsterdam Center for Infection and Immunity, Department of Internal Medicine, Division of Infectious Diseases, Amsterdam, Netherlands, [5]Academic Medical Center, and Amsterdam Institute for Global Health and Development, Department of Global Health, Amsterdam, Netherlands

Background: In the Netherlands, a substantial proportion of children diagnosed with HIV have survived into adulthood. We analysed the outcomes of children with an HIV diagnosis < 18 years of age along the continuum of HIV care (CoC).

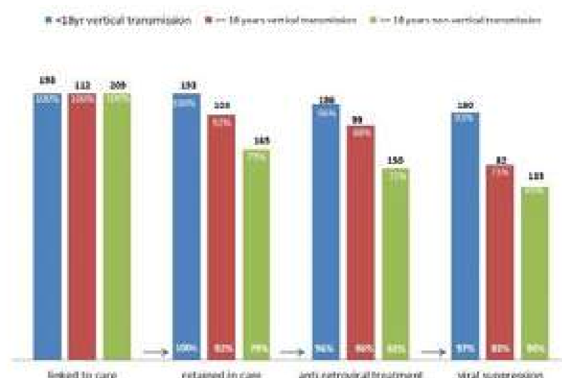
Methods: We constructed the CoC for HIV-1-positive individuals who were ever registered < 18 years of age within the ATHENA cohort between 1998 and 2016. Key steps were being:

1) linked to care,
2) retained in care (clinical visit in 2016),
3) on cART,
4) viral suppression (most recent HIV RNA < 100 copies/ml).

Individuals were stratified by age (< /≥ 18 years on 31 December 2016) and HIV-transmission route (vertically-acquired or not).

Results: As of 31 December 2016, 525 individuals had been diagnosed with HIV in childhood, were linked to care, still alive and not reported as having moved abroad. Of these, 204 were < 18 years of age (median 10 years; IQR 7-15) of whom 193 (95%) acquired HIV through MTCT, 154 (75%) were of non-Dutch origin and 109 (53%) were adopted by Dutch parents. Given the low number of 11 children aged < 18 years who non-vertically acquired HIV, these were excluded from the analysis. Among the 321 individuals who were ≥18 years of age (median 29 years; IQR 23-33), 112 (35%) had acquired HIV through MTCT, and 209 (65%) through other means (sexual transmission (n=158), blood-blood contact/drug use (n=36), unknown transmission route but diagnosed when aged>5 years (n=15)), with 69% of the total being of non-Dutch origin. Figure 1 illustrates the CoC for the subgroups; Overall viral suppression rates were 93% in those aged < 18 years, and in those aged ≥18 years, 73% and 65% for those who had acquired HIV vertically and non-vertically, respectively.

Conclusions: The provision of HIV care for children aged less than 18 years has resulted in a high viral suppression rate. However, targeted attention is needed for those currently ≥18 years, particularly those with non-vertically acquired HIV, given much lower viral suppression rates. This illustrates challenges for long-term treatment adherence, which may be of a different nature in those who vertically or behaviourally acquired HIV.



[Continuum of HIV care for children]

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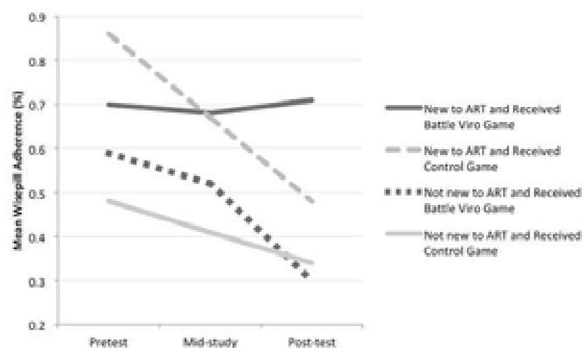
THPEB130

An iPhone app improves medication adherence and viral load among youth living with HIV who are newly starting antiretroviral therapy

L. Whiteley[1], L. Brown[1], L. Craker[1], A. Lowery[1], T. Arnold[2], L. Mena[2]
[1]Rhode Island Hospital / Brown University, Providence, RI, United States, [2]University of Mississippi Medical Center, Jackson, United States

Background: In 2015, youth, ages 13-24, accounted for over 8,000 new HIV infections in the United States. Despite promising outcomes of antiretroviral therapy (ART) medications, improving adherence to ART among youth living with HIV (YLWH) has been challenging. This study examines the moderators of intervention impact of an iPhone game/app on ART adherence and biological outcomes among YLWH in Jackson, MS.
Methods: A RCT with 61 YLWH tested the impact of *Battle Viro*, an ART-related iPhone game, over six months. Participants, ages 13-26, were recruited from HIV clinics and randomly assigned to receive *Battle Viro* or a non-HIV related mobile game. All participants received a medication monitoring device. These analyses explore the impact of moderating variables (newly starting ART, age, gender, and gaming frequency) on ART knowledge and attitudes, adherence and viral load. Chi-square and t-test analyses examined baseline differences between conditions. Continuous outcomes were examined using analyses of covariance (ANCOVAs) controlling for baseline scores. Cohen's *d* effect sizes were calculated.
Results: The sample was 79% male, 75% Black, and 74% non-heterosexual, with a mean age of 22 years. Those newly starting ART (≤ 3 months on ART) represented 36% of the sample. Only time on ART showed interaction effects at the 6-month follow-up. Those newly starting ART in the *Battle Viro* condition experienced a 0.96 log greater decrease in viral load ($F=4.33$, $p=0.04$), showed better adherence at the 6-month post-test (71% vs 48%; $d=1.18$, $F=3.20$, $p=0.05$; see figure below). In ANCOVAs restricted to participants newly starting ART, those in the intervention demonstrated improved HIV knowledge ($d=0.90$; $F=3.23$, $p=0.09$) and ART knowledge ($d=0.73$; $F=1.59$, $p=0.22$) compared to those in the control condition.
Conclusions: The *Battle Viro* intervention showed improved adherence and viral load outcomes at the 6-month follow-up among those newly starting ART. These results support the need for a larger trial to further explore the impact of *Battle Viro,* particularly among YLWH newly starting ART.



[Figure 1. Wisepill Adherence by Intervention Condition by Newly Starting ART]

THPEB131

Challenges to achieving and maintaining sustained viral suppression among HIV infected Canadian children

F. Kakkar[1], J. Brophy[2], T. Lee[3], M. Hawkes[4], L. Samson[5], S. Read[6], H. Soudeyns[7], A. Bitnun[6], EPIC4 Study Team
[1]CHU Sainte-Justine, University of Montreal, Infectious Diseases, Montreal, Canada, [2]Children's Hospital of Eastern Ontario, University of Ottawa, Pediatrics, Montreal, Canada, [3]Canadian HIV Trials Network, Vancouver, Canada, [4]Storey Children's Hospital, University of Alberta, Paediatrics, Edmonton, Canada, [5]Children's Hospital of Eastern Ontario, University of Ottawa, Pediatrics, Ottawa, Canada, [6]The Hospital for Sick Children, University of Toronto, Pediatrics, Toronto, Canada, [7]University of Montreal, Microbiology and Immunology, Montreal, Canada

Background: One of the keys to post-treatment control (viral remission) is thought to be sustained viral suppression (SVS) after early initiation of combination antiretroviral therapy (cART). The objective of this study was to identify predictors of SVS among children in the Early Pediatric Initiation of cART Canada Child Cure Cohort (EPIC[4]).
Methods: The EPIC[4] cohort prospectively enrolled Canadian children living with perinatal HIV from 7 centers beginning in 2014, with the primary objective of quantifying the HIV reservoir in these children. Using data collected retrospectively at enrollment, the proportion of children who had achieved and maintained viral suppression (SVS) were compared, and predictors of SVS determined. Non-SVS was defined as ≥ 1 viral load rebound after ≥ 2 consecutive undetectable viral load (VL) measures at any time after cART initiation.
Results: 211 children were enrolled; mean age was 11.7 years (range 2.2-23 years). Nineteen children were treatment naive; among those on treatment, 44% were on NNRTI, 30% on protease inhibitor, and 26% on integrase inhibitor-based regimens. Only 18.8% were on their initial cART regimen, 21.6% were on their second, and 59.6% had had three or more regimens. Mean age at cART initiation was 4.0 years (SD=4.2) and mean proportion of life on effective cART was 46% (SD: 0.31). Fifty-six percent of children who initiated cART prior to enrollment had achieved SVS, while 33% reported at least one period of previous poor adherence. Children with SVS were more likely to be foreign born than Canadian born (85% vs. 67%, $p=0.03$), and less likely to have received social assistance (9% vs. 29%, $p=0.01$) or to have child protection services involvement (60% vs. 85%, $p< 0.01$). There was no significant difference in SVS according to gender or baseline viral load. There was a higher proportion of SVS among those with any protective HLA allele (from among HLA-B57, HLA-B81, HLA-B27 vs. none, 90 vs. 73%), though not statistically significant ($p=0.12$).
Conclusions: Only 56% of children enrolled in the EPIC[4] cohort achieved SVS. While adherence remains the overwhelming barrier to SVS, broader social determinants including income level and family disruption were identified important potential contributing factors.

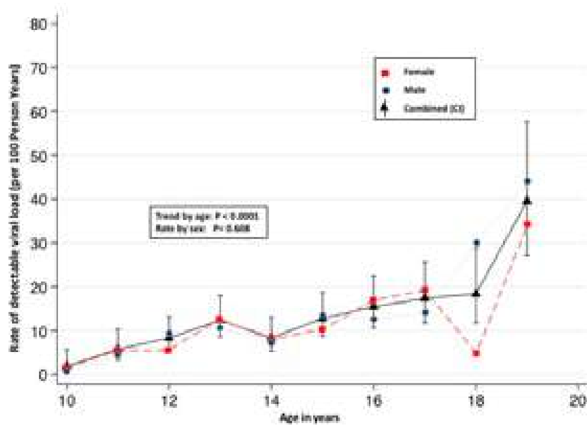
THPEB132

Patterns of detectable viral load in a cohort of HIV-positive adolescents on HAART in Cape Town, South Africa

R. Sher[1], S. Dlamini[2], R. Muloiwa[1]
[1]University of Cape Town, Department of Paediatrics and Child Health, Cape Town, South Africa, [2]University of Cape Town, Division of Infectious Diseases and HIV Medicine, Department of Medicine, Cape Town, South Africa

Background: Despite improved treatment and access to care, adolescent AIDS deaths are decreasing more slowly than in any other age group. There is lack of longitudinal data around adolescent adherence and the dynamics of viraemia over time. We aimed to describe patterns of detectable viral load (DVL) in a cohort of adolescents attending an ARV clinic in Cape Town, South Africa.
Methods: We conducted a retrospective cohort study of all patients on HAART aged 10-19 years. Participants were included if they underwent at least two viral load (VL) measurements and attended the Groote Schuur Hospital HIV Clinic for at least 24 months between 2002 and

2016. The primary outcome was two consecutive HIV viral VL >100 copies/ml, in line with the lower limit of detection of assays in use over the follow-up period.
Results: Of 482 screened subjects, 327 met inclusion criteria. Most subjects were vertically infected (n= 314; 96%), and 170 (52%) were male.
Overall, 203 episodes of confirmed DVL involving 159 (49% [95% CI 43%-54%]) subjects were experienced during the follow-up period. A total of 111 (34%) subjects never experienced DVL, while 16 (5%) never suppressed throughout the follow-up period. Median age at first DVL was 14 (IQR 11-16) years. Of the 159 subjects who experienced DVL, 102 (64%) re-suppressed, of which 38 (37%) had a subsequent DVL.
Six subjects had genotyped resistance to protease inhibitors. Four of these never suppressed, while two suppressed on salvage regimens.
Total follow-up time was 1723 person years (PY), of which 880 (51%) were contributed by the 159 subjects who experienced DVL. Overall time with DVL was 370 PY which comprised 22% of total follow-up time, but 42% of those who experienced DVL.
The rate of DVL was 11.8 (95% CI 10.3-13.5) episodes per 100 PY. The risk increased by 24% for each year of increasing age (RR 1.24 [95% CI 1.17-1.31]; p< 0.0001). Figure 1.
Neither prevalence, duration nor rate of DVL was influenced by gender.
Conclusions: DVL was seen in nearly half of adolescents, with the rate increasing with age. Further study is warranted to correlate these findings with risks and clinical outcomes.



[Figure 1: Rates of detectable viral load by age and sex of adolescents]

THPEB133

Health literacy as a predictor of biological markers of immune functioning in youth with HIV

C. Lynn[1], T. Chenneville[2], K. Bradley-Klug[3], A. St. John Walsh[4], R. Dedrick[3], H. Drake[2], C. Rodriguez[4]
[1]University of South Florida, Education and Psychological Studies, Miami, United States, [2]University of South Florida St. Petersburg, Department of Psychology, St. Petersburg, United States, [3]University of South Florida, Education and Psychological Studies, Tampa, United States, [4]University of South Florida, Department of Pediatrics, Tampa, United States

Background: The definition of health literacy (HL) includes one's ability to acquire information and make health-related decisions. Studies of adults living with HIV have shown a robust relationship between HL and objectively measured treatment adherence and self-reported biological indicators. However, research is needed on HIV-related HL among youth. Thus, the current study explored HL among youth living with HIV (YLWH) and the association between HL and health outcomes.
Methods: Participants included 102 YLWH aged 13 to 25 recruited from an HIV specialty clinic. Participants completed the Brief Estimate of Health Knowledge and Action-HIV Version (BEHKA-HIV) comprised of Knowledge and Action subtests. Biological markers of immune functioning were extracted from the medical record. Data were analyzed using descriptive statistics and multiple linear and logistic regression.
Results: Participants were evenly distributed among genders (male, 52%) and mode of transmission (perinatal, 54.9%) with a mean age of 20. Most participants were heterosexual (60.3%) and African American (67.9%). On the BEHKA-HIV Action subtest, 76.5% of participants indicated they take their medications under all conditions. Participants endorsed not taking their medication when the medications made them feel bad (13.7%), because they taste bad (9.8%), when they were feeling down or low (7.8%), because they were too tired (7.8%), and when they feel good (3.9%). On the Knowledge subtest, 44.1% gave the correct definition of CD4 count, 64.7% correctly defined viral load, 67.6% correctly named their medications, and 75.5% and 82.4% knew whether CD4 count and viral load, respectively, should go up or down as a result of treatment. HL (Knowledge and Action) was significantly associated with CD4 count and viral load. Decreasing Action scores were statistically associated with an increased likelihood of having a detectable viral load.
Conclusions: In the current study there were deficits in HL among YLWH. Findings point to the need for better patient education and support the importance of HL in determining health outcomes. It is important to measure HL beyond that of a patient's ability to read health related words. Interventions need to be designed to improve HL and, ultimately, health outcomes, particularly for YLWH.

HIV complications and comorbidities in paediatric and adolescent populations

THPEB134

DTI-based tractographic alterations within functional networks in HIV infected children at age 7 years

J.S. Madzime[1], M. J. Holmes[1], M.F. Cotton[2], B. Laughton[2], A.J.W. van der Kouwe[1,3], E.M. Meintjes[1,4], M. Jankiewicz[1,4]
[1]University of Cape Town, MRC/UCT Medical Imaging Research Unit, Division of Biomedical Engineering, Department of Human Biology, Faculty of Health Sciences, Cape Town, South Africa, [2]Stellenbosch University, Family Clinical Research Unit, Dept. of Paediatrics and Child Health, Cape Town, South Africa, [3]Massachusetts General Hospital, Department of Radiology, Boston, United States, [4]University of Cape Town, Cape Universities Body Imaging Centre at UCT (CUBIC-UCT), Faculty of Health Sciences, Cape Town, South Africa

Background: Despite increased access to antiretroviral therapy (ART) and early ART in children born to HIV infected (HIV+) mothers, school aged HIV+ children may still have neurologic abnormalities as well as neurocognitive delays and deficits.
Two recent functional magnetic resonance imaging (fMRI) studies in paediatric HIV+ cohorts on ART find effects of HIV infection and disease severity on functional connectivity within the default mode network (DMN) and between different networks.
Tractography is a technique used to study structural connectivity using diffusion tensor imaging (DTI) data, allowing one to examine tracts between grey matter regions.
Previously, we reported regional white (WM) abnormalities (reduced fractional anisotropy (FA) and increased mean diffusivity (MD)) and reduced functional connectivity in the DMN in 7-year-old HIV+ children on early ART compared to uninfected children. To understand how WM abnormalities relate to specific functional networks, this study used tractography to examine the properties of the WM tracts connecting grey matter regions in 12 resting state functional networks. We hypothesized lower FA and higher MD in tracts between regions of the DMN.
Methods: MRI scans were performed on 105 Xhosa and Cape Coloured 7-year-old children in Cape Town, South Africa. The participants included 59 HIV+ (age 7.2±0.1 yrs (mean age±standard deviation), 31 females, 50 Xhosa) children on ART from the Children with HIV Early Antiretroviral (CHER) study and 46 uninfected control children (age 7.3±0.1 yrs, 21 females, 37 Xhosa).
Data were processed using TORTOISE (version 3.0) and FATCAT AFNI. A multivariate group analysis was done using FATMVM comparing HIV+ to controls, controlling for gender and ethnicity. Multiple comparison correction was performed in R using the false discovery rate method.
Results: Results are summarized in Table 1.

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TABLE 1: WM tracts showing significant differences in mean FA and MD between control and HIV+ children in the somatosensory, default mode, auditory and basal ganglia networks. GM regions: Transverse temporal gyrus (TTG); Insula (Ins);Caudate (Cd); Caudal anterior cingulate (cAC); Posterior cingulate (PC); Postcentral lobule (PCL); Paracentral lobule (ParaCL); Superior temporal gyrus (sTG); Medial frontal gyrus (mFG); Precentral gyrus (PreCG); Medial orbitofrontal gyrus (mOFG); Superior frontal gyrus (sFG); Anterior cingulate (AC); Caudate (Cd); Ventral diencephalon (vDC); Pallidum (Pd).

WM TRACT	GM REGIONS	FA CTRL	FA HIV+	AD CTRL	AD HIV+	p	RD CTRL	RD HIV+	p
SOMATOSENSORY									
Inferior fronto-occipital fasciculus	(L) Putamen – TTG	0.46 (0.04)	0.43 (0.04)	1.27 (0.06)	1.24 (0.06)	0.23	0.60 (0.03)	0.62 (0.04)	0.03
	(L) TTG- Ins	0.42 (0.03)	0.39 (0.02)	1.23 (0.06)	1.21 (0.04)	0.24	0.62 (0.03)	0.64 (0.03)	0.03
Cingulum	(L) cAC – PC	0.41 (0.04)	0.39 (0.03)	1.23 (0.06)	1.23 (0.05)	0.75	0.63 (0.04)	0.65 (0.03)	0.03
Corticospinal	(R) ParaCL – PCL	0.38 (0.03)	0.37 (0.02)	1.18 (0.06)	1.18 (0.05)	0.88	0.65 (0.04)	0.67 (0.03)	0.04
Posterior limb of internal capsule	(R) sTG – Ins	0.41 (0.04)	0.39 (0.03)	1.21 (0.05)	1.20 (0.06)	0.62	0.63 (0.03)	0.64 (0.03)	0.04
		MD CTRL	MD HIV+	AD CTRL	AD HIV+	p	RD CTRL	RD HIV+	P
Cingulum	(L) ParaCL – mFG	0.82 (0.03)	0.84 (0.04)	1.20 (0.06)	1.22 (0.06)	0..24	0.63 (0.03)	0.65 (0.04)	0.03
	(R) ParaCL – mFG	0.82 (0.03)	0.84 (0.04)	1.20 (0.04)	1.23 (0.06)	0.18	0.63 (0.04)	0.65 (0.04)	0.03
External capsule	(R) Putamen - Ins	0.81 (0.02)	0.82 (0.02)	1.23 (0.04)	1.24 (0.04)	0.35	0.60 (0.03)	0.61 (0.02)	0.05
Superior thalamic radiation	(L) Thalamus – PreCG	0.77 (0.02)	0.79 (0.03)	1.21 (0.04)	1.23 (0.04)	0.18	0.56 (0.03)	0.57 (0.03)	0.03
DEFAULT MODE NETWORK									
WM TRACT	GM REGIONS	FA CTRL	FA HIV+	AD CTRL	AD HIV+	p	RD CTRL	RD HIV+	P
Forceps minor	(R) mOFG – mFG	0.38 (0.03)	0.37 (0.03)	1.21 (0.05)	1.21 (0.06)	0.87	0.66 (0.04)	0.68 (0.03)	0.02
	(R) sFG- mFG	0.40 (0.03)	0.39 (0.02)	1.22 (0.04)	1.22 (0.04)	0.87	0.65 (0.04)	0.67 (0.03)	0.02
		MD CTRL	MD HIV+	AD CTRL	AD HIV+	p	RD CTRL	RD HIV+	P
Forceps minor	(L) mOFG – AC	0.84 (0.02)	0.86 (0.03)	1.27 (0.04)	1.29 (0.05)	0.62	0.63 (0.02)	0.64 (0.04)	0.07
	(L) mOFG – mFG	0.83 (0.02)	0.85 (0.03)	1.20 (0.06)	1.21 (0.05)	0.87	0.65 (0.03)	0.67 (0.04)	0.02
	(L) sFG – mFG	0.84 (0.03)	0.86 (0.03)	1.22 (0.04)	1.23 (0.04)	0.62	0.65 (0.03)	0.67 (0.04)	0.02
	(R) AC – mFG	0.86 (0.03)	0.87 (0.03)	1.31 (0.05)	1.31 (0.07)	0.87	0.63 (0.04)	0.65 (0.05)	0.07
	(R) sFG – mFG	0.84 (0.03)	0.86 (0.03)	1.22 (0.04)	1.22 (0.04)	0.87	0.65 (0.04)	0.67 (0.03)	0.02
AUDITORY NETWORK									
WM TRACT	GM REGIONS	MD CTRL	MD HIV+	AD CTRL	AD HIV+	p	RD CTRL	RD HIV+	P
WM fibre associations	(R) sTG - Uncus	0.92 (0.04)	0.95 (0.04)	1.28 (0.06)	1.31 (0.06)	0.17	0.74 (0.04)	0.77 (0.05)	0.13
BASAL GANGLIA									
WM TRACT	GM REGIONS	FA CTRL	FA HIV+	AD CTRL	AD HIV+	p	RD CTRL	RD HIV+	P
Anterior thalamic radiation	(L) Cd - Putamen	0.45 (0.03)	0.44 (0.02)	1.22 (0.03)	1.22 (0.03)	0.95	0.58 (0.03)	0.59 (0.03)	0.07
	(R) Thalamus – vDC	0.45 (0.02)	0.44 (0.02)	1.27 (0.04)	1.26 (0.04)	0.95	0.60 (0.02)	0.61 (0.02)	0.07
	(R) Cd - Putamen	0.45 (0.03)	0.44 (0.02)	1.23 (0.04)	1.23 (0.03)	0.95	0.58 (0.03)	0.59 (0.03)	0.07
	(R) Cd – vDC	0.45 (0.03)	0.44 (0.03)	1.22 (0.03)	1.21 (0.04)	0.94	0.58 (0.03)	0.59 (0.04)	0.10
	(R) Putamen- vDC	0.49 (0.01)	0.48 (0.01)	1.27 (0.03)	1.27 (0.03)	0.95	0.56 (0.01)	0.57 (0.01)	0.07
	(R) Pd – vDC	0.47 (0.01)	0.46 (0.01)	1.27 (0.03)	1.27 (0.03)	0.95	0.58 (0.02)	0.58 (0.01)	0.07
Posterior limb of internal capsule	(L) Pd – vDC	0.47 (0.01)	0.46 (0.02)	1.29 (0.03)	1.29 (0.02)	0.95	0.58 (0.02)	0.59 (0.02)	0.11

[WM tracts showing significant differences in mean FA and MD between control and HIV+ children]

Conclusions: As hypothesized, we found higher MD and lower FA values in HIV+ children in tracts connecting regions in the DMN suggesting that loss of white matter integrity is involved in reduced functional connectivity. The reduced structural connectivity in the somatosensory, auditory and basal ganglia networks was unexpected, and may relate to previously observed reduced connectivity between these networks.

THPEB135

Prevalence and associated factors of proximal renal tubular dysfunction among perinatally HIV-infected Thai adolescents

T. Sudjaritruk[1,2], S. Kanjanavanit[3], L. Aurpibul[2], T. Chotecharoentanan[2], S. Sarachai[2], K. Sintupat[2], R. Khampan[2], NEPHRO Study Group
[1]*Faculty of Medicine, Chiang Mai University, Department of Pediatrics, Chiang Mai, Thailand,* [2]*Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand,* [3]*Nakornping Hospital, Department of Pediatrics, Chiang Mai, Thailand*

Background: The information regarding renal tubular disorders among HIV-infected youth is limited. This study aimed to identify the prevalence and associated factors of proximal renal tubular dysfunction(PRTD) among perinatally HIV-infected Thai adolescents.

Methods: This was a sub-study of a multicenter, prospective cohort study evaluating kidney diseases among HIV-infected Thai adolescents. Participants with (1) perinatally acquired HIV infection, (2) aged 10-25 years, and (3) were on combination antiretroviral treatment (cART) for ≥12 months, together with their age- and sex-matched healthy controls were enrolled (ratio2:1). HIV-infected participants were categorized as tenofovir disoproxil fumarate (TDF) users *versus* non-TDF users, according to their current cART regimens. At enrollment, proximal renal tubular function parameters, including urine 2-microglobulin to creatinine ratio (U2M/UCr), tubular reabsorption of phosphate (TRP), fractional excretion of uric acid (FEUa), and fasting urine glucose levels were measured and calculated. PRTD was defined as the presence of ≥1 abnormalities in the following criteria:

(1) 2-microglobulinuria (tubular proteinuria): U2M/UCr>1,000 mcg/g Cr;
(2) phosphaturia: TRP< 80%;
(3) uricosuria: FEUa>15%; or
(4) normoglycemic glycosuria: fasting urine glucose>25 mg/dL, while fasting plasma glucose <100 mg/dL.

Logistic regression analysis was conducted to identify factors associated with PRTD among our HIV-infected adolescents.

Results: During December 2016 to June 2017, 210 participants (140 HIV-infected and 70 healthy), with a median age of 18(IQR:15-21) years, were enrolled. Half of them(50%) were male. Among HIV-infected adolescents, almost all (99%) had World Health Organization (WHO) clinical stage 1-2, 70 (50%) were TDF users (35 were concurrently receiving protease inhibitors [PI]-based regimens), and 116 (83%) had HIV RNA<50 copies/mL at enrollment. Overall, PRTD was identified in 18 participants (9%), which was significantly higher among TDF users (*n*=13; 19%) compared with non-TDF users (*n*=4; 6%) and healthy controls (*n*=1; 1%) (*P*=0.001) (Table 1). Focusing on TDF users, the prevalence of PRTD was not different between those concurrently receiving PI-based(*n*=7; 20%) *versus* non-nucleoside reverse transcriptase inhibitor-based regimens (*n*=6; 17%) (*P*=0.76). In the multivariable analysis among HIV-infected adolescents, TDF use (adjusted odds ratio: 3.6; 95%CI:1.1-12.1) was associated with PRTD, controlling for current WHO clinical stage, immunologic status, and virologic status.

Conclusions: PRTD is relatively common among our perinatally HIV-infected adolescents. TDF use is strongly associated with this condition. Routine evaluation of renal tubular function, particularly among TDF users, is necessary to promptly identify the abnormalities.

Renal tubular abnormalities*	HIV-infected adolescents (n = 140) TDF users (n = 70)	HIV-infected adolescents (n = 140) Non-TDF users (n = 70)	Healthy adolescents (n = 70)	P-value
Proximal renal tubular dysfunction (presence of ≥1 abnormalities: β2-microglobulinuria, phosphaturia, uricosuria, or normoglycemic glycosuria)	13 (18.6%) 95% CI: 10.3-29.7%	4 (5.7%) 95% CI: 1.6-14.0%	1 (1.4%) 95% CI: 0.04-7.7%	0.001
β2-microglobulinuria (Uβ2M/UCr >1,000 mcg/g Cr)	10 (14.3%) 95% CI: 7.1-24.7%	4 (5.7%) 95% CI: 1.6-14.0%	1 (1.4%) 95% CI: 0.04-7.7%	0.01
Phosphaturia (TRP <80%)	1 (1.4%) 95% CI: 0.04-7.7%	0 (0)	0 (0)	0.37
Uricosuria (FEUa >15%)	2 (2.9%) 95% CI: 0.4-9.9%	0 (0)	0 (0)	0.13
Normoglycemic glycosuria (fasting urine glucose >25 mg/dL while fasting plasma glucose <100 mg/dL)	1 (1.4%) 95% CI: 0.04-7.7%	0 (0)	0 (0)	0.37

Abbreviations: FEUa, fractional excretion of uric acid; TDF, tenofovir disoproxil fumarate; TRP, tubular reabsorption of phosphate; Uβ2M/UCr, urine β2-microglobulin to creatinine ratio; 95% CI, 95% confidence interval.
*Data were presented as number (%).

[Table 1. Prevalence of proximal renal tubular dysfunction, β2-microglobulinuria, phosphaturia, uricosuria, and normoglycemic glycosuria among perinatally HIV-infected Thai adolescents and healthy controls]

THPEB136

Early clinical outcomes among Tanzanian children with HIV and severe acute malnutrition: A comparison between those starting ART and those starting anti-TB treatment first

J. Gwimile[1], M. Chimwanda[1], T. Roche[1], E. Batungi[1], M. Mgawe[1], A. Salum[1], S. Shea[1,2], J. Cataldi[1,2], M. Minde[1,2], L. Mwita[1,2]
[1]*Baylor College of Medicine Children's Foundation-Tanzania, Mwanza, Tanzania, United Republic of,* [2]*Baylor College of Medicine International Pediatric AIDS Initiative at Texas Children's Hospital, Houston, United States*

Background: Children with severe acute malnutrition (SAM) and HIV have high morbidity and mortality and are at high risk of co-infection with tuberculosis (TB). This study compares clinical outcomes of children with SAM and HIV at the time of enrollment between children initiating anti-TB treatment (ATT) prior to anti-retroviral treatment (ART) and those starting ART first.

Methods: Retrospective chart review was performed to identify HIV-infected children with SAM at enrollment at the Baylor clinic in Mwanza, Tanzania from August 2011 to December 2016. Baseline nutritional status, TB risk factors, dates of ART and ATT initiation, and 6-month nutritional status and clinical outcomes were collected.
Results: One-hundred forty-seven children with HIV and SAM were identified. Eight were excluded from analysis for early transfer of care (n=2) or loss to follow-up [(LTFU) 4] or death (2) prior to starting any ART or ATT. Seventy-five percent (104/139) were < 5 years old and 48% (67) were male. Nine percent (13) had a documented TB contact and 76% (120) had at least one symptom of TB (cough, fever, weight loss, or localizing symptoms for extra-pulmonary TB). Fifty-nine percent (82) of children started treatment for TB prior to ART, and 71% (98) received inpatient care at enrollment. After six months, 9% (12) were LTFU and 17% (23) had died, with no difference in these outcomes between those starting ART or ATT first. Children starting ATT before ART had mean weight gain of 3.8kg and those starting ART first had mean weight gain of 4.2kg in the first 6 months (p=0.17).

	ART first, n=57	ATT first, n=82	Total, n=139	p-value
	n=57	n=82	n=139	chi-square test, unless indicated
Lost to follow-up	9% (5)	9% (7)	9% (12)	1.00
Died	18% (10)	16% (13)	17% (23)	0.76
Mean weight gain at 6 months in kg [SD]	3.8 [2.5]	4.5 [2.8]	4.2 [2.6]	0.17*
*t-test comparison of means				

[Clinical outcomes at six-months for children with HIV and SAM: comparison between those starting ART vs ATT first]

Conclusions: Confirming the findings of other studies, we found that children with HIV and SAM have a high risk of early mortality after enrollment in care. Diagnosis of TB in the setting of HIV/SAM co-morbidity remains challenging. Additional study is needed to define the relationship between timing of ART and ATT treatment, nutritional outcomes, and mortality among HIV-infected children with SAM.

THPEB137

Antiretroviral prophylaxis for infants of drug-resistant perinatally HIV infected (PHIV) women

M.J. Trahan[1], M.E. Metras[2], S. Valois[3], C. Renaud[4], V. Lamarre[5], F. Kakkar[5]
[1]McGill University, Obstetrics and Gynaecology, Montreal, Canada, [2]CHU Sainte-Justine, Pharmacology, Montreal, Canada, [3]Centre Maternel et Infantile sur le SIDA, Montreal, Canada, [4]CHU Sainte-Justine, University of Montreal, Microbiology and Immunology, Montreal, Canada, [5]CHU Sainte-Justine, University of Montreal, Infectious Diseases, Montreal, Canada

Background: Due to a lifetime of antiretroviral (ART) exposure and often difficulties with adherence, PHIV women may be multidrug-resistant once of child-bearing age. However, there are no guidelines for the ART prophylaxis of infants born to drug-resistant mothers. The objective of this study was to describe the ART resistance profiles of PHIV women, and specifically to the drugs recommended for prophylaxis for HIV-exposed newborns.
Methods: Clinic records from the Centre Maternel et Infantile sur le SIDA mother-child cohort in Montreal, Canada, were reviewed to identify all pregnancies among PHIV women previously followed as children at two tertiary care centers in Montreal, Quebec. Drug resistance was identified using cumulative HIV-1 mutations (extracted for all available on record) by Virco Type HIV-1 Virtual phenotype, and classified according to the HIV-resistance interpretation algorithm (Agence nationale de recherche sur le SIDA) consensus technique.
Results: There were 23 pregnancies among 12 PHIV women, resulting in 17 live births (5 terminations and 1 miscarriage.) At the first prenatal visit, 71% had a detectable viral load (range 933 - 201250 copies/ml), 53% were on ART, and 35% were immunosuppressed (absolute CD4 count < 200 cells/mm^3). While all were prescribed ART during pregnancy, at the time of delivery, 41% continued to have a detectable viral load (range 148-55 000 copies/ml), and 29% remained immunosuppressed. Cumulative drug resistance profiles were available for 10/12 women. All carried mutations conferring resistance to zidovudine (ZDV) and lamivudine (3TC), 8/10 were also resistant to Nevirapine (NVP), and 4/10 harbored mutations to protease inhibitors. In the 7 cases determined to be at high-risk of transmission due to detectable viral load at delivery, combination ART (empiric HIV therapy) was used for prophylaxis in all but one case. Specific combinations included ZDV and 3TC (1), in combination with raltegravir (3), nelfinavir (1), lopinavir/ritonavir (1) or NVP (1). None of the infants were infected.
Conclusions: The majority (80%) of PHIV women in our cohort were resistant to the standard drugs given for neonatal prophylaxis. These results suggest that for infants of PHIV women with detectable viral load prior to delivery, alternatives to the currently recommended regimens for newborns may be necessary.

THPEB138

HIV-infected patients in Shenzhen, China: Trends in mortality and cause of death from 2005 to 2017

P. Qiaoli[1], T. Xian[1], Z. Yang[1], X. Liumei[1], Z. Lukun[1], Z. Jin[2], C. Lin[2], Y. Zhengrong[2], T. Wei[2], C. Zhiwei[3], W. Hui[1]
[1]Shenzhen Third People's Hospital, Shenzhen, China, [2]Shenzhen Center for Disease Control and Prevention, Shenzhen, China, [3]University of Hong Kong, Hongkong, China

Background: The AIDS epidemic has reached its peak with an over 20% raise per year since 2010 in Shenzhen, China. Trends in mortality and cause of death in HIV-infected patients in this region have not been reported.
Methods: To study the mortality trend, causes of death and associated risk factors in a 13-year retrospective analysis among HIV-infected patients in Shenzhen, China. HIV-infected patients were followed up from January 2005 until December 2017. All deaths that occurred in Shenzhen were classified according to the Coding Causes of Death in HIV (CoDe) protocol (Version 2.3).
Results: During the past 13 years, a total of 18007 persons were tested HIV-positive in Shenzhen. 358 deaths were reported, with the crude mortality rate of 19.06%. Shenzhen has achieved the first "90%" since 2012 with the number of reported HIV infections nearly equal to the epidemic estimates in the past five years. The rate of the antiretroviral treatment coverage increased from 4.0% in 2005 to 57.2% in 2017 with viral inhibition rate more than 96%. In the mean time, the annual death rate decreased from 10.7 in 2005 to 1.7 per 1000 person-year in 2017. The death rate was 2.28 times higher in treated persons than non-treated persons. Of the 358 patients who died, 63.4% were aware of their HIV status (within 6 months before death) and only 35.8% had received HAART with viral inhibition rate at 34.4%. The median CD4 cell count at the time of death was 19 cells /mm^3. The most frequent cause of death was AIDS-related (269 deaths, 75.1%). Viral hepatitis (233 deaths, 9.2%) was the main cause of non-AIDS-related death. Cardiovascular disease (CVD) was the second most common cause of death for HAART-treated patients.
Conclusions: The mortality rate among HIV-infected individuals significantly decreased since 2005. AIDS-related causes remained the strongest factor associated with mortality in the era of HAART because of late diagnosis and treatment even when two "90%" goals have been achieved in Shenzhen. The prevention of HBV/HCV co-infection and HAART-induced cardiovascular disease are important for the control of non-AIDS related death.

THPEB139

Catch-up growth after ART initiation for late-diagnosed perinatally-infected children and adolescents

V. Simms[1], G. McHugh[2], T. Bandason[2], E. Dauya[2], S. Munyati[2], H. Mujuru[3], H.A. Weiss[1], R.A. Ferrand[2,4]
[1]London School of Hygiene and Tropical Medicine, MRC Tropical Epidemiology Group, London, United Kingdom, [2]Biomedical Research and Training Institute, Harare, Zimbabwe, [3]University of Zimbabwe, Department of Paediatrics, Harare, Zimbabwe, [4]London School of Hygiene and Tropical Medicine, Clinical Research Department, London, United Kingdom

Background: Perinatal HIV infections inhibits growth through multiple pathways. Children who initiate ART before age 5 subsequently have improved height and weight z-scores but it is not known whether older children can also experience catch-up growth from ART initiation. We investigated the effect of ART initiation on growth outcomes in a cohort of late-diagnosed perinatally-infected children and adolescents in Zimbabwe.
Methods: This prospective cohort study was nested within the ZENITH randomised controlled trial. Trial participants who initiated ART during follow-up and had at least two height and weight measurements including one at ART initiation, were included. Growth measures were height-for-age, weight-for-age and body mass index (BMI), with z-scores calculated using the UK reference population. We used multilevel mixed-effects linear regression with a piecewise four-knot restricted cubic spline for time since ART initiation, and random intercept and slope. Fixed effects were age at initiation, sex and CD4 count at initiation as fixed effects, with an interaction between baseline growth measure and time. Baseline growth was categorised as below -3 z-scores; -3 to < -2; -2 to < -1; and -1 and above.
Results: The 282 participants had a mean 6.8 observations each (range 1-14) over a median 498 days follow-up (range 14-940 days). At ART initiation, the mean height-for-age z-score was -1.6 (SD 1.1) and mean weight-for-age was -1.6 (SD 1.2), both slightly lower for boys than girls. The major predictor of growth outcomes over time was z-score at ART initiation. There was no evidence of change in height-for-age or weight-for-age z-score over time, within any category of baseline growth level. For BMI, children with a baseline z-score below -2, and especially below -3, gained weight-for-height over time while those with a higher initial BMI z-score had no change (interacton term p< 0.001).
Conclusions: Children aged 6 to 15 do not recover height or weight for age when initiated on ART. Children with severe wasting gain weight-for-height in the first 12 months. These results support WHO guidelines of immediate ART initiation of perinatally-infected children, as the catch-up growth characteristic of children under 5 does not occur at older ages.

HIV-associated co-infections and malignancies in paediatric and adolescent populations

THPEB140

Characteristics and outcomes of children, adolescents, and young adults with Kaposi sarcoma treated in a comprehensive care program in Mbeya, Tanzania

L. Campbell[1,2,3], J. Slone[2,4], P.S. Mehta[2,4], N. El-Mallawany[2,4], J. Bacha[1,2,3]
[1]Baylor College of Medicine International Pediatric AIDS Initiative at Texas Children's Hospital, Houston, United States, [2]Baylor College of Medicine, Houston, United States, [3]Baylor College of Medicine Children's Foundation - Tanzania, Pediatrics, Mbeya, Tanzania, United Republic of, [4]Texas Children's Cancer and Hematology Centers, Houston, United States

Background: Despite increasing availability of antiretroviral therapy (ART), Kaposi sarcoma (KS) remains an important HIV related malignancy in regions with high human herpes virus 8 seroprevalence, such as Tanzania. To address the needs of pediatric, adolescent and young adult (AYA) patients with KS, a comprehensive care program was established in Mbeya, Tanzania in 2011.
Methods: A retrospective chart review was conducted to describe characteristics and outcomes of patients diagnosed with KS between 1 March 2011 and 31 Dec 2017. Services provided included chemotherapy, ART, nutrition and psychosocial support.
Results: The cohort included 60 patients: 58% (35/60) male, median age 12.8 years (2.2-22.1). Clinical diagnosis was supported by histopathology in 36% (22/60). At diagnosis, 35% (21/60) had lymphadenopathic KS, 28% (17/60) had woody edema KS, 26% (16/60) had visceral and/or disseminated KS and 10% (6/60) had moderate cutaneous/oral KS. Severe anemia (Hgb < 8g/dL) was present in 28% (17/60) and severe thrombocytopenia (platelets < 50,000/mm³) was present in 22% (13/60). 97% (58/60) were HIV +, of those, 78% (45/58) were on ART for a median of 11 months (2 days -120 months). IRIS occurred in 24% (11/45). CD4 data was available for 95% (55/58), of whom 64% (35/55) met criteria for WHO severe immunosuppression. 45% (27/60) patients had severe acute malnutrition (SAM).
95% (57/60) patients were treated with chemotherapy; 3 patients died before treatment initiation. 52% (30/57) were treated with bleomycin and vincristine (BV); doxorubicin was added for 39% (22/57). Paclitaxel was given to 21% (12/57) who failed to achieve complete clinical remission (CCR) with BV or BV + doxorubicin; 1 patient was initially treated with paclitaxel. 96% (56/58) of HIV + patients were given ART. At the end of study period, 72% (43/60) patients were alive. No patients were lost to follow up; 7 transferred out. Of living patients, 67% (29/43) achieved CCR. Median follow up for living patients was 25 months (2-78) from diagnosis to end of study.
Conclusions: Despite the resource limitations that exist in southwestern Tanzania, pediatric and AYA patients with KS can be successfully treated with the majority of patients in our clinical oncology program achieving positive outcomes.

THPEB141

Prevalence and risk factors for TB/HIV co-infection in children with severe acute malnutrition (SAM) in Uganda

V. Namale ssonko[1], E. Mupere[2], J. Orikiriiza[3]
[1]Kampala International University, Peadiatrics, Kampala, Uganda, [2]Makerere University, College of Health Sciences, Pediatrics, Kampala, Uganda, [3]Infectious Disease Institute, College of Health Sciences, Peadiatrics, Kampala, Uganda

Background: Tuberculosis and Human Immunodeficiency Virus (TB/HIV) co-infection is very high in Africa with a prevalence of 30% - 50%. The diagnosis of paediatric TB remains very difficult especially in the presence of HIV and severe acute malnutrition (SAM).
There is paucity of information on burden of TB/HIV in children with SAM. We aimed to study the prevalence and factors associated with TB/HIV co-infection among SAM children in Mulago Hospital, Kampala-Uganda.
Methods: This was a cross sectional study that consecutively enrolled children aged 1-5 years fulfilling study criteria between November 2016 and March 2017. A questionnaire, appropriate HIV test, *Mycobacterium tuberculosis* rifampicin (MTB RIF) gene x-pert on early morning gastric aspirates, a tuberculin skin test (TST), anthropometric measurements and chest x-ray were performed on all children. HIV positive children who fulfilled criteria for TB diagnosis were considered to have TB/HIV co-infection.
Results: A total of 173 children were then enrolled with male to female ratio of 1.3. Prevalence of TB/HIV co-infection was 20.2% (35/173) with overall HIV prevalence of 32.9% (57/173) and only 53% (30/57) were on ART at time of enrolment despite 83% (47/57) having been diagnosed prior to enrolment. TB diagnosis was made in 33.5% (58/173) with clinical diagnosis contributing 86% (50/58) and only 12% (7/58) having positive gene x-pert. Only 21% (6/27) of the children with a positive history of contact had been started on Isoniazid prophylaxis therapy (IPT). Of the 35 children diagnosed with TB/HIV co-infection, 31% had consolidation and 28% had hilar lymphadenopathy on chest x-ray.

Risk factors associated with TB/HIV co-infection included history of positive TB contact AOR 10.7, (95% CI: 3.9-34.9), hypothermia AOR 10.7, (95% CI: 1.5-51.6), lymphadenopathy AOR 11.3, (95% CI: 2.1-39), hepatomegaly AOR 6.2 (95% CI: 1.5-14.5) and a chest x-ray showing miliary TB AOR 2.81,(95% CI: 3.07-550).
Conclusions: Prevalence of TB/HIV co-infection is still very high among SAM children with most delaying to initiate HIV treatment. Clinicians should strengthen implementation of the existing guidelines and have a high index of suspicion for co-infection among malnourished HIV positive children.

Behavioural health outcomes in paediatric and adolescent populations

THPEB142

To study the status of HIV disclosure in children and adolescents

A. Hemal, R. Meena, S. Ppal
PGIMER, Dr RML Hospital, New Delhi, India

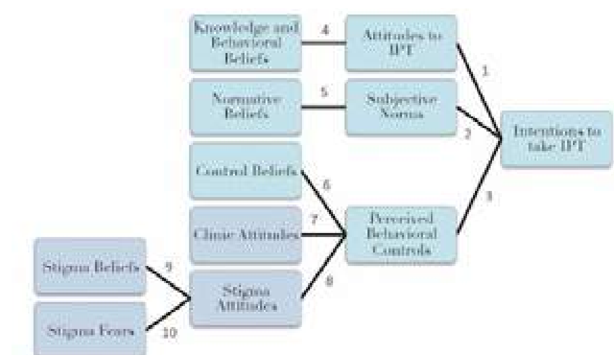
Background: Disclosure to HIV-infected children regarding their diagnosis is important as expanding numbers of HIV-infected children attain adolescence and may become sexually active. HIV disclosure is an important step towards long-term disease management and necessary for the transition from paediatric care into adolescent and adult care settings.
Methods: This was a cross sectional study carried out in 144 caregivers of Children and adolescents aged between 6 to 16 years of age attending the pediatric ART clinic. The subjects were enrolled consecutively and were interviewed using a structured questionnaire after taking written informed consent. The questionnaire included information on the demographic details, the disclosure status of HIV infection in children and perceptions about disclosure of status to the child.
Results: The mean age of children was 11.40 ± 2.86 years. Although 93.8% of caregivers believed children should know their HIV status, the prevalence of disclosure to the child was only 33.3%. Disclosure had been done primarily by caregivers (72.9%). Caregivers reported that (22.9%) children self-disclosed. Majority of caregivers felt 10-12 years as the appropriate age for disclosing the HIV infection status. Most of children 89.6% acquired HIV through vertical transmission. Majority of care givers 83.3% believed that care givers are most suitable person for disclosure. Furthermore, in our study 66.7 % children were unaware of this HIV status and most common reason (92.7%) for their non disclosure was child does not understand about illness and others to be 82.3% did not disclose as child may tell secret to others and 66.7 % child is too young to understand the disease. There was increase in drug compliance 47.9% and improvement in behaviour 12.5 % noticed in children.
Conclusions: In our study prevalence of HIV disclosure was 33.3 % there was increase in drug compliance, improvement in behaviour, school performance and attendance. Most common reason for their non disclosure was child does not understand illness and child may tell secret to others.

THPEB143

Toward improved IPT implementation for adolescents living with HIV in Swaziland: Elucidating the barriers through the theory of planned behavior

A. Kay[1,2], N. Thivalapill[3], S. Donald[4], P. Fuentes[2,5], N. Dlamini[1,6], P. Ustero[1,2], L. Adams[7], A. Mandalakas[1]
[1]Baylor College of Medicine and Texas Children's Hospital, Global Tuberculosis Program, Houston, United States, [2]Baylor Children's Foundation-Swaziland, Mbabane, Swaziland, [3]Columbia University, New York City, United States, [4]Human Sciences Research Council of South Africa, Pretoria, South Africa, [5]Baylor College of Medicine and Texas Children's Hospital, Global Tuberculosis Program, Pediatrics, Houston, United States, [6]Baylor Children's Foundation-Swaziland, Mbabane, Swaziland, [7]Dartmouth College, Geisel School od Medicine, Hanover, United States

Background: Global uptake of isoniazid preventive therapy (IPT) in adolescents with HIV is poor. IPT implementation is impacted by features of health systems and patient perceptions. This study identified factors that influenced adolescent intentions toward IPT to guide behavioral interventions.
Methods: 52 adolescents living with HIV were surveyed at the time of IPT prescription at an HIV clinic in Swaziland. The survey was designed according to the Theory of Planned Behavior (TPB), which models intention toward a behavior as a product of attitudes, subjective norms, and perceived behavioral controls. Stigma and clinic access were evaluated in a modified TPB model. Relationships between TPB variables were analyzed using Spearman's rank order correlation and linear regression. The overall goodness of fit of the traditional and modified model was tested using coefficients of determination and comparative fit indices.



Model Fit	Model Classification	Relationship	R^2, p value
CFI = 0.459 RMSEA = 0.243 AIC = 1273.015 CD = 0.213	Original Theory of Planned Behavior Model	1	0.2988 p < 0.0001
		2	0.1306 p = 0.0085
		3	0.1900 p = 0.0012
		4	0.0006 p = 0.8686
		5	0.1686 p = 0.0025
		6	0.0528 p = 0.1012
CFI = 0.649 RMSEA = 0.159 AIC = 2211.271 CD = 0.620	Modified Model with Considerations for Clinic Attitudes and Stigma	7	0.0969 p = 0.0247
		8	0.1347 p = 0.0075
		9	0.4807 p < 0.0001
		10	0.1545 p = 0.0039
		Multivariate Regression (1,2,3)	0.3783 p < 0.0001
CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, Akaike Information Criterion, CD = Coefficient of Determination			

[Flow diagram of original (light blue) and modified (dark blue) Theory of Planned Behavior with linear regression analyses and model fit statistics]

Results: Adolescents were knowledgeable about IPT but did not feel supported by their community; 48%(25/52) believed their neighbors would not support them, 40%(21/52) thought they would be verbally abused due to their taking IPT and 46%(24/52) worried their neighbors would think they had HIV. Multivariate linear regression indicated that traditional TPB variables predicted intention to take IPT (r^2=0.3783, p< 0.0001, Figure 1). On bivariate regression, intention was strongly predicted by attitudes to IPT (r^2=0.2988, p< 0.0001), but knowledge about IPT did not predict a more favorable attitude. Attitudes to IPT were positively correlated with external support measured by subjective norms (=0.50, p=0.0002) and negatively correlated with stigma beliefs (=-0.28, p=0.0482). Clinic access and stigma attitudes were both predictive of

perceived behavioral controls. The addition of stigma and clinical access variables improved the model's coefficient of determination from r^2 =0.213 to 0.620.

Conclusions: The addition of stigma and clinical access to the TPB model improved the model fit, indicating the important role these factors play in shaping adolescent decisions toward IPT. Stigma and community support were correlated with attitudes about IPT, a major predictor of intention, but attitudes were not modified by IPT knowledge. Interventions to reduce stigma, improve community support and reduce behavioral barriers may improve HIV+ adolescent acceptance of IPT more effectively than patient education alone.

THPEB144

It´s like having a case manager in your pocket!: Mobile application with coach, key to addressing barriers to HIV and preventive care

R. Arrington-Sanders[1], J. Iyer[2], D. Brooks[3], A. Wirtz[4], A. Morgan[4], N. Dowshen[5], C. Trexler[6], D. Celentano[4]
[1]Johns Hopkins School of Medicine & Public Health, Departments of Pediatrics & Health, Behavior & Society, Baltimore, United States, [2]Johns Hopkins School of Public Health, Baltimore, United States, [3]Johns Hopkins School of Medicine & Public Health, Departments of Pediatrics & Epidemiology, Baltimore, United States, [4]Johns Hopkins School of Public Health, Epidemiology, Baltimore, United States, [5]Children's Hospital of Philadelphia, Division of Adolescent Medicine, Philadelphia, United States, [6]Children's National Medical Center, Washington, United States

Background: HIV disproportionately affects young Black and Latino gay and bisexual men (YBLGBM) and transgender women (YBLTW). Earlier engagement in the HIV and preventive care cascade are key strategies, but YBLGBM and YBLTW disproportionately fall out of the treatment and prevention cascade. Mobile phone applications (apps) can engage youth in HIV treatment and prevention cascade. We sought to explore barriers in treatment and prevention and potential bidirectional mobile app components that could address those barriers.

Methods: 17 YBLGBM and YBLTW service providers and youth aged 18-26 from Baltimore, MD, Philadelphia, PA, and Washington, DC were recruited to complete a 45-minute key informant interview about barriers to care and mobile app needs to address barriers. Participants were identified through service agencies as being members who provided community support or who were key opinion leaders in the community. Two independent researchers coded the transcribed interviews using categorical and contextualizing analytic methods until agreement between coders (Kappa >0.80). Inductive open coding was used so emergent concepts were connected across interviews to develop major themes.

Results: Mean age, 22 years (SD=2.56). Most participants (n=10) provided services to youth or described having received HIV or preventive services at sites. Informants identified individual and system-level barriers preventing youth from engaging in HIV and preventive care. Individual: fear of diagnosis/illness, stigma with HIV/preventive services, lack of knowledge and support with HIV, and other priorities (housing, survival) superseding desire for care. System: difficulty navigating and lack of appropriate resources for youth with multiple intersecting identities. Key app components: bilingual resources, pill reminders/medication alarms, security and ability to make appointments directly on one's phone. Participants described wanting to confidentially video chat with a live person (or a coach) 24 hours a day via the mobile app. "*Because...it would make me feel good that someone´s helping me and keeping me on track, if I can´t do it by myself..but someone always needs that extra push and that extra help.*"

Conclusions: Barriers to HIV and preventive care continue to impede access for YBLGBM and YBLTW. A mobile application with a coach or peer would effectively address barriers and help youth access care.

Mental health and neuro-cognition in paediatric and adolescent populations

THPEB145

Loss of associations between basal ganglia volumes and neuropsychological scores in HIV-infected children at 5 years

A. Ibrahim[1], S.R. Randall[2], M.F. Cotton[3], B. Laughton[3], F. Little[4], A.J.W. van der Kouwe[5], E.M. Meintjes[1], M.J. Holmes[1]
[1]University of Cape Town, MRC/UCT Medical Imaging Research Unit, Division of Biomedical Engineering, Department of Human Biology, Faculty of Health Sciences, Cape Town, South Africa, [2]University of Cape Town, Department of Human Biology, Faculty of Health Sciences, Cape Town, South Africa, [3]Stellenbosch University, Family Clinical Research Unit, Department of Paediatrics and Child Health and Tygerberg Children's Hospital, Faculty of Medicine and Health Sciences, Cape Town, South Africa, [4]University of Cape Town, Department of Statistical Sciences, Cape Town, South Africa, [5]Massachusetts General Hospital, Department of Radiology, Boston, United States

Background: Neurodevelopmental delay and cognitive impairments are reported even in HIV-infected (HIV+) children starting early antiretroviral therapy (ART). Structural magnetic resonance imaging (MRI) is used to study developing structure of the brain. Neuropsychological assessments measure various aspects of cognitive development in children. However, studies combining measures of both in the same cohort are uncommon.

In a recently published paper, we reported increased basal ganglia (nucleus accumbens (NA), putamen (Pu) and globus pallidus (GP)) and decreased corpus callosum (CC) volumes in 5-year-old HIV+ compared to HIV-uninfected (Ctl) children. To explore the possible cognitive implications of these volumetric abnormalities, we present an analysis of associations between volumes and neuropsychological performance at 5 years in these children.

Methods: Seventy-one children (39 Female; mean age±sd 5.4±0.3; 11 Cape Coloured/60 Xhosa; 46 HIV+/25 Ctl) received high-resolution T1 weighted imaging on a 3T Allegra Scanner (Siemens, Erlangen, Germany) as part of an ongoing longitudinal study being conducted in Cape Town, South Africa. The HIV+ children were part of the Children with HIV early antiretroviral therapy (CHER) trial sub-study; the control children were age and sociodemographically matched from a parallel vaccine study.

Select structures - caudate head, NA, GP, Pu and CC - were manually traced using MultiTracer software. Children were assessed on the Griffiths Mental Developmental Scales - Extended Revised version (GMDS). A linear regression model was used to examine group differences and the relationship between GMDS scales and volumes; ethnicity, sex, handedness, total intracranial volume (ICV), age at neuropsychological testing and time between scan and neuropsychological testing were included as confounders in R.

Results: GMDS subtest scores were similar between groups, apart from Personal-Social.

Larger right NA and left Pu were associated with poorer eye-hand coordination (Table 1, Fig1), and larger left Pu with lower scores on the Performance subtest (=-0.068(SE=0.003), p = 0.05). Associations with eye-hand coordination were not evident in the HIV+ group.

Conclusions: Even though no group difference is observed in eye-hand coordination, larger right NA and left Pu relate to poorer scores in uninfected children *only*. The bilateral NA and Pu increases in HIV+ children may be responsible for the altered relationship with subtest scores.

Subcortical volumes	Groups	Eye-Hand Coordination subtest β(std error), p-value
Right NA	All	-0.020 (0.010), p = 0.050
Right NA	Ctl	-0.008 (0.004), p = 0.007
Right NA	HIV+	-0.008 (0.011), p = 0.500
Left Pu	All	-0.005 (0.002), p = 0.050
Left Pu	Ctl	-0.050 (0.018), p = 0.050
Left Pu	HIV+	-0.004 (0.003), p = 0.200

[Associations of right NA and left Pu with Eye-Hand Coordination across groups and within each group separately]

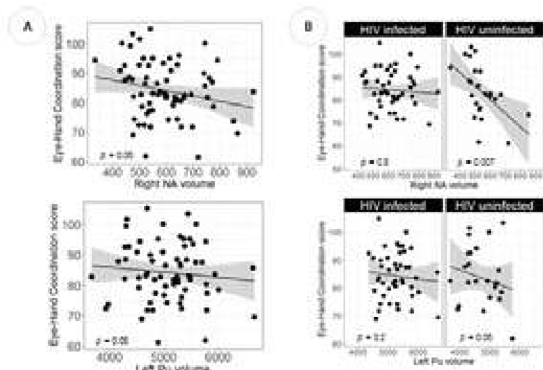


Figure 1. (A) Plots showing significant relationship between Eye-Hand Coordination score and subcortical volumes (NA and Pu) across all children. (B) Plots showing relationship between Eye-Hand coordination score and subcortical volumes (NA and Pu) in HIV-infected and uninfected children separately.

[Significant relationship between Eye-Hand Coordination score and subcortical volumes]

THPEB146

Increased risk of executive, working memory, and emotional-behavioral problems among virologically well-controlled perinatally HIV-infected adolescents in Thailand and Cambodia

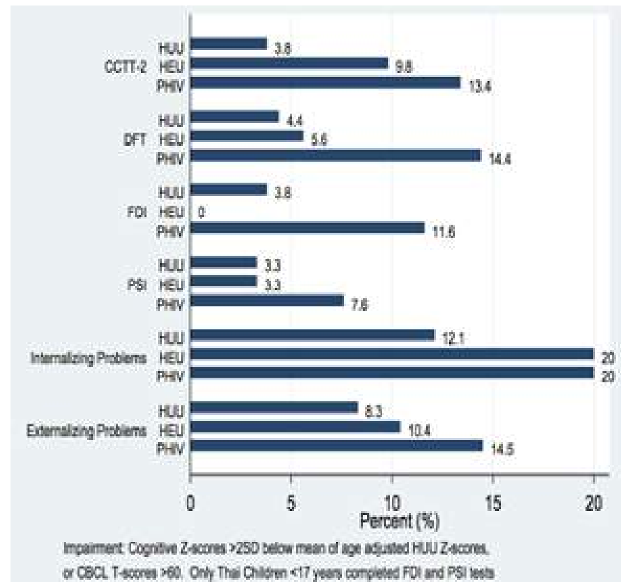
S.J. Kerr[1,2], T. Puthanakit[1,3], K. Thongpaibul[4], K.M. Malee[5], P.S. Ly[6], T. Suwanlerk[1], J. Sophonphan[1], P. Kosalaraksa[7], P. Ounchanum[8], L. Aurpibul[9], S. Kanjanavanit[10], C. Ngampiyaskul[11], K. Chettra[6], R. Paul[12], J. Ananworanich[13,14,15], C.A. Mellins[16], The PREDICT Resilience Study Group
[1]HIV-NAT, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [2]The Kirby Institute, University of New South Wales, Sydney, Australia, [3]Faculty of Medicine, Chulalongkorn University, Department of Pediatrics, Bangkok, Thailand, [4]Faculty of Humanities, Chiang Mai University, Department of Psychology, Chiang Mai, Thailand, [5]Northwestern University Feinberg School of Medicine, Department of Psychiatry and Behavioral Science, Chicago, United States, [6]National Center for HIV/AIDS Dermatology and STDs, Phnom Penh, Cambodia, [7]Faculty of Medicine, Khon Kaen University, Department of Pediatrics, Khon Kaen, Thailand, [8]Chiangrai Prachanukroh Hospital, Chiang Rai, Thailand, [9]Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand, [10]Nakornping Hospital, Chiang Mai, Thailand, [11]Prapokklao Hospital, Chanthaburi, Thailand, [12]Missouri Institute of Mental Health, University of Missouri, St Louis, United States, [13]SEARCH, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [14]The Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [15]Department of Global Health, University of Amsterdam, Amsterdam, Netherlands, [16]HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute, and Columbia University, New York, United States

Background: Large numbers of perinatally HIV-infected children (PHIV) are aging into adolescence, a time of increased behavioral risk. We examined cognitive and behavioral outcomes in one of few longitudinal cohort studies of Asian adolescents, in whom brain development is not confounded by in-utero drug or alcohol exposure.

Methods: We enrolled 231 PHIV, 125 HIV-exposed, uninfected (HEU), and 138 HIV-unexposed uninfected (HUU) adolescents (aged ≥10 years), matched by age/sex, in Thailand and Cambodia. Executive function was assessed with Children's Color Trails Test-2 (CCTT-2) and DKEFS Design Fluency test (DFT; Weeks 0 and 48). Working memory (Freedom from Distractibility index [FDI]) and Processing Speed ([PSI], week 0) was assessed with the WISC-III. Internalizing and Externalizing behavioral problems were assessed with the Child Behaviour Checklist (CBCL, Weeks 0 and 48). Generalised estimating equations examined adjusted odds ratios (aOR) of executive impairment (Z scores ≥2 SD below age-adjusted means of HUU group) and CBCL T-scores in the borderline-clinical range (T-Scores ≥60) in PHIV and HEU versus HUU. Linear regression examined adjusted mean differences in FDI and PSI between HIV-exposure groups. Adjustment was made for age, sex, ethnicity, household income, and caregiver characteristics.

Results: Median (IQR) age at enrolment was 14.0 (12.0-16.2); participants were 58% female and 64% Thai, with >86% virological suppression. PHIV were more likely than HUU to have impairment on CCTT-2 (aOR 4.43 (95% CI 1.8-11.0); p=0.001) and DFT (aOR 3.6 (95% CI 1.1-11.6); p=0.03). In PHIV versus HUU, the adjusted mean difference in FDI and PSI was -7.1 (95% CI -12.6 to -1.6); p=0.01) and -6.7 (-13.0 to -0.4); p=0.04), respectively. Results were similar between HEU and HUU groups.
Compared to HUU, PHIV (aOR 3.6 (95% CI 1.9-7.0); p< 0.001) and HEU (aOR 2.5 (95% CI 1.3-4.9); p=0.009) had higher odds of Internalizing problems but PHIV only had higher odds of Externalizing problems (aOR 2.5 (95% CI 1.2-5.5); p=0.02). Figure 1 shows prevalence estimates at enrolment.

Conclusions: Asian adolescents with PHIV remain at risk for cognitive and mental health problems despite HIV treatment. HEU youth are also at increased risk for mental health problems that require interventions.



[Figure 1. Prevalence of impaired cognitive scores or behavioral problems at Week 0]

THPEB147

HIV-related stigma associated with high depressive symptom scores among perinatally HIV-infected youths

L. Aurpibul[1], J. Sophonphan[2], L.P. Sun[3], P. Ounchanum[4], P. Kosalaraksa[5], C. Ngampiyaskul[6], S. Kanjanavanit[7], K. Chettra[3], T. Suwanlerk[2], K. Malee[8], J. Ananworanich[9,10,11], T. Puthanakit[2,12], on behalf of the PREDICT Resilience Study
[1]Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand, [2]The HIV Netherlands Australia Thailand Research Collaboration (HIV-NAT), The Thai Red Cross AIDS Research Center, Bangkok, Thailand, [3]National Center for HIV/AIDS Dermatology and STDs, Phnom Penh, Cambodia, [4]Chiangrai Prachanukroh Hospital, Chiangrai, Thailand, [5]Khon Kaen University, Department of Pediatrics, Faculty of Medicine, Khon Kaen, Thailand, [6]Prapokklao Hospital, Chanthaburi, Thailand, [7]Nakornping Hospital, Chiang Mai, Thailand, [8]Northwestern University Feinberg School of Medicine, Department of Psychiatry and Behavioral Science, Chicago, United States, [9]SEARCH, Thai Red Cross AIDS Research Center, Bangkok, Thailand, [10]The Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, [11]University of Amsterdam, Department of Global Health, Amsterdam, Netherlands, [12]Chulalongkorn University, Department of Pediatrics, Faculty of Medicine, Bangkok, Thailand

Background: HIV-related stigma could undermine quality of life and self-esteem of people living with HIV. In youth, stigma may result in social distancing from friends, teachers, and other family members and may contribute to risk for depression. We determined HIV-related stigma and depressive symptoms among HIV-infected youths in Thailand and Cambodia.

Methods: Perinatally-infected youths living with HIV (YLWH), aged 10-24 years, had long-term follow-up in a clinical trial among 8 sites in Thailand and Cambodia. YLWH and their caregivers responded to dichotomous response questions asking about enacted stigma, defined as lifetime experiences of social abuse and problems with neighbors, schools, and other family members due to their HIV status. Depressive symptoms were assessed using the Child Depression Inventory (CDI) for those < 15 years of age and the Center for Epidemiologic Studies Depression Scales (CES-D) for those > 15 years; the cut-off scores were >15(CDI), or >22(CES-D).
Results: Two hundred and thirty-one YLWH (131 Thai /100 Cambodian) were included; 137(59%) were female. The median age at HIV diagnosis and at this assessment were 5.9 years (interquartile range, IQR 2.4-7.6), and 14.9 years (IQR 12.7-16.7), respectively. Caregivers were biological parent(s), relatives, and orphanage home in 154(67%), 40(17%), and 36(16%), respectively. Eighty-six percent knew their HIV status at the median age of 10 years (IQR 8-12).
Overall prevalence of HIV-related stigma reported by either YLWH or caregivers was 35% (80/229), with good agreement (Kappa=0.88). There was no significant difference in prevalence of stigma among Thai and Cambodian YLWH (25 vs. 35%, p=0.14). Among 56 YLWH with stigma experiences, being treated badly by friends or teachers (26%), problems with neighbors (7%), and school problems due to HIV infection (4%) were reported. The prevalence of high depressive symptom scores among YLWH was 29% (Thai 28%, Cambodia 30%). YLWH aged >15 years who experienced stigma were more likely to report high depressive symptom scores compared to those without (31 vs. 14%, respectively, p=0.04).

	YLWH with stigma (N=56)	YLWH without stigma (N=173)	p-value
High depressive symptoms score, n (%)	16 (29%)	29 (17%)	0.05
Age < 15 years (n=107)	N=24	N=83	
CDI score	12 (8-16)	11 (7-15)	0.69
Score > 15, n (%)	6 (25%)	16 (19%)	0.38
Age > 15 years (n=122)	N=32	N=90	
CES-D score	15 (8-24)	12 (8-18)	0.54
Score > 22, n (%)	10 (31%)	13 (14%)	0.04
CDI > 15, or CES-D >22 were defined as high depressive symptom scores			

[Table 1. Comparison of depressive symptom scores between youths living with HIV (YLWH) with and without HIV-related stigma]

Conclusions: One-third of YLWH had HIV-related enacted stigma, which was associated with depressive symptoms in older youth. Internalized stigma should be explored to learn how youth manage such experiences and to inform appropriate prevention/intervention efforts.

THPEB148

The impact of depression in HIV positive mothers on child development in Zimbabwe

R. Chingono[1,2], H. Mebrahtu[1], V. Simms[3], A. Rehman[3], Z. Mupambireyi[2], P. Ndlovu[4], R. Malaba[4], L. Sherr[1], F. Cowan[2,5]
[1]University College London, London, United Kingdom, [2]CeSHHAR Zimbabwe, Harare, Zimbabwe, [3]London School of Hygiene & Tropical Medicine, London, United Kingdom, [4]World Education Inc., Harare, Zimbabwe, [5]Liverpool School of Tropical Medicine, Liverpool, United Kingdom

Background: Child cognitive development can be negatively impacted by depressive symptoms in primary caregivers. HIV positive women of childbearing age are at risk of depression, often unrecognized and untreated in low- and middle-income countries. We explored the relationship between maternal depression and child cognitive development to determine how poor maternal mental health influence child development.
Methods: Biological mothers of 0-24 month old infants enrolled in the CHIDO cluster-randomised trial (n=562) were assessed on mental health using the Edinburgh Postnatal Depression Scale (EPND), and a locally validated measure - the Shona Symptom Questionnaire (SSQ8). Infant development was assessed using the age-adjusted Mullen T-scales.
We used linear regression to compare Mullen overall and subscale scores across 4 groups defined by the mental health scale cut offs, adjusted for infant's sex, age (0 to < 3m, 3 to < 6m, 6 to < 12m, 12 to < 18m and 18 to 24m), HIV status and socio-economic status generated from principal components analysis. We used robust standard errors to account for clustering.
Results: There were 186/562 (33.1%) who were assessed as having depression above the cut off on both scales. Maternal depression was associated with lower overall child development (mean difference -7.5 (95% CI: -10.6, -4.4)) and with lower scores on the subscales expressive language (-2.5 (95% CI:-4.1, -1.0)), fine motor (-4.2 (95% CI: -6.5, -1.9)), receptive language (-3.5 (95% CI: -5.4, -1.6) and visual reception (-5.6 (95% CI: -8.2, -3.1)) (Wald p-value< 0.03).
Conclusions: Prevalence of depression assessed using two locally validated screening scales was very high in this population of HIV positive post-partum women in Zimbabwe. Depression in mothers was significantly associated with low cognitive development in infant children. Addressing poor maternal mental health is important for improving child development outcomes.

THPEB149

Validation of an HIV/AIDS stigma measure for children living with HIV and their families

R. Vreeman[1,2,3], M. Scanlon[2,4], W. Tu[5], J. Slaven[5], C. McAteer[1,2], J. Aluoch[2], S. Ayaya[2,3], W. Nyandiko[2,3]
[1]Indiana University School of Medicine, Ryan White Center for Pediatric Infectious Disease and Global Health, Department of Pediatrics, Indianapolis, United States, [2]Academic Model Providing Access to Healthcare, Eldoret, Kenya, [3]College of Health Science, Moi University, Department of Child Health and Paediatrics, Eldoret, Kenya, [4]University of Massachusetts Boston, John W McCormack Graduate School of Policy and Global Studies, Boston, United States, [5]Indiana University School of Medicine, Department of Biostatistics, Indianapolis, United States

Background: There are few validated tools to measure HIV-related stigma and its impact for children living with HIV, particularly in sub-Saharan Africa. We assessed the validity of a novel questionnaire to measure HIV stigma among children living with HIV and their families in Kenya.
Methods: This validation study was nested within a larger study following child-caregiver dyads (children ages 10 to 15 years) for two years at eight clinics in western Kenya within the Academic Model Providing Access to Healthcare (AMPATH). Construction of the 13-item stigma questionnaire involved literature review and qualitative inquiry, followed by cognitive interviewing to assess face validity, acceptability, and cross-cultural adaptation of the questionnaire. We administered the instrument to both children and their caregivers at two study evaluations, 6 months apart. The primary endpoint was construct validity assessed by comparison to criterion constructs. Criterion constructs (and measures) were: quality of life (GHAC QoL), behavioral health (SDQ), depression (PHQ-9), antiretroviral adherence (MEMS® electronic dose monitoring) and clinical characteristics.
Results: Among 240 child-caregiver dyads, child mean age was 12.3 years and 52% were female. The majority of caregivers (54%) were the biological mother. Adherence by MEMSÒ was 70% of doses taken. The stigma questionnaire had good face validity and acceptability in cognitive interviewing. Using the questionnaire, caregivers reported experiencing higher levels of HIV stigma than their children; for example, 10% of caregivers reported being discriminated against in their neighborhood versus 2% of children. A substantial percentage of children (9%) and caregivers (14%) reported that HIV stigma made them feel stressed, anxious, or depressed. Several child and caregiver stigma questionnaire items had good construct validity in terms of associations with outcome variables (emotional and behavioral outcomes on the SDQ and GHAC QoL.) The stigma items most highly correlated with feelings of anxiety, depression, negative future outlook, and losing social support due to HIV.
Conclusions: These findings suggest that the stigma questionnaire generated valid and useful reports of HIV-related stigma for both children living with HIV and their caregivers, though reliance on child-report only may underestimate stigma experiences. This questionnaire may be suitable as a family stigma screening tool.

THPEB150

Initiation of ART after 2 years of age affects CNS white matter microstrusture in adolescents living with HIV

J. Hoare[1], S. Heany[1], J.-P. Fouche[1], N. Phillips[1], L. Myers[2], H. Zar[3], D. Stein[1]
[1]University of Cape Town, Department of Psychiatry, Groote Schuur Hospital, Cape Town, South Africa, [2]University of Cape Town, Public Health, Cape Twon, South Africa, [3]Universtiy of Cape Town, Pediatrics, Cape Twon, South Africa

Background: Updated guidelines advise that all children receive ART irrespective of their age, clinical stage or immunological status. However context-specific differences in treatment guidelines and access to ART over the past two decades have resulted in great variability in exposure to ART among adolescents living with HIV. The corresponding central nervous system (CNS) white matter (WM) microstructure signature and neurocognitive effects of ART initiation after 2 years of age is poorly understood.

Methods: Forty-six adolescents who initiated ART before the age of 2 years (< 2yrs), and 79 adolescents who initiated ART after the age of 2 years (>2yrs), with perinatally acquired HIV (mean age 10 years; mean age of initiation of ART 3.41years; mean CD4 953) were enrolled within the Cape Town Adolescent Antiretroviral Cohort (CTAAC). Adolescents completed a detailed neurocognitive battery testing a number of cognitive domains. Diffusion tensor imaging was done to determine fractional anisotropy (FA), mean diffusivity (MD), axial diffusion (AD) and radial diffusion (RD) in a region of interest analysis examining the corona radiata, cingulum, cerebral peduncle, internal capsule, external capsule, fronto-occipital fasciculus and corpus callosum.

Results: Neurocognitive performance was similar between adolescsnts who initiated ART < 2yrs and >2yrs. There was a trend towards attention (p=0.066) and working memory (p=0.053) being poorer in the group who initiated ART >2yrs. FA was reduced in the >2yrs group, in the superior corona radiata (p=0.046), posterior corona radiata (p=0.004) and the external capsule (p=0.03), suggesting an increased risk of WM alterations in this group. MD was increased in the >2yrs group in the cerebral peduncle (p=0.003), the interapsule (p=0.03), the superior corona radiata (p=0.014) and the superior fronto-occipital fasciculus (p=0.007) suggesting increased inflammation in these structures. Differences in AD and RD were also found between the two groups.

Conclusions: These findings suggest that initiation of ART >2yrs increases the risk of WM alterations in the CNS. The similar perfomance in neurocognitive domains suggests that initiation of ART within the first 2 years of life, but not at birth is not sufficient to protect adolescents from neurocognitive impairment observed in pediatric neuroAIDS.

THPEB151

Neurocognitive outcomes among perinatally-HIV infected young adults

R. Robbins[1], A. Bucek[1], J. Raymond[1], N. Nguyen[1], C. Dolezal[1], E. Abrams[2], A. Wiznia[3], C.S. Leu[1], C.A. Mellins[1]
[1]New York State Psychiatric Institute & Columbia University, Division of Gender, Sexuality, & Health, HIV Center, New York, United States, [2]Mailman School of Public Health, Columbia University, International Center for AIDS Care and Treatment Program, New York, United States, [3]Albert Einstein College of Medicine, Pediatric Allergy & Immunology, New York, United States

Background: Poor neurocognition is a barrier to perinatally HIV-infected (PHIV+) young adult (YA) health outcomes. Few studies longitudinally examine key domains of neurocognition (i.e., processing speed [PS], working memory [WM], and executive functions [EF]) among PHIV+ and perinatally HIV-exposed, uninfected (PHEU) YA. We examined:
1) differences in PS, WM, and EF between PHIV+ and PHEU YA at and across three time-points, and 2) associations between viral load (VL) over time and neurocognitive outcomes among PHIV+YA.

Methods: CASAH is an ongoing NYC-based, longitudinal cohort study of PHIV+ and PHEU YA recruited at ages 9-16 (2003-2008) and followed at 12-18 month intervals. Tests of WM (Digit Span), PS (Trail Making Test, Part A), and EF (Trail Making Test, Part B) were administered at follow-up interviews FU 5, 6 and 7 (7 still ongoing). We compared neurocognitive test performance by HIV status at three time-points, and used generalized estimating equations (GEE) to calculate mean differences across all tests and follow-ups. Among PHIV+, we used GEE to examine the association between the proportion of VL test results >400 copies/ml across the three time-points and neurocognition.

Results: Participants at FU5 (N=249) were: 18-28 years old (mean=21.90; SD=2.68); 53% female; 56% African-American/Black; 40% Latino. PHIV+ YA had significantly slower PS scores compared to the PHEU YA at all follow-ups; significantly lower WM than PHEU YA at FU5 and FU6 (FU7 was at the trend level); and significantly worse EF scores compared to the PHEU YA at FU7. HIV status was related to PS performance across all follow-ups; HIV status was not related to WM performance across all follow-ups; and HIV status was related to EF performance across all follow-ups (not significant). The proportion of viral load tests >400 only predicted PS.

Conclusions: While PHIV+ YA performed worse at most follow-ups on tests of WM, PS, and EF than PHEU YA, HIV may not be the driving factor in their lower performance WM and EF tests. Neurocognition must continue to be monitored among PHIV+ YA and interventions developed to address poor performance. Continued research is needed to identify non-HIV related contributors to poor neurocognition among PHIV+ YA.

	Digit Span (≤25th percentile)		Trail Making Test, Part A (≥22.93 seconds)		Trail Making Test, Part B (≥48.97 seconds)	
	PHEU	PHIV+	PHEU	PHIV+	PHEU	PHIV+
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)
Follow-up 5 (N=249)	47.2% (42)	66.7% (92)*	44.8% (39)	65.4% (89)*	66.7% (58)	77.2% (105)**
Follow-up 6 (N=199)	47.2% (34)	64.5% (71)*	40.0% (28)	61.9% (65)*	40.0% (28)	37.1% (39)
Follow-up 7^ (N=148)	51.1% (23)	60.8% (48)	34.7% (17)	55.6% (45)*	51.0% (25)	67.9% (55)*

^ Follow-up data collection ongoing
* $p<0.05$
** $p<0.10$

[Neurocognitive Test Performance across Follow-Ups by HIV Status]

THPEB152

Effect of caregiver training on the neurocognition of school-age siblings of preschool HIV-exposed uninfected target children: A Ugandan cluster randomized controlled trial

M.J. Boivin[1,2], J. Augustinavicius[3], I. Familiar-Lopez[4], A. Sikorskii[5], S.M. Murray[3], C. Shohet[6], D. Givon[6], T. Mendelson[3], N. Nakasujja[7], J.K. Bass[3]
[1]Michigan State University, Psychiatry and Neurology & Ophthalmology, East Lansing, United States, [2]University of Michigan, Psychiatry, Ann Arbor, United States, [3]Johns Hopkins University Bloomberg School of Public Health, Global Mental Health, Baltimore, United States, [4]Michigan State University, Psychiatry, East Lansing, United States, [5]Michigan State University, Psychiatry and Statistics & Probability, East Lansing, United States, [6]Bar Ilan University, Early Childhood Education, Ramat Gan, Israel, [7]Makerere University, Psychiatry, Kampala, Uganda

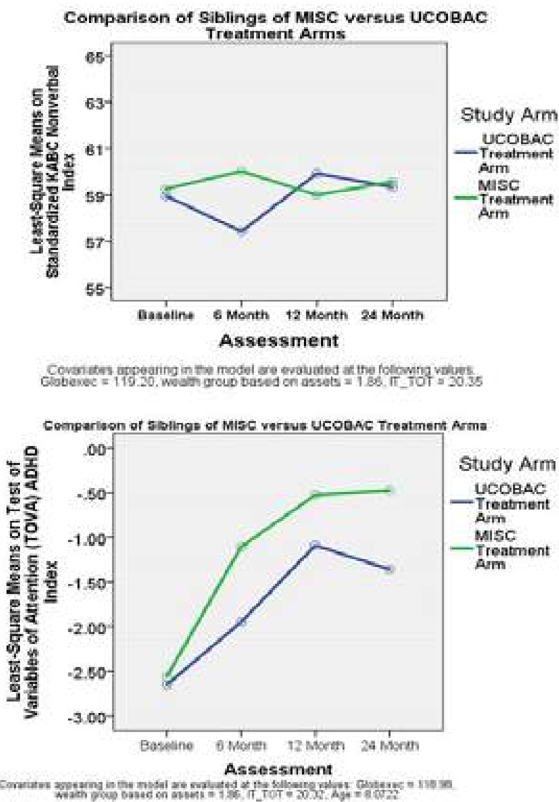
Background: Early childhood development (ECD) programs typically combine healthy nutrition and cognitive stimulation in an integrated model. We separately delivered these two components in a clinical trial to evaluate their comparative effectiveness. This is the first study to evaluate whether older siblings of preschool target children benefit from training intervention for their HIV-infected mothers.

Methods: 210 school-age siblings (5-12 years old) in ECD intervention households with target children 2-3 years of age were evaluated on neurocognitive outcomes using the Kaufman Assessment Battery for Children (KABC), computerized Tests of Variables of Attention (TOVA), the Behavior Rating Inventory for Executive Function (BRIEF; parent) and an ADHD-R-IV questionnaire completed by the mother. Households from 18 geographic clusters in eastern Uganda were cluster-randomized to biweekly individualized sessions of either: 1) Mediational Intervention for Sensitizing Caregivers (MISC) training emphasizing cognitive stimulation/enrichment; or 2) health/nutrition/development (UCOBAC) program. Siblings were evaluated at baseline, six months (mid-intervention), one year (post-intervention), and one-year after completing intervention.

Results: Adjusting for baseline value of each outcome, SES, and care-giving quality (HOME scale) a linear mixed-effects model resulted in significantly better MISC-arm performance on the KABC non-verbal index (NVI) (global performance) at 6 months, with the UCOBAC arm significantly below MISC by -2.87 points, 95% CI (-5.08, -0.65; p=0.01) (Table 1). However, by 12 and 24 months the two arms were similar (Figure 1). TOVA ADHD index favored the MISC children at six (p=0.06) and 24 months (p=0.05) but not at the completion of caregiver training at 12 months (p=0.43) (Figure 1). MISC caregivers scored their children with significantly more BRIEF (p< 0.01) and ADHD-RS-IV (p< 0.01) problems than the UCOBAC mothers at all time points, perhaps because of the MISC training emphasis on children's behavior.

Outcome	Time Points (Months)	UCOBAC, LS Mean (SE)	MISC, LS Mean (SE)	P-value for the arm difference, 95% CI
KABC Nonverbal Index	6	57.53 (0.78)	60.40 (0.85)	0.01, (-5.08, -0.65)
	12	58.89 (0.79)	59.29 (0.84)	0.59, (-1.61, 2.81)
	24	59.22 (0.79)	59.98 (0.83)	0.50, (-2.98, 1.45)
TOVA ADHD Index	6	-2.40 (0.30)	-1.23 (0.33)	0.06, (-1.66, 0.03)
	12	-1.04 (0.30)	-0.70 (0.32)	0.43, (-1.18, 0.51)
	24	-1.39 (0.30)	-0.56 (0.32)	0.05 (-1.68, 0.00)
BRIEF Behavior Regulation Index	6	41.85 (0.94)	46.67 (1.04)	<0.01 (-7.51, -2.13)
	12	41.83 (0.95)	46.11 (1.03)	<0.01 (-6.97, -1.58)
	24	39.13 (0.96)	45.05 (1.03)	<0.01 (-8.62, -3.23)

[Table 1. Comparison of KABC, TOVA, and BRIEF for MISC and UCOBAC treatment arms]



[Figure 1. Comparison of MISC and UCOBAC treatment arms for KABC and TOVA outcomes]

Conclusions: MISC caregiver training results in more immediate neuro-cognitive performance benefits for household school-age children while sensitizing the moms to behavior problems. However, by the end of the year-long training and at 1-year post-training follow-up, there is no appreciable difference on cognitive outcomes for an intervention focusing on cognitive enrichment/learning versus one favoring health/nutrition/social development. Both programs are effective for household children and should be integrated in ECD training.

THPEB153

Neurodevelopmental and behavioral outcomes in perinatally HIV infected children who initiated antiretroviral therapy within 3 months of age

W. Jantrabenjakul[1,2,3], J. Srisamer[2], T. Theerawit[2], J. Sophonphan[2], M. Veeravigom[1], W. Chonchaiya[1], T. Puthanakit[1,2], J. Anantaworanich[4,5], N. Jahanshad[6], P.M. Thompson[6], K. Malee[7], C. Pancharoen[1,2],
The DOET Study
[1]Chulalongkorn University, Pediatrics, Faculty of Medicine, Bangkok, Thailand, [2]Chulalongkorn University, Center of Excellence for Pediatric Infectious Diseases and Vaccine, Bangkok, Thailand, [3]King Chulalongkorn Memorial Hospital, Emerging Infectious Diseases Clinical Center, Bangkok, Thailand, [4]The Thai Red Cross AIDS Research Center (TRCARC), SEARCH, Bangkok, Thailand, [5]Henry M. Jackson Foundation for the Advancement of Military Medicine, Maryland, United States, [6]Keck School of Medicine of USC, Imaging Genetics Center, Stevens Neuroimaging and Informatics Institute, Marina del Rey, United States, [7]University Feinberg School of Medicine, Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, United States

Background: Data regarding neurodevelopmental and behavioral outcomes among children who initiated antiretroviral therapy (ART) within 3 months old are limited. This study compares neurodevelopmental and behavioral outcomes among children with perinatally-acquired HIV infection (PHIV) and perinatally HIV-exposed uninfected children (PHEU).
Methods: This is an observational study of children aged 12-56 months. PHIV children with 2 positive HIV DNA PCR were classified as early PHIV if they commenced ART within 3 months old, and late PHIV if ART began between 3 and 12 months. Age-matched PHEU children had negative HIV DNA PCR at age > 4 months or anti-HIV negative at age > 12 months. Neurodevelopmental outcomes were assessed with the Mullen Scale of Early Learning (MSEL). Behavioral outcomes were evaluated by Child Behavioral Checklist (CBCL). Global developmental impairment was defined by MSEL Early Learning Composite (ELC) Score of < 70. Prevalence of development impairment and behavioral problems were compared by Chi-square test. Predictors of ELC scores were analyzed by multiple linear regression models.
Results: From 2016 to 2017,150 children were enrolled (27 early PHIV,23 late PHIV and 100 PHEU children). Median (IQR) age was 28 (19-41) months. 37/50 (74%) of PHIV children had undetectable HIV- RNA.
Prevalence of global developmental impairment was 26% in late PHIV, 7.4% in early PHIV, and 8% in PHEU, p=0.047. Mean (SD) ELC scores were 80 (18) in late PHIV, 83 (11) in early PHIV, and 90 (16) in PHEU,p =0.005. Late PHIV had significantly lower scores in gross motor and visual reception domains, p < 0.05. Predictors of ELC score were ART initiation after 3 months old [mean difference -8.6, 95% CI (-16.3) - (-0.9) p=0.03] and no nursery school attendance [mean difference -5.9, 95% CI (-11.4) - (-0.3) p=0.04].
No significant differences were observed in CBCL internalizing, externalizing or total behavioral problems. Among individual behavioral problems, somatic complaints were reported more often in late PHIV (64% in late ART, 48% in early ART and 33% in PHEU, p=0.02).
Conclusions: Late PHIV had higher rate of developmental impairment when compare to early PHIV and PHEU. Early initiation ART and nursery school attendance mitigated neurodevelopmental scores in PHIV children.

THPEB154

Prevalence and cross-sectional correlates of cognitive difficulties among HIV-positive adolescents in South Africa

H.P. Mbaziira Natukunda[1,2,3], L. Cluver[1,4], E. Toska[5], Mzantsi Wakho Adolescent Study Team
[1]University of Oxford, Department of Social Policy and Intervention, Oxford, United Kingdom, [2]MRC/UVRI Uganda Unit on AIDS, Mental Health Research, Entebbe, Uganda, [3]Medical Research Council, Pathology Department, Oxford, United Kingdom, [4]University of Cape Town, Department of Psychiatry and Mental Health, Cape Town, South Africa, [5]University of Cape Town, Centre for Social Science Research, AIDS and Society Research Unit, Cape Town, South Africa

Background: This study examined the baseline prevalence of cognitive difficulties and its correlates in a large community-based sample of South African adolescents.
Methods: A total of 1059 cART-initiated 10-19-years-old adolescents and 467 community controls attending 53 public health facilities in the Eastern Cape were interviewed in 2014-15. Cognitive difficulties were assessed as adolescent self-reports of past 6-months difficulties remembering things, following a story or conversation or < 60% immediate recall on a memory task or caregiver/school reports of an adolescent being a ´slow-learner´ or attending a special needs schools. Data on clinical and psychosocial variables associated with cognitive impairment were also gathered. Analyses were disaggregated by gender, HIV-status.To assess the correlates of cognitive difficulties, analyses used multivariable logistic regressions in Stata 14.
Results: The overall prevalence of cognitive difficulties was 64.4% (95% CI: 61.9-66.7). Cognitive difficulties were significantly higher among boys than girls (68.0% vs. 61.6%, *p* =.010). These findings were different for the different HIV groups, indicating that the observed relationship between gender and cognitive difficulties was moderated by HIV status i.e. (61.8% vs. 59.2%, *p* =.576) and (70.4% vs. 62.8%, *p* =.009) for the community controls (apparently HIV-negative) and HIV-positive adolescents respectively. HIV-positive adolescents had higher rates of cognitive difficulties than community controls (risk difference 6%, *p* =.024). HIV-positive adolescents were also less likely to be in an age-appropriate grade than community controls (46.2% vs. 56.8%, *p*< .001). The prevalence of cognitive difficulties among adolescents for whom ART data were available was 63.7% (CI: 59.4-67.7). Factors associated with cognitive difficulties among HIV-positive adolescents were age (aOR: 1.19, CI: 1.07-1.34), being in primary school (aOR: 1.99, CI: 1.10-3.62), physical disability complaints e.g. unable to self-care (aOR: 1.89, CI: 1.13-3.17), ADHD score (aOR: 1.21, CI: 1.07-1.37), and having opportunistic infections (aOR: 1.65, CI: 1.10-2.48). Stavudine-based regimens at baseline were associated with a lower likelihood of cognitive difficulties (aOR: 0.26, CI: 0.10-0.70). Other HIV treatment regimens were not associated with cognitive difficulties in our sample.
Conclusions: Cognitive difficulties were high among South African adolescents. Interventions to address cognitive impairment are urgently needed to prevent early onset dementia and help affected adolescents reach their full potential.

HIV-exposed uninfected children

THPEB155

A population-based study of health outcomes of HIV-exposed uninfected children using Ontario's administrative health databases

J. Brophy[1], S. Chen[2], R. Ng[3], J. Bowes[1], T. Antoniou[4,5]
[1]Children's Hospital of Eastern Ontario, Infectious Diseases, Ottawa, Canada, [2]Institute for Clinical Evaluative Sciences (ICES), Central, Mental Health & Addictions Research Program, Toronto, Canada, [3]Institute for Clinical Evaluative Sciences (ICES), Central, Data & Analytic Services Group, Toronto, Canada, [4]Institute of Clinical Evaluative Sciences (ICES), Central, Primary Care & Population Health Research Program, Toronto, Canada, [5]Saint Michael's Hospital, Department of Family and Community Medicine, Toronto, Canada

Background: Maternal treatment with combination antiretroviral therapy in pregnancy has led to a generation of HIV-exposed uninfected children (HEUs) globally and in Canada. Some data suggests increased immunologic, infectious and neurodevelopmental morbidities in HEUs. We utilized Ontario's administrative health databases to estimate rates of these morbidities in Ontario-born HEUs.
Methods: A retrospective population-based study was conducted comparing diagnoses among children of women living with HIV to matched HIV-unexposed children born between 01-04-2002 and 31-12-2015. Each HEU was matched with up to 5 non-HEU children based on: year of birth, maternal age, calendar quarter of birth, neighbourhood income quintile, local health integrative network, and urban/rural residence. Child health outcomes included: all-cause and infection-related hospitalizations from 3-24 months of age, and autism or other developmental disabilities diagnosed from 2-10 years of age. Crude rates of outcomes were calculated and regression analyses adjusted for maternal risk factors/comorbidities, pregnancy syndromes and infant characteristics were conducted to determine whether HEUs were at greater risk of negative health outcomes.
Results: A total of 993 HEUs and 4953 matched non-HEU children were included in the analysis. All-cause (53.35 per 1000 person-years [PYs]) and infection-related hospitalizations (7.66 per 1000 PYs) among HEUs were higher than in matched non-HEUs (37.81 and 5.26 per 1000 PYs, respectively), with unadjusted hazard ratios [HR] (95%CI) of 1.433 (1.126-1.824) and 1.465 (0.789-2.720), respectively. Adjusted hazard ratios [aHR] were 1.142 (0.856-1.048) and 0.481 (0.181-1.280), respectively. Rates of autism alone and autism plus other developmental disabilities were each 3.12 per 1000 PYs, higher than those for non-HEUs (2.29 and 2.60 per 1000 PYs, respectively. The HR for autism among HEUs was 1.392 (0.875-2.217) and for autism/developmental disabilities was 1.213 (0.767-1.919); aHR for these diagnoses in HEUs were 1.232 (0.699-2.173) and 1.143 (0.652-2.002), respectively.
Conclusions: HEUs had higher rates of all-cause and infection-related hospitalizations and developmental disabilities than matched controls, although adjusted hazard ratios showed no elevated risk of these outcomes compared to non-HEUs. This suggests a strong contributing role of maternal factors to the increased rates of outcomes, and warrants further investigation in this growing vulnerable population.

THPEB156

24-month incidence of hiv infection, loss to follow-up and mortality among exposed infants at referral hospitals in Uganda

M. Kwikiriza[1], H. Alima[1], P. Elyanu[2], G. Tugume[1]
[1]University Research Co LLC, Kampala, Uganda, [2]University of Texas Health Sciences Center at Houston, School of Public Health, Texas, United States

Background: Uganda has implemented Option B+ since 2012, but there is limited data on 24-months outcomes of HIV exposed infants. We examined the 24-month cumulative incidence of HIV-Infection, loss to follow-up and death among HIV exposed infants at regional referral hospitals in Uganda. We also determined the factors associated with mother to child HIV transmission (MTCT).

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Methods: We respectively reviewed clinical charts of HIV exposed infants (HEI) recruited in care between October 2012 and September 2013 at 11 regional referral hospitals in Uganda. The 24-month cumulative incidence of HIV, LTFU, and death was calculated using competing risks analysis, and predictors of MTCT determined using sub-distributional hazard regression analysis.

Results: .Of 2959 HEI, 83 (2.8%) were excluded for missing date of birth and 2776 were included in the analysis. Of these 2776, the median age at 1st HIV test was 7 weeks [interquartile range: 6.4-12]. The 24-month cumulative of HIV infection, LTFU and death was 7.5% (95%CI: 6.6%, 8.5%), 31.7% (95%CI: 30%, 33.5%) and 0.9% (95%CI: 0.6%, 1.4%) respectively. The factors associated with MTCT were: mother or infant not receiving ARV's for PMTCT Subdistributional Hazard ratio (sHR) 2.2(95% CI: 1.5, 3.2) and sHR 1.7(95%CI: 1.1, 2.6) respectively; Testing at age 2-6 month [sHR 2.1(95%CI: 1.3, 3.4)] or age >7month [sHR 2.8(95%CI: 1.5, 5.1)] compared to testing 2 months of age.

Other factors were mixed feeding, complementary feeding or no-longer breastfeeding at the time of first HIV test compared to those who were exclusively breastfed *see table 1.*

Conclusions: MTCT rate and loss to follow-up of HEI from care at regional referral hospitals in Uganda are high. Factors to prevent MTCT are maternal and infant ARV use, early care entry and testing, and exclusive breastfeeding. Loss to follow-up should be addressed.

Predictors*	Total	% infected	Univariable analysis Crude SHR (95%CI) P-Value	Multivariable analysis aSHR (95% CI) p-Value
Mother ARV's for PMTCTa Yes No	2207 246	5 24	1 5.1 (3.8, 7.1) <0.001	1 2.2(1.5,3.2) <0.001
Infant ARV's for PMTCTb Yes No	1813 571	3.9 18.7	1 5 (3.7, 6.8) <0.001	1 1.7(1.1,2.6) 0.02
Infant feeding at testingc EBF Replacement feeding Mixed feeding Complementary feeding No longer BF	2198 82 86 276 86	3.8 11 17.4 24.3 24.4	1 3.1(1.6,6.2) 5.0(2.9,8.7) 6.7(4.9,9.2) 6.6(4.2,10.4) <0.001	1 1.9(0.9,4.1) 0.11 2.2(1.1,4.3) 0.022 2.1(1.2,3.8) 0.015 2.3(1.2,4.3) 0.008
Age (months) at 1st HIV test <2 2-6 >7	1699 731 346	2.8 9 26.3	1 3.3 (2.3,4.9) 9.7(6.9,13.8) <0.001	1 2.1(1.3,3.4) 0.003 2.8(1.5,5.1) 0.001
Place of deliveryd Health facility Home/TBA	2009 371	5.9 15	1 2.7(1.9,3.7) 0.05	
Age of Mom (years)e <20 20-24 25 and above	45 289 1558	13.3 8 5.7	2.5 (1.1,5.7) 1.4 (0.9,2.2) 1	
Entry pointf YCC ANC Maternity/postnatal ward Pead/nutrition OPD ART clinic Another health facility	651 396 677 81 171 354 134	4 4 2.36 56.8 14.8 7.34 11.2	1 1.0(0.5,1.9) 0.6(0.3, 1.1) 17.6(11,28.3) 4.1(2.4,7.0) 1.8(1.1,3.1) 2.9(1.5,5.5) <0.001	*adjusted for health facility a323 missing values b392 missing values c48 missing values d396 missing values e884missing values f312 missing values SHR- subdistribution hazard ratio

[Factors associated with mother to child HIV transmission at 11 RRH, Uganda (N=2776)]

THPEB157

Role of infant nutritional status (stunting) on early cognitive development: Cross sectional study in Zimbabwe

H. Mebrahtu[1], A.M. Rehman[2], R. Chingono[1,3], V. Simms[2], P. Ndlovu[4], F.M. Cowan[3,5], L. Sherr[1]

[1]UCL, Global Health, London, United Kingdom, [2]London School of Hygiene & Tropical Medicine, MRC Tropical Epidemiology Group, London, United Kingdom, [3]Center for Sexual Health HIV/AIDS Research Zimbabwe, Harare, Zimbabwe, [4]World Education, Harare, Zimbabwe, [5]Liverpool School of Tropical Medicine, Liverpool, United Kingdom

Background: Nutrient deficiencies during early childhood may have long-term and irreversible effects on brain development of infants exposed to HIV.

Methods: Study participants were recruited from the Child Health Intervention for Developmental Outcomes trial in Zimbabwe and consisted of infants aged 0-24 months born to women living with HIV. Child anthropometric measurements included height, weight, and head circumference. Child development outcomes were assessed using the Mullen Scale of Early Learning which measures five cognitive domains (visual reception, fine motor, gross motor, receptive language, and expressive language). Regression models were built to assess the association between stunting and infant cognitive scores, adjusting for infant's age, birth weight and growth rate. Data were adjusted for clustering by clinic.

Results: 571/574 infants recruited had their anthropometric measurements provided. The mean age of infants was 12.0 months (SD 6.5), 282 (49%) were male and 18 (4%) were HIV positive. Mean birth weight was 3.0 (SD 0.4), 265 (47%) of the infants had a normal growth rate, with 87 (15%) underweight.

Stunted infants (n=207) were older than non-stunted (14.4 vs. 10.6; p< 0.01), more likely to be male (55% vs. 46%; p=0.04), had lower mean birth weight (2.8 vs. 3.0; p< 0.01) and more likely to be underweight (33% vs. 5%; p< 0.01).

In adjusted multivariate regression models, stunting was significantly associated with lower scores across the developmental domains. Stunted infants scored significantly lower in the overall composite score (adjusted mean difference (aMD)=-5.23; 95%CI: -7.88 to -2.59; p< 0.01), expressive (aMD=-3.11; 95%CI: -4.74 to -1.48; p< 0.01) and receptive (aMD=-3.07; 95%CI: -4.96 to -1.17; p< 0.01) language, and gross motor development (aMD=-2.53; 95%CI: -4.51 to -0.56; p< 0.01).

Conclusions: High levels of child stunting in an HIV affected population is associated with lower child cognitive outcomes. Early interventions should combine child stimulation with nutrition programmes for effective long-term gains and optimal child development.

THPEB158

HIV-exposure without infection impacts early language development: Outcomes from a South African birth cohort study

C.J. Wedderburn[1,2], S. Yeung[1], W. Barnett[2,3], R.T. Nhapi[2], A.M. Rehman[4], D.M. Gibb[5], H.J. Zar[2,3], D.J. Stein[6,7], K.A. Donald[2]

[1]London School of Hygiene & Tropical Medicine, Department of Clinical Research, London, United Kingdom, [2]University of Cape Town, Department of Paediatrics and Child Health, Cape Town, South Africa, [3]South African Medical Research Council (SAMRC), Unit on Child & Adolescent Health, Cape Town, South Africa, [4]London School of Hygiene & Tropical Medicine, Department of Infectious Disease Epidemiology, London, United Kingdom, [5]University College London, MRC Clinical Trials Unit, London, United Kingdom, [6]University of Cape Town, Department of Psychiatry & Mental Health, Cape Town, South Africa, [7]SAMRC, Unit on Risk and Resilience in Mental Disorders, Cape Town, South Africa

Background: Sub-Saharan Africa, where HIV is most prevalent, has the highest proportion of children at risk of not reaching their neurodevelopmental potential. Whereas HIV infection is a known risk factor for developmental delay, effects of HIV and antiretroviral therapy (ART) in exposed HIV-uninfected (HEU) children remain unclear. We compared neurodevelopmental outcomes in HEU and HIV-unexposed uninfected (HUU) children during their first 2 years.

Methods: The Drakenstein Child Health Study is a population-based birth-cohort in the Western Cape, South Africa. Women were enrolled antenatally from two clinics between 2012-2015. Mothers and children from these two communities received HIV testing and treatment as per the Western Cape prevention of mother-to-child transmission guidelines at the time. Developmental assessments were conducted by trained assessors blinded to HIV/ART status, using the Bayley-III Scales of Infant and Toddler Development (BSID-III) at 6 and 24 months.

Results: A subgroup of 260 children (61 HEU, 199 HUU) had a BSID-III assessment at 6 months and 732 children (168 HEU, 564 HUU) at 24 months. Mean scaled scores of all subscales were within normal range (BSID-III standardised mean 10, SD 3) at 6 months with no differences between HEU and HUU (p>0.1). However, at 24 months, HEU scores were significantly lower than HUU in cognitive mean (SD) [6.80(1.88) vs.7.14(1.84), p=0.049]; receptive [6.62(1.82)vs.7.25(1.97), p=0.001] and expressive language [6.94(2.29)vs.7.57(2.30), p=0.028]; in contrast, fine and

gross motor domains were similar (p=0.93 and p=0.53 respectively). HEU had higher risk of delay (>2 SD below the mean) than HUU children in receptive (13.9%vs.7.2%, odds ratio [OR] 2.09, 95%CI 1.21-3.61) and expressive language (11.4%vs.5.7%, OR 2.12, 95%CI 1.15-3.90) but not in the cognitive scale (10.8%vs.9.3%, OR 1.18, 95%CI 0.67-2.09). After adjusting for age, sex, clinic and maternal education, the effect remained for receptive (OR 2.23, 95%CI 1.16-4.30) but not expressive language (OR 1.74, 95%CI 0.86-3.54).
Conclusions: These initial analyses suggest receptive language is impaired in HEU children. Ongoing analyses will focus on disaggregating effects of in-utero exposure to HIV and ART. Given the global focus on child development and the critical importance of language in society, further work is needed to monitor and address the long-term clinical outcomes of HEU children.

Transition of adolescents into adult care

THPEB159

Post transition outcomes in young adults living with HIV: '90':99:80

C. Foster[1], S. Chhabra[2], S. Ayers[1], G. Frize[1], S. Macdonald[1], S. Filder[2]
[1]*Imperial College NHS Trust, 900 Clinic, HIV/GUM, London, United Kingdom,* [2]*Imperial College, 900 Clinic, HIV/GUM, London, United Kingdom*

Background: Adolescence is the only age group where HIV associated mortality is rising, with poorer outcomes at all stages of the care cascade compared to adults; many cohorts report < 25% retained on suppressive antiretroviral therapy (ART) post transition to adult care. We examined the post transition outcomes for young adults (YA) with perinatal HIV (PaHIV).
Methods: Retrospective cohort analysis PaHIVYA attending a specialist service between 01.01.06 and 31.12.17, assessing retention, mortality, morbidity and viral load (VL) suppression. Incidence rates (IR) are compared to aged matched UK population data.
Results: 180 PaHIVYA contributed 921 person-years of follow-up within adult services. Over the study period, 14 (7.8%) transferred care, 4 (2.2%) were lost to follow-up (LTFU) and 4 (2.2%) died; median age 20 years (range 19-27); end-stage HIV/poor ART adherence (3), HIV/HBV hepatocellular carcinoma (HCC). All-cause mortality rate 4.3/1000 person-years (95% CI 1.2 - 11.1), 10-fold the age-matched general population (incidence rate ratio (IRR) 11.6 (95% CI 3.2 - 29.8), p< 0.0001). Post transition, 17/180 (9.4%) had 1 or more new AIDS diagnoses, IR 18.5/1000 person-years (95% CI 10.8 - 29.6). Four (2.2%) new malignancy diagnoses; lymphoma (3), HCC (1); IR 4.3/1000 person-years (95% CI 1.2 - 11.1), twelve times the age-matched population (IRR 12.6 (95% CI 3.4 - 32.3), p< 0.0001). Nine new onset psychosis IR 9.8/1000 person-years (95% CI 4.5 - 18.6), IRR to ethnically matched UK adults 50.3 (95% CI 22.6 - 97.9), p< 0.0001. Of 158 in current follow up, median age 22.9 years (IQR 20.3-25.4), 56% are female, 85% Black African. 157 (99.4%) have ever received ART. At latest follow up; median CD4 count 626 cells/ul (IQR 441-820) and 127/158 (80.4%) have a VL < 200 c/ml. 66/158 (42%) have resistance mutations; 23 (15%) mono, 33(21%) dual and 10 (6.3%) triple/quadruple class. Post transition, 33/158 (20.9%) have had anxiety and/or depression, 3 attempted suicide and a further 4 self harmed.
Conclusions: Post transition retention in care with access to ART far exceeded 90:90:90 targets in this highly complex cohort. Whilst LTFU and mortality combined was < 5% over a decade, a fifth struggle with adherence and mental health issues prevail.

THPEB160

Increasing age predicts viral suppression in adolescents transitioning to adult HIV care

N. Lin[1], L. Phung Khanh[2], S. Fidler[3], C. Foster[4]
[1]*London North West Healthcare NHS Trust, London, United Kingdom,* [2]*Oxford University Clinical Research Unit, Ho Chi Minh City, Vietnam,* [3]*Imperial College London, London, United Kingdom,* [4]*Imperial College Healthcare NHS Trust, London, United Kingdom*

Background: Retention in care on antiretroviral therapy (ART) is key to long-term survival in people living with HIV. Perinatally-acquired HIV positive (PaHIV+) adolescents and young adults (AYA) face particular challenges when negotiating transition from paediatric to adult settings. Clinical data in HIV+ adolescents are limited despite a global population numbering two million. This retrospective, single-centre UK cohort analysis examines predictors of viral suppression in PaHIV+ AYA following transition to a specialist AYA service.
Methods: 147 PaHIV+ AYA with > 1 year ART experience were included. HIV viral load (VL) data were collected from first AYA clinic visit onwards. Two annual viral suppression outcomes were identified: ´intermittently suppressed´ (any VL < 400 c/ml in 1 year) or ´suppressed´ (all VL < 400 c/ml in 1 year). Marginal logistic regression models using generalised estimating equations and independence working correlation structure were employed to explore sex, age at diagnosis, age and VL at first AYA clinic visit and increasing age as independent predictors of each outcome. Sensitivity analysis was conducted to examine the effect of drop out and missing data.
Results: 54% of patients were female and 82% Black African. Median age at first AYA clinic was 18yr (IQR17-19). Four patients were lost to follow up and 4 patients died during the data collection period. Amongst individuals with detectable VL at transition (≥400c/ml, 36%), odds of having ´intermittently suppressed´ or ´suppressed´ VL increased with yearly increment in age (OR 1.64 [1.45, 1.85] p < 0.001, OR 1.47 [1.27, 1.69] p < 0.001). This relationship was preserved in individuals with at least 3 years of clinic data (OR 1.51 [1.14, 2.00] p = 0.004, OR 2.51 [1.71, 3.69] p < 0.001). An inverse relationship between increasing age/log10VL was also observed when VL was analysed as a continuous variable with imputations to account for missing data. Age at diagnosis and at first AYA clinic and gender were not significantly associated with VL at first AYA visit or annual VL status.
Conclusions: Viral suppression rates improved as AYA matured. With support, PaHIV+ AYA who are viraemic at transition can remain in care and achieve viral suppression.

THPEB161

Impact of a formal transition of care process on young adults living with HIV attending who are moving from a pediatric to adult clinic in Mwanza, Tanzania

S. Msonga[1], T. Roche[1], W. Elimwaria[1], S. Shea[1,2], V. Kweka[1], J. Cataldi[1,2], B. Desderius[3], M. Minde[1,2], L. Mwita[1,2]
[1]*Baylor College of Medicine Children's Foundation- Tanzania, Mwanza, Tanzania, United Republic of,* [2]*Baylor College of Medicine International Pediatric AIDS Initiative At Texas Children's Hospital, Houston, United States,* [3]*Bugando Medical Centre, Mwanza, Tanzania, United Republic of*

Background: Adolescents and young adults living with HIV represent the only age group with increasing HIV prevalence and mortality worldwide. HIV-infected adolescents and young adults face many challenges to long term anti-retroviral treatment (ART) including peer pressure, risky behaviors, poor adherence, and missed appointments. To counter the potential risks these challenges pose for adolescents as they move from pediatric to adult care, the Baylor College of Medicine Center of Excellence - Mwanza,Tanzania (COE) has established a formal transition process. Adolescents complete 2 sessions between ages 15 and 17 prior to transfer to adult care. Through transition, they receive encouragement to take responsibility for their healthcare needs while learning more about their disease process and how to live positively with HIV.
Methods: To assess the impact of this transition process, we conducted a retrospective chart review of clients ages 18-24 years enrolling at Bugando Medical Centre (BMC) adult HIV clinic from January 2015 to May

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2016. Clients on ART transferred from Baylor after completing transition were compared with clients on ART enrolled directly at BMC or transferred from a non-Baylor clinic. The last five visits through May 2017 were reviewed for ART regimen, good adherence (pill count adherence 95-105% at ≥4 visits), good attendance (no missed visits), and most recent viral load.
Results: Sixty-four young adults who completed transition and 50 non-transitioned young adults were enrolled at BMC during the study period. Clinical and behavioral characteristics are presented in the accompanying table. Compared with non-transitioned clients, more transitioned clients had good adherence (89% vs 64%, p< 0.01) and good clinical attendance (92% vs 60%, p< 0.01). There were no pregnancies among the transitioned clients and one pregnancy among the non-transitioned clients. There was no difference in viral load results between the two groups.
Conclusions: Young adults completing a formal transition program had better attendance and adherence to ART. A transition process bridges the gap between pediatric and adult services and represents an effective strategy to ensure long term ART adherence for adolescents. Additional study is needed to determine the impact of transition programs on clinical indicators including viral load and treatment failure.

Indicators	Transitioned Clients, n=64 (n=38 for Viral Load)	Non-Transitioned Clients, n=50 (n=22 for Viral Load)	p-value* (chi-square test)
2nd Line ART Regimen	18 (28%)	5 (10%)	0.02
Good Clinical Attendance	59 (92%)	30 (60%)	<0.01
Missed Appointments	1 (2%)	14 (28%)	<0.01
Lost to Follow-Up	4 (6%)	6 (12%)	<0.01
Good Adherence	57 (89%)	32 (64%)	<0.01
Viral Load <1000**	7 (18%)	2 (9%)	0.61
Viral Load >1000**	7 (18%)	4 (18%)	0.61
Undetectable Viral Load**	24 (63%)	16 (73%)	0.61
*p<0.01 is significant based on alpha=0.05 using Bonferroni correction for multiple comparisons; **Viral load results not available for 26 transitioned and 28 non-transitioned clients.			

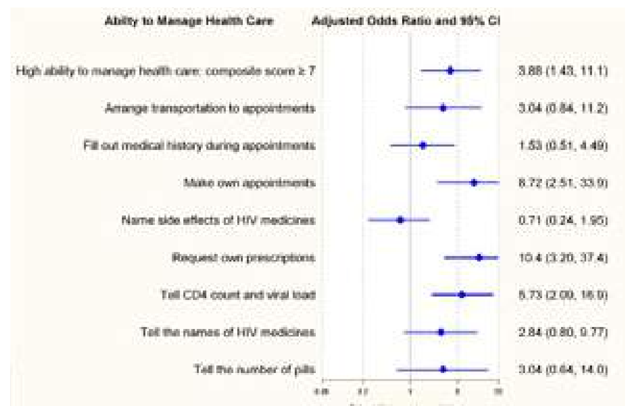
[Behavioral and clinical indicators among young adults living with HIV compared based on participation in a formal transition program]

THPEB162

Ability to manage health after transition to adult care is associated with retention in care among young adults with perinatal HIV infection

K. Tassiopoulos[1], Y. Huo[2], K. Patel[1], S. Nichols[3], D. Kacanek[2], S. Allison[4], M. Paul[5], S. Siminski[6], C. Mellins[7], The Pediatric HIV/AIDS Cohort Study (PHACS)
[1]Harvard T.H. Chan School of Public Health, Department of Epidemiology, Boston, United States, [2]Harvard T.H. Chan School of Public Health, Center for Biostatistics in AIDS Research, Boston, United States, [3]University of California San Diego, Department of Neurosciences, La Jolla, United States, [4]National Institute of Mental Health, Division of AIDS Research, Bethesda, United States, [5]Baylor College of Medicine, Pediatrics, Houston, United States, [6]Frontier Science & Technology Research, Amherst, United States, [7]Columbia University, Psychiatry and Sociomedical Sciences, New York, United States

Background: Perinatally HIV-infected (PHIV) adolescents are reaching adulthood and transitioning from pediatric to adult health care in increasing numbers. Yet there is little research on satisfaction with and retention in care after this transition.
Methods: The PHACS (Pediatric HIV/AIDS Cohort Study) AMP Up protocol is enrolling PHIV adults 18 years and older (including targeted enrollment of mothers) for long-term study of clinical and behavioral health. Participants complete an annual online survey on sociodemographics, behaviors, quality of life, and health care, including 8 questions on the ability to manage different aspects of one's own health. This analysis of entry visit data focused on the 124 out of 455 AMP Up participants (27%) enrolled to-date who had completed the transition to adult care. Multivariable logistic regression models evaluated associations of several factors with satisfaction with adult care provider/clinic (very satisfied/satisfied vs. dissatisfied/very dissatisfied) and retention in care (having had a health care visit within past 6 months).
Results: The average age at study entry was 26.6 years; 52% are Black or African-American, 46% Hispanic, and 71% female. The average age at transition was 21.7 years (range=15.9, 27.4). Older age at transition was associated with greater satisfaction with adult care provider (per year increase in age, OR =1.36, 95% C.I.=1.03, 1.84; p-value=0.04) and clinic (OR=1.30, 95% C.I.=0.98, 1.78; p-value=0.08). Young adults who reported greater ability to manage their care (yes to ≥7 of 8 questions) were more likely to have had a recent health care visit. Several individual indicators of health care self-management (ability to make their own appointments, fill prescriptions, and state their CD4 or viral load measures) were strongly associated with having a recent health care visit (Figure). Other factors (involvement in choosing adult care provider, depression, availability of supportive services at clinic) were not associated with the outcomes.
Conclusions: Young PHIV adults with greater ability to manage their health after their transition to adult care are more likely to have had a recent health care visit. This finding suggests that providers can assist their patients' successful transition by helping them develop skills to manage their health prior to this transition.



[Associations between Ability to Manage Health Care and Visit to Adult Care Clinic]

THPEB163

Adolescent to Adult Patient-centered HIV Transition (ADAPT) study: Adolescents' perspectives about transition from pediatric to adult HIV care setting in northern Nigeria - findings from a qualitative study

V. Tepper[1], C. Edokwe[2], C. Isah[2], A. Shutt[3], M. Charurat[3], F. Hassan-Hanga[4], B. Ismail[5], M. Essen[6], E. Audu[7], A. Okechukwu[8], H. Onyegbutulem[9], E. Ekong[2,3]
[1]University of Maryland School of Medicine, Pediatrics, Baltimore, United States, [2]Institute of Human Virology-Nigeria, Abuja, Nigeria, [3]Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, [4]Aminu Kano Teaching Hospital, Kano, Nigeria, [5]General Hospital Katsina, Katsina, Nigeria, [6]Federal Medical Centre, Keffi, Nigeria, [7]Dalhatu-Araf Specialist Hospital, Lafia, Nigeria, [8]University of Abuja Teaching Hospital, Abuja, Nigeria, [9]Asokoro District Hospital, Abuja, Nigeria

Background: One of the challenges faced by emerging adults living with HIV is the transition of care from their long-term pediatric HIV providers to treatment within an adult HIV program. Unsuccessful transition can be difficult and catastrophic. Limited studies have been conducted in sub-Saharan Africa incorporating the voices of youth in the design, implementation and interpretation of interventions to assist ALHIV in their transition to the adult HIV care system. This qualitative study explored ALHIV perspectives on the process of transition.
Methods: Eighteen Focus Group Discussions (FGDs) were conducted for 15-19 years old ALHIV across 6 healthcare facilities in Northern Nigeria May-July 2017. To be included in the study, ALHIV knew their HIV status and were enrolled in ART clinic for ≥12 months. Participants were interviewed by a researcher using a script containing a series of open-ended questions in key domains: experience of having the health care provider introduce the concept of transition, AHLIV readiness for and importance

of transition, advantages and disadvantages of transition, and what constitutes a successful transition. All participants provided written informed consent prior to FGD. Discussions were audio-recorded. FGDs in English were transcribed verbatim, those in Hausa were translated to English after transcription. Thematic analysis was performed using the MAXQDA software; common themes were extracted.
Results: A total of 150 ALHIV participated; 56 preparing for transition, 53 with successful transition, and 41 unsuccessful transition; 57% were female, 79% perinatally-infected, and 46% Muslim. Several themes emerged related to the experience of learning about transition; ALHIV reported feeling unhappy, anxious, confused, and uncomfortable when their health care provider introduced the idea of transition. Consistent themes emerged among all participants related to AHLIV definition of transition readiness: age, maturity/sense of responsibility, and ownership of care. Participants identified the following themes when describing transition success: improved state of their health and physical growth.
Conclusions: The voices of ALHIV are essential to the development of interventions to support their transition from pediatric to adult HIV care. Findings from this study will be presented to inform strategies for the development of transition services in resource-limited settings.

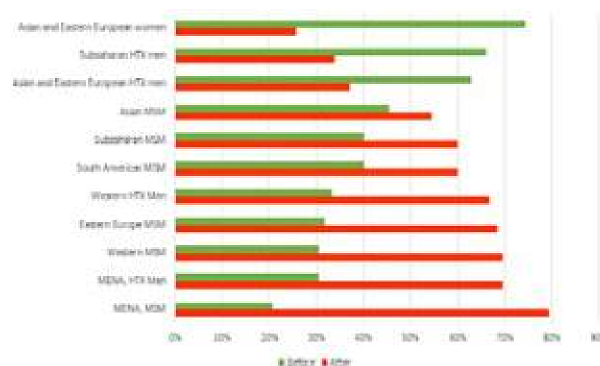
Surveillance in key population groups

THPEC164

Do migrants acquire HIV before or after migration to Denmark? And can we determine the groups most in need of prevention?

S.A. Cowan, A.H. Christiansen
Statens Serum Institut, Department of Epidemiology, Copenhagen, Denmark

Background: Since the start of HIV-surveillance it has been assumed that most HIV-positive migrants were infected before arrival to Denmark. European research has revealed that the majority of migrants in Europe acquire HIV post-migration. The aim of this study was to determine what proportion of migrants in Denmark acquire HIV post-migration and to analyze the underlying demographic factors.
Methods: Using national surveillance data for 2005-2017 including date of migration, CD4-cell count, confirmed HIV-negative tests, acute HIV-infection or AIDS at diagnosis, we modelled pre-/post-migration HIV-acquisition among migrants who were newly HIV-diagnosed in Denmark. We grouped the migrants after region of origin, gender, and mode of infection. Tourists (160) and undocumented migrants (91), who are not given a unique personal identifier, were excluded.
Results: For 912 (98%) out of 928 migrants, 15 years or older at migration, it was possible to estimate time of infection as pre- or post-migration using the model. We included 860 migrants who were registered as sexually infected, 596/ 69% heterosexually (HTX) and 264/31% homosexually (MSM). 34 infected by intravenous drug-use and 18 with unknown transmission-route were excluded. According to the model, 41% were infected post-migration, whether in Denmark or traveling/visiting relatives. There were large differences between women, HTX men and MSM, and between region of origin. Figure 1 shows the most likely and the least likely groups to become infected after migration to Denmark. Groups with less than 10 HIV-positive were omitted as was persons from Greenland as they were all infected in Denmark regardless of group.
Conclusions: Among HIV-positive migrant-women regardless of origin, and HTX men from Asia, Eastern Europe and Sub-Saharan Africa the vast majority (63-80%) of transmissions had occurred pre-migration. The opposite was true for Middle-eastern and North-African men and Eastern- and Western-European MSM. Among those groups 67%-79% were infected post-migration. Asian, Sub-Saharan and South American MSM were infected post-migration in just over half the cases (55%-60%). This large difference in risk of post-migration HIV-acquisition enables prevention-policies to focus on both openly gay men from MENA and Europe, and on men from MENA and Western Europe who seem to be MSM, but register as HTX because of stigma.



[% HIV infected before or after migration to Denmark, by origin and sexual orientation]

THPEC165

Changing motives to test for HIV and for not using condoms - an analysis of pre-test questionnaires from clients of community-based voluntary testing sites in three large German cities, 2015-2017

U. Marcus, S.B. Schink, German Checkpoint Collaborative Group
Robert Koch-Institut, Infectious Disease Epidemiology, Berlin, Germany

Background: Since 2015 the estimated HIV incidence among men having sex with men (MSM) residing in Germany has decreased. Due to a significant price cut, HIV pre-exposure prophylaxis (HIV-PrEP) became more widely affordable by late 2017.
We analysed data collected by pre-test questionnaires from 7 community-based voluntary counselling and testing sites (CBVCT) from 2015 through 2017 in the three largest German cities to monitor changes in the motives for HIV testing and for not using condoms amongst MSM and non-MSM clients.
Methods: CBVCT clients filled-in self-administered pre-test questionnaires. Data collected included motives for HIV testing and motives for not having used condoms during the last sexual risk situation. Clients were asked to indicate all reasons that applied. No unique identifiers to detect repeat testers were used.
Changes in the frequency of motives of MSM and non-MSM CBVCT clients from 2015 through 2017 were analysed using logistic regression (with Stata 14).
Results: Data from 28,654 client visits (MSM: 18,936; non-MSM: 9,718) could be evaluated. Reasons for testing were given by 15,492 MSM and 7,850 non-MSM, reasons for not using condoms by 7,949; 4,629 respectively.
Figure 1 shows changes of the frequency of responses from MSM and non-MSM clients comparing 2016 and 2017with 2015. Amongst both groups, routine testing increased, while testing when entering a new partnership decreased. Having had an (unsuspected) HIV-positive partner decreased amongst MSM as reason for testing.
Amongst both groups, assuming the partner was HIV-negative decreased as reason for not having used condoms, while desire for condomless sex increased. Amongst MSM, sex partner having undetectable viral load increased, as did sex partner demanding condomless sex. Loss of control due to substance use decreased.
Conclusions: Promotion of routine sexual health checks at CBVCT is successful and appears to partly replace testing when entering a new partnership. Testing due to unprotected sex with an unsuspected HIV-discordant partner decreases, and viral sorting (condomless sex with effectively treated partners) increases among MSM, suggesting increased serostatus awareness.
Demand for condomless sex is increasing, which may be a consequence of increased serostatus awareness and may also reflect increasing discussion and awareness of HIV-PrEP as an additional prevention tool.

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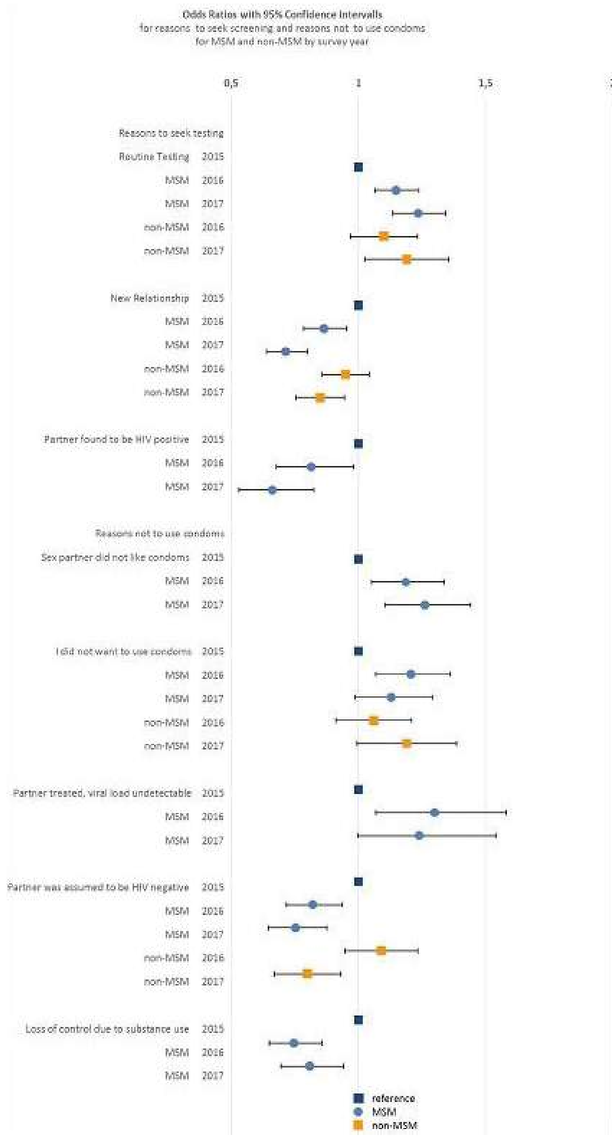


[Figure 1: Reasons for screening and for not using condoms for MSM and non-MSM clients of CBVCT sites by survey year, Germany 2015-2017.]

THPEC166

Surveillance surveys of behavior with biological linkage in Haitian and Dominican-Haitian construction workers living in Santo Domingo, Dominican Republic

T. Contrera Charpentier
Socio-Cultural Movement for Haitian Workers (MOSCTHA), Health, Santo Domingo, D.N., Dominican Republic

Background: It is estimated that 7% of the population of the Dominican Republic is Haitian or of Haitian descent (UNFPA 2013). However, uncertainty has persisted about the burden of HIV and the degree of risk behavior between people who migrate from Haiti and people born Dominican of Haitian descent. The degree to which their risk derives from factors related to internal and external migration, their livelihood while in the Dominican Republic, their behavior, their access to health services and the effect of a higher overall prevalence of HIV compared with the The Dominican Republic has not been measured.

Methods: Sampling of construction workers was carried out at the construction sites using a local-based cluster sampling design (VBCS). We start with a mapping phase to create a sample frame of construction sites, including the number of workers in each location. We divided a map of Santo Domingo and its surroundings into five geographic areas: Distrito Nacional, Santo Domingo Este, Santo Domingo Oeste, Santo Domingo Norte and Boca Chica.

Results: A large percentage of the participants reported having had unprotected sex at some time (44.1%) with their last partner. 56.5% of the population believed that a person who looked healthy could not be HIV positive. This study calculated the prevalence of HIV among Haitian and Dominican-Haitian construction workers in Santo Domingo at 4.6%. That is, one in every 22 Haitian or Dominican-Haitian men who work in construction in Santo Domingo in 2014 was infected with HIV. The prevalence of syphilis among Haitian and Dominican-Haitian construction workers in Santo Domingo was 7.9%; that is, about one in every 13 workers was infected with syphilis in 2014.

Conclusions: Relatively high prevalence of HIV. In this sample, HIV prevalence was 4.6%, much higher than the national prevalence of 0.7% in the Dominican Republic and 2% in Haiti. The prevalence is close to 5%, a threshold considered as a definition of a key population that merits special resources for the prevention and care of HIV. The study corroborates the fundamental hypothesis that mobile men in many parts of the world carry a disproportionate burden of infection.

THPEC167

Presentation with advanced HIV disease in a Southern US State, 1996-2013

S. Nduaguba, K. Ford, J. Wilson, K. Lawson
University of Texas at Austin, College of Pharmacy, Austin, United States

Background: Late presentation with HIV is associated with poor response to treatment and high risk of mortality and remains a major issue in all settings affected by HIV. In the US, national and state-level HIV testing programs have been initiated to enhance early diagnosis and link infected individuals to care. The objective of this study was to assess whether these programmatic efforts have improved the timing of presentation with advanced HIV disease (AHD) by examining presentation trends in a Southern US state.

Methods: This was a retrospective study of individuals aged 18 to 89 years who were diagnosed with HIV in Texas from 1996 to 2013. Eligible cases were identified using surveillance data from Texas Department of State Health Services. The proportion of individuals presenting with AHD, defined as having an AIDS diagnosis within 365 days of HIV diagnosis, was determined and compared for each year from 1996 to 2013 stratified by gender, race/ethnicity, and risk transmission group using frequencies and Wald tests.

Results: Of the 77,844 individuals included in the cohort, 78% were male and 27%, 38%, and 31% were Whites, Blacks, and Hispanics, respectively. Overall, 30,573 individuals (39%) presented with AHD. Sixty-five percent, 63.3%, and 60.2% of individuals diagnosed with HIV respectively presented with AHD in 1996, 1997, and 1998. The proportion presenting with AHD fell sharply to 38.3% in 1999 and then gradually declined to 29.3% in 2013. The percentage drop from 1996 to 2013 was greater among men (40%, 95% confidence interval=38%-42%) than women (18%, 14%-23%), greater among Whites (42%, 39%-46%) than Blacks (34%, 31%-38%) and Hispanics (35%, 31%-38%), and greater among males who have sex with males (41%, 39%-44%) than heterosexuals (22%, 17%-26%) and injecting drug users (32%, 24%-41%) (p< 0.001 in each case).

Conclusions: In Texas, the timing of presentation with AHD has improved. The sharp drop in 1999 may reflect the introduction of highly active antiretroviral therapy allowing for uptake and adoption in clinical practice. Close to 30% presented with AHD in 2013, indicating that there are still opportunities for early diagnosis and consequent improvement of health outcomes for people living with HIV.

THPEC168

HIV, HCV and syphilis prevalence among MSM in Tajikistan are stabilized

T. Sherkhonov[1], M. Kasianchuk[2], S. Khuvaydo[3], U. Rahmatjonov[4]
[1]National AIDS Center, M&E, Dushanbe, Tajikistan, [2]Eurasian Coalition on Male Health (ECOM), Tallinn, Estonia, [3]UNDP, Dushanbe, Tajikistan, [4]National AIDS Center, Dushanbe, Tajikistan

Background: Men having sex with men (MSM) remain one of the most HIV vulnerable groups of population in developed countries. There is very limited data on HIV epidemics among MSM in Central Asia region, especially in Tajikistan, primarily due to the hidden character of the group. The surveillance studies conducted earlier (2011 and 2015) showed alarming HIV prevalence among MSM (4.1% in Dushanbe and 2.7% in the whole country, 2015).

Methods: A cross-sectional integrated bio-behavioral survey was conducted among MSM by UN Development Program in Tajikistan and National AIDS Center from November to December, 2017. A total respondent-driving sample was 700 MSM (350 in Dushanbe).

Results: MSM in Dushanbe were 28 y. o. in average; 44% had secondary and 33% tertiary education; 38% are living with women; last 6 months, they had sex with 3 men in average; last year, no one was an injection drug user; 72.9% (CI: 68.2-78.0) used a condom at last anal intercourse with man; 8.5% (5.7-11.7) were HIV tested and knew their result during last 12 months.

In 2017, the prevalence of HIV among MSM in Dushanbe was 2.4% (CI: 0.9-4.3), HCV 4.3% (2.1-6.8) and syphilis 4.9% (2.7-7.2). In 2015 and 2011, HIV prevalence was 4.1% (2.1-6.2), 1.5% (0.2-3.2) respectively, HCV prevalence was 2.3% (0.9-4.0) and 3.9% (1.2-7.3), syphilis prevalence 9.3% (6.4-12.4) and 5.1% (2.7-8.8).

Conclusions: The analysis of the collected data shows that HIV, HCV and syphilis prevalence among MSM in Tajikistan are stabilized (compared to 2015). This is one of the major positive impacts of prevention programs among MSM in the country. For further progress in the prophylaxis of these infections among MSM prevention programs should be continued and strengthened.

THPEC169

Tuberculosis and HIV co-infection in the European Union: Epidemiology and tuberculosis treatment outcomes

M. van der Werf, C. Ködmön
European Centre for Disease Prevention and Control, Stockholm, Sweden

Background: Tuberculosis (TB) is a common disease in people living with HIV. To implement adequate activities for the prevention and control of TB/HIV co-infection robust and timely information is essential. European Union (EU) and European Economic Area (EEA) countries report their TB cases annually to the European Surveillance System (TESSy). We analysed trend data on the epidemiology of TB-HIV co-infection and TB treatment outcomes of co-infected people in order to provide up-to-date information to guide TB control efforts.

Methods: We analysed case-based information on HIV status of TB cases for the years 2012 to 2016. We assessed reporting completeness, trends in co-infection, and TB treatment outcomes 12 months after diagnosis.

Results: In the years 2012 to 2016, 14 to 21 of the 31 EU/EEA countries reported on HIV status of TB cases and in the countries reporting, the completeness was on average 65.3% (range between 2.2 and 100.0%). In the analysis period, the percentage TB-HIV co-infected cases varied between 3.1 and 3.3% in the EU/EEA. Of the countries reporting HIV status of > 20 TB cases in 2016, Malta reported the highest percentage of co-infected cases (16.0%), whereas Bulgaria, Cyprus, and Slovakia reported no co-infected cases. Four countries reported >10% of the TB cases co-infected with HIV in any of the years included in the analysis. Of the total of 5119 co-infected cases 1413 (27.6%) were in women and 24 (0.5%) in children < 15 years. For TB-HIV co-infected cases diagnosed in 2015 TB treatment outcomes were reported by 14 countries. Of 779 co-infected cases 438 (56.2%) were successfully treated. The percentage of cases successfully treated was similar in other years.

Conclusions: There are gaps in the surveillance of TB-HIV co-infection in the EU/EEA with about 65% of the countries reporting case-based HIV-status data. The observed co-infection percentage of around 3% if significantly lower than the 10% estimated at global level. An important point of attention are the treatment outcome results for co-infected cases which are worse than the overall treatment success rate of 71.5% in the EU/EEA and far from the 85% target.

THPEC170

Measuring late diagnosis in an era of frequent testing: Correcting for CD4 at seroconversion

P.D. Kirwan[1], A. Aghaizu[1], J. Tosswill[2], G. Murphy[2], A. Brown[1], V. Delpech[1]
[1]Public Health England, HIV & STI Surveillance, London, United Kingdom, [2]Public Health England, Virus Reference Department, London, United Kingdom

Background: For public health purposes, persons diagnosed with a CD4< 350 are classified as "late presenters". However, people can experience a transient dip in CD4 during seroconversion or may experience rapid progression of HIV and expedited CD4 decline, resulting in misclassification. We present a novel algorithm to measure late diagnosis using tests for recent infection (TRI) and evidence of recent negative tests.

Methods: All persons diagnosed in England, Wales and Northern Ireland between 2011-2016 with baseline CD4 within 91 days were included (83% completion) and linked to TRI results and STI clinic data for testing history. Those with viral load < 200 indicated recent treatment initiation and were excluded. Patients with TRI LAg results< 1.5 and CD4 ≥50 suggested likely recent infection and those with negative HIV tests within 2 years (LN) were classified as "not-late". A correction factor (CF) was defined as the percentage change applied to the original figure to adjust for serocoversion (CF=unadjusted/adjusted*100).

Results: Of 27,652 eligible people, 43% (11,935) had CD4< 350 (unadjusted late diagnosis figure), 55% (15,324) had a TRI and 20% (5,516) had a LN test. No difference by age, ethnicity or country of birth was observed between those with/without CD4 or TRI information.

Among those with CD4< 350, 7% (480/6,655) had a TRI suggesting recent HIV acquisition and a further 9% (567/6,175) had a LN test. Reclassification of these cases resulted in a late diagnosis rate of 37% (5,608/15,324) among those with complete information and 38% (10,479/27,652) for the whole study group; equating to a CF of 16%.

The CF increased over time (from 11% in 2011 to 19% in 2016) and was larger among gay and bisexual men (27%) than heterosexual men and women (both 8%) (table 1).

	Proportion diagnosed late	Revised proportion diagnosed late	Correction factor
Total population, all years	43%	37%	16%
2011	47%	42%	11%
2012	49%	42%	14%
2013	42%	36%	14%
2014	40%	34%	17%
2015	39%	30%	21%
2016	44%	36%	19%
Gay and bisexual men	32%	24%	27%
Heterosexual men and women	59%	55%	8%

[Proportion diagnosed late and correction factor, by year and exposure route]

Conclusions: Incorporating TRI and HIV testing history into the late diagnosis algorithm reduced the late diagnosis rate up to 21%. People are increasingly diagnosed at earlier stages of infection due to increased HIV testing (especially gay/bisexual men). These results suggest that increasing numbers are being misclassified as late presenters.

Despite this reclassification, a third of diagnoses over the past 6 years were diagnosed late.

THPEC171

Complex health issues experienced by people accessing HIV care in England

P.D. Kirwan, M. Kall, A. Brown, V. Delpech
Public Health England, HIV & STI Surveillance, London, United Kingdom

Background: As people with HIV are living longer, an increasing number may experience complex health issues. Using national HIV cohort data we examine the demographic characteristics of patients with co-morbidities, co-infection and persistent viraemia accessing HIV care in England.

Methods: We used attendance-based data on adults (aged 15+) attending specialist HIV clinics in 2016. Clinics submitting all 4 quarters (167/183; 91%) of data were included and attendances linked across quarters. We analysed demographic characteristics of patients with and without a comorbidity or coinfection reported at one or more attendances in 2016 including: tuberculosis, an AIDS-defining illness, HIV-associated end organ disease, cancer (on treatment) care, chronic viral liver disease (receiving treatment) and under psychiatric care, and those with persistent viraemia (>2 viral loads ≥200 copies/mL after >6 months on ART). A suppressed viral load was defined as a viral load < 200 copies/mL.

Results: Of 68,697 adults included in the study, 12% (8,306/68,697) had at least one co-infection, co-morbidity or persistent viraemia reported in 2016 with 2% (1,102/68,697) experiencing two or more conditions. Demographic characteristics differed by condition (table 1) with co-morbidities disproportionately affecting older persons and those living in more deprived areas of England. Among people with any co-morbidity, co-infection or persistent viraemia, 41% were aged 50 years or over and 6% were aged 65 years or over, this compared to 36% and 5% for those without these conditions. 72% of people with a co-morbidity or co-infection were men, compared to 67% without. Regardless of co-infection or co-morbidity, >92% of people on HIV treatment attained viral suppression.

Condition	% of study population	% aged over 50 years	% living in most deprived quintile	% on treatment with suppressed viral load
Tuberculosis treatment	0.7%	31%	42%	94%
AIDS-defining illness	2.3%	48%	41%	94%
Chronic viral liver disease	2.0%	43%	37%	96%
Cancer treatment	1.1%	58%	35%	96%
End organ disease	3.1%	60%	39%	96%
Under psychiatric care	3.3%	35%	39%	92%
Persistent viraemia	1.5%	25%	43%	N/A
None	87.9%	36%	35%	97%

[Prevalence and key demographics of co-morbidities, co-infections and persistent viraemia]

Conclusions: A significant proportion of people living with HIV experience complex health issues, with the prevalence of certain conditions increasing with age. We anticipate that the economic impact of such conditions will intensify as people continue to live longer with HIV.
Complex health issues were more common among people living in deprived areas which may suggest inequity of access to appropriate healthcare services. Reassuringly, the presence of a co-infection or co-morbidity did not have a significant adverse effect on virological suppression, suggesting effective management of HIV by clinicians in spite of co-morbidity and co-infection.

THPEC172

Vulnerability, risk and HIV, Syphilis and other infections among female sex workers in Agadir, Casablanca, Fes, Marrakesh, Rabat and Tangier, Morocco 2016

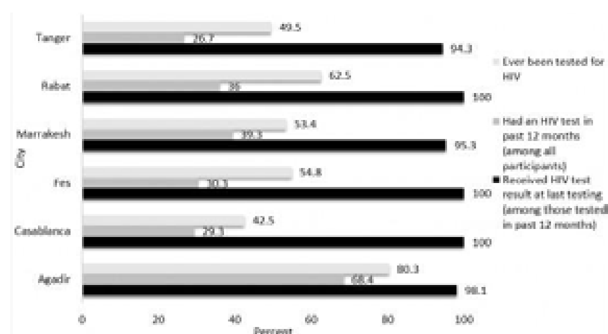
L. Johnston[1], A. Bennani[2], H. El Rhilani[3], L. Ghargui[2], K. Alami[3], B. El Omari[4], A. Maaroufi[2]
[1]*Independent Consultant, Valencia, Spain,* [2]*Ministry of Health, Rabat, Morocco,* [3]*UNIADS, Rabat, Morocco,* [4]*Global Fund to Fight AIDS, Tuberculosis and Malaria, Rabat, Morocco*

Background: An HIV bio-behavioral survey using respondent-driven sampling was conducted in 2016 among 256 female sex workers (FSW) in Agadir, 276 in Casablanca, 253 in Fes, 254 in Marrakesh, 250 in Rabat and 261 in Tangier.

Methods: Eligible females were ≥18 years, reported exchanging penetrative sex for money with > one male client in the past six months, having Moroccan nationality and working in the study location. Respondents completed an interview and provided blood specimens for HIV and syphilis. These findings are compared to a 2011-2012 survey.

Results: As in 2011-2012, almost half of FSW in all cities reported ever attending school and most reported having been married but currently being either separated or divorced and financially supported other adults or children. The percentage of Agadir FSW reporting always using condoms in the past 30 days increased significantly, by almost 30%, between 2011-2012 and 2016 whereas in Fes, Rabat and Tangier percentages were unchanged or declined. Between 27% in Tangier and 68% in Agadir reported having an HIV test in past 12 months, among which all or almost all received their results (Table). There were substantial increases in ever having an HIV test in Agadir, Fes, Rabat and Tangier between the 2011-2012 and 2016 surveys. Agadir FSW had the highest HIV prevalence and Tangier FSW had the highest active syphilis prevalence. Overall, HIV prevalence was >2.5% and syphilis prevalence was >25%. Between 2011-2012 and 2016, there were non-significant decreases in HIV prevalence in Agadir (5.1%-2.3%) and increases in Tangier (1.4%-1.8%) and a significant decrease in Fes (1.8%-0.2%). No one was positive for HIV in Rabat in 2011-2012 and only one person was positive in 2016 (0.4%). In Agadir, active syphilis prevalence was 21.2%, in Casablanca 15.7%, in Fes 21.7%, in Marrakesh 22.9%, in Rabat 4.7% and in Tangier 24.8%. Although there was no change in Syphilis prevalence in Agadir (21.4%) and Fes (18.8%) did not change significantly between 2011-2012 and 2016, there was a significant increase in Tangier (13.3%) and decrease in Rabat (13.9%).

Conclusions: Findings show improvements in HIV testing but also identify the need to expand programs targeting FSW in Morocco.



[HIV testing among FSW in Agadir, Casablanca, Fes, Marrakesh, Rabat, and Tangier, Morocco, 2016]

THPEC173

Persistent high burden of advanced HIV disease in South African children and adolescents at entry into care: Data from a longitudinal nationwide laboratory cohort

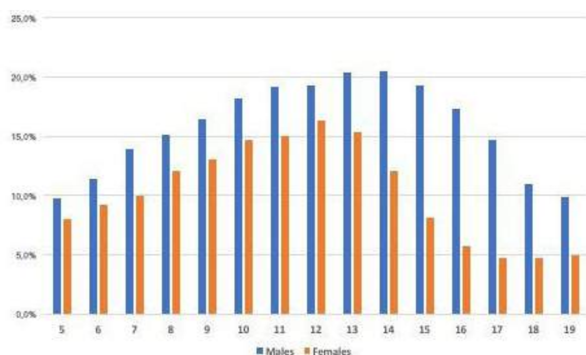
S. Carmona[1,2], M. Maskew[3,4], G. Sherman[5,6], J. Bor[3,7,8], M. Penazzato[9], M. Fox[3,7,8], N. Ford[9], W. Macleod[3,8]
[1]University of the Witwatersrand, Molecular Medicine and Haematology, Johannesburg, South Africa, [2]National Health Laboratory Service, Johannesburg, South Africa, [3]Health Economics and Epidemiology Research Office (HE2RO), Johannesburg, South Africa, [4]University of the Witwatersrand, Johannesburg, South Africa, [5]University of the Witwatersrand, Paediatrics and Child Health, Johannesburg, South Africa, [6]National Institute for Communicable Diseases, Centre for HIV and STI, Johannesburg, South Africa, [7]Boston University, Department of Epidemiology, Boston, United States, [8]Boston University, Department of Global Health, Boston, United States, [9]World Health Organization, HIV/AIDS, Geneva, Switzerland

Background: The South African National PMTCT programme has made remarkable progress in reducing vertical transmission and increasing coverage of antiretroviral therapy (ART) over the last decade. However, delayed ART initiation in children and adolescents persists due to delays in identification and limited availability of age-appropriate formulations and services delivery models. Using a linked National HIV Cohort, we assessed the proportion of children and adolescents entering care with advanced HIV disease (CD4 < 200 cells/mm³) over time.

Methods: We constructed a cohort of children and adolescents aged 5-19 years utilizing nationwide laboratory records of CD4 counts from 2005-2016. Using probabilistic linkage methods, we determined first CD4 cell count at entry to care. Numbers and proportions of patients with first CD4 < 200 cells/mm³ by age and sex were calculated.

Results: From 2005-2016, 587,316 children and adolescents had a first CD4 count test and 18.0% had CD4 count < 200 cells/mm³. The proportion of children and adolescents entering into care with advanced disease declined from 22.6 to 15.9% from early to later years (Table 1). However, from 2011 onwards the proportion entering ART care with low CD4 counts has remained relatively unchanged at 15-16%. While the absolute number of girls entering care with advanced disease was near twice the number of boys, the proportion of boys entering care with advanced HIV disease was greater than that of girls (risk ratio: 1.63; 95% CI: 1.61—1.65). The gender distribution of advanced disease varied by age; the proportion of girls with advanced disease peaked at 12 years and then declined sharply, levelling off at 17 years of age whereas boys peaked at 14 years of age and declined steadily thereafter (Figure 1).

Conclusions: The proportion of children and adolescents presenting with advanced HIV disease remains consistently high despite ART scale up. Testing campaigns focused on early HIV-diagnosis and linking patients to ART care should be prioritised, particularly among adolescent boys. CD4 testing to identify advanced disease, provide screening and prophylaxis for opportunistic infections and rapidly initiate ART remains critical.



[Figure 1. Proportion of children and adolescents presenting with advanced disease by Age and Sex (2005-2016)]

	Females		Males		Total		
Year	0-199 Cells/mm3	Females With First CD4 Test, No.	0-199 Cells/mm3	Males With First CD4 Test, No.	0-199 Cells/mm3	All Sexes With First CD4 Test, No.	RR (95% CI) of Males with First CD4 Count 0-199 Cells/mm3 Compared to Females
2005-07	20.2% (10,996)	54,329	30.0% (5,357)	17,886	22.6% (16,353)	72,215	1.48 (1.44-1.52)
2008-10	17.7% (18,527)	104,800	28.3% (8,195)	28,984	20.0% (26,722)	133,784	1.60 (1.56-1.64)
2011-13	14.6% (22,389)	153,281	23.8% (11,691)	49,086	16.8% (34,080)	202,367	1.63 (1.60-1.66)
2014-16	13.4% (18,131)	135,136	23.6% (10,340)	43,814	15.9% (28,471)	178,950	1.76 (1.72-1.80)
All years	15.7% (70,043)	447,546	25.5% (35,583)	139,770	18.0% (105,626)	587,316	1.63 (1.61-1.65)

[Females, Males, and All Subjects 5-19 Years of Age With First CD4 Count Test <200 Cells/mm3, by Sex and Calendar Year of Test, South Africa]

THPEC174

HIV dynamics in migrants from Central, Eastern and Western Europe in the Europe Union/Economic Area (EU/EEA)

J. Del Amo[1], I. Jarrín[1], V. Hernando[1], B. Alejos[1], T. Noori[2], A. Pharris[2]
[1]Institute of Health Carlos III, National Center for Epidemiology, Madrid, Spain, [2]European Centre for Diseases Prevention and Control, Stockholm, Sweden

Background: We aim to quantify the contribution of migrants from Central (CE), Eastern (EE) and Western European (WE) origin to HIV reports in EU/EEA, describe trends by transmission category and examine median CD4 count at diagnosis.

Methods: HIV reports to the European Surveillance System (TESSy) from 30 EU/EEA countries from 2004 till 2015 pooled in December 2016 were analysed. To minimize artificial declines due to reporting delay, 2015 was excluded when appropriate. Cases from Europe were divided into three European UN sub-regions. Differences in CD4-counts at HIV diagnosis over time for each sub-region were modelled using median regression adjusting for transmission category, age and sex.

Results: Of 375,743 cases reported in 2004-2015, 26,600 (7%) were European migrants; 48% from WE, 31% from CE and 21% from EE. Overall, 74% and 57% of HIV reports in WE and CE migrants were men who have sex with men (MSM) and 34% of HIV diagnoses in EE migrants were persons who inject drugs (PID). From 2004 to 2014, absolute (+833) and relative (+139%) increases in HIV diagnoses in MSM from all three sub-regions were observed, although increases were more noticeable in CE (+405, 431%) and EE (+81, 238%) than in WE (+347, 74%). For heterosexually transmitted cases, absolute (+429) and relative (+257%) increases from CE and EE and stable trends from WE were reported. For PID, absolute (-63) and relative (-52%) declines in WE migrants and absolute (+54, +47) and relative (+357%, +62%) increases in HIV diagnoses in CE and EE migrants, respectively, were observed. Median CD4-counts were consistently higher among women, MSM and people under 30 years from all regions. Sensitivity analyses from 2008 onwards (more stable CD4-count reporting) revealed increases overtime for CE migrants and no change in those from EE.

Conclusions: The current HIV epidemic in European migrants within EU/EEA is driven by on-going transmission among MSM from WE, CE and EE, who consistently show higher CD4 counts at diagnosis. These infections are likely to be acquired HIV post-migration and require enhanced preventive interventions. HIV infections in heterosexuals and PID from CE and EE are increasing, calling for enhanced focus on these populations.

THPEC175

An innovative vending machine-based HIV testing and intervention service: Anonymous urine collection kits distributed at universities in China

X. He, Y. Jiang
National HIV/HCV Reference Laboratory, National Center for AIDS/STD Control and Prevention, China CDC, Beijing, China

Background: Vending machines have recently been evaluated as a feasible delivery mode for HIV tests. In this study, we for the first time, assessed an innovative HIV vending machine and internet-based anonymous urine test at seven universities in four provinces of China in 2016.
Methods: The students anonymously and voluntarily purchased the urine collection kits from vending machines after publicity campaigns which were launched by university student organizations on campuses. Students collected their own urine samples in private and returned them to vending machine return slot. Urine samples were transported to the laboratory for testing within seven days using urine HIV-1 antibody ELISA kits. Uploaded the results to a special website where participants could receive their test results. Provided testing instructions on the results search page and a confidentiality notification for participants to receive post-test support services. Finally, retrieved and analyzed the data from the positioning and online data management systems.
Results: In total, we dispensed 957 HIV urine collection kits through vending machines sales and free as part of an education campaign, a total of 378 (39.5%) urine samples were returned and 376 (99.5%) of them were qualified to be tested for HIV antibody in a local professional laboratory, 7 (1.86%) urine samples were HIV antibody positive. 67.8% (255/376) participants searched for their test results using the internet. The percentages of participants testing HIV antibody positive and negative who searched for their results were 100% (7/7) and 67.2% (248/376). Finally, 1 of 7 HIV antibody-positive participants voluntarily accepted support services and was referred to a hospital for antiviral treatment.
Conclusions: The results showed the acceptability, feasibility, and effectiveness of this innovative HIV testing service based on vending machines. This service can play an important role in HIV education and intervention.

THPEC176

Disparities in timely ART initiation among persons newly diagnosed with HIV in San Francisco, California, USA 2011-2016

L. Hsu, S. Schwarcz, S. Scheer, A. Hughes
San Francisco Department of Public Health, San Francisco, United States

Background: In 2010 the San Francisco Department of Public Health recommended universal antiretroviral therapy (ART) for all persons with HIV regardless of CD4 count and in 2015 implemented the rapid ART initiation initiative. We used the San Francisco HIV surveillance registry data to examine trends and characteristics of persons with timely ART initiation and reasons for not initiating ART.
Methods: Data were obtained from mandatory HIV reporting from laboratories and physicians, and from medical chart review that included dates of HIV diagnosis and ART initiation and when noted in the chart, reasons for not initiating ART. Persons aged 13 years and older who were diagnosed with HIV in 2011-2016 and resided in San Francisco at time of diagnosis were included. Differences in socio-demographic and risk characteristics between those who initiated ART within one month of diagnosis and those who did not, were assessed using the Chi-Square test. Logistic regression was used to identify factors independently associated with timely ART initiation.
Results: The population was predominately male (90%), white (46%), men who have sex with men (MSM) (74%), aged less than 40 years (59%), born in the United States (57%), housed (90%), and had CD4 count ≥ 200 cells/mm³ at diagnosis (78%). The number of persons newly diagnosed with HIV increased from 2011 to 2012 and then declined through 2016. Overall 50% of the 2083 persons diagnosed in 2011-2016 initiated ART within one month of diagnosis, increasing from 36% in 2011 to 72% in 2016 ($p < 0.0001$). In the multivariate analysis, females, trans females, African Americans, MSM who inject drugs, and persons without health insurance were less likely to initiate ART within one month of diagnosis (all $p < 0.05$). Of the 203 persons not known to have started ART, 51% were not in care and 7% of patients refused ART. Other less frequently documented reasons included perception of non-adherence and homelessness.
Conclusions: While rapid initiation of ART has become significantly more likely in recent years in San Francisco, improved timely ART initiation has not benefited all persons equally. Efforts to address barriers to timely ART initiation should focus on vulnerable populations.

THPEC177

High HIV and STI diagnosis rates in people without health insurance in community based HIV/STI testing services in large cities across Germany, 2015-2017

S.B. Schink[1,2], U. Marcus[1], German Checkpoint Collaborative Group
[1]*Robert Koch Institute, Infectious Disease Epidemiology, Berlin, Germany,*
[2]*Charité Universitätsmedizin Berlin, Berlin, Germany*

Background: Universal health insurance was mandated in Germany in January 2009 requiring everybody to have public or private healthcare coverage. Nevertheless, people report that they lack health insurance. We analysed health outcome data from community-based voluntary counselling and testing (CBVCT) with regard to insurance status in Germany from 2015 through 2017.
Methods: CBVCT clients filled in self-administered pre-test questionnaires. Data collected included sexual orientation, migration, hepatitis A vaccination and health insurance status. We matched questionnaire data to laboratory results for HIV, gonorrhea and chlamydia. We used bivariate analysis and multivariate logistic regression (MLR) analysis with stratification by self-declared gender/sexual orientation (women, heterosexual men, men having sex with men (MSM)) in Stata© 14.
Results: Data from 27,439 CBVCT visits were evaluated; 4.3% (1,190) reported no valid health insurance. Compared to women, heterosexual men were 1.5 times (odds ratio (OR) = 1.5, 95% confidence interval (95%CI): 1.1-1.9) and MSM more than twice (OR=2.4, 95%CI: 1.9-3.1) as likely to be uninsured. Compared to nationals, we found no difference to people with a parental migration history, however clients born abroad were almost 15 times more likely to be uninsured (OR=14.9, 95%CI: 12.3-17.8). [Table 1]
A new HIV diagnosis was 3.5 times (OR=3.5, 95%CI: 2.5-5.1) more likely in visits by uninsured people compared to insured people. For MSM without healthcare coverage, MLR showed that MSM were twice (OR=2.0, 95%CI: 1.6-2.5) as likely not to be vaccinated against hepatitis A virus infection, 1.4 times (OR=1.4, 95%CI: 1.1-1.9) more likely to test positive for gonorrhea and/or chlamydia and 2.9 times (OR=2.9, 95%CI: 1.6-5.4) more likely to be newly diagnosed with HIV infection.
Conclusions: In spite of mandatory health insurance, 4.3% of CBVCT visits are by people who are uninsured. Uptake of recommended preventative services like HAV vaccination is lower while infection rates with gonorrhea and chlamydia are higher in uninsured MSM. Infection rates for HIV are higher among women, heterosexual men and MSM alike. Since CBVCT welcome uninsured people at risk for HIV and other infections, we recommend that either referral services for treatment complement CVBCT screening or CBVCTs are strengthened to provide treatment to those without access to care.

	Odds Ratio	p-Value	95% Confidence Interval
Gender/sexual orientation			
Women	ref.		
Heterosexual Men	1.5	<0.001	1.1 - 1.9
Men who have sex with men	2.4	0.007	1.9 - 3.1
Country of birth, migration status			
born in Germany, no parental migration	ref.		
born in Germany, parental migration	1.3	0.17	0.9 - 3.1
born abroad	14.9	<0.001	12.5 - 17.8

[Lack of health insurance coverage by gender/sexual orientation and country of birth of clients using community-based HIV/STI testing services, 2015/17]

THPEC178

Recent HIV infection among newly diagnosed individuals in the Eastern European country of Georgia, 2015-2016

N. Dvali[1], N. Chkhartishvili[2], M. Karchava[1], M. Ghvaberidze[3], T. Tsertsvadze[2,4]
[1]*Infectious Diseases, AIDS and Clinical Immunology Research Center, Virology and Molecular Medicine, Tbilisi, Georgia,* [2]*Infectious Diseases, AIDS and Clinical Immunology Research Center, Tbilisi, Georgia,* [3]*Infectious Diseases, AIDS and Clinical Immunology Research Center, Laboratory of HIV Diagnostics, Tbilisi, Georgia,* [4]*Ivane Javakhishvili Tbilisi State Univeristy, Tbilisi, Georgia*

Background: Surveillance of recent infection can help to better understand patterns of HIV transmission and identify populations at most risk of infection. Initially injection drug use driven HIV epidemic in Georgia had been shifting to predominance of sexual transmission. Objective of this study was to identify recent infections and associated factors among newly diagnosed persons.

Methods: Recent HIV infections were identified using recent infection testing algorithm (RITA) combining laboratory assay for recent infection and clinical data on immune status and disease stage. Limited antigen avidity (LAg) enzyme immunoassay (EIA) was used on frozen remnant HIV diagnostic specimens. Data on CD4 cell count, presence of AIDS defining illness and viral load was extracted from the national AIDS health information system. HIV infection was defined as recent if individual had LAg EIA and did not have evidence of longstanding infection. Study included 1132 adult persons newly diagnosed in 2015-2016 (80% of new diagnoses made).

Results: Among 1132 persons included 547 (48.3%) were infected in 2015 and 585 (51.7%) in 2016; 853 (75.4%) were men and 279 (24.6%) women; 599 (52.9%) were infected through heterosexual contact, 324 (28.6%) - through injection drug use (IDU) and 192 (17.0%) through sex between men. Overall 136 (12.0%) persons were classified as recently infected with similar proportions identified in 2015 and 2016 (13.0% vs. 11.1%, p=0.33). Men who have sex with men (MSM) had highest proportion of recent infections (27.6%) and the difference was statistically significant compared to all other transmission categories. In addition to MSM, age category of 18-25 years was also significantly associated with recent infection.

Conclusions: High rate of recent infection among MSM indicates active ongoing transmission of HIV in this population. Scale-up of combination prevention including PrEP for MSM is urgently needed to halt the spread of the virus.

THPEC179

An explosive epidemic of HIV infection among men who have sex with men (MSM) in the Philippines

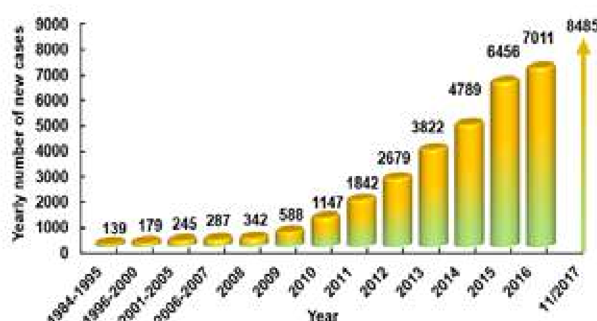
J.D. Rosadiño[1], R.V. Pagtakhan[1], C. Lagman[1], J.W. de Lind van Wijngaarden[2], R. Ditangco[3], Y.R. Lo[4], F. van Griensven[5]
[1]*LoveYourself Foundation, Manila, Philippines,* [2]*Burapha University, Bang Saen, Thailand,* [3]*Research Institute of Tropical Medicine, Manila, Philippines,* [4]*World Health Organization, Regional Office for the Western Pacific, Manila, Philippines,* [5]*Thai Red Cross AIDS Research Center and UCSF Department of Epidemiology and Biostatistics, Bangkok, Thailand*

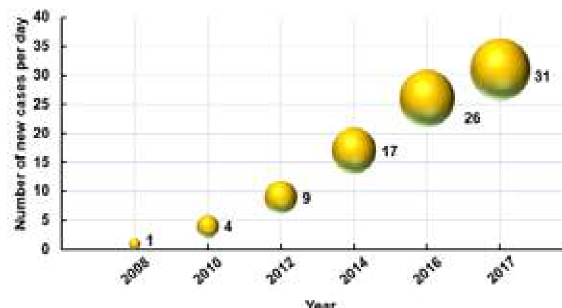
Background: In most countries in Asia-Pacific, HIV epidemics in MSM have been trailing those in persons who inject drugs (PWID's) and heterosexuals. The Philippines however, never experienced a heterosexual HIV epidemic and the prevalence of infection in the Filipino general population has remained low (< 0.1%). Despite the absence of a heterosexual pre-cursor epidemic, the spread of HIV infection is believed to be growing rapidly in the country's MSM population.

Methods: The Philippine Department of Health maintains a unique and well-functioning HIV case reporting system, mandated by law. The consistency of this system over the past three decades allows monitoring of long-term epidemic trends in the general population and in specific transmission categories. Here we present and analyze the reported number of newly diagnosed cases of HIV infection in the Philippines from 1984 to 2017.

Results: Since January 1984, 49,733 newly diagnosed cases were reported, of which 41,369 (83.2%) from 2012 to the present and 10,111 (20.3%) during the first 11 months of 2017 alone. Of the latter, 9,625 (95.2%) were in males and 8,485 (91.0%) in MSM. During the first ten years of the registry (1984-1993) only 476 cases were reported, the majority (51.4%) in heterosexuals and a minority (18.3%) in MSM. This pattern reversed towards during 2009-10, when MSM began to outnumber heterosexuals. Since that time, newly diagnosed HIV cases in MSM have been doubling every 1.5 to 2 years (figure). Such increases were not seen in heterosexuals and PWID's, where the yearly number of cases increased from 480 to 1293 and from 175 to 236 between 2012 and present, respectively. The average number of reported newly diagnosed cases of HIV infection in the Philippines increased from < 1 before 2008, to four in 2010, 17 in 2014 and to 31 in 2017 (figure). Of the latter, 90% are in MSM, mostly from the National Capital Region and adjacent provinces.

Conclusions: After years of incremental increases among heterosexuals and PWID's, HIV is now spreading rapidly among MSM in the Philippines. Effective behavioral and biomedical interventions, such as HIV pre-exposure prophylaxis, are urgently needed to stop the transmission of HIV in this population.





[Yearly number of HIV cases reported in MSM, 1984-2017, and average number of new HIV cases reported per day, 2008-2017, the Philippines]

THPEC180

Trends in HIV and HCV seroprevalence among inmates entering the NYS department of corrections and community supervision system, 1988-2015

B.J. Anderson[1], L. Wang[1], B. Zhu[1], D.D. Akinleye[1], A. Gallucci[1], M. Parker[2], J. Tesoriero[3], K. Koenigsmann[4]
[1]*New York State Department of Health, AIDS Institute Bureau of HIV/AIDS Epidemiology, Albany, United States,* [2]*New York State Department of Health, Wadsworth Center, Albany, United States,* [3]*New York State Department of Health, AIDS Insitute, Division of HIV/STD Epidemiology, Evaluation, and Partner Services, Albany, United States,* [4]*New York State Department of Corrections and Community Supervision, Albany, United States*

Background: HIV and HCV are serious health issues for correctional facilities and their incarcerated populations. Rates of diagnosed HIV infection among persons incarcerated in US prisons are more than five times higher compared to those not incarcerated; estimates of HCV prevalence range from 10-17 times higher. This analysis monitors trends in HIV and HCV seroprevalence among persons entering custody of the New York State (NYS) prison system over three decades.

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Methods: Since 1988, NYS' Department of Health and Department of Corrections and Community Supervision have conducted biennial crosssectional anonymous HIV seroprevalance surveys among persons entering the NYS prison system; HCV testing was introduced in 2000. Self- reported demographic and risk data are collected during medical intake, and remnant blood is tested for HIV and HCV antibodies. Females are oversampled.

Results: 43,051 persons are included in the study. The 2015 cohort includes 4,239 newly incarcerated persons, who are predominately male (80%) and racially diverse (42% black; 32% white; 21% Hispanic). Median age is 34 years. Self-reported HIV and HCV risk includes history of injection drug use (15.5%), sex partner of person who injects drugs (11.4%), history of exchange sex (4.1%), and male to male sexual contact (1.5%). The 2015 cohort has the highest proportion self-reporting injection drug use since the 1992 (15.9%) and 1988 (27.6%) study cohorts.

Between 1988 and 2015, HIV seroprevalence decreased significantly for both male and female incoming inmates (17.6% to 1.9% males; 18.8% to 2.8% females). HCV seroprevalence was relatively stable over time for males. Among females entering prison, 2015 marked a reversal in the historical decline in HCV seroprevalence since the 2003 high, with 24.2% sepositivity. Between 2012 and 2015, HCV seropositivity increased 65.8% among females. Overall HIV-HCV coinfection rates are low in 2015 (0.63%), though 31% of HIV seropositive inmates were also HCV seropositive.

Conclusions: This study is the longest and largest HIV and HCV seroprevalance study of an incoming population to a state prison system. The study highlights the increasing HCV burden to correctional health and the opportunities related to addressing HCV and HIV treatment needs, both during and after incarceration.

Study Cohort	1988 N=999	1990 N=1,062	1992 N=3,404	1994 N=3,880	1996 N=5,323	2000 N=3,900
HIV Seropositive - Female	18.8%	N/A	20.3%	15.8%	17.8%	13.9%
HIV Seropositive - Male	17.6%	8.8%	11.5%	9.9%	6.6%	4.7%
HCV Seropositive - Female						23.1%
HCV Seropositive - Male						13.4%
Study Cohort	2003 N=3,936	2005 N=3,896	2007 N=4,124	2009 N=4,083	2012 N=4,205	2015 N=4,239
HIV Seropositive - Female	11.4%	10.6%	10.7%	5.0%	3.7%	2.8%
HIV Seropositive - Male	4.5%	4.0%	3.0%	3.0%	2.4%	1.9%
HCV Seropositive - Female	24.1%	19.4%	15.5%	14.6%	14.6%	24.2%
HCV Seropositive - Male	13.3%	10.4%	11.2%	9.5%	9.6%	10.3%

[HIV and HCV Seroprevalence of Inmates Entering the NYS DOCCS, 1988-2015]

THPEC181

Definitions of homelessness - surveillance-based housing status compared to self-reported housing status, San Francisco, California, USA, 2012-2016

C. Kazbour, S. Scheer, A. Hughes
San Francisco Department of Public Health, Applied Research, Community Health Epidemiology, and Surveillance, San Francisco, United States

Background: Unstable housing and homelessness have been shown to be risk factors for HIV seroconversion and strong predictors of suboptimal health outcomes among people living with HIV (PLWH). We sought to compare housing status among PLWH in the San Francisco (SF) surveillance case registry (eHARS) with self-reported housing status from interview during the Medical Monitoring Project (MMP) to assess concordance.

Methods: In SF, housing status and address is collected at time of diagnosis and updated through medical chart abstraction and from HIV-related laboratory reports. PLWH are defined as homeless in eHARS if their medical record states they are homeless or not housed or their address is a known homeless shelter or free postal address not connected to a residence. Persons living in a single room occupancy hotel (SRO) or other transitional housing situation are considered housed.

MMP is a supplemental surveillance project collecting information on HIV care via interview that defines homelessness as living on the streets, a shelter, a SRO or a car 12 months prior to interview.

We compared housing status reported during MMP interviews between 2012-2016 with eHARS data and a Kappa score was calculated to estimated agreement between the two data sources. For persons with multiple addresses, the address with date closest before and after the MMP interview was selected (N=1030).

Results: Twenty-seven percent of MMP participants who self-reported as homeless were also classified as homeless in eHARS and 97.6% of MMP participants classified as housed were classified as housed in eHARS (Table). The Kappa coefficient showed fair agreement by housing status between data sources (k= 0.3162, 95% CI 0.2327 - 0.3998, p< .0001). Ninety-two of the homeless MMP participants reported living in a SRO. If these 92 were reclassified as housed in MMP, the concordance between self-reported homelessness in MMP and eHARS would increase to 30.6% and decrease between participants classified as housed to 96.5%.

Conclusions: The strict definition of homelessness used by surveillance significantly underestimated self-reported homelessness and unstable housing among PLWH.

Going forward, surveillance-based definitions of homelessness should be considered conservative and may benefit from including of other types of unstable housing including living in a SRO.

	Self-reported data				
	Homeless		Housed		
Surveillance data	N	Col.%	N	Col.%	Total
Homeless	41	26.6%	21	2.4%	62
Housed	113	73.4%	855	97.6%	968
Total	154	100%	876	100%	1030

[Homelessness by data source - comparing matched self-reported Medical Monitoring Project data with surveillance-based eHARS data]

THPEC182

Misclassification of the male-to-male sexual mode of HIV transmission in HIV case reporting data in Ukraine

O. Varetska[1], K. Dumchev[2], C. Vitek[3]
[1]*Alliance for Public Health, M&E Team, Kyiv, Ukraine,* [2]*Ukrainian Institute on Public Health Policy, Kyiv, Ukraine,* [3]*Ukraine Country Office, Division of Global HIV/TB, Centers for Disease Control and Prevention, Kyiv, Ukraine*

Background: The literature suggests that stigmatization of men who have sex with men (MSM) leads to underreporting of male to male sexual transmission of HIV in Ukraine. As of December 31, 2015, 1,368 HIV cases were registered with male to male sexual mode of transmission in Ukraine out of a total of 126,604 registered cases (1.1%). Recent integrated bio-behavioral surveillance (IBBS) data suggest HIV prevalence among MSM is 19% in certain cities, and a minimum of 14,000 MSM live with HIV infection nationwide.

Reluctance by clinicians to assess sexual behavior risks and hesitation by patients to self-report stigmatized risk behaviors may lead to misclassification or non-reporting of transmission risk.

The purpose of this study is to evaluate the probable misclassification of male to male sexual mode of transmission in Ukrainian HIV case reporting.

Methods: The study included 2,096 randomly selected HIV-positive males enrolled into care in 7 regions of Ukraine during Q4 (October - December) of 2013, 2014 and 2015. Results of patient interviews about potential exposure to HIV and presence of risk behavior in the past 10 years (to capture all potential risks prior to transmission) were compared to the patient registration data used for the Ukrainian case-reporting system. McNemar's test was used to test the difference between paired measures.

Results: Of 2,096 study participants, 1,240 participated in the interview. Out of these, 59 (4.7% (95%CI 3.5%-5.9%)) had male to male sexual mode of transmission recorded in the medical record. 130 (10.6% (8.9%-12.3%)) reported male-to-male anal sex in past 10 years during the interview, and 96 of them (7.7% of total (6.3%-9.3%)) denied injecting drug use, thus likely they acquired HIV through MSM contact. Therefore, the true proportion of MSM transmission among newly registered cases may be at least 1.7 times higher than currently reported 4.7% (p< 0.001).

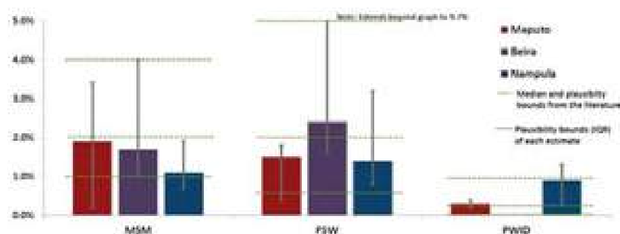
Conclusions: This study provides evidence of misclassification of the male-to-male sexual mode of HIV transmission in HIV case reporting data in Ukraine. Improvements in ascertaining risk-factor information from patients are important to monitor the epidemic and to provide relevant HIV clinical care.

THPEC183

Estimating the number of men who have sex with men (MSM) and female sex workers (FSW) in Mozambique using a multiple methods approach

I. Sathane[1], R. Horth[2], M. Boothe[3], N. Chicuecue[4], H.F. Raymond[2]
[1]Global Programs for Research and Training, Maputo, Mozambique, [2]University of California, San Francisco (UCSF), San Francisco, United States, [3]University of California, San Francisco (UCSF), Maputo, United States, [4]National Institute of Health (INS), Maputo, Mozambique

Background: Mathematical modelling demonstrates that the greatest reduction in HIV incidence can be achieved through prioritization of resources to key populations. Evidence is needed about the number of men who have sex with men (MSM) and female sex workers (FSW) in order to measure their contribution to the HIV epidemic and appropriately allocate prevention and treatment efforts. Mozambique conducted the first Biobehavioral Survey (BBS) survey in three urban areas Maputo, Beira and Nampula among MSM and FSW in 2012. This analysis presents size estimations for MSM and FSW.
Methods: We used multiple methods to generate best estimates of MSM and FSW living in major cities in Mozambique: unique object, unique event and service multipliers with sequential sampling. Multiplier methods rely on two independent data sources from the same target group. Sequential sampling is a relatively new Bayesian approach for estimating population size using data from Respondent Driven Sampling (RDS) survey methodology. The median used different estimators to establish best estimates for each city-population. while the interquartile range of the different estimates served as plausibility bounds. Our best estimate was then compared to plausibility bounds found in the literature.
Results: BBS survey were conducted among MSM [Maputo (n=496); Beira (n=583), Nampula (n=353)] and FSW [Maputo (n=400); Beira (n=411); Nampula (n=429)]. The numbers of MSM were estimated at 10,070 (1.9% of adult male population) in Maputo, 2,129 (1.7%) in Beira and 1,608 (1.1%) in Nampula. Among FSW, population size was estimated at 8,603 (1.5% of the adult female population), 2,936 (2.4%) and 2,033 (1.4%), respectively. Using these population size estimates, we estimate that there are 951MSM in Maputo, 179 in Beira, 45 in Nampula and 1,851 FSW in Maputo, 619 in Beira and 328 in Nampula living with undiagnosed HIV.
Conclusions: Our results demonstrate the feasibility of using multiple methods to generate population sizes, falling within the estimates produced in other sub-Saharan countries. This provides essential information for optimal resource allocation and contributes to the literature about key populations in the region.



[Size Estimation of FSW and MSM in Mozambique]

THPEC184

Results of a third round of HIV surveillance amongst female sex workers in Hargeisa, Somaliland

K. Kriitmaa[1], N. Fara[2], I. Hussein[3], A. Ismail Omar[3], A. Abdow[1], Z. Dominkovic[4], C. Ito[1], C. Maskia[5]
[1]International Organization for Migration, Migration Health Division, Nairobi, Kenya, [2]Somaliland National AIIDS Commission, Hargeisa, Somalia, [3]International Organization for Migration, Migration Health Division, Hargeisa, Somalia, [4]University of Zagreb, WHO Collaborating Centre for HIV Surveillance, School of Medicine, Zagreb, Croatia, [5]Independent Research Consultant, Nairobi, Kenya

Background: Research in Somaliland indicates a concentrated HIV epidemic, including two previous rounds of HIV surveillance in Hargeisa, Somaliland in 2008 and 2014, showing an HIV prevalence amongst female sex workers (FSW) of 5.2% and 4.8%. A third round of surveillance was conducted in 2017.
Methods: A cross-sectional integrated biological and behavioural surveillance survey among FSW was undertaken between April and June 2017. A total of 238 FSW participated in the study. A face-to-face, structured interview using electronic data collection was completed and blood samples collected for serological testing. All three surveillance surveys used respondent driven sampling and data was analysed using RDS Analyst for comparing results.
Results: The 2017 IBBS survey showed a steady decline in HIV prevalence in Somaliland from 5.1% in 2008 to 4.8% in 2014, and 3.6% in 2017. On the contrary, prevalence for active syphilis decreased from 3.4% in 2008 to 2.4% in 2014, and rose again to 3.3% in 2017. Condom use with last client has steadily improved across the three surveys - 25.6% in 2008, 31.5% in 2014, and 37.9% in 2017. Similarly, the proportion of vulnerable women who know their HIV status from an HIV test 12 months prior to this survey shows an upward trend - 2.4%, 21.3% and 36.6%, in 2008, 2014 and 2017, respectively.
Similarly, improvement on knowledge has improved significantly, with 48.9% of FSW in 2017 correctly identifying ways of preventing sexual transmission of HIV and rejecting major misconceptions, in comparison with 10.4% in 2014 and 6.4% in 2008.
However, key indicators around stigma and discrimination remain sub-optimal, 30.7% of FSW avoid accessing services because of stigma and prevention programmes are only reaching 23.1% of the population, two indicators which were added to the survey in 2017.
Conclusions: HIV prevalence among FSW remains five times higher than in the general population, emphasizing the need for targeted prevention, care and treatment services. While improvements have been shown in condom usage, HIV testing and knowledge around HIV, high stigma and discrimination of FSWs persist, affecting access to services and ultimately impacting effectiveness of prevention and treatment programmes.

THPEC185

The impact of childhood sexual abuse on the HIV epidemic among men who have sex with men on a Western State in the U.S.

E.R. Orellana[1], S. Schafer[2], A. Bhattarai[1], B. McArdle[1], L. Fisher[1], J. Ramirez[1]
[1]Portland State University, Portland, United States, [2]Oregon Health Authority, Portland, United States

Background: Men who have sex with men (MSM) continue to carry the burden of HIV in many parts of the world. Histories of trauma, including childhood sexual abuse (CSA) have been associated with high HIV risks among different populations. This study examined the association between CSA, HIV serostatus, and risky behaviors among a sample of MSM.
Methods: Data were obtained from the Portland, Oregon arm of the 2017 National HIV Behavioral Surveillance system, a cross-sectional survey conducted in 22 cities in the United States. Interviews and HIV tests were completed by 424 MSM. We used correlational and logistic regression analysis to test associations between experiences of CSA and HIV serostatus, and other high-risk behaviors.

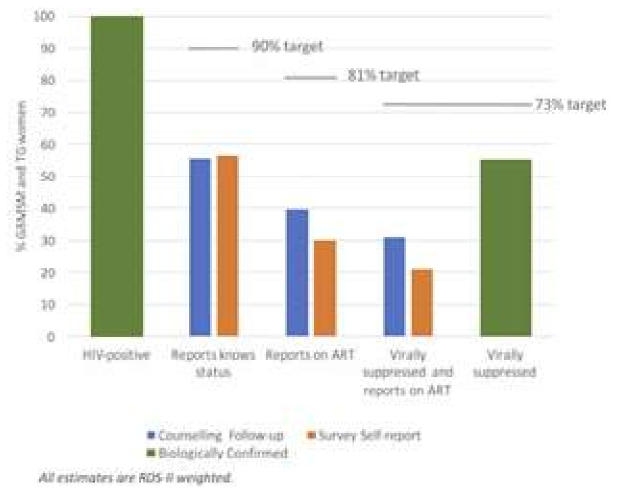
Results: An estimated 33% percent of the sample reported experiences of CSA, and 16.5% tested, or had previously tested, positive for HIV. Thirty-four percent of men identified as African American, Latino or other non-white ethnicity, while the rest identified as white (66%). All participants were adults, with 65% between the ages of 18 to 39 (65%). MSM with a history of CSA were significantly more likely to report unprotected casual sex in past 12 months (Odds Ratio [OR]: 1.7 CI: 1.1-2.6); mental health problems (OR: 1.7; CI: 1.0-2.8); and HIV positive serostatus (OR: 2.0; CI: 1.1-3.5).
Conclusions: For decades, childhood sexual abuse has been at epidemic levels among different populations throughout the globe. CSA among MSM in this part of the United States was alarmingly high, and appeared to increase the vulnerability of men to high risk behaviors such as condomless casual sex, and increased prevalence of mental health problems. This study highlights the continued need for combination prevention strategies that take into account the consequences of childhood trauma, especially CSA, among men at higher risk for HIV and sexually transmitted infections.

THPEC186

A population-based assessment of the HIV care cascade among gay, bisexual and other men who have sex with men and transgender women (MSM/TG) in Johannesburg

E. Fearon[1], S. Tenza[2], K. Moodley[2], C. Mokeona[2], A.D. Smith[3], A. Bourne[4], P. Weatherburn[1], T. Palanee-Phillips[2], TRANSFORM Study Group
[1]London School of Hygiene and Tropical Medicine, Department of Public Health, Environments and Society, London, United Kingdom, [2]Wits Reproductive Health Institute, Johannesburg, South Africa, [3]University of Oxford, Nuffield Department of Population Health, Oxford, United Kingdom, [4]La Trobe University, Australian Research Centre in Sex, Health & Society, Melbourne, Australia

Background: To track HIV care, treatment adherence and onwards transmission, UNAIDS has set the 90:90:90 targets. Despite the high HIV burden experienced by MSM/TG, population-based assessments of progress towards these targets among MSM/TG in sub-Saharan Africa are lacking. This study estimated the HIV care cascade among a representative sample of MSM/TG in Johannesburg, and investigates factors associated with viral suppression.
Methods: In 2017, we recruited 301 MSM/TG via respondent-driven sampling in Johannesburg (birth/current male gender, sex with a man in previous 12 months). Participants gave a blood sample for HIV rapid-testing, ELISA-confirmed if positive (Alere Combo and Advanced Quality HIV tests, back-up Alere Determine), and viral load-testing if HIV-positive (GeneXpert). Participants completed a self-administered survey detailing socio-demographics, sexual behaviour, HIV testing history and engagement in care. We compared survey responses to the HIV counsellor report for those who tested HIV-positive and were virally suppressed (< 40 copies/ml) but did not report being on ART, as this would be improbable in large numbers. To inform gaps in care and potential patterns of onwards transmission, multivariate logistic regression sought to identify factors associated with viral suppression among participants who tested HIV-positive. Proportions and analyses were RDS-II weighted.
Results: There were 118/300 MSM/TG who tested HIV-positive (37.5%, 95% CI 28.2-46.9%), of whom 55 were virally suppressed (55.5%, 95% CI 39.6-70.4%), Figure 1. One participant refused testing. There were 29 of these 55 virally suppressed HIV-positive participants who reported no current ART usage. The 90:90:90 using survey data was estimated to be 57% (n=76/118):53% (n=39/76):70% (n=27/39), and using HIV testing counsellor-reported data, 56% (n=78/118):72% (n=55/78):78% (n=43/55). Viral suppression among HIV-positive GBMSM varied by neighbourhood (p=0.023), but lacked substantial evidence for a difference by age, education, employment, birth place or sexual or gender identity, nor sexual behaviours after adjustment by neighbourhood.
Conclusions: The proportion of HIV-positive MSM/TG who are virally suppressed falls well short of the UNAIDS targets. As in other surveys, we have found discrepancies between self-reported cascade indicators and biologically-measured viral load that could indicate misunderstanding or social desirability biases. The study does indicate gaps in testing and/or ART adherence, and a high potential for ongoing transmission.



[Figure 1: The HIV Care Cascade among gay bisexual and other MSM and trandgender women in Johannesburg, n=118 HIV-positive individuals]

THPEC187

HIV prevalence and sexual behavior among transgender in Paraguay, 2017

G. Aguilar[1,2], W. McFarland[3], A. Kawabata[1], T. Samudio[4], G. Lopez[4], I. Prado[5]
[1]National HIV Program, Strategic Information and Surveillance, Asuncion, Paraguay, [2]National University of Caaguazu, Research Directorate General, Caaguazu, Paraguay, [3]University of California San Francisco, San Francisco, United States, [4]National HIV Program, Asuncion, Paraguay, [5]University of California San Francisco, Center for AIDS Prevention Studies, San Francisco, United States

Background: Trans women may be the population most vulnerable to HIV in the world, with prevalence in Latin America ranging from 18-38%. In Paraguay too, HIV prevalence (26%) was higher among trans women than among men who have sex with men (MSM) and female sex workers (FSW) when first measured in 2014. A high level of vigilance is warranted for trans women to track HIV and behavioral causes of infection for this marginalized and disproportionately affected population who have been left out of previous surveillance data. We therefore conducted a bio-behavioral survey among trans women in Paraguay in 2017, incorporating novel methods in the design to increase inclusion.
Methods: We conducted a cross-sectional survey with transgender women in Paraguay in 2017. To maximize efficiency in reaching diverse trans women, we used a hybrid method ("Starfish Sampling") that combines venue recruitment, a random sample of clients, and short-chain peer referral. The study began with mapping places of sex work and where trans women congregate. A random selection of trans women clients was also conducted. Further, trans women referred peers to the study. Participants complete a questionnaire on demographic characteristics and behavior, and blood samples were drawn for HIV antibody testing. Participants provided written informed consent.
Results: A total of 304 trans women were enrolled. Participants were young, with 55.9% in their 20s. The majority had secondary education or less (74.5%). HIV prevalence was 25.6% (95% confidence interval 19.3-31.9%). Trans women reported a mean of 22.5 casual partners in the last 6 months, with whom condom use was 73.0%.The proportion of trans women who had sex for the first time under age 14 years was 58.6%. The majority of trans women (82.6%) reported selling sex.
Conclusions: Our bio-behavioral survey found the prevalence of HIV consistently high among trans women in Paraguay, confirming this population remains the most severely affected. The young age of the population, the young age of sexual debut, the high partner number, and inconsistent condom use point to high potential for continuing transmission. New strategies are necessary to improve education on reducing acquisition risk among transgender women.

THPEC188

Recent infection and repeat testing among MSM newly diagnosed with HIV at STI clinics

F. van Aar[1], B. van Benthem[1], H. Götz[2], T. Heijman[3], C. Kampman[4], T. van de Laar[5], E. Op de Coul[1], RITA Surveillance Network of STI Clinics
[1]National Institute for Public Health and the Environment (RIVM), Centre for Infectious Disease Control, Bilthoven, Netherlands, [2]Municipal Public Health Service, Department of Infectious Disease Control, Rotterdam, Netherlands, [3]Public Health Service (GGD) Amsterdam, Department of Infectious Diseases, Amsterdam, Netherlands, [4]Public Health Service Twente, Enschede, Netherlands, [5]Sanquin Blood Supply, Virus Diagnostic Services, Amsterdam, Netherlands

Background: To detect HIV infections early, Dutch STI clinics advise men who have sex with men (MSM) to test 3- or 6- monthly, dependent on risk behaviour. Previous studies showed that repeat testing increased, but consistent 6-monthly testing among MSM was low. Recent HIV infection (RHI) surveillance facilitates the understanding of transmission patterns. We explored proportions of recent HIV infections (RHI) and repeat testing among MSM newly diagnosed with HIV at STI clinics between January 2016 and September 2017.
Methods: Samples from MSM newly diagnosed with HIV at participating STI clinics (n=12/24) were tested with an avidity assay. Cut-off values for Avidity Index (AI) were AI≤0.75 for RHI (≤6 months), AI between 0.76-0.84 for dubious result, and AI≥0.85 for established infection (>6 months). The results were merged with STI clinic surveillance data. Repeat testing was based on a self-reported date of last negative HIV test or on information from previous consultations as identified by a unique client number. Dubious and negative results were reclassified to RHI if within the six months prior to diagnosis an HIV-negative test result was available.
Results: In total, 270 samples were tested for RHI. Of these, 121/270 (44.8%) were categorized as having RHI; 53 based on an AI ≤0.75 plus a recent negative HIV-test, 40 based on an AI≤0.75 only and 28 based on a recent negative test result despite an AI>0.75. Among those who had RHI, 2.5% tested for the first time, 66.1% tested negative 6 months previously, 21.5% tested negative more than 6 months previously (median 10.5 months (IQR): (8-20) and 9.9% tested negative previously but the date was unknown. Among those not recently infected, 25.5% tested for the first time, 43.6% tested negative previously (median time since last negative test: 20 months; IQR: 12-27) and 30.9% tested previously but the test date was unknown.
Conclusions: The proportion of RHI was high among MSM diagnosed with HIV at STI clinics and the majority had tested HIV-negative within the 6 months prior to diagnosis. Repeat testing among MSM at high risk for HIV should be further encouraged to increase early diagnosis of HIV.

THPEC189

Complacency is the new problem: Comparative analysis of recent outbreaks of HIV among persons who inject drugs in Europe and North America

D. Des Jarlais[1], V. Sypsa[2], L. Wiessing[3], A.-O. Abagiu[4], V. Arendt[5], D. Broz[6], C. Devaux[7], J.M. Duwve[8], C. Ferbineaunu[9], M. Fitzgerald[10], D.J. Goldberg[11], A. Hatzakis[2], D. Igoe[10], A. McAuley[11]
[1]Icahn School of Medicine at Mount Sinai, Psychiatry & Preventive Medicine, New York, United States, [2]University of Athens, Athens, Greece, [3]European Monitoring Center for Drugs and Drug Abuse, Lisboa, Portugal, [4]National Institute for Infectious Diseases, Bucharest, Romania, [5]CHL, Luxembourg, Luxembourg, [6]Centers for Disease Control and Prevention, Atlanta, United States, [7]Luxembourg Institute of Health, Luxembourg, Luxembourg, [8]University of Indiana, Bloomington, United States, [9]Romanian Association Against AIDS, Bucharest, Romania, [10]Health Services Executive, Limerick, Ireland, [11]NHS National Services Scotland, Glasgow, United Kingdom

Background: Despite the effectiveness of "combined prevention," outbreaks of rapid HIV transmission have recently occurred in Europe and North America. Understanding how/why these outbreaks occurred should contribute to avoiding future outbreaks.
Methods: A research group among persons interested in outbreaks was formed by the EMCDDA to conduct a systematic review/comparison of the outbreaks. Publications and conference presentations on the outbreaks were compiled and a standardized template was constructed for structured comparisons. A mixed quantitative/qualitative synthesis was developed through successive rounds of data analyses and interpretation among members of the group.
Results: Outbreaks occurred among PWID in Athens, Greece; Bucharest, Romania, Dublin, Ireland; Glasgow, Scotland; Luxembourg; and Scott County, Indiana, United States. There was substantial variation in the size of the outbreaks from under 100 (Dublin, Luxembourg) to over 1100 (Athens, Bucharest) new HIV infections. Outbreaks occurred in areas that had not implemented large-scale combined prevention programming (Athens, Indiana) or where funding was interrupted (Bucharest) but also in areas where combined prevention had been implemented but changes in patterns of drug use (increased use of cocaine or novel psychoactive substances (NPS)) may have led to high rates of injection risk behavior (Bucharest, Dublin, Glasgow, Luxembourg). HCV infection increased rapidly and/or was at very high prevalence prior to several outbreaks (Athens, Bucharest, Glasgow, Indiana, Luxembourg). Community economic problems preceded the outbreaks in Athens, Dublin and Indiana and homeless/economically disadvantaged PWID were particularly vulnerable in all outbreaks. Public health responses included introduction (Indiana) or expansion of standard prevention interventions (syringe service programs, medication-assisted treatment and antiretroviral treatment) but coverage of interventions varied. HIV transmission among PWID has continued in all outbreak locations. Despite substantial decreases in some settings (Athens, Indiana, Dublin), the number of reported cases has not yet been reduced to pre-outbreak levels in any sites.
Conclusions: Complacency for HIV prevention is emerging as an important threat to the success of combined HIV prevention for PWID. Successful HIV prevention for PWID needs to be conceptualized as implementing and maintaining high coverage prevention programs and adapting to changes in patterns of drug use. Particular attention should be paid to NPS, communities undergoing economic difficulties, and homeless PWID.

THPEC190

Size estimation of FSW population in Ulaanbaatar, Mongolia via mapping and quantitative survey: Lessons and program recommendations

B. Aumakhan[1], J. Schue[2], A. Delegchoimbol[3], S. Munkhbaatar[1], S. Baral[2]
[1]Global Fund Supported HIV Program, Ministry of Health, Ulaanbaatar, Mongolia, [2]Johns Hopkins University, Baltimore, United States, [3]UNAIDS Mongolia, Ulaanbaatar, Mongolia

Background: An accurate estimation of the size of FSW in Mongolia is challenging due to hidden nature, generalized stigma and outreach limitations by community-based organizations (CBO) and targeted programs. Previous size estimation attempts used rapid assessment and survey built-in multiplier methods and produced varying estimates noted for methodological limitations.
Description: A modified Priorities Locations for AIDS Control Efforts (PLACE) method was used to characterize venues where FSW meet sexual partners, recruit FSW into a quantitative survey, and conduct size estimation of FSW population in Ulaanbaatar, Mongolia between August 2015 and May 2016. The survey conducted verification of 134 venues and recruited 293 FSW. The size estimation methods employed were the wisdom of the masses, multipliers, and capture-recapture. The multipliers were derived using a broad range of data sources, including
1) research or survey-based data,
2) FSW-targeted programs and
3) police records on FSW detentions.
After validation, the mean of point size estimates was calculated to arrive at the final estimate. The range was constructed using the lowest and highest point size estimate values.
The final FSW population size estimate was 1,293 (range: 549-2,860) which corresponds to proportions in the female population age 15-49 in Ulaanbaatar of 0.33% (range: 0.14%-0.74%). These proportions fall within the range of the similar estimates in countries of Asia-Pacific region. Mapping showed that venues frequented by FSW are widely distributed across the city. Street-based FSW comprised approximately 60% of surveyed participants.

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Lessons learned: Data from community-based programs had unknown validity and accuracy issues. Recruitment of FSW was hindered by frequent police raids as well as difficulties in identifying and approaching FSW inside the hotels, bars and/or clubs. Recommendations have been put to improve program data quality, conduct periodic mapping and size estimation and improve the legal environment that is supportive of HIV prevention and sexual health needs of FSW.
Conclusions/Next steps: The use of multiple estimation methods and triangulation of different data sources ameliorated biases and produced final estimate consistent with the previous local and regional estimates. These estimates can be used in national HIV/STI prevention, treatment and care planning.

THPEC191

The first HIV and hepatitis C prevalence and behavioral survey among crsytal methamphetamine *(Sabu)* users in Indonesia

I. Praptoraharjo[1], L. Nevendorff[2], A. Widihastuti[2], M. Mediestya[2], M. Busz[3], N. Veldwijk[3], M. Handulle[3]
[1]*AIDS Research Center Atma Jaya University, DI Yogyakarta, Indonesia,* [2]*AIDS Research Center Atma Jaya University, Jakarta, Indonesia,* [3]*Mainline, Amsterdam, Netherlands*

Background: The National Narcotics Board (NNB) estimated that *crystalline methamphetamine or sabu* users in Indonesia has reached up to 760,795 individuals in 2015. Previous research show that methamphemtamine use is significantly associated with the higher risks of HIV transmission and HIV infection. This study aims to estimate the HIV and HCV serology and associated risk behaviors among *Sabu* users in order to provide an evidence for developing an HIV prevention program targeting sabu users.
Methods: The study was conducted in 2017 as a cross-sectional survey using the respondent-driven sampling (RDS) method in six cities (Makassar, Denpasar, Jakarta, Bandung, Batam and Medan). Through 3-4 seeds in each city, a total of 1498 crystal meth users consisting of 85% male and 15% female were recruited to participate in the study. Data analysis was conducted using RDSA to produce population estimate and STATA to assess the characteristics of social and sexual network of sabu users.
Results: HIV and HCV prevalences were 10.15% and 14.23% respectively. Based on ASSIST scale, 92.5% of the respondents reported to have drug problems at medium level and 7% at high level. One fifth of *Sabu* users have had experience in injecting drugs, but only 2% reported injecting *Sabu.* Only 60% *Sabu* users were unmarried, the majority of them (84%) were sexually active in the last one year. *Sabu* users reported to have heterosexual, homosexual and bisexual as their sexual behaviors. Condom use during the last sexual encounter was reported to be 34% and only 17% has reported consistency in the last 30 days. Three quarter of *Sabu* users do not have comprehensive knowledge on HIV. Only 2% of them accessed drug treatment last year.
Conclusions: This survey shows that sabu users are at the higher risk of being exposed to HIV and HCV through risky sexual behaviors. This population has been overlooked by HIV response in Indonesia. As the second largest number of drug user in Indonesia, Sabu users has to be included in the existing HIV prevention and treatment in order to achieve national target of the triple 90s.

THPEC192

Changes in HIV and syphilis prevalence among female sex workers (FSW) in Brazil from 2009 to 2016

C. Landmann Szwarcwald[1], P.R. Borges de Souza JJunior[1], G. Nogueira Damacena[1], O. Ferreira Junior[2]
[1]*Oswaldo Cruz Foundation, ICICT, Rio de Janeiro, Brazil,* [2]*Federal University of Rio de Janeiro, Institute of biology, Rio de Janeiro, Brazil*

Background: In the context of introducing PrEP in Brazil, the present study aims at establishing the main predictors of HIV prevalence increase from 2009 to 2016 among Female Sex Workers (FSW).
Methods: The baseline RDS study among FSW was carried out in 2009 and recruited 2523 women in 10 Brazilian cities. The second RDS survey was carried out in 2016 and recruited 4245 FSW in 12 Brazilian cities. Both surveys aimed at estimating prevalence of HIV and syphilis and establishing knowledge, attitudes, and risky practices related to HIV infection. In this study, we analyzed changes in HIV and syphilis prevalence based on the comparison of 95% confidence intervals for each estimate. We used Poisson regression models to estimate prevalence ratios (PR) and to establish the main factors associated to HIV prevalence increase between 2009 and 2016. The analyses took into account the dependence among observations resulting from the recruitment chains, and the unequal probabilities of selection, resulting from the different network sizes.
Results: HIV prevalence was 4.8% (95% CI 3.4-6.1%), in 2009, and 5.3% (4.4-6.2%), in 2016, with no significant difference. In contrast, syphilis prevalence was found to be more than three times higher in 2016 (8.4%; 95% CI 7.3-9.2%) than in 2009 (2.5%; 95% CI 1.7-3.4%). Among FSW diagnosed with syphilis, HIV prevalence significantly increased from 11.5 to 14.1% ($p< 1\%$). Although the 5% level was sustained for the total sample, significant PR ($p< 1\%$) were found for: FSW who work at street points (PR=1.33); are aged 35 years or over (PR=1.10); did not complete elementary school (PR=1.30); are low-paying FSW (PR=1.17); and use crack or cocaine more than once a month (PR=1.39). Older street FSW with low educational level and crack/cocaine users showed the highest HIV prevalence increase, from 7.6 to 18.6% (PR= 2.45, $p< 0.0001$).
Conclusions: The results emphasize the need of introducing PrEP among those FSW most-at-risk for HIV. However, given the low educational level of these women and the significant syphilis prevalence increase, many challenges have to be faced to monitor the consistent uptake of medications as well as the use of condoms and other combined prevention methods.

THPEC193

Long-term trends of HIV-1 and HIV-2 prevalence in pregnant women in Guinea-Bissau, West Africa

J. Lopatko Lindman[1], A. Biai[2], Z. da Silva[2], H. Norrgren[1], F. Mansson[3], SWEGUB CORE Group
[1]*Lund University, Clinical Sciences, Division of Infection Medicine, Lund, Sweden,* [2]*National Public Health Laboratory, Bissau, Guinea-Bissau,* [3]*Lund University, Infectious Diseases, Dept of Translational Medicine, Malmo, Sweden*

Background: Guinea-Bissau had the global highest prevalence of HIV-2 in the late eighties when HIV surveillance started. However, in virtually all reports from Guinea-Bissau and West Africa, there has been decreasing prevalence of HIV-2 and increasing HIV-1 prevalence until the year 2000. We have previously published surveillance data until 2006 with similar trends. While PMTCT services started earlier, the national HIV treatment programme including triple therapy ART started in 2005 with possible selection of more HIV positive women to give birth at government structures.
Methods: Anonymous HIV surveillance of pregnant women giving birth at the National Simão Mendes Hospital in the capital Bissau from 1987 up until 2016. The surveillance has been performed every or every second year with the exception of a time gap in 2011-2013.
Results: As part of the surveillance, a total of 27948 women were HIV tested between 1987 and 2016. HIV-2 prevalence decreased from 8.3% in 1987 to 0.9 % in 2016. HIV-1 prevalence increased from 0% in 1987 to 5.2% in 1999 but thereafter levelled off to around 5% in the subsequent years. An increase was seen to 6.5% in 2008, corresponding in time to the rollout of the treatment programme indicating possible selection of HIV positive women to the maternity ward at the national hospital. However, in the following years the increase did not continue and HIV-1 prevalence stayed stable around 6%, being 6.4% in 2016.
Conclusions: HIV-1 prevalence increased sharply from 0% until 5.2% in 1999 but has thereafter only increased slowly to level off around 6%, while HIV-2 prevalence now is below 1% in pregnant women in Guinea-Bissau. The initiation of the national HIV treatment programme in 2005 with gradual expansion of coverage as well as gradual implementation of universal HIV screening at maternal health care centres may have contributed to the stabilization of the HIV-1 epidemic and continuous decrease of HIV-2 prevalence in Guinea-Bissau.

Determining the incidence of HIV

THPEC194

Community-level HIV incidence in a hyper-endemic epidemic region in KwaZulu-Natal, South Africa

A. Kharsany[1], C. Cawood[2], D. Khanyile[2], L. Lewis[1], A. Grobler[1], A. Puren[3], K. Govender[4], G. George[4], N. Samsunder[1], S. Madurai[5], Q. Abdool Karim[1]
[1]Centre for the AIDS Programme of Research in South Africa (CAPRISA), Durban, South Africa, [2]Epicentre AIDs Risk Management (Pty) Limited, Cape Town, South Africa, [3]Centre for HIV and STIs, National Institute for Communicable Diseases, National Health Laboratory Service, Johannesburg, South Africa, [4]Health Economics and HIV and AIDS Research Division (HEARD), University of KwaZulu-Natal., Durban, South Africa, [5]Global Clinical and Virology Laboratory, Amanzimtoti, South Africa

Background: In hyper-endemic epidemic settings, as prevention strategies are scaled-up to achieve epidemic control, timely reliable measurements of new HIV infections are critical elements of surveillance. However, measurement of new HIV infections is complex and challenging. We report on the measurement of HIV incidence from The HIV Incidence Provincial Surveillance System (HIPSS) in KwaZulu-Natal (KZN), South Africa.

Methods: We undertook a community representative, cross-sectional household survey enrolling men and women 15 to 49 years of age from rural to peri-urban areas of uMgungundlovu district in KZN. We measured HIV prevalence and HIV negative individuals between the ages of 15 and 35 years were followed-up approximately 12 months later to measure new HIV infections. HIV prevalence and incidence rates were adjusted allowing for multilevel sampling and to represent the population.

Results: Of the 9812 (15-49 years) individuals enrolled from June 2014 to June 2015, 3548 (15-35 years) were re-tested from June 2015 to February 2017. HIV prevalence was 36.3% [95% Confidence interval (CI) 34.8-37.8); 44·1% (95%CI 42.3-45.9) in women and 28·0% (95% CI 25.9-30.1) in men. Overall 163 seroconversions occurred, an HIV incidence rate of 2.31 [1.89-2.87) per 100 person-years of observation (pyo). HIV incidence was 3.44 (95%CI 2.76-4.36) per 100 pyo in women and 1.44 (95% CI 0.96-2.25) per 100 pyo in men. The highest HIV incidence was 4.34 (95% CI 3.37-5.69) per 100 pyo in women in the age group 15-24 years, whilst in men in the same age group it was 0.93 (95% CI 0.45-1.60) per 100 pyo. However, in men 25-35 years HIV incidence was 2.29 (95% CI 1.26-4.61) per 100 pyo whilst in women in the same age group it was 1.65 (95 % CI 0.67-2.92) per 100 pyo.

Conclusions: Our findings show the excessively high HIV incidence rates in men and women 15-35 years in this hyper-endemic epidemic setting of KwaZulu-Natal. The disproportionate rate of HIV acquisition in young women 15-24 years underscores the importance of strengthening and intensifying coverage of HIV prevention strategies to reduce transmission potential.

THPEC195

Estimating national HIV incidence, prevalence and the proportion diagnosed in Canada in 2016

C. Archibald, N. Khalil, Q. Yang, P. Yan
Public Health Agency of Canada, Ottawa, Canada

Background: Estimating HIV incidence, prevalence and proportion diagnosed at the national level is critical for tracking the leading edge of the epidemic, planning and evaluating HIV prevention and care programs, and improving the first of the UNAIDS 90-90-90 targets to reduce the onward transmission of the virus. We updated national estimates of HIV incidence, prevalence and the proportion diagnosed for Canada for 2016.

Methods: Estimated annual incidence was back-calculated from the time series of national HIV diagnostic data, based on assumptions about HIV testing and case reporting patterns and calibrated using detuned assay data which reflect recent infections. Deaths among HIV-infected persons were estimated using vital statistics data for HIV-related deaths and data from cohort studies for all-cause mortality among persons living with HIV. Prevalence was estimated by subtracting cumulative deaths from cumulative incidence. The number of living diagnosed cases was calculated as the cumulative number of diagnosed cases minus estimated mortality, and the proportion diagnosed as the number of living diagnosed individuals divided by the estimate of prevalence.

Results: An estimated 2,570 new HIV infections occurred in Canada in 2014, for an incidence rate of 7.2 per 100,000 population. Fifty-four percent of new infections were among men who have sex with men, 33% were attributed to the heterosexual exposure category, and 11% to injection drug use. Indigenous people and people from sub-Saharan Africa or Caribbean countries were over-represented. An estimated 11% of new infections were among Indigenous persons, who comprised 4.3% of the Canadian population. An estimated 14% of new infections were among persons in the heterosexual exposure category born in sub-Saharan Africa or the Caribbean, whereas people born in these countries represented 2.5% of the overall population. An estimated 65,040 persons were living with HIV in Canada, of whom an estimated 80% were diagnosed. Updated estimates for Canada for 2016 are being finalized and will be presented.

Conclusions: Estimated HIV incidence in Canada has declined since 2005, but may have levelled off in the past 5 years. Despite the great progress Canada has made in addressing HIV, there is still work to be done to reach the first 90-90-90 target by 2020.

THPEC196

Diverging trends in incidence of HIV-1 versus other sexually transmitted infections in HIV-negative men who have sex with men (MSM) in Amsterdam

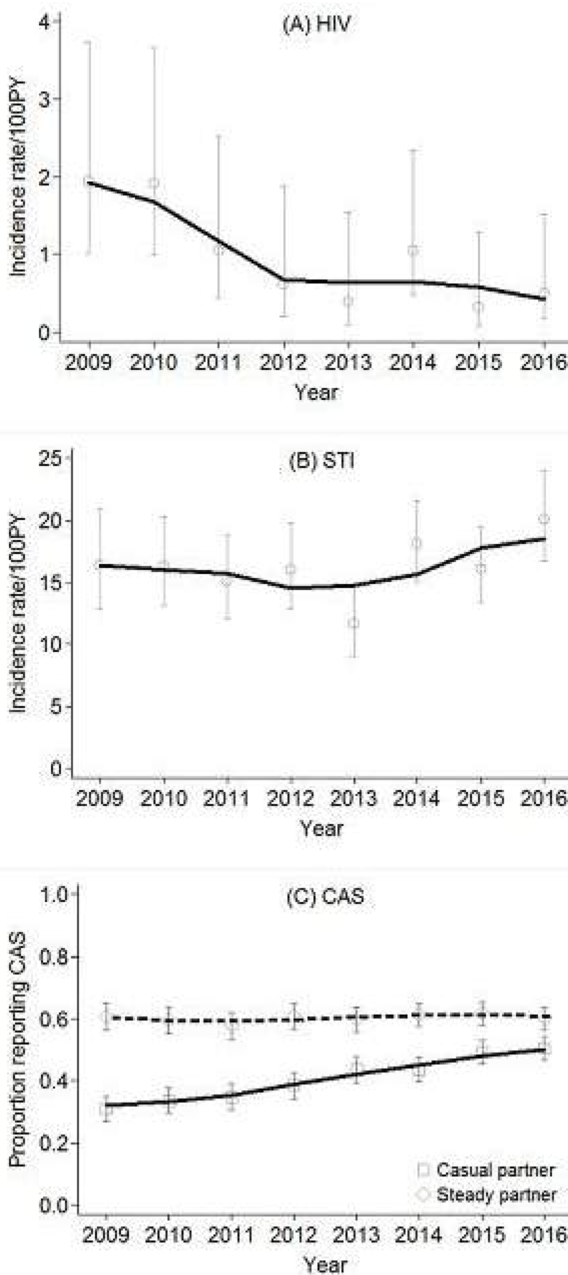
W.P.H. van Bilsen[1], A. Boyd[1,2], M.F. Schim van der Loeff[1,3], U. Davidovich[1], A. Hogewoning[1], L. van der Hoek[4], M. Prins[1,3], A. Matser[1]
[1]Public Health Service, Infectious Diseases Research, Amsterdam, Netherlands, [2]Sabonne Université, Institut Pierre Louis d'Epidémiologie et de Santé Publique, Inserm, Paris, France, [3]Academic Medical Center, Department of Internal Medicine, Amsterdam Infection & Immunity Institute (AIII), Amsterdam, Netherlands, [4]Academic Medical Center, University of Amsterdam, Laboratory of Experimental Virology, Amsterdam, Netherlands

Background: The incidence of HIV-1 among men who have sex with men (MSM) in the Amsterdam Cohort Studies (ACS) slowly increased between 1996-2009. In the Netherlands, several new HIV prevention strategies were implemented thereafter. For this study, we investigated the incidence rates of HIV-1 and other sexually transmitted infections (STIs) among MSM in the ACS from 2009-2016. Moreover, we explored changes in condomless anal sex (CAS) over time.

Methods: We included all HIV-negative MSM participating in the ACS between 2009-2016. Participants completed a self-administered questionnaire on sexual behavior and were tested for HIV-1, syphilis, urethral and rectal chlamydia and gonorrhea, and pharyngeal gonorrhea every 3-6 months. Time trends in incidence rate were assessed using an exponential survival model with gamma-distributed shared frailty. Trends in CAS were evaluated using a non-parametric test for trend.

Results: Of 789 HIV-negative MSM, with a median age of 34 (IQR 28-41) years in 2009, 40 HIV seroconverted during follow-up. HIV-1 incidence rate was 1.9/100 person-years (PY) (95%-confidence interval(CI) 1.0-3.7) in 2009 and decreased non-significantly over time to 0.5/100 PY (95%-CI 0.2-1.5) in 2016 (p=0.4; *fig 1A*). Among 722 MSM with other STI testing during follow-up, 807 STI diagnoses were made, of which 334 were rectal STIs. STI incidence rate was 13.5/100 PY (95%-CI 10.2-17.8) in 2009 and significantly increased over time to 19.6/100 PY (95%-CI 16.2-23.7) in 2016 (p< 0.001; *fig 1B*). The incidence rate for rectal STIs significantly increased over time from 7.4/100 PY (95%-CI 5.1-10.8) in 2009 to 12.6/100 PY (95%-CI 10.0-16.0) in 2016 (p=0.002). In total, 30.9% reported CAS with casual partner(s) in 2009, compared to 50.5% in 2016 (p< 0.001; *fig 1C*). CAS with steady partner(s) remained stable over time (p=0.5; *fig 1C*).

Conclusions: Among MSM in Amsterdam, incidence rates of HIV-1 versus other STIs show diverging trends. The increase in STI incidence coincides with a decrease in condom use with casual partners. However, the decreasing trend in HIV-1 incidence despite the decrease in condom use, might suggest that other HIV prevention methods have been successful in lowering the transmission of HIV-1 among MSM, such as treatment as prevention or more recently, pre-exposure prophylaxis (PrEP).



[Figure 1. A. HIV-1 incidence rate, B. STI incidence rate and, C. reported condomless anal sex (CAS) with casual or steady partners(s) among HIV-1 negative MSM participating in the Amsterdam Cohort Studies 2009-2016]

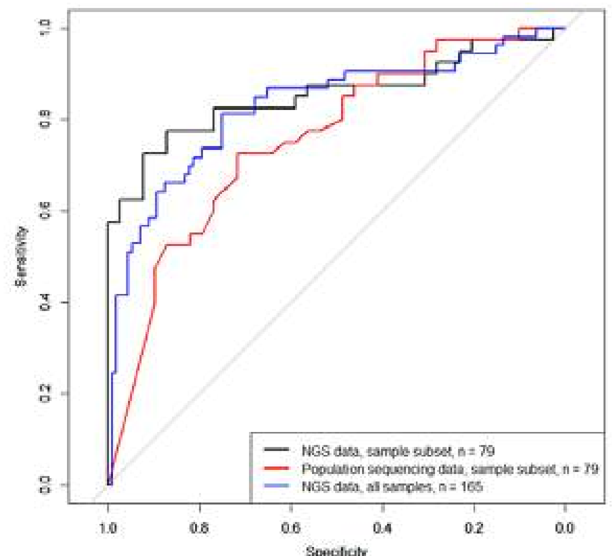
Novel methods/algorithms for detecting acute and recent HIV infections

THPEC197

Estimating HIV-1 infection recency: Viral diversity from next-generation sequencing is more informative than the fraction of ambiguous nucleotides from population sequencing

L.A. Carlisle[1,2], T. Turk[1,2], K. Kusejko[1,2], K. Metzner[1,2], C. Leemann[1,2], N. Bachmann[1,2], S. Posada[3], N. Beerenwinkel[3], J. Böni[2], S. Yerly[4], M. Perreau[5], T. Klimkait[6], D. Braun[1], H. Günthard[1,2], R. Kouyos[1,2]
[1]University Hospital Zurich, Division of Infectious Diseases and Hospital Epidemiology, Zürich, Switzerland, [2]University of Zurich, Institute of Medical Virology, Zurich, Switzerland, [3]ETH Zurich, Department of Biosystems Science and Engineering, Zurich, Switzerland, [4]Geneva University Hospital, Laboratory of Virology, Geneva, Switzerland, [5]Lausanne University Hospital, Faculty of Biology and Medicine, Lausanne, Switzerland, [6]University of Basel, Molecular Virology, Department Biomedicine, Basel, Switzerland

Background: Viral genetic diversity within an HIV-1 infection increases over time and can be used to classify an infection as recent or chronic. We assess whether the diversity calculated from next-generation sequencing (NGS) correlates more strongly with time since infection, and offers a more accurate classification than the fraction of ambiguous nucleotides obtained by population sequencing (AN-PS), a previous proxy.
Methods: We considered 165 HIV-1 individuals from the Zurich Primary HIV Infection Study and Swiss HIV Cohort Study, for whom true time since infection (±12 months) could be determined by other methods, and NGS-derived nucleotide frequency data were available for over 50% of the 3rd codon positions in *pol*. A previously calculated fraction of ambiguous nucleotides from AN-PS data was available for 79/165 individuals. We calculated average pairwise diversity over *pol* 3rd codon positions using the NGS data, with a 1% error cut-off. A linear regression was performed against time since infection, and sensitivity and receiver operating characteristic (ROC) analyses were used to measure the ability to predict if a sample came from recent (< 1 year) or chronic infection. These measures were compared to values obtained using AN-PS data.
Results: Using NGS data, average pairwise diversity calculated over *pol* 3rd codon positions can classify an infection as recent with a sensitivity of 81.1% and specificity of 75.0% (ROC area under curve = 82.8%, n=165). When directly comparing the 79 samples to the AN-PS method, the NGS method has a lower sensitivity (77.5% vs 87.5%), but a higher specificity (87.2% vs 46.2%) and a higher ROC area under curve (85.3% vs 75.7%). Diversity calculated from NGS data correlates with time since infection (R^2 = 0.258), and for the sub-sample of 79 does so more strongly than the fraction of ambiguous nucleotides (R^2 = 0.358 vs 0.333).



[ROC curves, classifying infection as recent versus chronic]

Conclusions: Viral genetic diversity calculated using NGS data is a better predictor of recency of infection, and correlates more strongly with time since infection than using the fraction of ambiguous nucleotides from AN-PS data. This approach is therefore a promising method to estimate the time since an individual was infected with HIV-1.

THPEC198

Social network methods for HIV case-finding among people who inject drugs in Tajikistan

M. Kan[1], D. Garfinkel[2], O. Samoilova[1], R. Gray[2], K. Little[2]
[1]*Population Services International/Central Asian Branch, Almaty, Kazakhstan,* [2]*Population Services International, Washington, DC, United States*

Background: HIV testing programs have struggled to reach the most marginalized populations at risk for HIV. Social network methods such as respondent-driven sampling (RDS) and peer-based active case-finding (ACF) may be effective in overcoming barriers to reaching these populations. We compared the client characteristics, yield, and number of new cases found through two RDS strategies and an ACF approach to HIV case-finding among people who inject drugs (PWID) in Tajikistan.

Methods: Routine program data from adult PWID recruited to testing under the USAID Central Asia HIV Flagship Project in Tajikistan were analyzed to compare client demographic and clinical characteristics across the three approaches. We also compared the number of previously untested clients, the number of new HIV cases found, and the yield across the case-finding strategies, and evaluated predictors of new HIV diagnosis using fixed-effects logistic regression.

Results: Between October 24, 2016-June 30, 2017 Flagship tested 10,300 PWID for HIV, including 2,143 under RDS with unrestricted waves (RDS1, yield: 1.5%), 3,517 under restricted RDS (RDS2, yield: 2.6%), and 4,640 under ACF (started in January; yield: 1.5%). Clients recruited under ACF were significantly younger than those recruited through RDS (35.8 vs. 36.8, $p< 0.001$), more likely to be male (91.1% vs. 89.6%, $p=0.008$), and more likely to report being a first-time tester (85.1% vs. 68.3%, $p< 0.001$). After controlling for age, sex, previous testing history, and accounting for clustering at the site level, we found that clients tested under both RDS1 (aOR: 1.74, 95% CI: 1.04-2.90) and RDS2 (aOR: 1.54, 95% CI: 1.11-2.15) had significantly higher odds of testing newly positive for HIV relative to clients recruited through ACF. We did not find significant differences in the odds of new HIV infection between those recruited from RDS1 vs. RDS2 (aOR: 1.12, 95% CI: 0.67-1.86).

Conclusions: RDS-based interventions resulted in higher yields and overall case-finding, especially when recruitment was restricted. However, ACF identified a higher proportion of new testers and younger PWID, and recruited clients faster than RDS1. To find at least 90% of PWID living with HIV in Tajikistan, it may be necessary to implement multiple case-finding approaches concurrently to maximize testing coverage.

THPEC199

Interpreting diagnostic histories into HIV infection date estimates: An online tool

E. Grebe[1], S. Facente[2], R. Kassanjee[3], A. Powrie[4], J. Gerber[4], G. Priede[4], T. Chibawara[1], M. Busch[5,6], G. Murphy[7], C. Pilcher[6], A. Welte[1]
[1]*SACEMA, Stellenbosch University, Stellenbosch, South Africa,* [2]*Facente Consulting, San Francisco, United States,* [3]*University of Cape Town, Department of Statistical Sciences, Cape Town, South Africa,* [4]*Implicit Design, Cape Town, South Africa,* [5]*Blood Systems Research Institute, San Francisco, United States,* [6]*University of California, San Francisco, United States,* [7]*Public Health England, National Infection Service, London, United Kingdom*

Background: The ability to estimate the date of infection for people with HIV is useful for surveillance purposes, pathogenesis studies, and evaluation of novel diagnostics. For more than 15 years, the only widely referenced algorithm to estimate time-since-infection has been 'Fiebig staging,' which defines stages of early HIV infection through standard combinations of discordant results using diagnostic tests of different sensitivity; however, the tests used in these original calculations are no longer in use. We set out to develop a new, flexible infection dating algorithm to translate information from a subject's diagnostic testing history into an Estimated Date of Detectable Infection (EDDI), and to develop an open-source tool that would make this algorithm accessible to researchers.

Description: Every HIV assay has a 'diagnostic delay,' i.e. the number of days from infection during which the test will continue to produce a negative result. Estimating median diagnostic delays - accounting for inter-subject variability in assay performance - allows for calculation of an individual EDDI, using an algorithm to infer a time interval during which the date of detectable infection likely lies. Our team has curated estimates of diagnostic delays for approximately 70 assays currently or formerly in use, incorporating them into a new online tool that allows a user to employ these default estimates or specify their own preferred delays.

Lessons learned: This online tool synthesizes available assay data to allow for easy computation of individual EDDIs, provided that each individual has at least one negative and one positive HIV test result, and the dates of testing and assays used are known. To facilitate automated processing, the tool demands a simple dataset with four columns: Subject, Date, Test, and Result, with the result being 'positive' or 'negative' for each test. EDDIs, along with an 'earliest plausible' and 'latest plausible' date of infection are calculated for each subject. The tool is easily updated as new assays come into use worldwide.

Conclusions/Next steps: The whole code base for the tool (available at tools.incidence-estimation.org/idt) is available in a publicly-viewable repository on github. Anyone can deploy their own copy of the tool or make modifications.

THPEC200

Performance of a novel point-of-care HIV recency test among newly diagnosed pregnant adolescent girls and young women — Malawi, 2017

E. Agyemang[1], T. Dobbs[2], I. Zungu[3], A. Kim[2], A. Adhikari[2], E. Kim[3], H. Kwalira[4], H. Limula[5], A. Auld[3], J. Kandulu[6], R. Nyirenda[7], K. Curran[2], B. Parekh[8]
[1]*US Centers for Diseases Control and Prevention, Center for Global Health - Division of Global HIV and Tuberculosis, Scottdale, United States,* [2]*US Centers for Disease Control and Prevention, Center for Global Health - Division of Global HIV and Tuberculosis, Atlanta, United States,* [3]*US Centers for Disease Control and Prevention, Center for Global Health - Division of Global HIV and Tuberculosis, Lilongwe, Malawi,* [4]*Zomba Central Hospital, Zomba, Malawi,* [5]*Kamuzu Central Hospital, Lilongwe, Malawi,* [6]*Malawi Ministry of Health, Diagnostics, Lilongwe, Malawi,* [7]*Malawi Ministry of Health, HIV and AIDS, Lilongwe, Malawi,* [8]*US Centers for Disease Control and Prevention, Center of Global Health - Division of Global HIV and Tuberculosis, Atlanta, United States*

Background: Tests for recent infection (TRI) distinguish recent HIV infection from non-recent infection using markers of antibody maturation. The LAg-Avidity enzyme immunoassay (LAg) is widely used together with HIV viral load (VL) in a recent infection testing algorithm (RITA) to estimate HIV incidence to inform epidemic monitoring. A new point-of-care recency test (POC-RT), Asante, can determine HIV serostatus and HIV recency within minutes on a single lateral flow device through visual or quantitative assessment. We conducted a field validation of the Asante POC-RT in routine HIV testing services for pregnant adolescent girls and young women (AGYW) attending antenatal clinics (ANC) in Malawi to inform prevention strategies.

Methods: We enrolled pregnant AGYW aged < 25 years testing HIV-positive at their first ANC visit from 94% of ANCs in Lilongwe and Blantyre. Consenting participants provided blood for recency testing using the LAg and Asante assays. Specimens with LAg normalized optical density (ODn) values ≤2.0 tested LAg-recent, else they tested LAg-non-recent. Asante results were determined based on: (1) visual assessment: presence of the "Long-term (LT) line" indicated non-recent infection and absence of the line indicated recent infection or (2) quantitative assessment: specimens with LT line reader values ≤3.0 were Asante-recent, else they were Asante-non-recent. VL was measured for specimens testing recent; those with VL>1,000 copies/mL were RITA-recent. We evaluated the performance of the Asante by calculating percent agreement and correlation between Asante-RITA and LAg-RITA results and by comparing Asante-visual (V) with Asante-quantitative (Q) results.

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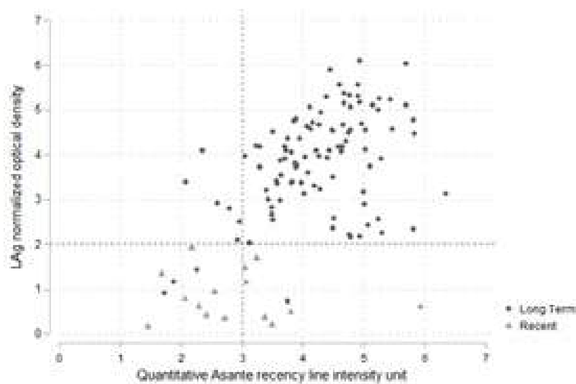
Results: Between 11/6/2017-1/20/2018, 108 specimens were available for Asante validation; all confirmed HIV-positive on Asante POC-RT. Percent agreement was >90% between Asante-RITA and LAg-RITA and 96.3% between the Asante-quantitative and Asante-visual results (Table). Using LAg-RITA as reference standard, sensitivity was 53.3% (Asante-Q-RITA) and 46.7% (Asante-V-RITA); specificity was 98.9% (Asante-Q-RITA) and 97.8% (Asante-V-RITA). LAg ODn and Asante-Q values had strong correlation (Spearman Rho=0.654, p< 0.001; Figure). Of 7 LAg-RITA-recent cases discrepant on Asante-Q-RITA, 5 (71.4%) fell within 0.5 units of the Asante-RITA cut-off.

Conclusions: This was the first field validation of a POC-RT in sub-Saharan Africa. While POC-RT performance is promising, more data are needed for validating the test in this population.

Test comparison	Percent agreement % (95% Confidence Intervals)	Kappa
Asante-V-RITA vs. LAg-RITA	90.7 (83.6-95.5)	0.535
Asante-Q-RITA vs. LAg RITA	92.6 (85.9-96.8)	0.628
Asante-Q-RITA vs. Asante-V-RITA	96.3 (90.9-99.0)	0.758

[Comparison of LAg and Asante Recent Infection Testing Algorithms (N=108)]



[HIV recency status by LAg normalized optical density values and quantitative Asante intensity units]

Monitoring acute HIV infections

THPEC201

Acute HIV infection among newly diagnosed patients in Santo André Aids Program, São Paulo, Brazil

E. Monteiro Matsuda[1], L. Portes Ozório Coelho[2], C. Mayumi Ahagon[2], G. de Faria Romero[2], G. Bastos Cabral[2], G. Ibete Silva Lòpez Lopes[2], I. Barros Campos[3], L.F. de Macedo Brigido[2], MIR - Monitoring Incident HIV Infection Working Group

[1]Programa de AIDS de Santo André, Ambulatório de Referência em Moléstias Infecciosas, Santo André, Brazil, [2]Instituto Adolfo Lutz, Centro de Virologia, São Paulo, Brazil, [3]Instituto Adolfo Lutz, Regional Santo André, Santo André, Brazil

Background: Identifying and incorporating acute HIV infection (AHI) into health system, with adequate viral suppression, may diminish secondary transmission as well as benefit patients, including by reducing HIV reservoirs, favoring future cure strategies. We evaluated newly diagnosed cases according to CDC2014 categories.

Methods: Patients newly diagnosed with HIV infections at our service (2012-2017) with blood collection for *pol* genotyping were included. Viral load (Abbott rtPCR), CD4 (BD, USA), antibodies avidity (CEPHIA protocol) and HIV partial *pol* sequences (nested RT-PCR followed by Big Dye, life, USA) were analyzed, with subtypes (REGA Subtyping tool), resistance mutations (CPR v.6.0 and GRI-HIVdb) and genetic ambiguity (Bioedit). Continuous variables are described as median and percentile 25th-75th (IQR).

Results: 204 new diagnoses were studied out of 1337 admissions at the study period. Patients' were mostly male young MSM. Table 1 shows demographic and laboratory characteristics according to CDC2014 classification. 194 started ART, 92% on treatment for 180+ days with viremia < 200copies/mL at last viral load measurement. Out of 25% cases at CDC2014_zero, 22% were Fiebig stage I-III. Most patients (63%) referred previous negative serological result, mostly by rapid diagnostic test (RDT). Recent infection surrogates as low avidity (< 40%) or ambiguity< 0.45 were observed in 30% and 58% of cases, respectively, with significant lower genomic ambiguity (p=0.002) and avidity index (p=0.0001) among cases at CDC_zero. A lower avidity and ambiguity also showed a significant association to previous HIV negative result (p=0.0003/ p=0.002). Heterosexual man was more likely than MSM to be at CDC_3 (35% versus 5.5%, p=0.0002) and less likely to refer previous HIV test (19% versus 70%, p< 0.0001).

Conclusions: Cases classified as recent infections (CDC2014_zero) tended to have laboratory surrogate markers of recent infection, which was also associated to previous negative HIV serological testing. The diagnosis of some cases might have been delayed by previous rapid testing during immunological window. Recommendation to prompt retesting and easier access to RNA tests and/or fourth generation when a serological window may be considered can improve AHI diagnosis, especially for the MSM population. Health policies aiming heterosexual man, as incentives to repeat testing, may improve earlier diagnosis.

	All (n=204)	CDC_ ZERO (n=50)	CDC_1 (n=76)	CDC_2 (n=55)	CDC_3 (n=23)	CDC_ 1+2+3 (n=154)	ZERO Versus 1+2+3
Median age (years) (n=204)	27 (23-34)	24 (21-29)	26 (22-32)	28 (23-36)	39 (28-47)	28 (23-36)	p=0.0061[2]
Male/MSM (n=204)*	178 /145	45 / 40	65 / 57	50 / 40	18 / 8	133 / 105	p=0.93[1]
CD4 cells/mm^3 (n=200)	CD4 530 (354-771)	570 (420-814)	768 (634-938)	372 (318-449)	64 (33-140)	498 (325-768)	p=0.07[2]
Avidity/<40%** (n=177)	74% (24%-100%) / 30%	22% (10%-58%) / 32%	58% (21%-100%) / 40%	96% (65%-100%) / 15%	100% (98%-100%) / 5%	92% (40%-100%) / 26%	p<0.0000[2] / p<0.00001[1]
Viral Load (log10) (n=203)	4.67 (4.06-5.19)	5.11 (4.36-5.7)	4.25 (3.55-4.79)	4.6 (4,25-5.07)	5.25 (4.81-5.49)	4.60 (3.95-5.10)	p=0.13[2]
Ambiguity/ <0.45*** (n=181)	0.20 (0.00-0.59) / 58%	0.09 (0.00-28) / 85%	0.09 (0.00-0.45) / 76%	0.45 (0.11-0.73) / 51%	0.64 (0.54-1.13) / 19%	0.36 (0.00-0.64) / 59%	p=0.0007[2] / p=0.0018[1]
Subtype pol B/C/F/ AG/ BC/BF (REGA) (n=181) %	76/11/ 6/2/2/4	77/11/ 2/2/2/6	74/12/ 8/2/2/3	79/6/6/ 2/2/4	71/14/ 5/5/0/5	76/10/ 7/2/2/4	
TDRM CPR/ GRIHIVdb**** (n=181)	5% / 15%	9% / 15%	6% / 10%	2% / 15%	10% / 29%	5% / 15%	p=0.19[1] / p=0.95[1]

*MSM: men who have sex with men; **Avidity index for Bio-Rad-Avidity assay serology test (CEPHIA protocol) / % of cases with Avidity index lower than 40% (surrogate for recent infection); ***Ambiguity index as the number of nucleotide mixtures (excluding unresolved four nucleotides) divided by the total number of nucleotides analyzed / % of cases with index below 0.45 (surrogate for recent infection) ; **** TDRM transmitted drug resistance mutation, % cases with mutation according to Stanford database calibrated population resistance (CPR v.6.0) / % cases with mutations according a Stanford HIV Database Genotyping Resistance Interpretation (GRIHIVdb); Continuous variables described as median and percentile 25th-75th (IQR). [1]Yates-corrected; [2]Mann-Whitney

[Patients characteristics at enrollment according to CDC2014 classification]

Novel studies to measure HIV incidence

THPEC202

New methods of HIV incidence estimation indicate a second wave of infections in Brazil

T. Mangal[1], A.R. Pascom[2], J. Vesga[1], M.V. Meireles[2], A.S. Benzaken[2], T. Hallett[1]
[1]*Imperial College London, Infectious Disease Epidemiology, London, United Kingdom,* [2]*Ministry of Health, Department of STI, HIV/AIDS and Viral Hepatitis, Brasilia, Brazil*

Background: Emerging evidence has suggested that HIV incidence rates in Brazil, particularly among young men, may be rising. Brazil has a wealth of surveillance data, with integrated health systems documenting reported HIV/AIDS cases since the 1980s. Here we describe a mathematical model designed to reproduce the complex surveillance systems, providing estimates of HIV incidence, prevalence and linkage to care over time.

Methods: An age-structured deterministic model with a flexible B-spline was used to describe the natural history of HIV along with detection and treatment rates. Individual-level surveillance data (new detected cases, ART dispensations, CD4 counts and HIV/AIDS-related deaths) were used to calibrate the model using Bayesian inference.

Results: The estimated epidemic curve showed a second wave of infections occurring after 2001. The number of new infections in 2016 was 52,413 (95% CI 37,469 - 76,946), 37,292 (27,834 - 54,270) infections in men and 15,121 (9,635 - 22,676) in women. The prevalence by end-2016 was 876,582 (95% CI 708,002 - 1,137,555), with 115,603 (84,309 - 159,916) individuals infected and undiagnosed.

By end-2016, 78.5% (60.5 - 97.2%) of people living with HIV in Brazil were aware of their status. Women were more likely to be diagnosed and reported than men; 86.8% of infected women had been reported compared with 75.7% of men and the average time from infection to detection was 1.9 years in women and 2.9 years in men. Of those who had been reported, 482,854 (70.2%) were accessing ART, indicating an overall treatment coverage level of 55.1%.

Conclusions: The finding of a second wave of infections contradicts previous estimates and official positions on the HIV incidence trends in Brazil. There are persistent differences in the rates of accessing care between men and women. Nevertheless, the HIV program in Brazil has achieved high rates of detection and treatment initiation, making considerable progress over the past ten years.

THPEC203

Newly increasing HIV incidence among adults aged 50 years or older in Ukraine

Y. Rozanova[1], O. Zeziulin[2], I. Zaviriukha[2], T. Sosidko[3], O. Gvozdetska[3], V. Kurpita[4], T. Kiriazova[2], K. Gulati[5], F.L. Altice[1], S.V. Shenoi[1]
[1]*Yale University, Internal Medicine, New Haven, United States,* [2]*Ukrainian Institute on Public Health Policy, Kiev, Ukraine,* [3]*All-Ukrainian Network for People Living with HIV, Kiev, Ukraine,* [4]*Ukrainian Center for Public Health, Kiev, Ukraine,* [5]*University of Connecticut, Neuroscience, Storrs, United States*

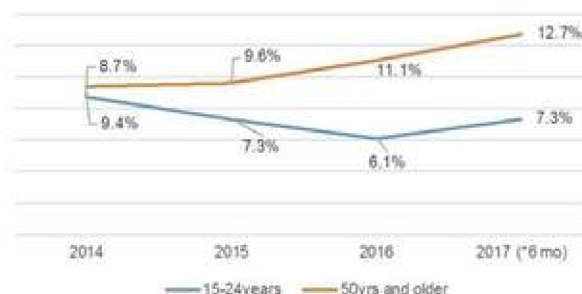
Background: Eastern Europe and Central Asia (EECA) is the only region globally where HIV incidence and mortality are still increasing. Ukraine has one of the most volatile HIV epidemics in the world (after Russia) with over 240,000 PLWH (~ 0.5%) and 17,066 new HIV diagnoses in 2016. While the 15-24 HIV risk group is a priority, there is a dearth of HIV prevention efforts for mature adults and HIV incidence in later life is understudied. We sought to explore and characterize the new trend in HIV epidemic in Ukraine.

Methods: We reviewed trends in aggregated national data from the All-Ukrainian Network for People Living with HIV 2014-2017 (1st 6 mo) and compared 1) ≥50yo 2) 25-49yo 3) 15-24yo. Bi-variate statistical analyses were performed using Chi-square test ($p < 0.05$). We defined CD4 ≤200 cells/ml as advanced HIV and mortality as annual number of deaths among people living with HIV (PLWH) diagnosed with HIV during that year.

Results: In 2014, those 15-24yo and ≥50yo constituted 9.4% and 8.7% of all new HIV diagnoses respectively. In 2015 however, new diagnoses among ≥50yo became more common, increasing 90% by 2017 (p=XXX), and overtook those 15-24yo (Figure 1).

Second, the majority (54.5%) of PLWH ≥50yo had advanced HIV at the time of diagnosis, and were significantly more likely to have advanced HIV at diagnosis than both 25-49yo (39.3%) and 15-24yo (17.2%) ($p< 0.001$). Third, in 2016-17, nearly 5% of PLWH ≥50yo died within the first year of HIV diagnosis; mortality was nearly double among those 15-49 yo ($p< 0.001$), and 17 times more likely than 15-24yo ($p< 0.001$).

Conclusions: This is the first report to identify a new epidemiological trend in the HIV epidemic in Ukraine. PLWH are increasingly comprised of an older population who are being diagnosed at late stage of HIV disease with high rates of mortality. While further exploration of this population is critical, HIV programs and public health efforts need to recognize this population by supporting routine screening of adults 50yo+ for HIV. These findings have potentially tremendous implications for public health policy and clinical HIV practice.



[Figure 1. HIV Incidence in Ukraine, 2014-2017]*

THPEC204

Incidence of HIV in sub-Saharan Africa: A systematic review with implications for surveillance and prevention planning

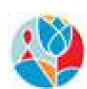
B. Samuel
Hôpital Général de Bukavu, Medical, Bukavu, Congo, Democratic Republic of the

Background: Population-based HIV incidence estimation and risk factor identification is increasingly being incorporated into routine HIV/AIDS surveillance activities. The US recently produced a national HIV incidence estimate of 0.022 per 100 person-years [PY] using the serologic testing algorithm for recent HIV seroconversion (STARHS) method via BED capture ELISA. We conducted a systematic review of estimates and risk factors for HIV incidence from sub-Saharan Africa, including the methods by which they were obtained.

Methods: We examined peer-reviewed articles, conference proceedings and technical reports published between 2010-2016. Incidence estimates were classified by country, year, population group, and estimation method (prospective study or STARHS).

Results: Our search yielded HIV incidence estimates for 15 of 44 sub-Saharan African countries, including 57 studies, for a total of 264 unique HIV incidence estimates. Of these, 239 (91%) were obtained via prospective studies (range: 0.6-16.5 infections/100PY), and 25 (9%) via the STARHS method (24 using BED) (range:1.8-17.0/100PY). Only 5 countries (Kenya, South Africa, Tanzania, Uganda, and Zimbabwe) reported national population-based estimates (range: 0.6-9.0/100 PY). STARHS use increased over time, comprising 20% of estimates since 2010. However, African studies that compared STARHS estimates with prospectively observed or modeled estimates often found concerning levels of disagreement. There was a high degree of correspondence between risk factors for HIV incidence versus prevalence in studies where both were measured.

Conclusions: Population-based HIV incidence estimates and associated risk factor information in sub-Saharan Africa remain scant but increasingly available, and are 1-2 orders of magnitude higher than the most recent national estimate in the US. However, data from some studies using the STARHS method in sub-Saharan Africa suggest a need for



further validation prior to widespread scale-up. In the meantime, prevalence and behavioral risk factor data remain an important mainstay for HIV prevention planning.

Measuring the epidemic through population-based surveys, including the undiagnosed fraction

THPEC205

90-90-90 targets in Malawian men using results from MPHIA

C. West[1], T. Kalua[2], M. Odo[3], N. Wadonda-Kabondo[4], M. Nzima[5], S. Kinchen[6], J. Cuervo-Rojas[7], H. Patel[6], R. Bray[7], G. Bello[2], D. Payne[4], A. Auld[4], MPHIA Study Team
[1]Centers for Disease Control and Prevention, Division of Global HIV and Tuberculosis, Lilongwe, Malawi, [2]Ministry of Health, Lilongwe, Malawi, [3]I-TECH, Lilongwe, Malawi, [4]Centers for Disease Control and Prevention, Lilongwe, Malawi, [5]UNAIDS, Lilongwe, Malawi, [6]Centers for Disease Control and Prevention, Atlanta, United States, [7]ICAP at Columbia University, New York, United States

Background: Men remain an important group for testing and treatment interventions in Malawi, as they represent a probable source of HIV transmission in the country. This analysis aimed at describing progress and associated factors in achieving UNAIDS 90-90-90 targets among adult men in Malawi.
Methods: The 2015-16 Malawi Population-Based HIV Impact Assessment (MPHIA) was a two-stage cluster survey of randomly selected households in Malawi. The survey included home-based HIV counseling and testing using the national rapid testing algorithm, followed by laboratory-based confirmation for positive results using Geenius™. HIV-1 viral load was measured using the Abbott m2000 System; viral load suppression (VLS) was defined as < 1,000 HIV RNA copies/mL. Antiretroviral therapy (ART) was determined by self-report or detection of antiretroviral drugs (ARVs; atazanavir, efavirenz, nevirapine, tenofovir) in blood. All analyses accounted for survey design.
Results: A total of 7,208 men aged 15-64 years were interviewed and tested; HIV prevalence was 8.5% (95% confidence intervals (CI): 7.8-9.2). Seventy-one percent (71.7%, 95%CI: 67.7-75.6) of men were aware of their HIV+ status. Among men who knew their HIV+ status, 88.7% (95%CI: 85.5-92.0) reported being on ART or had detectable ARVs in their blood. Of these, 89.8% (95%CI: 86.2-93.4) had achieved VLS. Among all HIV+ men, irrespective of awareness of HIV and ART status, 60.9% (95%CI: 56.8-65.0) had achieved VLS. Status towards 90-90-90 targets varied by age (Table 1). Younger HIV+ men aged 15-29 years were less likely to be aware of their status and be on treatment. Men in urban areas (65.7%, 95%CI: 59.3-72.1) compared to those in rural areas (73.8%, 95%CI: 69.0-78.6) were also less likely to be aware of their status (p< 0.05). Of men who were unaware of their status, 23.4% (95%CI: 16.3-30.6) reported two or more sexual partners in the last 12 months.
Conclusions: MPHIA results indicate that there is still progress to be made in reaching men for HIV testing and treatment in Malawi; 40% of all HIV+ men in Malawi are not virally suppressed, demonstrating gaps in achieving 90-90-90 targets. Strategies are needed to facilitate access to services for men, especially testing among younger men and those residing in urban areas.

	Aware of HIV-positive status		On ART among those aware of their HIV-positive status		Viral suppression among those on ART	
Age Group	%	(95% CI)	%	(95% CI)	%	(95% CI)
15-29 years	48.6	(37.3-60.0)	75.8	(61.0-91.6)	91.5	(81.2-100.0)
30-44 years	71.1	(65.7-76.4)	88.4	(83.9-92.8)	87.8	(82.7-92.9)
45-64 years	82.9	(77.0-88.8)	92.6	(87.8-97.5)	91.9	(86.7-97.1)
p-value	>0.0001		0.0259		0.4868	

[Table 1: 90-90-90 indicators by age among men aged 15-64 years who were tested HIV-positive in MPHIA, 2015-2016]

THPEC206

Late diagnosis of HIV among adults in Zimbabwe, Malawi and Zambia: Risk factors and burden from three population-based HIV impact assessments (PHIAs)

E. Radin[1], S. Birhanu[2], A. Low[1], S. Saito[1], K. Sachathep[1], S. Balachandra[3], J. Manjengwa[1], Y. Duong[1], S. Jonnalagadda[2], G. Bello[4], A. Hakim[2], N. Ahmed[1], J. Cuervo-Rojas[1], A. Auld[5], H. Patel[2], B. Parekh[2], A. Voetsch[2], D. Williams[2], D. Barradas[6], D. Payne[5], O. Mugurungi[7], L. Mulenga[8], J. Justman[1]
[1]ICAP at Columbia University, New York, United States, [2]U.S. Centers for Disease Control & Prevention, Atlanta, United States, [3]U.S Centers for Disease Control & Prevention, Harare, Zimbabwe, [4]Ministry of Health, Government of Malawi, Lilongwe, Malawi, [5]U.S. Centers for Disease Control & Prevention, Lilongwe, Malawi, [6]U.S. Centers for Disease Control & Prevention, Lusaka, Zambia, [7]Ministry of Health & Child Care, Government of Zimbabwe, Harare, Zimbabwe, [8]Ministry of Health, Government of Zambia, Lusaka, Zambia

Background: Late diagnosis (LD) of HIV increases the risk of morbidity, mortality, and disease transmission. However, the group(s) at greatest risk for LD are not clearly identified in Zimbabwe, Malawi and Zambia. We describe the distribution, burden and correlates of LD among people living with HIV (PLHIV) using the 2015-16 PHIA household surveys.
Methods: The Zimbabwe, Malawi and Zambia PHIAs respectively recruited 20,577 adults aged 15-64, 17,187 adults aged 15-64 and 19,115 adults aged 15-59 for interviews and HIV rapid testing using each country's national algorithm. All HIV+ adults underwent CD4 count testing. HIV+ participants who reported being HIV- or unaware of their status were defined as undiagnosed. Undiagnosed PLHIV with CD4 cell count< 350 cells/μl were defined as meeting LD criteria. Correlates of LD were assessed using multivariate logistic regression. All analyses were weighted to account for the complex survey design of the PHIAs.
Results: Across countries, 26% of PLHIV were undiagnosed. Among undiagnosed PLHIV, 48% met LD criteria: 54% of men and 43% of women. This corresponds to 371,000 undiagnosed adults, 189,000 men and 182,000 women, meeting LD criteria in the total population. Among undiagnosed PLHIV aged 15-24, 35%, or 58,000 people, met LD criteria, while 49% of undiagnosed PLHIV aged 25-40, or 196,000 people, and 55% of undiagnosed PLHIV aged 41-64, or 116,000 people, met LD criteria.
In multivariate analysis, being male (Adjusted Odds Ratio (aOR) 1.54), being aged 25-40 (aOR 1.62), being aged 41-64 (aOR 1.89) and being widowed (aOR 1.76) were associated with LD. Wealth, education, country, urban residence, never having an HIV test and high-risk sexual behaviors (having multiple partners in 12 months, buying or selling sex, and having non-marital, non-cohabiting partners) were not associated with LD.

Characteristic	Proportion with CD4 cell count <350 cells/μl	Number in Total Adult Population w/ CD4 cell count <350 cells/μl	aOR (95% CI) *= p≤.05, **=p≤0.01, ***p≤0.001
Zimbabwe	50.3% (46.6%-54.1%)	157,000 (137,000-177,000)	ref
Malawi	47.1% (41.2%-53.1%)	93,000 (77,000-109,000	0.88 (0.66-1.19)
Zambia	45.1% (41.1%-49.1%)	121,000 (105,000-138,000)	0.86 (0.68-1.07)
Female	42.6% (39.6%-45.7%)	182,000 (164,000-202,000)	ref
Male	54.0% (49.9%-58.0%)	189,000 (167,000-210,000)	1.54 (1.25-1.90) ***
Age 15-24y	34.7% (29.6%-40.3%)	58,000 (47,000-70,000)	ref
Age 25-40y	49.2% (45.7%-52.7%)	196,000 (175,000-218,000)	1.62 (1.22-2.16) ***
Age 41-64y	55.2% (50.6%-59.7%)	116,000 (102,000-131,000)	1.89 (1.38-2.59) ***
Widowed	61.1% (52.3%-69.2%)	35,000 (27,000-43,000)	1.76 (1.18-2.64) **

[Table: Proportion, Number and Correlates of CD4 cell count <350 cells/μl among Undiagnosed PLHIV in Zimbabwe, Malawi and Zambia (N=1934)]

Conclusions: Timely diagnosis remains a challenge, particularly among men and PLHIV over 40 in Zimbabwe, Malawi and Zambia. In addition to increasing risk for morbidity, mortality and transmission, LD may compound difficulties faced by older adults in immune system recovery after treatment initiation. To improve patient outcomes and control the epidemic, it is critical to reach the large numbers of undiagnosed PLHIV with low CD4 counts in this African sub-region.

THPEC207

Who are the missing men? Characterizing men who have never tested for HIV from population-based surveys in six sub-Saharan African countries

C. Quinn[1], D.T. Kadengye[2], C. Johnson[1], R. Baggaley[1], S. Dalal[1]
[1]*World Health Organization, HIV/AIDS, Geneva, Switzerland,* [2]*School of Statistics and Planning, Makerere University, Kampala, Uganda*

Background: Attaining the first of the 90-90-90 global targets requires focused approaches to reach people with undiagnosed HIV. In 2014, men took only 30% of all HIV tests. We sought to characterize men who had never tested for HIV, understand factors associated with not testing, and measure survey HIV test uptake.

Methods: We analyzed nationally-representative Demographic and Health Surveys (DHS) from six Sub-Saharan countries: Malawi, Zimbabwe, Lesotho, Rwanda, Zambia, and Ethiopia. We included adult men and their corresponding HIV laboratory results for the most recent survey year. Eligible women were household residents or overnight visitors aged 15-49 years. Eligible men were 15-59 years in Lesotho, Rwanda, Zambia and Ethiopia; 15-54 years in Malawi and Zimbabwe. We analyzed self-reported questionnaire responses on HIV testing, known behavioral risk factors, and corresponding HIV test results. Survey results were weighted using country-specific sampling weights provided by DHS.

Results: Between 2,931-14,773 men and 6,621-24,562 women participated in each survey. Approximately double the proportion of men had never tested for HIV compared to women (Malawi: 30% vs. 17%, p=< 0.0001; Zimbabwe: 35% vs. 19%, p=< 0.0001; Lesotho: 34% vs. 15%, p=< 0.0001; Zambia: 36% vs. 20%, p=< 0.0001); although, less of a differential existed in Rwanda (19% vs. 14%, p=< 0.0001) and Ethiopia (60% vs. 61%, p=0.14). When offered a test during the survey, high proportions of sexually-active men who had never previously tested, did accept testing (Malawi: 90%, Zimbabwe: 85%, Rwanda: 99%, Lesotho: 93%, Zambia: 91%, Ethiopia: 92%). HIV positivity ranged from 1-14% (table 1). Across countries, factors associated with never having tested for HIV among men after adjusting for age, were never being married (adjusted odds ratios for countries [aOR] ranging from 1.47-8.70), not having children (aOR 1.36-3.51), having health insurance (aOR 1.04-3.49) and lower levels of education (aOR 1.87-4.45).

Conclusions: Although higher proportions of men than women had never tested for HIV, between 85-99% of men did test when offered during a survey. Finding opportunities to offer HIV testing to single men with lower levels of education may increase testing among men, and link those who test positive to treatment.

	Malawi (2015-16) N=1,465	Zimbabwe (2015) N=1,728	Lesotho (2014) N=804	Rwanda (2014) N=486	Zambia (2014-13) N=3,697	Ethiopia (2011) N=5,307
Tested in survey	1318 (90%)	1464 (84%)	751 (92%)	483 (99%)	3373 (91%)	4904 (94%)
HIV status						
Positive	55 (4%)	132 (8%)	97 (14%)	10 (2%)	275 (8%)	44 (1%)
Negative	1205 (91%)	1332 (92%)	654 (86%)	473 (98%)	3098 (92%)	4854 (99%)
Inconclusive	58 (4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	6 (<.01%)

[Table 1: Survey testing results of sexually-active men who had never previously tested for HIV]

THPEC208

Reasons for not HIV testing among sexually active men and women who have never tested for HIV

D.T. Kadengye[1], C. Quinn[2], C. Johnson[2], R. Baggaley[2], S. Dalal[2]
[1]*School of Statistics and Planning, Makerere University, Kampala, Uganda,* [2]*World Health Organization, HIV/AIDS, Geneva, Switzerland*

Background: By 2016, 70% of people with HIV knew their status. To reach the UN 90-90-90 target for 90% of people with HIV to be diagnosed, HIV test uptake must increase. We aimed to quantify and compare reasons for not testing for HIV among sexually-active men and women who had never tested.

Methods: We analyzed Demographic and Health Surveys in Zambia and Lesotho. Respondents were household residents or overnight visitors aged 15-49 years for women and 15-59 years for men. We reported frequencies of sexually-active respondents who had never tested and answered „yes" to reasons why people do not test. Survey results were weighted using country-specific sampling weights.

Results: More men than women had never tested for HIV (Zambia: 68.7% vs. 31.3%, p< 0.0001; Lesotho: 64% vs. 36%, p< 0.0001). The most common reasons for not previously testing among men and women were fear of results (Zambia: 81.4% vs. 74.1%, p< 0.0001; Lesotho: 72.2% vs. 79.0%, p=0.051), fear of stigma (Zambia: 36.9% vs. 30.9%, p=0.003; Lesotho: 23.9% vs. 29.2%, p=0.113), and low perceived HIV risk (Zambia: 19.4% vs. 13.0%, p< 0.0001; Lesotho: 13.0% vs. 12.1%, p=0.692) (Table 1). After adjusting for age, for Zambia, statistically significant correlates for fear of results were being male (adjusted odds ratio [aOR] 1.29, 95% confidence interval [CI] 1.07 - 1.56), living in urban areas (aOR: 1.70, CI: 1.37 - 2.10) and having secondary education (aOR: 1.74, CI: 1.07 - 1.56) or higher (aOR: 1.29, CI: 1.07 - 1.56). Correlates for low perceived risk of HIV infection were being male (aOR: 1.54, CI: 1.24 - 1.92) and living in urban areas (aOR: 1.66, CI: 1.30 - 2.12). In Lesotho, having more than one lifetime sexual partner (aOR: 1.78, CI: 1.08 - 2.96) and primary (aOR: 2.43, CI: 1.46 - 4.02) or secondary education (aOR: 5.07, CI: 3.04 - 10.67) were significant correlates for fear of HIV-positive results.

Conclusions: Fear of positive results remains an overriding reason for not testing for HIV among both men and women. Outreach messages that aim to increase risk perception and emphasize treatment success may assist in reaching people who have never tested for HIV.

	Zambia (2013)				Lesotho (2014)			
Reasons for not HIV testing	Male (n=3,681)	Female (n=1,741)	Total (n=5,422)	p-value	Male (n=768)	Female (n=411)	Total (n=1,179)	p-value
Fear of results/ testing positive	2,954 (81.4%)	1,281 (74.1%)	4,235 (79.1%)	0.000	545 (72.2%)	320 (79.0%)	865 (74.7%)	0.051
Fear of stigma/ discrimination	1,353 (36.9%)	550 (30.9%)	1,903 (35.0%)	0.003	187 (23.9%)	120 (29.2%)	307 (25.8%)	0.113
Low perceived risk for HIV	719 (19.4%)	223 (13.0%)	942 (17.4%)	0.000	91 (13.0%)	51 (12.1%)	142 (12.7%)	0.692
Knowledge barriers	149 (4.0%)	83 (4.7%)	232 (4.2%)	0.338	102 (12.1%)	43 (9.4%)	145 (11.1%)	0.268
Other reason/ don´t know	257 (6.3%)	148 (8.8%)	405 (7.1%)	0.005	140 (17.6%)	64 (15.5%)	204 (16.9%)	0.456

[Table 1: Number of respondents by reasons for not HIV testing]

THPEC209

The continuum of HIV care and population viral load (PVL) among a representative sample of gay, bisexual and other men who have sex with men (MSM) in Nairobi, Kenya

A.D. Smith[1], R. Kabuti[2], M. Kung'u[2], E. Irungu[2], P. Muthoga[2], A. Mugambi[2], C. Nyamweya[2], P. Weatherburn[3], E. Fearon[3], A. Bourne[4], J. Kimani[2,5], TRANSFORM
[1]*University of Oxford, Nuffield Department of Population Health, Oxford, United Kingdom,* [2]*Partners for Health and Development, Nairobi, Kenya,* [3]*London School of Hygiene and Tropical Medicine, Department of Public Health, London, United Kingdom,* [4]*La Trobe University, Australian Research Centre in Sex, Health & Society, Melbourne, Australia,* [5]*University of Manitoba, Department of Medical Microbiology and Infectious Diseases, Winnipeg, Canada*

Background: The UNAIDS 90-90-90 is central to Kenya's National AIDS Control Strategy. MSM are a key population in Kenya yet criminalisation and discrimination present obstacles to care engagement. This study set out to assess for the first time the continuum of HIV care among a representative sample of MSM in Nairobi.

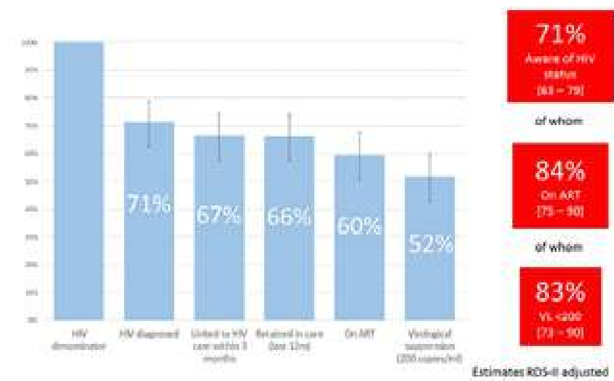
Methods: Respondent-driven sampling (RDS) was employed to recruit 618 MSM. Eligibility criteria were age 18+, male gender at birth or currently, Nairobi residence and consensual oral or anal intercourse with a male partner in the last 12 month. Consenting HIV-positive participants conducted a computer-assisted survey, which included HIV testing history, timing of diagnosis, care linkage within 3 months, retention in care

(12 months) and current ART use. HIV status was established using Determine® & First Response® HIV-1-2 and XPert® HIV-1 Qual. Viral load was quantified using Xpert® HIV-1 Viral Load (cut off 200 cells/mm³). All measures were adjusted for RDS sampling (RDS-II).

Results: 186/618 participants were HIV positive (28.7%[21.4-37.3]). In total 139 (71.3%[62.7-78.6]) were aware of their status, 116 (59.5%[50.7-67.7]) were on ART and 102 (51.7%[43.0-60.2]) had a viral load < 200 copies/ml. In relation to 90-90-90 targets, these data represent 71-83-83. Among men aware of their diagnosis, 118/129 (94.9%[88.7-97.8]) reported linkage to a care provider within 3 months of diagnosis and 76/111 (65.8%[54.3-75.8]) started ART within two weeks of diagnosis. 121/127 (94.9%[88.1-97.9]) reported attending clinical HIV services in the last year (public clinic (37.0%); private clinic (21.5%); MSM-specific services (41.2%)).

The geometric mean PVL among HIV positive MSM was 826[409-1668] copies/ml. The proportion of HIV positive MSM with viral loads >50,000 copies/ml was 21.0%[14.9-28.7] or 5.5%[3.9-7.9] of the MSM population as a whole.

Conclusions: These first population-based estimates of the care cascade and PVL among MSM in Kenya are highly encouraging. Engagement in care is remarkably high and compares favourably to continuum estimates among MSM in other settings and to the general adult population in Kenya. HIV diagnosis represents the weakest link in the current continuum of care for MSM in Nairobi, and approaches to increase testing access and uptake should be prioritised.



[HIV diagnosis, care and treatment engagement among MSM in Nairobi, Kenya (2017)]

THPEC210

Characterizing the prevalence and determinants of newly HIV diagnosed female sex workers in urban centers across Cameroon

A.L. Bowring[1], S. Ketende[1], I.N. Mfochive[1,2], A. Rao[1], G. Fako[2], U. Tamoufe[2], C. Lyons[1], G. Turpin[1], M. Decker[3], G. Fouda[4], F. Ndonko[4], D. Levitt[5], A. Bissek[6], O. Njoya[7], S.C. Billong[8], S. Baral[1]

[1]Johns Hopkins Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States, [2]Metabiota, Yaounde, Cameroon, [3]Johns Hopkins Bloomberg School of Public Health, Department of Population, Family, and Reproductive Health, Baltimore, United States, [4]CARE Cameroon, Yaounde, Cameroon, [5]CARE USA, New York, United States, [6]Ministry of Health, Department of Operational Research, Yaounde, Cameroon, [7]Yaounde University Hospital Centre, Department of Internal Medicine, Yaounde, Cameroon, [8]Groupe Technique Central (CNLS), Yaounde, Cameroon

Background: Female sex workers (FSW) are disproportionately affected by HIV in Cameroon with an estimated HIV prevalence of 23.6%. Although HIV incidence data are unavailable, here we assess the prevalence and determinants of new HIV diagnoses among FSW in Cameroon.

Methods: In 2016, FSW (sex work principal source of income in past year) were recruited through respondent-driven sampling for a bio-behavioural survey carried out in five urban centers in Cameroon. New diagnoses were defined as testing HIV positive when participant reported HIV-negative or unknown status; participants self-reporting to be living with HIV or with indeterminate test status were excluded from these analyses. A multivariable Poisson regression model was developed to assess determinants of new HIV infection using *a priori* determined individual, network and structural covariates, with manual backwards elimination and controlling for clustering by study site; adjusted prevalence ratios (aPR) are reported if significant(p< 0.05).

Results: Overall 2,255 FSW were recruited. Excluding participants who self-reported HIV positive (n=297) and indeterminate (n=7) test results, prevalence of newly diagnosed HIV was 13.3% (260/1,951).

Variables significantly associated with new HIV diagnosis were: older age (aPR: 1.05, 95%CI: 1.04-1.07); primary school education or less (aPR: 1.51; 95%CI: 1.07-2.14); sex with clients at brothels (aPR: 1.52, 95%CI: 1.10-2.11); unprotected sex with regular non-paying partners (aPR: 1.75, 95%CI: 1.17-2.60); knows safest lubricant is water-based (aPR: 1.52, 95%CI: 1.08-2.13); no HIV test in previous year (aPR: 1.58, 95%CI: 1.10-2.27); experienced STI symptoms in past year (aPR: 1.65, 95%CI: 1.19-2.29); and low social participation (aPR: 1.59, 95%CI: 1.11-2.28).

Conclusions: In the absence of HIV incidence data, these results provide insights into ongoing HIV acquisition risks among FSW across Cameroon. These data specifically suggest the need to understand HIV acquisition risks from non-paying partners, build social capital, and better integrate services such as PrEP and STI services into HIV programs to prevent new HIV infections.

	Total	Col Total	Newly diagnosed HIV positive		Univariable poisson regression			Multivariable poisson regression		
	n	%	n	%	PR	95%CI	p-value	aPR	95%CI	p-value
Age , median (IQR)	27	(23-34)	32	(27-38)	1.05	1.04-1.07	**<0.01**	1.05	1.04-1.07	**<0.01**
Education level										
Any secondary or higher	1381	70.8	146	10.6	REF			REF		
Primary or Less	569	29.2	113	19.9	1.99	1.42-2.80	**<0.01**	1.51	1.07-2.14	**0.019**
Sex with clients at brothels										
No	1216	62.3	149	12.3	REF			REF		
Yes	735	37.7	111	15.1	1.36	0.96-1.93	0.087	1.52	1.10-2.11	**0.012**
Protected sex with regular non-paying partner (in past year)[1]										
Yes	930	47.8	98	10.5	REF			REF		
No	504	25.9	74	14.7	1.78	1.18-2.69	**0.006**	1.75	1.17-2.60	**0.006**
N/A	511	26.3	87	17.0	1.72	1.14-2.59	**0.010**	1.19	0.80-1.75	0.388
Knows safest lubricant is water-based										
no	1269	65.0	157	12.4	REF			REF		
yes	682	35.0	103	15.1	1.4	0.98-1.95	0.060	1.52	1.08-2.13	**0.017**
HIV test in past year										
Yes	1151	59.2	103	9.0	REF			REF		
No	793	40.8	157	17.6	1.54	1.08-2.20	**0.002**	1.58	1.10-2.27	**0.013**
Experienced any STI symptoms in P3M										
No	1112	57.0	127	11.4	REF			REF		
Yes	839	43.0	133	15.9	1.72	1.22-2.43	**0.002**	1.65	1.19-2.29	**0.003**
Social participation[2]										
High	643	33.0	81	12.6	REF			REF		
Low	1308	67.0	179	13.7	1.33	0.93-1.90	0.122	1.59	1.11-2.28	**0.011**

1 Protected sex with a regular non-paying partner defined as either: consistent condom use with all regular non-paying partners, only one regular partner in the past year who is known HIV-negative, only one regular partner in the past year who is known HIV-positive and on ART, or no vaginal or anal sex with a regular partner.
2 Social participation based on level of involvement in religious, sport/cultural and community groups and activities outside of sex
P3M - past 3 months, (a)PR - (adjusted) prevalence ratio

[Table 1: Determinants of newly diagnosed HIV among FSW in urban centres across Cameroon]

THPEC211

Hidden epidemic in Akwa Ibom State: Findings from the first AIDS Indicator Survey (AIS) in Nigeria

T. Badru[1], C. Agbakwuru[1], O. Negedu-Momoh[1], E. Oladele[1], A. Chen-Carrington[2], E. James[2], P. Essiet[3], S. Raj Pandey[1], H. Khamofu[1]

[1]Family Health International (FHI 360), Abuja, Nigeria, [2]United States Agency for International Development (USAID), Abuja, Nigeria, [3]Akwa Ibom State Ministry of Health, Uyo, Nigeria

Background: HIV testing remains the gateway to achieving the ambitious UNAIDS 90-90-90 target. Undiagnosed HIV-infected individuals are more likely to transmit infection to others. We analyzed the prevalence of undiagnosed HIV and its correlates in Nigeria.

Methods: Akwa Ibom AIDS Indicator Survey (AKAIS), a USAID-funded population-based cross-sectional survey, was conducted between April and June, 2017. The survey was a collaborative effort between Akwa Ibom state government and USAID implementing partner FHI 360. Households were selected and household members were consented/enrolled through a two-stage probability sampling technique. A total of 15,609 eligible participants including children and adults were sampled. Tablet-based questionnaires were administered through face-to-face interviews. Participants were questioned about socio-demographics, history of HIV testing, and sexual behavior. Participants self-reported their sero-status. Consenting participants were tested for HIV according to national algorithm and confirmed with Bio-Rad Geenius HIV 1/2 Con-

firmatory Assay. Multivariable logistic regression analyses were done using Stata version 12 to assess correlates of undiagnosed HIV infection amongst adult participants who tested positive.

Results: A total of 8,963 adults aged 15 years and older participated in the study; 4,932 (55%) were females, median age was 34 years(IQR; 23-49), 4,223 (47%) had secondary education and 4,173 (47%) were married. Of the 8,306 (93%) participants who agreed to HIV testing, 394 (4.8%) were positive. 332 of those (84%) were undiagnosed prior to the survey, i.e. unaware of their HIV status. Correlates of undiagnosed HIV were being male (aOR 6.47, 95% CI 2.62-15.96), rural dweller (aOR 3.37, 1.63-6.96), never married compared to currently married (aOR 6.73, 95% CI (2.13 -21.28), having one partner compared to two or more partners (aOR 3.80, 95% CI 1.75 -8.25) and expressing a discriminatory attitude toward PLHIV (aOR 3.14, 95% CI 1.50-6.59).

Conclusions: This study demonstrates a substantial burden of undiagnosed HIV infection among males and adult rural dwellers. Findings underscore the importance of targeted community-based testing strategies in order to meet the UNAIDS target of diagnosing 90% of those living with HIV by 2020.

THPEC212

Knowledge of HIV-positive status among adult people living with HIV (PLHIV) in Swaziland: A population-based survey

M. Pasipamire[1], T.T. Ao[2], S. Mazibuko[2], F. Mhlanga[3], L. Dube[1], Z. Mnisi[4], H. Nuwagaba-Biribonwoha[5], C. Draghi[6], N.M. Philip[5], K. Brown[6]

[1]Ministry of Health, Swaziland National AIDS Programme, Mbabane, Swaziland, [2]Division of Global HIV and TB, Center for Global Health, CDC Swaziland, Mbabane, Swaziland, [3]Central Statistics Office, Government of the Kingdom of Swaziland, Mbabane, Swaziland, [4]Ministry of Health, Government of the Kingdom of Swaziland, Mbabane, Swaziland, [5]ICAP-Columbia University, New York, United States, [6]Division of Global HIV and TB, Centre for Global Health, CDC, Atlanta, United States

Background: HIV testing is the entry point to HIV prevention and treatment. The Joint United Nations Programme on HIV/AIDS set the 90-90-90 targets with the first-90 expecting 90% of PLHIV to know their status by 2020. Swaziland has 220,000 PLHIV but lacks a population-based first-90 estimate. Therefore, we used the 2016-17 Swaziland HIV Incidence Measurement Survey2 (SHIMS2) to describe and determine factors associated with knowledge of HIV-positive status (awareness/aware).

Methods: Completed in 2017, SHIMS2 was a cross-sectional, nationally representative, and population-based, two-stage randomized cluster-sampled household survey. Interviews and rapid HIV testing were conducted on adults aged ≥15 years. Using weighted Jackknife survey data in Stata 14, frequencies, weighted proportions, Chi-square and logistic regression analyses were conducted. Potential factors were analyzed in two blocks, namely socio-demographic and behavioral. Adjusted odds ratios (aORs) with 95% confidence intervals (CI) were reported.

Results: Of the 13,339 adults, 10,934 (81.97%) responded to the HIV-testing questionnaire, with 2,031 (32.51%) females and 972 (20.39%) males confirmed HIV sero-positive. Among those confirmed, 1,811 (88.56%) females and 776 (77.46%) males knew their HIV-positive status (p-value(p)< 0.001).

Awareness was less likely among those reporting no condom usage compared to those who used condoms at last sexual encounter within the preceding year in both females (aOR=0.48 (95% CI:[0.34-0.67]),p< 0.001) and males (aOR=0.33 [0.22-0.50],p< 0.001). Awareness was more likely in females (aOR=5.26 [2.75-10.05],p< 0.001) and males (aOR=2.65 [1.58-4.44],p< 0.001) reporting previous tuberculosis-clinic visits compared to those reporting no previous visits. Among females, awareness was more likely in those aged 25-49 years compared to those 15-24 (aOR=2.23 [1.53-3.26],p< 0.001), and those reporting previous antenatal-clinic visit (aOR=1.76 [1.20-2.58], p=0.004) compared to those reporting no previous visits. Awareness increased with increasing number of pregnancies (see Table). Among males, awareness was more likely among those aged 25-49 (aOR=2.16 [1.19-3.91], p=0.012) and 50+ (aOR=3.88 [1.75-8.57], p=0.001), compared to those aged 15-24 years. Awareness was more likely among married (aOR=2.09 [1.38-3.16], p=0.001) and divorced (aOR=2.32 [1.26-4.26], p=0.007) men compared to never married men.

BLOCK 1: Socio-demographic factors						
Variable	Females			Males		
	aOR	95% CI	p-value	aOR	95% CI	p-value
Marital status						
Never Married	1	Ref		1	Ref	
Married	1.26	0.93-1.72	0.145	2.09	1.38-3.16	0.001
Divorced/ Widowed	1.45	0.88-3.11	0.118	2.32	1.26-4.26	0.007
Age						
15-24	1	Ref		1	Ref	
25-49	2.23	1.53-3.26	<0.001	2.16	1.19-3.91	0.012
50+	1.55	0.71-3.35	0.266	3.88	1.75-8.57	0.001
Residence						
Rural	1	Ref		1	Ref	
Urban	0.74	0.50-1.09	0.122	0.61	0.42-0.87	0.007
Region						
Hhohho	1	Ref		1	Ref	
Lubombo	1.61	1.07-2.43	0.024	1.50	0.89-2.55	0.094
Manzini	1.72	1.18-2.54	0.007	0.93	0.62-1.38	0.699
Shiselweni	2.26	1.38-3.74	0.002	2.02	1.08-3.47	0.033
Education						
Primary/ less	1	Ref		1	Ref	
Secondary	0.79	0.48-1.34	0.371	0.98	0.63-1.55	0.942
Higher	0.53	0.34-0.80	0.003	0.90	0.62-1.49	0.805
Number of pregnancies				N/A		
Never Pregnant	1	Ref				
1 pregnancy	1.86	1.12-3.11	0.018			
2 pregnancies	3.85	2.47-5.99	<0.001			
3-5 pregnancies	6.89	4.39-10.48	<0.001			
6+ pregnancies	4.98	2.53-9.80	<0.001			

BLOCK 2: Behavioural & health promotion factors						
Variable	Females			Males		
	aOR	95% CI	p-value	aOR	95% CI	p-value
Condom use at last sex in the last 12 months						
Used condom	1	Ref		1	Ref	
Did not use condom	0.48	0.34-0.67	<0.001	0.33	0.22-0.50	<0.001
Previous TB clinic visit						
No	1	Ref		1	Ref	
Yes	5.26	2.75-10.05	<0.001	2.65	1.58-4.44	<0.001
HIV testing approach						
Opt-in	1	Ref		1	Ref	
Opt-out	1.05	0.75-1.48	0.758	1.54	0.99-2.47	0.057
Ever visited ANC health facility				N/A		
No	1	Ref				
Yes	1.76	1.20-2.58	0.004			

[Table: Multivariate analysis of factors affecting awareness of HIV positive status among adults aged 15+]

Conclusions: In Swaziland, females are close to reaching the first-90 whilst males are >10% behind. Providing male-friendly, male-targeted services may unlock more testing opportunities required to bridge this gap.

THPEC213

Prevalence and correlates of active syphilis and HIV co-Infection among persons aged 15 - 59 in Zambia: Results from the Zambia population-based HIV impact assessment (ZAMPHIA) 2016

H. Solomon[1,2], A. Moraes[1,3], D.B. Williams[4], A.S. Fotso[5,6], C.B. Ndongmo[7], L. Mulenga[1,8,9], ZAMPHIA Project Team

[1]Ministry of Health Zambia, Lusaka, Zambia, [2]National Health Research Authority, Lusaka, Zambia, [3]Zambia National Public Health Institute, Lusaka, Zambia, [4]Centers for Disease Control and Prevention, Atlanta, United States, [5]ICAP at Columbia University, New York, United States, [6]DPS University of the Witwatersrand, Johannesburg, South Africa, [7]Centers for Disease Control and Prevention, Lusaka, Zambia, [8]University Teaching Hospital, Lusaka, Zambia, [9]University of Zambia, School of Medicine, Lusaka, Zambia

Background: Prior studies have suggested sexually transmitted infections, such as syphilis, are associated with an increased risk of transmission of the HIV virus. However, no study has measured the population-level prevalence and predictors of co-infection in Zambia.

Methods: We use data from the 2016 ZAMPHIA, a national household survey that included the DPP® Syphilis Screen & Confirm Assay (Chembio) for active syphilis and Alere Determine™ and Uni-Gold™ rapid HIV tests, per national algorithm. Bivariate and multivariate logistic regression models were developed to assess associations between co-infection and selected socio-demographic and sexual behavior variables.

For the multivariate analysis, those infected with both active syphilis and HIV were classified as co-infected, and the comparison group is those who had no infection.

Due to the complex survey design, all reported figures account for the survey design and are weighted.

Results: A total of 19,114 individuals aged 15-59 responded to the individual interview and had a valid syphilis and HIV test. Among this sample were 10, 972 females and 8, 142 males. The national prevalence of active syphilis was 3.0%. Prevalence of active syphilis was highest among females (3.4%), those ≥25 years of age (3.9%), and respondents who reported ≥2 sexual partners in the last 12 months (5.3%). Sexually active HIV-positive persons had a higher prevalence of active syphilis compared to those who were HIV-negative (9.6% vs. 2.1%). The national prevalence of HIV/syphilis co-infection was 1.3% (95% CI 1.1, 1.5).

Co-infection was higher among females living in urban areas (aOR =3.1, 95% CI=1.9, 5.0) and females who had an early sexual debut (before age 15 years) (aOR =1.7, 95% CI=1.0, 3.0). Co-infection was also high among both men and women who engaged in transactional sex in the past 12 months (aOR=2.3 (95% CI= 1.1, 5.2) and 4.1 (95% CI= 1.7, 9.8), respectively).

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Conclusions: These findings show high prevalence of HIV/syphilis co-infection in Zambia and the need for the scale up of syphilis screening and treatment, particularly among HIV-infected adults. Additionally, these results can be used by syphilis and HIV prevention programs to target populations most at risk for co-infection, specifically those engaging in transactional sex.

Variable	Category	% Active Syphilis Infection		% Active Syphilis and HIV coinfection		Males	Females
		%	95% CI	%	95% CI	AOR (95% CI)	AOR (95% CI)
.	**Overall**	3.0	2.7-3.4	1.3	1.1-1.5	-	-
Sex	Female	3.4	3.0-3.8	1.5	1.2-1.8	-	-
	Male	2.7	2.3-3.0	1.2	0.09-1.4	-	-
Age	<25	1.7	1.4-2.1	0.5	0.3-0.7	1	1
	≥ 25	3.9	3.5-4.4	2.0	1.7-2.4	**15.3 (2.4, 96.5)**	**5.4 (2.8, 10.3)**
HIV Status	Negative	2.1	1.8-2.5	-	-	-	-
	Positive	9.6	8.2-11.1	-	-	-	-
Marital Status	Not in Union	2.6	2.3-3.1	1.9	1.5-2.6	1	1
	In Union	3.4	3.0-3.8	1.3	1.1-1.6	0.7 (0.4, 1.6)	0.3 (0.2, 0.5)
Residence	Rural	2.8	2.4-3.3	0.09	0.07-1.1	1	1
	Urban	3.2	2.8-3.8	1.9	1.5-2.3	1.5 (0.8, 3.0)	**3.0 (1.9, 5.0)**
Condom Use during last sexual encounter in the last 12 months	No	3.4	2.7-4.2	1.4	1.1-1.7	1	1
	Yes	3.4	3.0-3.8	2.1	1.4-2.9	1.4 (0.6, 3.3)	1.5 (0.8, 2.6)
Number of partners in the last 12 months	≤ 1 sexual partner	3.2	2.9-3.6	1.3	1.1-1.6	1	1
	≥ 2 sexual partners	5.3	4.2-6.7	2.8	1.9-3.9	1.4 (0.8, 2.6)	**3.6 (2.1, 6.2)**
Age of first sexual encounter	≥ 15 years	2.9	2.6-3.3	1.5	1.2-1.8	1	1
	< 15 years	3.2	2.5-4.2	1.5	1.0-2.4	0.9 (0.4, 2.1)	**1.7 (1.0, 3.0)**
Engaged in transactional sex	No	3.3	2.9-3.7	1.4	1.2-1.7	1	1
	Yes	5.2	3.4-7.8	3.5	2.0-6.0	**2.3 (1.1, 5.2)**	**4.1 (1.7, 9.8)**

[Table 1. Active Syphilis Infection and HIV and Syphilis Co-infection among ZAMPHIA 2016 respondents aged 15-59 who were sexually active in the last 12 months]

THPEC214

Prevalence and factors associated with HIV infection among pregnant women attending ANC in Tanzania Mainland: Results from a National ANC Sentinel Surveillance 2017

J. Mushi[1], G. Somi[1], A. Ramadhani[1], B. Jullu[2], A. Sabasaba[3], K. Mukurasi[4], B. Jani[5], E. Mwendo[6], G. Mgomella[7]
[1]Ministry of Health, Community Development, Gender, Elderly and Children, National AIDS Control Program, Dar es Salaam, Tanzania, United Republic of, [2]Saint Francis University College of Health and Allied Sciences, Microbiology, Morogoro, Tanzania, United Republic of, [3]Muhimbili University of Health and Allied Sciences, Epidemiology and Biostatistics, Dar es Salaam, Tanzania, United Republic of, [4]Muhimbili University of Health and Allied Sciences, Field Epidemiology, Dar es Salaam, Tanzania, United Republic of, [5]WHO, HIV, Dar es Salaam, Tanzania, United Republic of, [6]Zanzibar Intergated HIV,TB and Leprosy Program, Strategic Information, Zanzibar, Tanzania, United Republic of, [7]CDC, Surveillance, Dar es Salaam, Tanzania, United Republic of

Background: Globally, HIV and AIDS still a major public health problem. In Tanzania, it is estimated that 1.4 million people are living with HIV. Prevalence among pregnant women aged 15-49 years is 6.2%. This is above the National prevalence of 4.7%. Antenatal screening for HIV is important for early diagnosis as it is routinely offered to all pregnant women attending ANC. This study aimed at determining the prevalence of HIV infection and associated factors among pregnant women attending ANC in Tanzania mainland following a National survey in 2017.

Methods: A cross-sectional survey was conducted in all 26 regions in Tanzania mainland. Both urban, semi-urban and rural sites were included. All eligible and consented pregnant women were tested using National HIV testing algorithm. Data were analyzed using STATA. Logistic regression technique was used to establish factors associated with HIV infection.

Results: A total of 34,935 attendees were enrolled in the survey. HIV prevalence was found to be 6.1% (95% CI: 5.9-6.1). After adjustment for other covariates; increasing age, marital status and total number of previous pregnancies were found to have association with increased odds of HIV infection. Compared to women aged 15-19 years, those aged 20-24, 25-34 and 35-49 had aOR=1.90, (95%CI; 1.54-2.36), aOR=4.00 (95% CI; 3.21-4.97), aOR=5.89 95%CI; 4.59-7.56) higher odds of HIV infection respectively. Divorced/separated and widow women had nearly two times increased odds of HIV infection compared to married/cohabiting women (aOR1.58,95% CI;1.05-2.36) and (aOR1.90, 95% CI 1.12-3.22) respectively. Women with 3-4 previous pregnancies were at risk by 2.53 more-times of having HIV compared to those with zero pregnant history (aOR: 2.53 ;95% CI: 2.17-2.95). Increase in education level was associated with decreased odds of HIV infection; women who attained secondary and post-secondary education had 44% and 65% lower odds of HIV infection compared to those with no formal education (aOR: 0.56; 95% CI: 0.46-0.68) *and aOR* 0.35; 95% CI: 0.22-0.56).

Conclusions: HIV prevalence among pregnant women is still high in Tanzania. To achieve the goal of eliminating HIV, effective combination prevention strategies should be used with special emphasis on above risk factors.

Measuring the population impact of prevention and treatment interventions

THPEC215

Prevalence and correlates of PrEP awareness and use among Black bisexual men in the United States

M.R. Friedman[1], D. Matthews[2], J. Egan[3], C. Chandler[2], L. Eaton[4], L. Bukowski[2], H.F. Raymond[5], R. Stall[3]
[1]University of Pittsburgh, Infectious Diseases and Microbiology, Pittsburgh, United States, [2]University of Pittsburgh, Pittsburgh, United States, [3]University of Pittsburgh, Department of Behavioral and Community Health Sciences, Pittsburgh, United States, [4]University of Connecticut, Hartford, United States, [5]Rutgers University, Piscataway, United States

Background: In the United States, Black men who have sex with men (MSM) have the highest incidence and prevalence rates of HIV infection. Though men who have sex with men and women (MSMW) have been shown to experience lower HIV prevalence rates than men who have sex with men only (MSMO), they experience higher rates than the general male population. Pre-exposure prophylaxis (PrEP) is an efficacious tool to prevent HIV infection, but utilization among Black MSM remains low. Limited research exists on prevalence and correlates of PrEP awareness and use among Black MSMW.

Methods: We used time-location sampling to recruit Black MSM ≥ 18 years old attending Black Gay Pride events in six U.S. cities between 2014—2017. We conducted multivariable logistic regressions to assess correlates of self-reported PrEP awareness and utilization among serologically confirmed HIV-negative Black MSM (n=2398). Within-group analyses assessed predictors of PrEP awareness and current use among past-year MSMW (n=419). Analyses adjusted for year, city, Hispanic/Latino ethnicity, age, and income.

Results: Black MSMW were significantly less likely than Black MSMO to report being aware of PrEP (46.3% vs. 55.2%; aOR=0.74; 95% CI: 0.59, 0.92). However, among PrEP-aware Black MSM (n=1278), MSMW were significantly more likely than MSMO (20.8% vs. 13.6%) to report currently using PrEP (aOR=1.67; 95% CI: 1.12, 2.48). Within Black MSMW, those reporting any past-year sexually transmitted infection (STI) diagnosis (aOR=1.94; 95% CI: 1.16, 3.24) were more likely to be PrEP-aware, as were those who reported social support from the gay community (aOR=2.07; 95% CI: 1.25, 3.42). MSMW reporting any past-year STI diagnosis were significantly more likely to report current PrEP use (aOR=7.44; 95% CI: 3.50, 15.83), as were MSMW who reported three or more past-year STI diagnoses (aOR=10.57; 95% CI: 4.07, 27.50).

Outcome	Sub-sample	Main predictor	aOR (95% CI)
PrEP-aware	HIV-negative Black MSM (n=2398)	MSMW	0.74 (0.59, 0.92)
	HIV-negative Black MSMW (n=419)	Past-year STI diagnosis	1.94 (3.50, 15.83)
	HIV-negative Black MSMW (n=419)	Any gay community support	2.07 (1.25, 3.42)
Current PrEP use	HIV-negative, PrEP-aware Black MSM (n=1278)	MSMW	1.67 (1.12, 2.48)
	HIV-negative Black MSMW (n=419)	Past-year STI diagnosis	7.44 (3.50, 15.83)

[Predictors of PrEP awareness and use among Black MSMW: multivariable logistic regressions]

Conclusions: Low rates of PrEP awareness and utilization among Black MSM persist in the U.S., including among Black MSMW. Our data show that, if aware of PrEP, Black MSMW may be even more likely than other Black MSM to use it. PrEP awareness and linkage campaigns tailored for Black bisexual men, in conjunction with practitioner-based STI-to-PrEP interventions, will likely increase PrEP utilization in this group.

THPEC216

Impact of Option B+ and maternal HIV RNA viral load on mother-to-child HIV transmission: Findings from an 18-month prospective cohort of a nationally representative sample of mother-infant pairs, Zimbabwe 2016-2017

T.-H. Dinh[1], A. Mushavi[2], S. Balachandra[3], R.W. Shiraishi[1], J. Nyakura[4], E. Munemo[5], G. Shambira[4], O. Mugurungi[2], B. Tippett Barr[3], ZIM-PMTCTE Survey Team

[1]US Centers for Disease Control and Prevention, Center for Global Health, Division of Global HIV/TB, Atlanta, United States, [2]Ministry of Health & Child Care of Zimbabwe, AIDS & TB Department, Harare, Zimbabwe, [3]U.S. Centers for Disease Control and Prevention, Center for Global Health, Division of Global HIV/TB, Harare, Zimbabwe, [4]University of Zimbabwe, Department of Community Health, Harare, Zimbabwe, [5]National Microbiology Reference Laboratory of Zimbabwe, Harare, Zimbabwe

Background: Zimbabwe began implementing Option B+ nationwide in 2015, having achieved an 18-month cumulative mother-to-child HIV transmission (MTCT) risk of 7.0% in 2014 under Option A. We assessed the population level impact of Option B-plus and maternal viral load (VL) suppression (VLS, defined as < 1,000 copies/mL) on the cumulative MTCT risk during pregnancy and through 18 months post-delivery.

Methods: From February to May 2016, using a multistage stratified cluster sampling method, we consecutively recruited a nationally representative sample of 8,570 pairs of mothers and infants aged 4-12 weeks, from 151 immunization clinics. Of those, we identified 1,978 pairs with HIV-infected mothers using HIV-rapid tests or documented ART prescriptions at enrollment. We evaluated these pairs at baseline, and every three months until the child became HIV-infected, died, or reached age 18 months. Maternal VL was measured at 4-12 weeks, and 12 months post-delivery. We defined a mother with a durable VLS status if she had VLS at both time points. Findings were adjusted for study design and non-responses.

Results: Nationally, the observed 18-month cumulative MTCT risk was 3.3%, including 1.7% perinatal MTCT. Overall, 52.1% (95% Confidence Interval (CI): 49.0-55.2) of HIV-infected mothers initiated ART pre-conception, and another 44.9% (CI: 41.9-47.8) initiated during pregnancy. The population level VLS was 81.2% (CI: 79.4-83.1) and 85.2% (CI: 82.9-87.4) measured at 4-12 weeks and 12 months post-delivery, respectively, including 49.9% (CI: 46.1-52.8) of the mothers with a durable VLS status. Mothers with durable VLS status had an 18-month cumulative MTCT risk of 0.1%, a seven-fold decrease compared to the risk among mothers without durable VLS (0.7%). Of mothers with VLS at baseline, the perinatal MTCT risk was 0.3% (CI: 0.0-0.7) among mothers starting ART during pregnancy and 0.0% (CI: 0.0-0.3) in mothers starting ART pre-conception.

Conclusions: After one year of implementing Option B+ nationwide, Zimbabwe reduced the cumulative 18-month MTCT risk from 7.0% to 3.3%. Eliminating MTCT to zero may be feasible through the prioritization of ART for HIV-infected women planning to become pregnant coupled with intensified VL monitoring and ART adherence support during pregnancy and breastfeeding could increase the proportion of mothers with a durable VLS status.

THPEC217

Population-level effectiveness of anteritroviral therapy (ART) to prevent early mother to child transmission of HIV in Namibia

A. Agabu[1], A.L. Baughman[1], C. Fischer-Walker[1], M. De Klerk[1], N. Mutenda[2], F. Rusberg[2], D. Diergaardt[2], N. Pentikainen[3], S. Sawadogo[1], S. Agolory[1], T.-H. Dinh[4]

[1]US Centers for Disease Control & Prevention, Division of Global HIV/TB, Windhoek, Namibia, [2]Namibia Ministry of Health and Social Services, Windhoek, Namibia, [3]Namibia Institute of Pathology, Windhoek, Namibia, [4]US Centers for Disease Control and Prevention, Division of Global HIV/TB, Atlanta, United States

Background: Namibia introduced the prevention of mother to child HIV transmission (MTCT) program in 2002 and lifelong antiretroviral therapy (ART) for pregnant women (option B-plus) in 2013. We sought to quantify MTCT measured at 4-12 weeks post-delivery.

Methods: During Aug 2014-Feb 2015, using two stage sampling approach we recruited a nationally representative sample of 1040 pairs of mother and infant aged 4-12 weeks at routine immunizations in 60 public health clinics. Of these, 864 HIV exposed infants (HEI) had HIV test results available. We defined an HEI if born to an HIV-positive mother with documented status, or diagnosed at enrollment using rapid HIV tests. Dried Blood Spots samples from HEIs were tested for HIV. Interview data and laboratory results were collected on smartphones and uploaded to a central database. We measured MTCT risk at 4-12 weeks post-delivery and evaluated associations between infant HIV infection and maternal and infant characteristics including maternal treatment and infant prophylaxis. All statistical analyses accounted for the survey design.

Results: Nationally weighted early MTCT was 1.74% (95% CI: 1.00%-3.01%). Overall, 62% of mothers started ART before pregnancy, 33.6% during pregnancy, 1.2% post-delivery and 3.2% never received ART. Mothers who started ART before pregnancy and during pregnancy had low MTCT risk, 0.78% (95% CI: 0.31%-1.96%) and 0.98% (95% CI: 0.33%-2.91%), respectively. MTCT rose to 4.13% (95% CI: 0.54%-25.68%) when the mother initiated ART after delivery and 11.62% (95% CI: 4.07%-28.96%) when she never received ART. The lowest MTCT of 0.76% (95% CI: 0.36% - 1.61%) was achieved when mother received ART and ARV prophylaxis for infant and highest 22.32% (95%CI: 2.78% -74.25%) when neither mother nor infant received ARVs (RR=29.2, 95% CI: 4.47 - 190.7; p< 0.01). After adjusting for mother's age, no maternal ART (RR=10.2, p< 0.01) and no infant ARV prophylaxis (RR=3.24, p=0.05) remained strong predictors of HIV transmission.

Conclusions: As of 2015, Namibia achieved MTCT of 1.74%, measured at 4-12 weeks post-delivery. Women already on ART pre-conception had the lowest risk of MTCT emphasizing the importance of early HIV diagnosis and treatment initiation before pregnancy. Studies are needed to measure MTCT and maternal HIV seroconversion during breastfeeding.

THPEC218

Effectiveness of interventions for changing HIV related risk behaviours among key populations in low-income setting: A meta-analysis, 2001-2016

K. Deuba[1], U. Shrestha[1], B. Rawal[2], R. Khanal[1], R. Shrestha[3], B.D. Pandey[2], R.K. Bhattarai[4], A.M. Ekstrom[5]

[1]National Centre for AIDS and STD Control/ Global Fund Programs, Kathmandu, Nepal, [2]National Centre for AIDS and STD Control, Ministry of Health, Kathmandu, Nepal, [3]Public Health and Environment Research Centre, Lalitpur, Nepal, [4]Save the Children, Kathmandu, Nepal, [5]Karolinska Institutet, Department of Public Health Sciences, Stockholm, Sweden

Background: Lack of evaluation of interventions presents a hurdle in identifying what works best for reducing the HIV incidence in low-income countries. The aim is to conduct a meta-analysis to assess the effectiveness of behavioural interventions in reducing HIV related risk behaviours among key populations [people who inject drugs (PWID), female sex workers (FSW), men who have sex with men (MSM) and transgender (TG)] of Nepal.

Methods: Systematic searching of literature focusing on peer education interventions and HIV testing and counselling (HTC) services in Nepal was done using different electronic databases. Search was restricted to

the interventions (peer education in both formal and informal setting and HTC) targeted for FSW, PWID, MSM and TG and literature published from January 2001 to December 2016 from Nepal. We used random-effects models to calculate the pooled odds ratio (OR) for dichotomous outcomes (condom use in last sex or unsafe injection practices) including pooled HIV prevalence, subgroup analyses of age groups (aged 15-24 vs ≥25) and epidemic zones.

Results: Forty-three studies with 13,021 participants were included (PWID: 5180; MSM and TG: 2279; FSW: 5562). Pooled prevalence showed a higher occurrence of HIV among PWID (12%) followed by other key populations (< 5%). A significant increase in the odds of condom use among FSW (pooled OR=2.21, 95% confidence interval (CI): 1.65-2.95), MSM and TG (pooled OR=2.24, 95% CI: 1.77-2.83) who received peer education interventions in both informal and formal setting compared to who did not. Similarly, there was a significant increase in the odds of condom use among FSW, MSM and TG who received HTC compared to those who did not. However, none of these interventions were found to be effective in reducing unsafe injection practices among PWID. Subgroup analyses also proved the effectiveness of these interventions for both young and old FSW, MSM and TG and across all three epidemic zones.

Conclusions: Interventions being carried out in Nepal are effective at reducing risky behaviours among FSW, MSM and TG except for PWID. This demands continued implementation of existing efforts as well as modifying interventions modality as per the need of PWID to reduce their risky injection behaviours.

THPEC219

Couple Oriented Counselling improves male partner involvement in sexual and reproductive health of the couple: Evidence from the ANRS 12127/12236 PRENAHTEST Cohort in Cameroon

C. Kengne Nde[1,2,3], M.C. Tejiokem[1,4], J. Orne-Gliemann[5], B. Melingui[6], P. Koki Ndombo[7], A. Ngo Essounga[8], A.C. Bissek[9], S. Cauchemez[3,4], P. Tchendjou Tankam[1,4]
[1]*Centre Pasteur Cameroon, Epidemiology and Public Health Service, Member of the International Network of Pasteur Institutes, Yaounde, Cameroon,* [2]*Bordeaux School of Public Health, Bordeaux University, Bordeaux, France,* [3]*Mathematical Modeling of Infectious Diseases Unit, Pasteur Institute, Paris, France,* [4]*International Network of Pasteur Institutes, Paris, France,* [5]*INSERM U 897, Bordeaux School of Public Health, Bordeaux University, Bordeaux, France,* [6]*Centre Pasteur Cameroon, Hematology Laboratory, Yaounde, Cameroon,* [7]*Centre of Mother and Child, Chantal Biya Foundation, Yaounde, Cameroon,* [8]*Ministry of Scientific Research and Innovation, Yaounde, Cameroon,* [9]*Division of Operational Research, Ministry of Public Health, Yaounde, Cameroon*

Background: Male partner involvement (MPI) has been recognized as a priority area to be strengthened in prevention of Mother to Child Transmission (PMTCT) of HIV. Here, we explored the impact of Couple Oriented Counseling (COC) in MPI in sexual and reproductive health and associated factors.

Methods: From February 2009 to October 2011, pregnant women were enrolled at their first antenatal care visit (ANC-1) and followed up until 6 months after delivery in the Mother and Child Center of the Chantal Biya Foundation within the Prenahtest multicentric project (Figure 1A). MPI, a composite variable was defined using sexual and reproductive health behaviors variables by multiple correspondence analysis followed by mixed classification. Men were considered highly involved if they had shared their HIV test results with their partner, discussed on HIV or condom used, contributed financially to ANC, accompanied their wife to ANC or practiced safe sex. Factors associated to MPI were investigated by the logistic model with GEE estimation approach.

Results: A total of 484 pregnant women were enrolled at a median age of 27 years (IQR: 23-31). Among them, HIV prevalence was 11.9% (95% CI: 9.0 - 15.4), 55.23% had a gestational age greater than 16 weeks at ANC-1. The median duration of the women relationship with partner was 84 months (IQR: 48-120). MPI was significantly greater in COC group than SC group 6 months after delivery (14.8% vs 8,82%; p = 0,043; Figure 1B). The partners of the women who participated to COC were more likely to be involved during follow up (aOR = 1.45; 95% CI = 1.00 - 2.10) than others. Partners with no incoming activity (aOR = 2.90; 95% CI = 1.96 - 4.29), who did not used violence within the couple (aOR = 1.70; 95% CI = 1.07 - 2.68), and whose partner came early for ANC-1 (aOR = 1.37; 95% CI = 1.00 - 1.89) were more likely to be involved than others.

Conclusions: MPI remains low in stable couples and COC improves partner involvement. Our results also confirm that strengthening outreach towards „stable" couples and address barriers could go a long way to improve PMTCT in Cameroon.

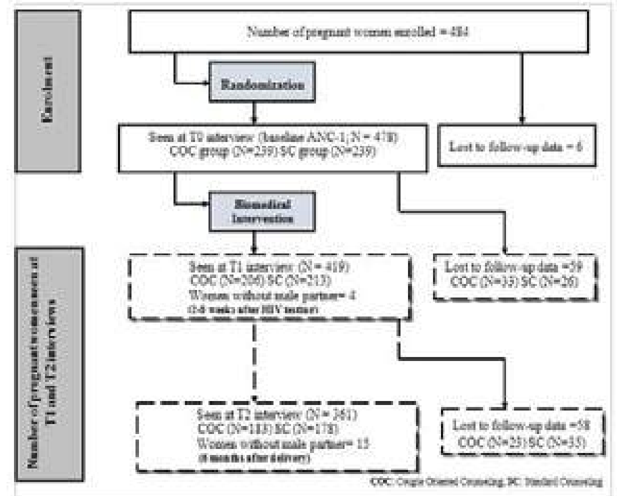


Figure1A: Flowchart describing enrolment and follow-up within the cohort of pregnant women in Yaounde, Cameroon. ANRS 12127-12236 Prenahtest Trial (2009-2011).

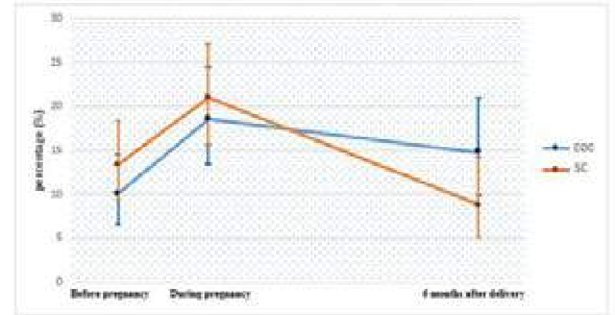


Figure 1B: Evolution of the proportion (%) of high involvement of male partner in sexual and reproductive health of the couple among pregnant women cohort, in Yaounde, Cameroon, ANRS 12127-12236 Prenahtest Trial (2009-2011) (N=478).

[Figure1A and Figure 1B]

THPEC220

Application of goal 90-90-90 (ONU / UNAIDS) in an infectious-contagious disease hospital for adult patients in Belo Horizonte, Brazil

E. Barbosa Silva[1], R. Andrade Carmo[2], R. Cassia Santana do Amaral[3]
[1]*Hospital Eduardo de Menezes, Hospital-dia, Belo Horizonte, Brazil,* [2]*UFMG, DIP, BELO HORIZONTE, Brazil,* [3]*Medical specialization in medical practice, BELO HORIZONTE, Brazil*

Background: This survey is premised on the ambitious 90-90-90 goal launched by the ONU/UNAIDS and its member countries to overcome the AIDS epidemic by 2030. It consists of 90% of patients diagnosed, 90% in treatment and 90% with viral suppression by the year 2020. In the period from July 2016 to July 2017, all patients diagnosed with HIV / AIDS at Eduardo de Menezes / FHEMIG Hospital, a state reference in infectious-contagious diseases for adult patients were analysed.

Methods: The parameters gender, onset of ART and viral suppression (viral load below 50 copies / mm^3) were evaluated. Data were obtained through compulsory HIV / AIDS notifications from the HEM Epidemiology Center, the Laboratory Testing System of the National Network for CD4 + / CD8 + Lymphocyte Count and HIV Viral Load (SISCEL) and the National Service System Physician (SINAM).

Results: We evaluated 424 patients (through serology Elisa method and rapid testing), 78,5% of the patients were male and 21,5 % were female. The onset of HAART occurred in 100% of patients and the viral suppression rate was 84,4%. It is worth mentioning that, in Brazil, the initial HAART regimen is composed of a non-combined triple of drugs, one integrase inhibitor associated with 2 NNRTIs.
Conclusions: Among the patients diagnosed with HIV / AIDS, we noticed that the target of 90% in treatment was successfully achieved. A 90% with viral suppression was close to being achieved. Decreasing the number of pills would be important to reach this goa One way to help reach 90% of diagnosed patients would be easy access to the self-test (CROI / 2017), made available in Brazil from July 2017, when this survey had already ended. However, it is well known that most seropositive patients adhere to treatment in the first few years after diagnosis, but maintaining adherence is somewhat challenging. According to national studies, at least 1/3 will drop out of treatment at some point. In view of this, preventive and facilitative educational strategies are necessary for the end of the epidemic to take place in Brazil.

THPEC221

Closing the third 90 gap: Viral suppression in adults 15 years and older in Swaziland

S. Mazibuko[1], C. Draghi[2], T. Ao[2], Z. Mnisi[3], H. Nuwagaba-Biribonwoha[4], C. Ginindza[5], N. Philip[6], H. Patel[2], F. Ogollah[2], K. Sleeman[2], R. Sahabo[4], A. Voestsch[2], J. Justman[6], C. Ryan[7]
[1]CDC Swaziland, Care and Treatment, Mbabane, Swaziland, [2]Centers for Disease Control and Prevention, Atlanta, United States, [3]Ministry of Health, Government of the Kingdom of Swaziland, Mbabane, Swaziland, [4]ICAP at Columbia University, Mailman School of Public Health, Mbabane, Swaziland, [5]Central Statistical Office, Government of the Kingdom of Swaziland, Mbabane, Swaziland, [6]ICAP at Columbia University, Mailman School of Public Health, New York, United States, [7]Centers for Disease Control and Prevention, Mbabane, Swaziland

Background: Viral load suppression (VLS) indicates the effectiveness of national HIV treatment programs. The Swaziland HIV Incidence Measurement Survey (SHIMS2, 2016) shows that Swaziland has achieved the third 90 target set by the United Nations Joint Programme on HIV/AISDS (UNAIDS). However, program data suggests that the third 90 has not been achieved for all sub-populations. We assessed correlates of VLS among HIV+ participants 15+ to identify remaining unsuppressed sub-populations.
Methods: SHIMS2 used a two-stage cluster randomized design to attain a nationally representative sample. The national testing algorithm was used to determine HIV status and VLS was defined as HIV RNA < 1000 copies/ml. Prevalence of VLS among HIV+ persons was calculated using weighted analyses to account for complex survey design. Logistic regression was conducted using Jackknife variance methods.
Results: Seventy-two (72%) of all PLHIV were virally suppressed. Among 15,628 surveyed adults, 10,934 agreed to HIV testing, of which 3,003 (27%, 95% Confidence Interval (CI):25.7, 28.3) were HIV+, of these 65.5% were female and the median age was 37 years (Interquartile range (IQR): 30-47). A majority (87.4%, CI: 85.8-89.1) reported current ART use. Among those reporting ART use: VLS among those who had never married (87.5%, 95% CI: 84.6-90.4) was significantly lower compared to ever married (93.9%, CI: 92.7-95.2, p<.001). PLHIV were progressively more likely to be VLS with increasing age; compared to 15-24 year olds odds ratio [OR]=2.9 p<0.001 for 25-34 years, OR=4.4, p<.001 for 35-44 years and OR=8.3, p<.001). No significant difference in VLS by sex, region or education was observed. In multivariate modelling, controlling for sex and marital status, older participants still had higher odds of being VLS compared to 15-24 year olds, adjusted odds ratio [aOR]=2.3, p=0.003 for 25-34 years; aOR=3.5, p<.001 for 35-44 years and aOR=6.7, p<.001 for 45+ years.
Conclusions: Young PLHIV have lower odds of having VLS compared to older age groups. Though many factors influence VLS, including ART adherence, age is the most significant. It is critical that programs understand the needs of 15-24 year olds in order to close the gap in VLS, since this population will expand as the youth bulge ages.

THPEC222

Antiretroviral therapy uptake among adults 15 years and older in Swaziland, 2016

S. Mazibuko[1], T. Ao[1], C. Draghi[2], Z. Mnisi[3], C. Ginindza<sup, J. Justman[4], H. Nuwagaba-Biribonwoha[5], H. Patel[2], S. Saito[2,2], Y. Pottinger[2], N. Philip[4], K. Brown[2], K. Brown[2], R. Sahabo[5], R. Sahabo[5], A. Voestsch[2], C. Ryan[1,1]
[1]Centers for Disease Control and Prevention, Mbabane, Swaziland, Mbabane, Swaziland, [2]Centers for Disease Control and Prevention, Atlanta, GA, United States, Centers for Disease Control and Prevention, Atlanta, GA, United States, United States, [3]Ministry of Health, Government of the Kingdom of Swaziland, Mbabane, Swaziland, Mbabane, Swaziland, [4]ICAP at Columbia University, Mailman School of Public Health, New York, NY, United States, New York, United States, [5]ICAP at Columbia University, Mailman School of Public Health, Mbabane, Swaziland, Mbabane, Swaziland

Background: As countries scale up anti-retroviral treatment (ART) to achieve epidemic control and end the global HIV pandemic by 2030, it is critical to understand factors associated with ART uptake to guide program modification and implementation. Data from the Swaziland HIV Incidence Measurement 2 (SHIMS2) included measurement of progress towards the UNAIDS three 90s i.e. HIV status awareness, ART uptake and viral load suppression. Although Swaziland has made significant progress, deeper analysis is required to understand which populations and geographic locations are not meeting ART coverage targets.
Methods: Using data from a nationally representative survey, we examined correlates of ART uptake, defined as either self-reporting being on ART and/or testing positive for one or more antiretrovirals in their blood. The survey used a two-stage cluster sampling design to attain a nationally representative sample. National testing algorithm was used to determine HIV status and a qualitative assay to test for efavirenz, nevirapine, and lopinavir. Prevalence and correlates of ART use were estimated using weighted multivariable logistic regression analyses with jackknife variance estimation methods accounting for the complex survey design.
Results: Of the 2,997 HIV+ participants, 87.0% were reported to be aware of their status with 88.8 % of those being on ART. ART uptake did not differ by sex. Compared to people residing in Lubombo (Eastern region), people residing in Hhohho (Adjusted odds ratio [aOR]: 1.83, p=0.0127) and Shiselweni (aOR: 1.92, p=0.0105) regions had higher odds of ART uptake. Those with lower than secondary education had higher odds of being on ART compared to those with secondary education or higher (aOR: 0.65, p=0.0096). Older participants (35-44 years, aOR: 1.70, p=0.0390; 45+ years, aOR: 1.81, p=0.0480) were more likely to be on ART compared to 15-24 year olds while those that had disclosed their HIV status were 92% more likely to be on ART compared to those who had to hide their status (aOR: 1.92, p=0.0034).
Conclusions: Disparities observed in ART uptake by region, level of education, age and disclosure status, emphasize the need to expand and modify existing interventions to reach specific sub-populations that currently have lower ART coverage as demonstrated in this analysis.

THPEC223

Earlier treatment initiation correlates with a decreased number of HIV-1 subtype A transmissions in Greece

E.-G. Kostaki[1], P. Gargalianos[2], G. Xylomenos[2], G. Nikolopoulos[3], M. Lazanas[4], M. Chini[4], N. Magafas[4], A. Skoutelis[5], V. Papastamopoulos[5], A. Antoniadou[6], A. Papadopoulos[6], K. Protopapas[6], M. Psichogiou[7], G.L. Daikos[7], G. Chrysos[8], V. Paparizos[9], S. Kourkounti[9], H. Sambatakou[10], N.V. Sipsas[11], M. Lada[12], P. Panagopoulos[13], E. Maltezos[13], S. Drimis[8], A. Hatzakis[1], D. Paraskevis[1]
[1]Medical School, National and Kapodistrian University of Athens, Department of Hygiene, Epidemiology and Medical Statistics, Athens, Greece, [2]G. Genimatas GH, 1st Department of Internal Medicine, Athens, Greece, [3]Medical School, University of Cyprus, Nicosia, Cyprus, [4]Red Cross Hospital, 3rd Internal Medicine Department-Infectious Diseases Unit, Athens, Greece, [5]Evaggelismos GH, 5th Department of Medicine and Infectious Diseases, Athens, Greece, [6]Attikon GH, Medical School, National and Kapodistrian University of Athens, 4th Department of Medicine, Athens, Greece, [7]Laikon GH, Medical School, National and Kapodistrian University of Athens, 1st Department of Medicine, Athens, Greece, [8]Tzaneio GH, Department of Internal Medicine, Piraeus, Greece, [9]A. Syngros Hospital of Dermatology and Venereology, HIV/AIDS Unit, Athens, Greece, [10]Hippokration GH, Medical School, National and Kapodistrian University of Athens, 2nd Department of Internal Medicine-HIV Unit, Athens, Greece, [11]Laikon GH, Medical School, National and Kapodistrian University of Athens, Pathophysiology Department-Infectious Diseases Unit, Athens, Greece, [12]Sismanogleion GH, 2nd Department of Internal Medicine, Athens, Greece, [13]University GH, Democritus University of Thrace, Department of Internal Medicine, Alexandroupolis, Greece

Background: Subtypes A1 and B are the most prevalent HIV-1 clades in Greece. The subtype A1 epidemic is highly monophyletic and corresponds to transmissions that occurred locally. UNAIDS has set a global target to eliminate the HIV pandemic in 2030 by reaching a 90-90-90 treatment cascade. We aimed to investigate the role of treatment as prevention (TasP) to prevent new HIV-1 transmissions.

Methods: Our analysis focused on the major subtype A1 local cluster that included 791 out of 916 (86.4%) sequences from treatment-naïve individuals sampled in Greece during 22/07/1997-02/06/2015. Estimation of infection dates was performed by molecular clock calculations using phylodynamic analysis based on birth-death models, as implemented in BEAST v1.8.0. We also estimated the time interval:

i) between the infection and sampling dates (*linkage to care window*), and;

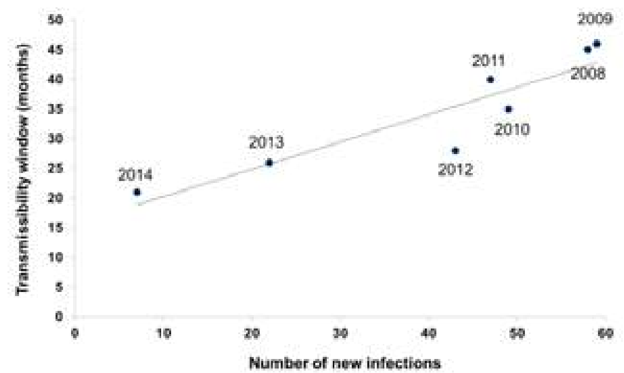
ii) between infection dates and antiretroviral therapy (ART) initiation (*transmissibility window*) for the study population.

Results: The number of new transmissions (incidence trend) decreased during the 2008-2014 period among subtype A1-infected individuals in Greece. A significant time trend for the transmissibility window was found. Similarly, the linkage to care window decreased significantly over time.

Infection year	New transmissions (n)	Transmissibility window (months)	Linkage to care window (months)
2006	40	79	68
2007	33	55	25
2008	58	45	32
2009	59	46	26
2010	49	35	23
2011	47	40	24
2012	43	28	15
2013	22	26	10
2014	7	21	4

[Description of new transmissions, transmissibility and linkage to care windows for subtype A infections over time]

We also found a significant positive correlation between the transmissibility window and the number of new infections for each time period (Spearman correlation coefficient R=0.91, p< 0.01). Specifically, the trend in new infections was correlated with the decrease in the transmissibility window. The longer the transmissibility period the greater the number of new infections.



[Correlation between the transmissibility window and the number of new subtype A infections for each time period.]

Conclusions: It has been demonstrated that molecular analysis can be used for accurate estimation of infection dates. Our findings, based on a large proportion of subtype A1 infections in Greece, showed that the linkage to care and transmissibility windows are decreasing over time, suggesting that a larger proportion of individuals are being diagnosed and treated closer to their infection dates, presumably due to improved diagnosis and updated treatment guidelines. Our study also provides evidence that earlier treatment is correlated with lower incidence among subtype A1 strains in Greece, thus documenting the benefits of early ART initiation to prevent ongoing HIV-1 transmission.

THPEC224

Trends in HIV diagnostic coverage & prevalence of undiagnosed infection in a high burden district with annual home-based HIV testing: Findings from the Chókwè Health Demographic Surveillance System, Mozambique, 2014-2017

R. Nelson[1], I. Casavant[2], R. Thompson[3], S. Pals[1], J. Bonzela[3], J. Cardoso[4], S. Mikusova[5], D. Ujamaa[1], I. Pathmanathan[1], V. Chivurre[6], S. Tamele[7], A. de Louvado[2], S. Wei[2], A. Vergara[2], D. Mackellar[1]
[1]Centers for Disease Control and Prevention, Atlanta, United States, [2]Centers for Disease Control and Prevention, Maputo, Mozambique, [3]Chókwè Health Research and Training Center, Chókwè, Mozambique, [4]Jhpiego, Maputo, Mozambique, [5]Elizabeth Glaser Pediatric AIDS Foundation, Maputo, Mozambique, [6]Provincial Directorate of Public Health, Xai-Xai, Mozambique, [7]District Directorate of Public Health, Chókwè, Mozambique

Background: Few communities in sub-Saharan Africa have achieved the UNAIDS goal of diagnosing >90% of HIV-infected residents (diagnostic coverage). Beginning in April 2014, periodic rounds of home-based HIV testing and counseling (HBHTC) were conducted in the Chókwè Health Demographic Surveillance System (CHDSS), located in a high-prevalence district in southern Mozambique. We describe uptake of HBHTC, and trends in diagnostic coverage and prevalence of undiagnosed HIV infection among CHDSS residents.

Methods: CHDSS conducts annual demographic surveillance of 95,000 residents. During each surveillance round, all households are visited and encountered residents aged 15-59 years are asked to participate in a brief survey on prior HIV testing and result of most recent test, and to test for HIV if not confirmed HIV-positive through CHDSS. Estimated diagnostic coverage and prevalence of undiagnosed infection (previously unaware of current HIV-positive test result) are weighted to the 2016 census.

Results: From 2014-2017, 76,620 tests were conducted, 40,272 (78%) of 51,878 residents aged 15-59 years tested at home at least once, and 3,957 were newly HIV diagnosed. In each round, 19,811-24,946 residents participated in the brief survey. Among participants with HIV, diagnostic coverage increased in all demographic groups, particularly among young adults, and in 2017, exceeded 90% among men, women, and persons aged 25-59 years. In 2015, 2016, and 2017, prevalence of undiagnosed (total) HIV infection was 5.0% (24.5%), 3.1% (26.1%), and 1.8% (25.6%), respectively. In 2017, prevalence of undiagnosed HIV infection was greater among males (2.0%) than females (1.6%), and greatest among

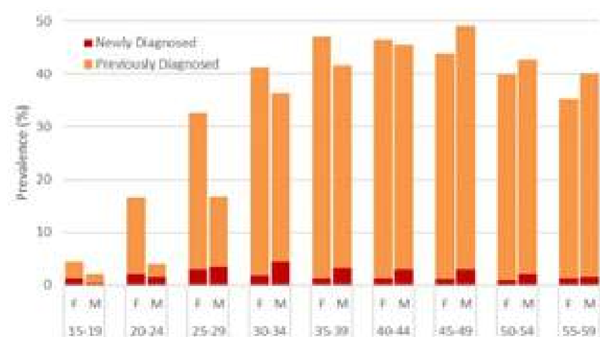
males 30-34 years (4.4%) and females 25-29 years (2.9%) (Figure). Applying estimated prevalence of undiagnosed HIV infection to the CHDSS census, we estimate that 934 HIV infected CHDSS residents were undiagnosed in 2017, 639 (69%) of whom were 15-34 years of age.

Conclusions: In a high HIV prevalence district in Mozambique with annual HBHTC, substantial progress has been made in achieving the UNAIDS goal of >90% diagnostic coverage and reducing the prevalence of undiagnosed infection in all demographic groups. In the CHDSS, focused efforts are now warranted on identifying methods to reach and test young adult men and women at high risk for undiagnosed infection.

Total HIV-positive and newly HIV-diagnosed (Dx) participants, and percentage previously aware of HIV infection (diagnostic coverage), by surveillance round, gender, and age group, CHDSS, Chókwè Mozambique, 2014 - 2017.

	Round 1 (4/2014-4/2015) n=24,946		Round 2 (5/2015-1/2016) n=24,441		Round 3 (3/2016-3/2017) n=24,129		Round 4 (4/2017-11/17) n=19,811	
	HIV+ (New Dx) n	Aware %	HIV+ (New Dx) n	Aware %	HIV+ (New Dx) n	Aware %	HIV+ (New Dx) n	Aware %
Total	5078 (1930)	60.3	5841 (1069)	79.7	6106 (672)	88.1	4723 (286)	93.1
Male	981 (470)	50.4	1227 (318)	72.1	1263 (153)	87.0	941 (90)	90.1
Female	4097 (1460)	63.6	4614 (751)	82.8	4843 (519)	88.5	3782 (196)	94.4
15-24 yrs.	697 (433)	37.7	723 (271)	62.4	717 (191)	73.4	496 (89)	82.0
25-34 yrs.	1561 (663)	55.7	1712 (400)	74.4	1748 (255)	84.7	1256 (98)	91.3
35-44 yrs.	1545 (479)	67.4	1842 (246)	85.3	1971 (136)	92.5	1595 (55)	95.9
45-59 yrs.	1275 (355)	72.5	1564 (152)	90.0	1670 (90)	94.9	1376 (44)	96.5

[Table]



[Prevalence of undiagnosed (red) and total HIV infection of 19,811 survey participants, by age-group and sex, CHDSS, 2017.]

THPEC225

Earlier HIV diagnosis among men who have sex with men in Amsterdam following interventions to increase awareness of early HIV infection

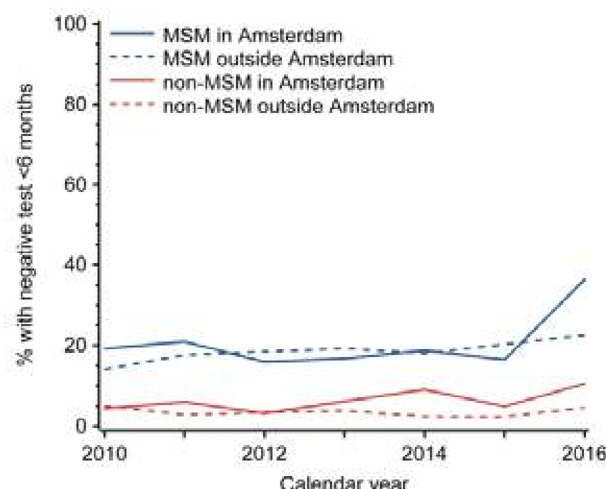
A. van Sighem[1], G. de Bree[2,3], U. Davidovich[4], W. Zuilhof[5], A. van Bijnen[5], F. Verdult[6], M. Dijkstra[4], T. Heijman[4], A. Hogewoning[4,7], E. Op de Coul[8], J. van Bergen[5,8,9], M. Schim van der Loeff[4], P. Reiss[1,2,3], HIV Elimination Amsterdam (H-TEAM) Initiative and the ATHENA National HIV Cohort
[1]Stichting HIV Monitoring, Amsterdam, Netherlands, [2]Academic Medical Centre of the University of Amsterdam, Department of Global Health and Division of Infectious Diseases, Amsterdam, Netherlands, [3]Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, [4]Public Health Service Amsterdam, Amsterdam, Netherlands, [5]STI AIDS Netherlands, Amsterdam, Netherlands, [6]Dutch Association of People Living with HIV, Amsterdam, Netherlands, [7]Academic Medical Centre of the University of Amsterdam, Department of Dermatology, Amsterdam, Netherlands, [8]National Institute for Public Health and the Environment, Bilthoven, Netherlands, [9]Academic Medical Centre of the University of Amsterdam, Department of General Practice, Division Clinical Methods and Public Health, Amsterdam, Netherlands

Background: The HIV Transmission Elimination AMsterdam (H-TEAM) initiative, a unique collaboration between all relevant stakeholders involved in HIV prevention and care in Amsterdam, implemented several interventions to increase awareness of early HIV infection, including a multi-media campaign targeting men who have sex with men (MSM), which was launched in August 2015 and repeated early 2016. We investigated the possible impact on early-diagnosed HIV infections in Amsterdam compared to the rest of the Netherlands.

Methods: Data on people diagnosed with HIV in 2010-2016 were retrieved from the ATHENA national HIV database. We studied changes over time in proportions of people with recent infection, defined as HIV diagnosis with a negative test ≤6 months before, and changes in CD4 cell counts at diagnosis. Differences between groups were compared with Pearson's chi-square test.

Results: 6,931 people were newly diagnosed in 2010-2016: 1,193 (17%) MSM and 370 (5%) other men and women in Amsterdam, and 3,476 (50%) MSM and 1,892 (27%) other men and women outside Amsterdam. The proportion of MSM with a recent infection was 18% (196/1,080) in 2010-2015 and increased ($p < 0.001$) to 36% (41/113) in 2016 in Amsterdam, compared to a more modest increase (from 18% to 22%, $p=0.03$) outside Amsterdam (Figure). Among other men and women, < 10% had a recent infection, both in and outside Amsterdam, without significant changes over time ($p>0.1$).

CD4 counts at diagnosis were available for 4,234 (91%) MSM and 1,988 (88%) other people. Among MSM, the proportion with ≥350 CD4 cells/mm³ increased from 62% (597/956) in 2010-2015 to 77% (85/111) in 2016 in Amsterdam ($p=0.003$), but did not change outside Amsterdam: 62% (1747/2816) in 2010-2015 and 58% (202/351) in 2016 ($p=0.1$). Among other men and women 39% (772/1,988) had ≥350 CD4 cells/mm³ at diagnosis with no differences by time period or residence.



[Annual proportion of new HIV diagnoses with a last negative test at most 6 months before diagnosis.]

Conclusions: MSM in Amsterdam are now being diagnosed earlier in their HIV infection than in the rest of the Netherlands. Although our findings need further confirmation with ongoing observation, they may be an early indicator of the effectiveness of H-TEAM's combined efforts to increase HIV testing and diagnosis at early stages of the infection.

Measuring the population-level impact of policy-level HIV interventions

THPEC226

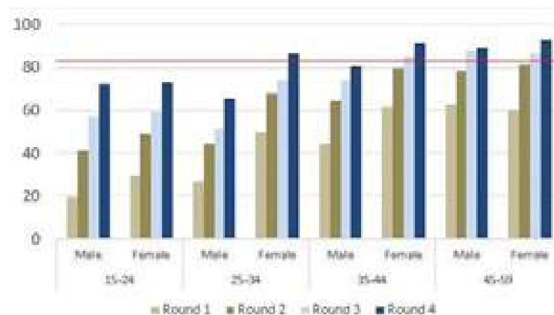
Achieving >80% ART coverage in a high burden district with annual home-based HIV testing: Findings from the Chókwè Health Demographic Surveillance System (CHDSS), Mozambique, 2014-2017

A. De Louvado[1], I. Pathmanatan[2], R. Thompson[3], I. Casavant[1], R. Nelson[2], S. Pals[2], J. Bonzela[3], D. Ujamaa[2], V. Chivurre[4], Z. Languitone[4], S. Tamele[5], M. Simango[4], S. Uache[4], S. Mikusova[6], M. Bono[7], A. Auld[2], L. Nhalusse[4], M. Briggs-Hagen[1], D. Mackellar[2]
[1]US Centers for Disease Control and Prevention, Maputo, Mozambique, [2]US Centers for Disease Control and Prevention, Atlanta, United States, [3]Chokwe Health Research and Training Center, National Institute of Health, Chokwe, Mozambique, [4]Provincial Directorate of Public Health, Xai-Xai, Mozambique, [5]District Directorate of Public Health, Chokwe, Mozambique, [6]Elizabeth Glaser AIDS Foundation, Maputo, Mozambique, [7]Elizabeth Glaser AIDS Foundation, Xai-Xai, Mozambique

Background: Few communities in sub-Saharan Africa have achieved the UNAIDS goal of more than 80% of people living with HIV (PLHIV) on antiretroviral therapy (ART). In September 2016, the Government of Mozambique approved ART for all PLHIV (Test & Start, T&S), beginning with highest burden districts. We evaluate trends in ART coverage in a T&S district where home-based HIV testing and counseling (HBHTC) had been implemented since 2014.
Methods: The Chókwè Health and Demographic Surveillance System (CHDSS) conducts annual demographic surveillance of 95,000 residents in Chókwè District. During each round of surveillance, encountered residents aged 15-59 years in all CHDSS households are asked to participate in a brief survey on knowledge of HIV status and current ART use, and to test for HIV if not previously tested positive through CHDSS. For each round 2014-2017, we estimate ART coverage overall, and by sex and age group. All estimates are weighted to the 2016 census.
Results: Between 2014 and 2016, 37,766 (73%) of 51,878 adult residents (15-59 years of age) underwent home-based HIV counselling and testing (HBHTC) at least once, with 19,811-24,946 residents participating in each round of the survey. Among participants with HIV, ART coverage increased from 49% (95% confidence interval [CI] 47.7-50.6) in 2014 to 85% (95% CI: 83.7-86.0) in 2017 (Table); pill bottles were observed for ≥82% of ART reporters per round. ART coverage increased most among residents aged 15-24 years, from 28% (95% CI: 25-0-31.8) in 2014 to 73% (95% CI: 69.0-76.8) in 2017. In 2017, ART coverage exceeded 80% for women aged 25-59 years and men aged 35-59 years (Figure). The percentage of participants on ART in 2017 who were newly HIV-diagnosed at home in prior surveillance rounds was 29%, 21%, and 18% among participants aged 15-34, 35-45, and 45-59 years, respectively.
Conclusions: One year after approval of T&S, substantial progress has been made in achieving the UNAIDS goal for over 80% ART coverage among all demographic groups in a high burden district in Southern Mozambique. Improvements are still needed to expand this achievement to all sub-populations, particularly youth aged 15-34.

	Round 1 (04/2014-04/2015)		Round 2 (05/2015 -01/2016)		Round 3 (03/2016-03/2017)		Round 4 (04/2017-11//2017)	
Characteristics of Participants	HIV+ n	On ART %(95% CI)	HIV+ n	On ART %(95% CI)	HIV+ n	On ART %(95% CI)	HIV+ n	On ART %(95% CI)
Total	5078	49 (48-51)	5841	68 (66-69)	6106	76 (74-77)	4723	85 (84-86)
Male	981	41 (38-44)	1227	60 (57-62)	1263	70 (67-73)	941	78 (75-81)
Female	4097	52 (50-53)	4614	71 (70-73)	4843	78 (77-79)	3782	88 (87-89)
Age Group								
15-24	697	28 (25-32)	723	48 (44-51)	717	59 (55-73)	496	73 (69-77)
25-34	1561	44 (41-47)	1712	61 (59-63)	1748	68 (66-70)	1256	81 (78-83)
35-44	1545	57 (54-59)	1842	75 (72-77)	1971	82 (80-84)	1595	88 (86-90)
45-59	1275	61 (58-63)	1564	80 (78-82)	1670	86 (85-89)	1376	91 (90-93)

[Reported ART coverage among HIV-positive survey participants, by survey round, gender, and age group.]



[ART coverage among HIV-positive survey participants, by survey round, and gender and age group.]

THPEC227

Improvements in the South African HIV care cascade: Findings on 90-90-90 targets from successive population-representative surveys

S.A. Lippman[1], A.M. El Ayadi[2], J.S. Grignon[3,4], A. Puren[5,6], T. Liegler[7], M.J. Ratlhagana[4], J. Moris[1], E. Naidoo[4], E. Agnew[1], S. Barnhart[3], S.B. Shade[1]
[1]University of California, Center for Aids Prevention Studies, Department of Medicine, San Francisco, United States, [2]University of California, Bixby Center for Global Reproductive Health, Department of Obstetrics, Gynecology and Reproductive Sciences, San Francisco, United States, [3]University of Washington, Department of Global Health, Seattle, United States, [4]International Training and Education Center for Health (I-TECH) South Africa, Pretoria, South Africa, [5]National Institute for Communicable Diseases/NHLS, Johannesburg, South Africa, [6]University of Witwatersrand, Johannesburg, South Africa, [7]University of California, HIV, Infectious Diseases and Global Medicine Division, Department of Medicine, San Francisco, United States

Background: South Africa began staged roll-out of fixed dose combination (FDC) antiretroviral therapy (ART) in April, 2013; expanded ART initiation from CD4< 350 to CD4< 500 in January, 2015; and instituted universal treatment in September, 2016. We assessed whether these changes facilitated meeting UNAIDS 90-90-90 targets by comparing population-representative surveys before and after expanded treatment policies were introduced.
Methods: Data were collected in January-March 2014 and August-November 2016 in Lekwa-Teemane and Greater Taung sub-Districts, Dr. Ruth Segomotsi Mompati District, North West Province. In both surveys, 46 enumeration areas (EA) were selected proportional to size, an average of 39 dwelling units (DU) per EA were randomly selected, with one DU resident 18-49 years old randomly selected for participation. Participants responded to a behavioral survey, were invited to undergo rapid antibody testing and provide dried blood spots (DBS) for HIV detection and viral load testing. Weighted analyses accounted for multi-stage sampling.
Results: For both surveys, over 90% of those eligible enrolled, resulting in 1044 participants in 2014 and 971 in 2016; approximately 70% underwent HIV testing. HIV prevalence was 23.1% (95% CI=19.1-27.2) in 2014 and 21.0% (95% CI=17.2-24.9) in 2016. The proportion of HIV-positive individuals with knowledge of their status remained constant at 65.8% (95% CI=58.1-72.7) in 2014 and 65.3% (95% CI=56.3-73.4) in 2016, despite increases in reported testing. Men were significantly less aware of their status than women in both surveys (Table 1). The proportion of HIV-positive individuals on ART increased significantly from 79.0% (95% CI=69.6-86.0) in 2014 to 91.3% (95% CI=84.3-95.4) in 2016. Among those on ART, viral suppression (< 5,000 DBS copies/ml) increased significantly from 55.6% (95% CI=40.0-71.1) in 2014 to 83.6% (95% CI=74.0-93.2) in 2016, with a particularly large increase for men.
Conclusions: Over two and a half years during which FDC was introduced and ART eligibility was expanded to universal access, the second 90-90-90 target was reached and the third is within reach in rural South Africa. No improvements were evident in the first 90 target, despite increases in reported HIV testing. Targeted and differentiated testing models to encourage uptake of HIV testing by people most at risk are required.

	Overall		Male		Female	
	2014	2016	2014	2016	2014	2016
	wgt % (95% CI)	wgt % (95% CI)	wgt % (95% CI)	wgt % (95% CI)	wgt % (95% CI)	wgt % (95% CI)
Prior knowledge of HIV+ status	65·8 (58·1-72·7)	65·3 (56·3-73·4)	48·4 (36·8-60·2)	50·7 (36·0-65·2)	75·7 (63·4-84·8)	72·6 (60·7-81·9)
On ART β	79·0 (69·6-86·0)	91·3 (84·3-95·4)	72·9 (54·0-86·0)	88·6 (77·8-94·5)	81·2 (70·1-88·8)	92·2 (83·5-96·5)
Viral Suppression (<5000) δ	55·6 (40·0-71·1)	83·6 (74·0-93·2)	32·4 (9·1-55·7)	82·8 (60·6-100)	63·1 (48·1-78·2)	83·9 (74·2-93·6)
Note: Weights account for sampling, non-response, and age/gender of target population. β Among those with prior knowledge of HIV status; δ Among those on ART.						

[Table 1. Proportion of HIV-Positive Population with Known Status, Initiated on ART, and Virally Suppressed (90-90-90 indicators) in North West Province]

THPEC228

HIV incidence trends by marital status in mature HIV epidemics: Evidence from two community cohort studies in Uganda

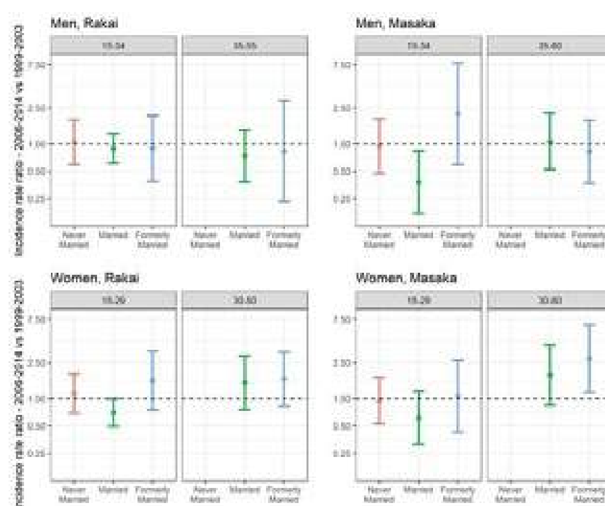
G. Reniers[1,2], K. Risher[1], E. Sully[3], E. Slaymaker[1], T. Lutalo[4], R. Newton[5,6], D. Nabukula[4], J. Seeley[6,7], B. Zaba[1]
[1]London School of Hygiene and Tropical Medicine, Department of Population Health, London, United Kingdom, [2]University of the Witwatersrand, School of Public Health, Johannesburg, South Africa, [3]Guttmacher Institute, New York, United States, [4]Uganda Virus Research Institute, Rakai Health Sciences Program, Rakai, Uganda, [5]University of York, Department of Health Sciences, York, United Kingdom, [6]Medical Research Council / Uganda Virus Research Institute, Uganda Research Unit on AIDS, Entebbe, Uganda, [7]London School of Hygiene and Tropical Medicine, Department of Global Health and Development, London, United Kingdom

Background: The association between marital status and HIV incidence has at times been heavily contested in the literature. In this study, we revisit the evidence against the background of increasingly expansive combination HIV prevention programmes, including medical male circumcision and antiretroviral treatment for prevention.

Methods: Data for this study come from two population-based HIV surveillance sites Uganda: the Kyamulibwa General Population Cohort in the Masaka District and the Rakai Community Cohort Study. Each of these have conducted repeated serological surveys, which allow for the direct measurement of HIV incidence. Our dataset spans the years 1999-2015 (to be updated by the time of the IAS conference), and is used to describe trends in HIV incidence rates and the distribution of seroconverters by marital status. Poisson regression is used to test for changes in the relationship between marital status and HIV incidence over time. All analyses are gender disaggregated and control for age.

Results: Known HIV negative adults (aged 15-50) in Rakai and Masaka respectively contribute 68,132 and 66,667 person-years of exposure to the analysis. HIV incidence rates are typically highest among never married or formerly married men and women, but married individuals still account for around 40% of new infections because Ugandans spend most of their sexually active lives in a formal union. We find evidence for a decline in HIV incidence rates in young married men in Kyamulibwa (Incidence Rate Ratio: 0.38, 95%-CI: 0.17-0.84) and young married women in Rakai (0.70, 95%-CI:0.49-0.99, Figure 1). There is no evidence of a decline in HIV incidence among married individuals above age 30, but their incidence rates have always been relatively low. HIV incidence among never married or formerly married men and women stagnated, or in the case of older women in Masaka, increased.

Conclusions: We find support for recent studies that documented declines in HIV incidence in the period that HIV prevention efforts expanded. However, the possible impact of these programs is confined to young married men and women. Other prevention efforts are needed to reach never or formerly married men and women.



[Figure 1: HIV incidence rate ratios 2006-'14/15 versus 1999-'03 by sex, study site, marital status and age]

THPEC229

Changes in time to ART initiation in adults with high CD4 count in Latin America, 2003-2016

B. Crabtree- Ramírez[1], Y. Caro-Vega[1], P.F. Belaunzarán- Zamudio[1], B.E. Shepherd[2], P.F. Reibeiro[3], V. Veloso[4], C. Cortes[5], D. Padgett[6], E. Gotuzzo[7], C. McGowan[3], J.G. Sierra- Madero[1], A.K. Person[3]
[1]Instituto Nacional de Ciencias Medicas y Nutricion, Salvador Zubiran, Infectious Diseases, HIV/ AIDS Clinic, Mexico City, Mexico, [2]Vanderbilt University, Biostatistics, Nashville, United States, [3]Vanderbilt University School of Medicine, Medicine, Division of Infectious Diseases and Epidemiology, Nashville, United States, [4]Instituto Nacional de Infectologia Evandro Chagas-Fiocruz, HIV, Rio de Janeiro, Brazil, [5]Universidad de Chile, Fundación Arriarán, Santiago, Chile, [6]Instituto Hondureño de Seguro Social and Hospital Escuela Universitario, Tegucigalpa, Honduras, [7]Instituto de Medicina Tropical Alexander von Humboldt, Lima, Peru

Background: In 2013 the World Health Organization (WHO) recommended initiating ART in all adults with HIV and CD4+ lymphocyte counts (CD4) < 500cells/mm³. In 2015, WHO updated this guidelines to recommend initiating ART in all patients with HIV, regardless of CD4 count. Implementation of these guidelines in real-world settings has not been evaluated in Latin America. To assess the impact of WHO guidelines on ART initiation during routine care, we estimated trends in time from enrollment in care to ART initiation in HIV-positive adults in the Caribbean, Central and South America network for HIV epidemiology (CCASAnet) during 2003-2016.

Methods: ART-naïve adults, with CD4 ≥350cells/mm³ at enrollment in five CCASAnet sites (Brazil, Chile, Honduras, Mexico and Peru) during 2003-2016, were included. We estimated time from enrollment to ART initiation by calendar year. Using a Cox model, we calculated adjusted hazard ratios (HR) and 95% confidence intervals (95%CI) for trends in ART initiation using splines for continuous variables accounting for age, sex, CD4 at enrollment, route of HIV transmission, and site.

Results: Among 3325 patients, 1720 (52%) had CD4 ≥500cells/mm³ at enrollment. Median time to ART initiation by year was 5.8 (interquartile range (IQR): 1.4, 21.9) weeks after 2013 (Fig.1A). Adjusted probability of ART initiation increased significantly in later years, in particular after 2015 (2013 vs. 2003: HR=5.70, 95%CI: 4.75-6.83 and 2015 vs. 2003: HR=12.62, 95%CI: 10.58-15.05) (Fig.1B). Older age (50 vs. 20 years: HR=1.24, 95%CI: 1.09-1.41) and receiving care in Honduras and Mexico (Honduras vs. Brazil: HR=1.45, 95%CI: 1.14-1.85; Mexico vs. Brazil: HR=1.19, 95%CI 1.02-1.37) were also associated with earlier initiation. Among 801 (24%) patients never initiating ART, 55% were enrolled before 2013, 49% were lost to follow-up, and 43 (5%) died after a median of 2.76 (IQR: 0.7, 4.9) years.

Conclusions: Time to ART initiation in patients with high CD4 cell counts decreased significantly following changes in WHO guidelines in this real-world setting in Latin America. Nonetheless, a sizeable portion of

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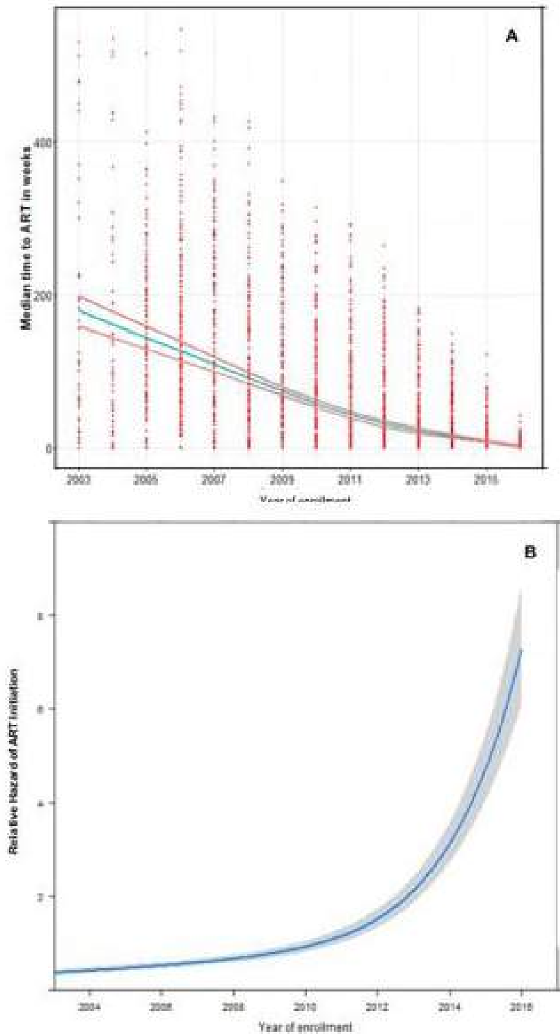
the cohort never started ART; half of these were lost to follow-up. Further efforts to reduce time to ART initiation are needed particularly for those at risk for loss to follow-up.



[Figure 1. A) Median time of starting ART by calendar year among all ART initiators. B) Relative Hazard of ART initiation by calendar year, adjusted for sex, age, CD4 at enrollment, route of HIV transmission, and site]

THPEC230

Trends and disparities in failure to achieve indicators of engagement in HIV care, San Francisco, CA, USA 2009-2014

S. Scheer[1], S.K. Schwarcz[1], L.C. Hsu[1], S. Pipkin[1], N. Hessol[2]
[1]*San Francisco Department of Public Health, HIV Epidemiology Section, San Francisco, United States,* [2]*University of California, Departments of Clinical Pharmacy and of Medicine, San Francisco, United States*

Background: Aggressive efforts are underway to reduce new HIV infections and improve health outcomes for persons living with HIV. We measured trends and factors associated with failure in the care continuum among persons newly diagnosed with HIV in San Francisco (SF).

Methods: Newly diagnosed (2009-2014) HIV/AIDS cases reported to the SF surveillance registry were analyzed to identify persons: who failed to

1) initiate care ≤ 3 months after diagnosis,
2) remain in care 6-12 months after entry into care,
3) achieve viral suppression ≤ 12 months after diagnosis, who
4) had AIDS ≤ 3 months after diagnosis, and
5) died ≤12 months after diagnosis. Multivariable Poisson logistic regression measured prevalence ratios and 95% confidence intervals of each outcome, adjusted for gender, race/ethnicity, age, transmission risk, homelessness, low income, and CD4 count.

Results: There were 2,530 persons analyzed. After adjusting for confounding, the risk of late entry into care and not achieving viral suppression by 12 months after diagnosis was significantly decreased in 2014 compared to all earlier years (Table). Rapid progression to AIDS was also significantly less likely in 2014 compared to 2009-2011 (Table). Risk for late initiation of care and for not remaining in care after initial linkage was significantly increased for persons with no reported risk of HIV (NRR) (PR=2.47, 95% CI 1.49-4.07) and (PR=1.84, 95% CI 1.22-2.76), respectively. For no early viral suppression, increased risk was observed for MSM who inject drugs (PR=1.39, 95% CI 1.13-1.71), persons with NNR (PR=1.57, 95% CI 1.03-2.40) and homeless persons (PR=1.30, 95% CI 1.00-1.72). For late HIV diagnosis, an increased risk was observed for older age (PR=1.34, 95% CI 1.24-1.44), other race (PR=1.32, 95% CI 1.03-1.69), and heterosexual HIV transmission (PR=1.89, 95% CI 1.32-2.69). Risk for death was increased for older persons (PR=1.79, 95% CI 1.41-2.26) and those with NRR (PR=3.99, 95% CI 1.59-10.05).

Conclusions: Temporal improvements in indicators support the beneficial impact of HIV care-related interventions, including rapid linkage to care and ART initiation, but targeted services are needed to reduce disparities. Public health surveillance provides a population-based data-driven approach to evaluate interventions and identify vulnerable populations in greatest need of assistance.

	No initiation of care <=3 months of diagnosis (n=2333)	Not retained in care 6-12 months after entering care, among those linked to care (n=2233)	No viral suppression <=12 months of diagnosis, among those with viral load tests (n=2193)	AIDS diagnosis <=3 months of HIV diagnosis (n=2333)	Died <=12 months of diagnosis (n=2333)
Variable	Prevalence Ratio (95% CI)	Prevalence Ratio (95% CI)	Prevalence Ratio (95% CI)	Prevalence Ratio (95% CI)	Prevalence Ratio (95% CI)
Diagnosed in 2009	1.89 (1.15-3.12)	1.15 (0.86-1.55)	3.11 (2.24-4.30)	1.68 (1.22-2.32)	2.43 (0.80-7.42)
Diagnosed in 2010	2.19 (1.34-3.56)	1.23 (0.92-1.65)	2.35 (1.68-3.29)	1.55 (1.12-2.14)	2.05 (0.66-6.33)
Diagnosed in 2011	2.01 (1.21-3.35)	0.96 (0.70-1.32)	2.16 (1.53-3.05)	1.49 (1.07-2.09)	1.99 (0.62-6.33)
Diagnosed in 2012	1.70 (1.03-2.82)	1.05 (0.78-1.43)	1.59 (1.11-2.26)	1.29 (0.92-1.81)	0.57 (0.13-2.57)
Diagnosed in 2013	2.28 (1.40-3.73)	1.11 (0.82-1.51)	1.57 (1.09-2.26)	1.12 (0.79-1.60)	2.99 (0.98-9.14)
Diagnosed in 2014	1.00	1.00	1.00	1.00	1.00

[Sub-optimal HIV care among persons diagnosed with HIV/AIDS, 2009-2014, San Francisco, CA, USA (N=2530)]

Monitoring and evaluation of health systems along the HIV cascade

THPEC231

Who will be lost? A psychosocial review on loss to follow-up in people with HIV

P. Torres-Bertral[1,2], M.J. Ferrer Lasala[2], J.A. Muñoz-Moreno[2,3]
[1]*Institut Català d'Oncologia (ICO), Hospital Universitari Germans Trias i Pujol, Badalona, Spain,* [2]*Fundació Lluita contra la SIDA (FLS), Hospital Universitari Germans Trias i Pujol, Badalona, Spain,* [3]*Universitat Oberta de Catalunya (UOC), Facultat de Psicologia i Ciències de l'Educació, Barcelona, Spain*

Background: Although access to antiretroviral therapy and viral suppression may be available and achievable, retention in care is crucial to reach these and other successful goals in HIV clinical management. However, undesirable rates of loss to follow-up (LTFU) are still present today. We reviewed the literature with 2 primary aims:

1) to identify the correlates associated with LTFU, and
2) to categorize those factors involving psychological, social and cultural issues.

Methods: We developed a narrative review of studies in HIV infection in which variables concerning retention in care were investigated. We used Pubmed with a selection period from January 2010 to December

2017. Eligible studies met the following criteria: 1) English language, 2) published in a peer-reviewed journal, 3) including any step of the HIV care continuum, and 4) finding at least one of the following factors as relevant: psychological, social or cultural. We performed descriptive statistical analyses.

Results: We found 2325 citations investigating aspects related to retention in care. A total of 29 reports met the study criteria and were included in the review. The most common definition of LTFU was not attending the next scheduled clinical or medical appointment up to 180 days following the last clinical visit. The rate of LTFU ranged from 1% to 59%. The studies described up to 55 variables, which could be classified into 7 categories: anthropometric, demographic, institutional, physical complications, psychosocial, related to laboratory results, and therapeutic. Regarding psychosocial variables, 13 factors were detected in connection with LTFU (*Table 1*): the most important were depression (in 14% of the reports), low social support (14%), perceived stigma (14%), and HIV nondisclosure (10%).

Conclusions: Psychological, social and cultural factors influence not only health-related outcomes of people living with HIV, but also, importantly, retention in care. Risk factors such as depression, poor social support, highly perceived stigma, and difficulties for HIV disclosure lead to a greater likelihood of LTFU. Detection and assessment of psychosocial variables are strongly recommended in people living with HIV, in order to both predict a potential loss of retention in care, and propose and establish intervention programs to ensure and optimize linkage to care.

Dimension	Variable	Author (year)	Frequency (%)	N	Area
Psychological	Depression	Glass, T.R. et al. (2015)	22.8	8,709	Switzerland
		Kiriazova, T. et al. (2016)	40.5	660	Russia
		Pellowski, J.A. & Kalichman, S.C. (2015)	10.1	422	USA
		Shubber, Z. et al. (2016)	15.0	19,916	Africa, Europe, USA
	Feeling sick	Shubber, Z. et al. (2016)	15.8	19,916	Africa, Europe, USA
	HIV nondisclosure	Akilimali, P.Z. et al. (2017)	53.5	717	Congo
		Kiriazova, T. et al. (2014)	45.5	660	Russia
		Shaweno, T. & Shaweno, D. (2015)	41.0	426	Ethiopia
	Stress perception	Camlin, C.S. et al. (2016)	32.0	430	East Africa
		[illegible], G. et al. (2016)	62.8	200	Rwanda
	No maternal figure	[illegible], S. et al. (2017)	1.6	13,099	Malawi
	Stressors	Pellowski, J.A. & Kalichman, S.C. (2015)	3.2	422	USA
Social	Food insecurity	Tucker, J.D. et al. (2017)	Qualitative	24 studies	Africa
		Yakob, B. & Ncama, B.P. (2016)	Qualitative	111	Ethiopia
	Difficulties with confidentiality	Shubber, Z. et al. (2016)	13.6	19,916	Africa, Europe, USA
		Tomori, C. et al. (2016)	Qualitative	363	India
	Social inequalities	[illegible], T.T. & [illegible], K. (2016)	Qualitative	2	South-Africa
	Low social support	Pellowski, J.A. & Kalichman, S.C. (2015)	7.4	422	USA
		[illegible], B.A. et al. (2014)	10.9	4,934	Africa, Asia, USA, South America
		Tomori, C. et al. (2016)	Qualitative	363	India
		Yakob, B. & Ncama, B.P. (2016)	Qualitative	111	Ethiopia
	Socioecological factors	Yakob, B. & Ncama, B.P. (2016)	Qualitative	111	Ethiopia
	Unstable housing	Tucker, J.D. et al. (2017)	Qualitative	24 studies	Africa
Cultural	Perceived stigma	Kiriazova, T. et al. (2016)	21.2	660	Russia
		[illegible], F. et al. (2016)	-	537	Rwanda
		Shubber, Z. et al. (2016)	13.6	19,916	Africa, Europe, USA
		Yakob, B. & Ncama, B.P. (2016)	Qualitative	111	Ethiopia

[Table 1. Psychosocial variables related to loss to follow-up.]

THPEC232

Risk factors for loss to follow-up, transfer or death among people living with HIV on first ART regimen in Mali

A. Baldé[1], L. Lièvre[1], A.I. Maiga[2], F. Diallo[3], I.A. Maiga[4], D. Costagliola[1], S. Abgrall[5]

[1]Sorbonne Université, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique, Paris, France, [2]Unité d'Epidémiologie Moléculaire de la Résistance du VIH aux ARV du Centre de Recherche et de Formation sur le VIH/Sida et la Tuberculose (SEREFO), Université des Sciences, des Techniques et des Technologies de Bamako (USTTB), Bamako, Mali, [3]Association de Recherche, de Communication, d'Accompagnement à Domicile des Personnes Vivant avec le VIH (ARCAD-Sida), Bamako, Mali, [4]Ensemble pour une Solidarité Thérapeutique Hospitalière en Réseau (ESTHER), Bamako, Mali, [5]AP-HP, Hôpital Antoine Béclère, Service de Médecine Interne, Clamart, France

Background: Among 99 000 adults living with HIV in Mali in 2013, 27 000 were treated. Healthcare for people living with HIV (PLHIV) started in 1998 in Bamako (capital), extended to other regions from 2001 and became free from 2004. To assess the quality of follow-up according to the national programme (quarterly visits); risk factors for lost-to-follow-up (LTFU) were assessed using the ESOPE medical database from different outpatient clinics (care expertise level II) and hospitals (care expertise level III).

Methods: HIV-1 individuals, ≥18 years, starting ART in 2006-2013 and coming back for their 1 month visit were considered. LTFU was defined as had no visit in the 6 months previous to database endpoint. Risk factors for LTFU were assessed at 5 years on ART using Cox model, taking into account the competitive risks of transfer to another centre and death. Potential risk factors at start of ART were age, sex and pregnancy, WHO stage and CD4, period of ART, type of ART, marital status, education level, professional activity, and a variable combining region of care, care level and distance from home. We used multiple imputations to deal with missing values. Last database update was 31/03/2015.

Results: We included 9,307 PLHIV starting ART in 9 outpatient clinics and 7 hospitals (5+2 in Bamako and 4+5 in the Regions), 33% male, median (IQR) age 36 (29-43), CD4 count 157/µL (58-273) and duration (months) on ART 32 (13-61). At 5 years, 37.1%, 7.5% and 4.3% were LTFU, transferred or dead respectively. Compared to Bamako outpatient clinics, people in Bamako hospitals living >5 kilometers (kms) apart, in Regions hospitals, or in Regions outpatient clinics living < 5 kms apart were at higher risk for LTFU, whereas people in Regions outpatient clinics living 5-50 kms apart were at lower risk for LTFU. Other adjusted risk factors for being LTFU were male sex, recent periods, lower education, farmers/fishers and WHO stage 3-4 with lower immunity.

Conclusions: Care expertise level, distance to care and economic insecurity were associated with LTFU. Political crisis since 2012 have impacted the quality of follow-up. Stigmatization might play a role for low distances in the Regions.

THPEC233

Online MIS database to improve HIV case detection and case management tracking in Central Asia

M. Kan, R. Shaimerden, O. Samoilova

Population Services International/Central Asian Branch, Almaty, Kazakhstan

Background: PSI Central Asia (PSI/CA) previously used the MS Access database for project management. Although the tool was useful for management, it did not allow reviews until the end of a quarter, when partners sent their data. This hindered ongoing data quality checks and real-time data-driven decision-making.

Under USAID Central Asia HIV Flagship Project, PSI/CA decided to move to a web-based database that would eliminate these delays. This transition was intended to inform programmatic decision-making, and increase the use of high-quality HIV prevention, testing, and treatment services.

Description: PSI/CA engaged a local web developer. Prioritizing flexibility of design and responsiveness to project changes, PSI/CA management relied on the developer's ability to create a new database that would remain adaptable and help achieve all project goals. The database development was an iterative process with multiple meetings between M&E and program teams to refine the system features. The architecture of the database and improved usability have been developed within very strict time constraints. The regional nature of the project added to the complexity of the database design, as it covers three Central Asian countries.

Lessons learned: The new system has proved more robust and comprehensive - it accurately captures the complex case detection process following the RDS recruitment method. All necessary tracking of this method is built into the new system, including tracking of coupon distribution to initial contacts and recruitment management. The database generates coupons for recruitment, tracks the recruitment chains and has a sophisticated tool to manage the number of coupons and waves across chains. The system is extremely responsive to program design changes, and able track at individual client, target group, and NGO levels.

It also captures different variables of case management for PLHIV, including clients' socio-demographic information. This cascade starts with case detection, and follows clients through to enrollment in case management and linkage to care at AIDS Centers.

Conclusions/Next steps: In just a year, the database has enabled PSI/CA to conduct ongoing monitoring and evaluation of the project activities and provide improved, comprehensive support to clients. The next step is to roll-out the use of mobile devices for data collection.

THPEC234

Treatment for all, implementation for most: Heterogeneous roll out of test and treat by clinics near Agincourt, South Africa

N. Haber[1], M.-S. Kang Dufour[2], C. Kabudula[3], A. Julien[2,4,5], F.X. Gómez-Olivé[3], K. Kahn[3,6], S. Lippman[2,3], A. Pettifor[3,7]

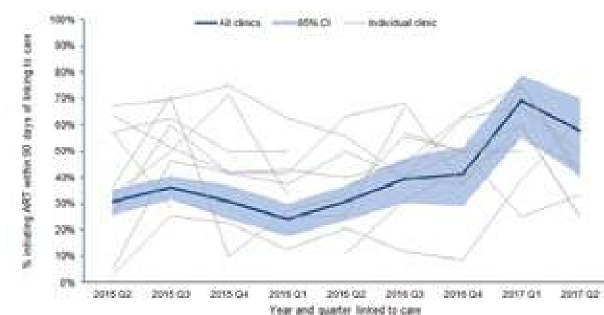
[1]University of North Carolina at Chapel Hill, Carolina Population Center, Chapel Hill, United States, [2]University of California, San Francisco, United States, [3]University of the Witwatersrand School of Public Health, Medical Research Council/Wits University Rural Public Health and Health Transitions Research Unit (Agincourt), Johannesburg, South Africa, [4]University of North Carolina, Chapel Hill, United States, [5]University of Antwerp, Antwerp, Belgium, [6]Umeå University, Umeå Centre for Global Health Research, Division of Epidemiology and Global Health, Department of Public Health and Clinical Medicine, Umeå, Sweden, [7]University of North Carolina at Chapel Hill, Gillings School of Global Public Health, Chapel Hill, United States

Background: South Africa officially implemented universal access to antiretroviral therapy (ART) for all diagnosed with HIV, treatment for all (TFA), in September 2016. However, successful implementation of this policy may vary both across South Africa, and even within regions. We estimated heterogeneity in the time from linkage to care to ART initiation across clinics near rural Agincourt, South Africa.

Methods: We utilized data from the Agincourt health and socio-demographic surveillance system, which combines data from the annual population census and electronic clinical record systems for the 10 clinics with HIV services in the region. These data include the dates on which HIV-positive individuals entered the clinical system and first initiated ART. Kaplan-Meier (KM) survival curves were generated to estimate time from linkage to care (LTC), defined as first CD4, viral load test, or follow-up visit after diagnosis, to ART initiation, stratified by the quarter/year of LTC and by clinic, from Q2 of 2015 to Q2 of 2017, censored by end of data collection and/or out-migration. Heterogeneity of curves was measured using a log-rank test of survival functions. The proportion of participants initiating ART within 90 days of LTC was estimated for each quarter and clinic from the KM survival curves.

Results: Between Q2 of 2015 and Q2 of 2017, 1,169 individuals were recorded as having been linked to care for the first time in the Agincourt clinical dataset. The proportion of individuals who initiated ART within 90 days of linking to care changed from 31% (95% CI: 26%-36%) in Q2 of 2015, 31% (95% CI: 24%-37%) in Q2 of 2016, and 58% (95% CI: 41%-70%) in Q2 of 2017 over all 10 clinics. However, treatment initiation times appear to be highly heterogeneous, with highly significant log-rank heterogeneity test ($p < .001$) for all years, including for 2017.

Conclusions: TFA resulted in increased ART initiation once individuals entered into the clinical setting. However, successful implementation of this policy was highly heterogeneous between clinics, even within a single sub-district. Monitoring and additional assistance for clinics which have fallen behind on TFA implementation is needed to ensure the population has universal and immediate access to ART.



[Percentage initiating ART within 90 days of linking to care]

THPEC235

Service utilization along the prevention of mother-to-child transmission of HIV cascade and determinants of child HIV positivity in Nigeria

S. Yin[1], I. Jahun[2], S. Pals[3], T. Efuntoye[2], M. Bronson[3], M. Swaminathan[2], J. Gwamna[2], I. Dalhatu[2], I. Mgbakor[2], A. Abutu[3], D. Ogundehin[4], C. Onyenuobi[2], C. Nzelu[5]

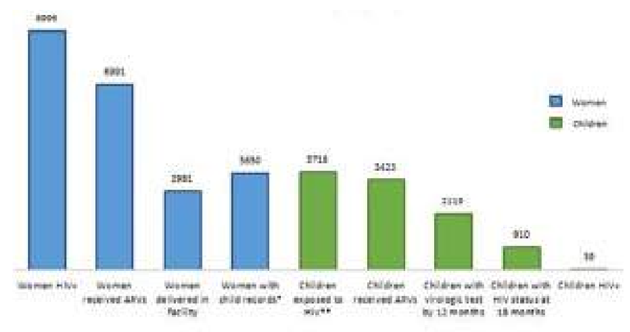
[1]Northrop Grumman (Centers for Disease Control and Prevention Contractor), Atlanta, United States, [2]Centers for Disease Control and Prevention, Abuja, Nigeria, [3]Centers for Disease Control and Prevention, Division of Global HIV and TB, Atlanta, United States, [4]United States Agency for International Development, Abuja, Nigeria, [5]Federal Ministry of Health, Abuja, Nigeria

Background: Nigeria expanded its prevention of mother-to-child transmission of HIV (PMTCT) program threefold from 2012-2014. We examined the cascade of PMTCT services for HIV-positive women and their HIV-exposed infants (HEIs) post expansion to assess program effectiveness.

Methods: A retrospective study was conducted in a stratified cluster sample of HIV-positive women presenting for antenatal, delivery, and/or postpartum services in 2014-2015, followed through 2017. We randomly selected 114 facilities within 12 states (two high HIV prevalence states per region) and three levels of care. Weighted frequencies and 95% confidence intervals (CI) adjusted for within-facility correlation were calculated for steps along the cascade. Factors associated with child HIV positivity were determined using multiple logistic regression.

Results: Overall, 8,996 HIV-positive women were enrolled, of whom 6,991 (74.0%, 95% CI 68.2-79.7) received antiretroviral drugs (ARVs) for PMTCT and 2,981 (35.4%, 95% CI 30.6-40.3) delivered in facility. We found records for infants of 3,650 (40.4%, 95% CI 35.4-45.4) HIV-positive women. Including multiple births, 3,716 HEIs were identified, of whom 3,423 (91.7%, 95% CI 88.1-95.2) received ARVs. Final HIV status was defined by rapid test at 18 months or positive virologic test at any age. Of 910 (26.3%, 95% CI 16.3-36.3) HEIs with a final HIV status, 39 (3.8%, 95% CI 1.1-6.5) were positive. Children of women <25 years and primiparous women were less likely to be HIV-positive compared with children of women 25-34 and women who gave birth 2-3 times, respectively (adjusted odds ratio [AOR] 0.24, 95% CI 0.08-0.71; AOR 0.15, 95% CI 0.04-0.59). Children who did not receive ARVs after birth were more likely to be HIV-positive (AOR 4.88, 95% CI 1.27-18.71). Timing of women's HIV diagnosis was not significantly associated with child positivity.

Conclusions: One in four women eligible for PMTCT did not receive ARVs to reduce HIV transmission risk. Although 3.8% positivity among HEIs with final HIV status is within the elimination of mother-to-child transmission target of <5%, most HEIs did not have a final status due to tests not being done or documented. Poor linkage between mother and child highlights the need to improve recordkeeping and patient follow-up.



[Number of patients along the PMTCT cascade 114 facilities in 12 states, Nigeria, 2014-2015]

THPEC236

Progress towards UNAIDS goals by 2020 in Ukraine at 01.01.2017

L. Legkostup[1], I. Kuzin[1], L. Hetman[1], O. Mishchenko[1], I. Chybisova[2], O. Naduta-Skrynnyk[1]

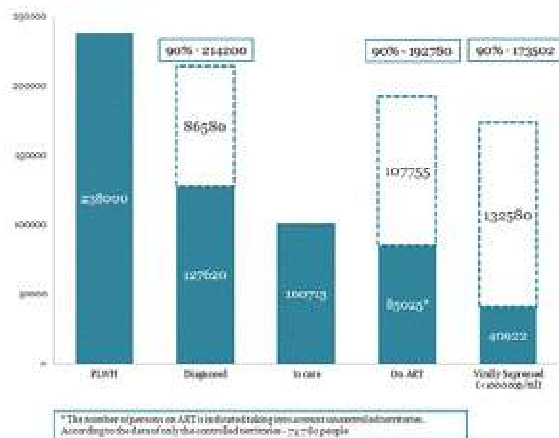
[1]State Institution 'Public Health Center of the Ministry of Health of Ukraine', Kyiv, Ukraine, [2]Ministry of Healthcare of Ukraine, Kyiv, Ukraine

Background: Ukraine has adopted the UNAIDS goals to achieve 90/90/90 by 2020, 90% of people living with HIV (PLWH) will be tested, 90% of those tested receive antiretroviral treatment (ART), 90% of ART-treated patients have viral suppression (VL). The cascade of HIV services plays a key role in achieving the goals. It is the crucial factor for assessing the progress in the implementation of national programs related to reducing the HIV incidence and mortality rate, as well as for tailoring the measures in place and planning for the future periods.

Methods: Estimated data as of January 1, 2017 was obtained with the aid of Spectrum software. Indicators for testing, treatment, and laboratory diagnostics of VL were provided by the national official statistical reporting from 25 regions of Ukraine, except for the non-government controlled area (Donbass region, the Autonomous Republic of Crimea, and the city of Sevastopol).

Results: As of January 1, 2017, the estimated number of PLWH in Ukraine was 238,000. 127,620 of HIV patients (54% of the PLWH) were under medical supervision. The ratio between estimated and actual data of the PLWH number is 1.86: 1, that is, each second HIV person in Ukraine was registered in medical records. Actively monitored PLWH - 100 713 (42% of the PLWH). 85,025 of HIV persons received ART (36% of the estimated number of PLWH). 40 922 PLHIV (17% of the estimated number of PLWH) reached HN < 40 RNA copies/ml. The virological efficacy of treatment from those receiving ART was 80.2%.

Conclusions: Cascade analysis reflects systemic failures in achieving all three 90%. The cascade demonstrates the gap between the coverage of HIV testing and the involvement of people with HIV in the ART programs. The proportion of people with VL remains low. Analysis data are used as arguments for resource allocation, in strategic decisions to strengthen preventive programs, medical services, as well as care and support services. Data also enable programs to be expanded further in those areas that are most in need in order to achieve UNAIDS goals.



[HIV Care Cascade in Ukraine, 01.01.2017]

THPEC237

Higher CD4 count at ART initiation predicts increased viral suppression during universal test and treat in a South African clinic

J. Dorward[1], P.K. Drain[2], F. Osman[1], T. Hong[2], J. Quame-Amaglo[2], K. Ramsaroop[1], F. Sayed[1], Y. Sookrajh[3], A. Olowolagba[3], N. Garrett[1,4]

[1]Centre for the AIDS Programme of Research in South Africa (CAPRISA), Durban, South Africa, [2]University of Washington, Departments of Global Health, Medicine and Epidemiology, Schools of Medicine and Public Health, Seattle, United States, [3]Prince Cyril Zulu Communicable Disease Center, Ethekwini Municipality, Durban, South Africa, [4]University of Kwazulu-Natal, Discipline of Public Health Medicine, School of Nursing and Public Health, Durban, South Africa

Background: In the context of universal test and treat (UTT) there is little data on viral outcomes amongst patients newly eligible for antiretroviral therapy (ART) at higher CD4 counts. We assessed the relationship between initiation CD4 count and subsequent viral load (VL) suppression, in a South African public sector clinic which implemented national UTT guidelines in September 2016.

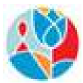
Methods: This was an analysis of baseline data at enrolment into a randomised trial of point-of-care VL testing. Eligible participants were non-pregnant, HIV-positive adults who were enrolled at six months after first-line ART initiation, at which point VL testing was performed. Association between a suppressed six month VL < 40 copies/ml and CD4 count at ART initiation, and potential sociodemographic and clinical confounders, were assessed using logistic regression, adjusted for study arm.

Results: Of 390 participants enrolled between February to August 2017, 60% were female and median age was 32 years [interquartile range (IQR) 27-38]. At ART initiation, median CD4 count was 366 cells/mm³ (IQR 204-546), and 30% had a CD4 >500 cells/mm³, with 99% receiving tenofovir, emtricitabine and efavirenz. Amongst 388 participants with VL available for analysis, 86% (95% confidence interval 83-89%) had a VL <40 copies/ml six months after ART initiation. In univariable analysis, age, gender, time from HIV diagnosis to ART initiation, previous ART exposure, intimate partner violence (women participants only), positive depression screen or alcohol use were not associated with VL results (p-values >0.1). An association between previous TB and a detectable VL was partially confounded by initiation CD4 count. In both univariable and multivariable analyses patients with initiation CD4 count >500 cells/mm³ had over 6 times higher odds of achieving VL suppression compared to those initiated at ≤200 cells/mm³ (Table).

Characteristic		VL < 40 copies/ml, n/N (%)	Odds ratio*	95% Confidence Interval	P-value	Adjusted odds ratio*†	95% Confidence Interval	P-value
Age (years)	18-35	219/249 (88)	1			1		
	> 35	116/139 (84)	0.69	0.38-1.24	0.216	0.79	0.42-1.49	0.391
Previous TB	No	291/329 (88)	1			1		
	Yes	44/59 (75)	0.35	0.17-0.69	0.003	0.45	0.21-0.95	0.037
Initiation CD4 count (cells/mm³)	≤ 200	67/92 (73)	1			1		
	201-350	72/88 (82)	1.54	0.75-3.16	0.243	1.29	0.61-2.71	0.509
	351-500	85/92 (92)	4.17	1.69-10.31	0.002	3.80	1.52-9.48	0.004
	>500	111/116 (96)	8.00	2.91-21.99	<0.001	6.84	2.45-19.09	<0.001

*[Table. Associations between age, previous TB, initiation CD4 count & VL <40 copies/ml, *adjusted for study arm, †and all other variables in table, N=388]*

Conclusions: After introduction of UTT in a South African clinic, less than 90% of patients achieved VL suppression after six months on ART. While VL suppression was high amongst those who initiated with greater CD4 counts, suppression rates were much lower amongst more immunocompromised patients and those with a history of TB. As UTT implementation continues, these patients may require increased VL monitoring and adherence support to achieve 90-90-90.



THPEC238

Evaluation of attrition between HIV testing and initiation of antiretroviral therapy among the newly diagnosed people living in the "test and treat" strategy

V. Chitiyo[1], K. Webb[1], T. Maphosa[1], P. Nesara[1], S. Page-Mtongwiza[1], P. Mawora[2], T. Moga[2], T.A. Tafuma[2], B. Engelsmann[1]
[1]*Organisation for Public Health Interventions and Development, Harare, Zimbabwe,* [2]*FHI 360, Harare, Zimbabwe*

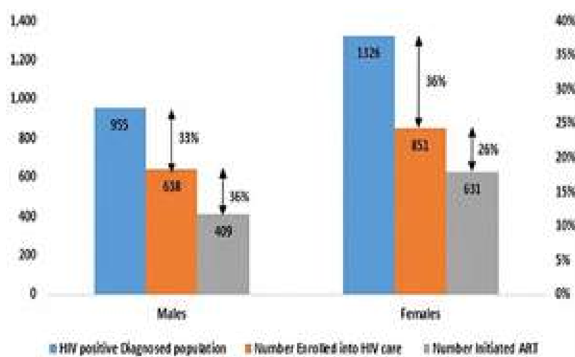
Background: 2015 WHO guidelines recommended immediate HIV treatment for individuals diagnosed HIV positive, "test and treat" strategy. These were widely adopted across countries aiming to reduce progression of disease and risk of HIV transmission.

Linking PLHIV to care and treatment is a key bottleneck to achieving desired outcomes. Attrition was often attributed to lengthy and complicated processes where treatment eligibility was based on specific thresholds of HIV disease progression, e.g. CD4< 350 cells/µl.

The objective of the assessment was to quantify attrition along the new HIV cascade of "test and treat" strategy.

Methods: Purposively sampled 13 health facilities in six districts through collaboration between facility-based and community-based Zimbabwe HIV Care and Treatment programs supporting MOHCC HIV care and treatment program. Secondary program data for newly diagnosed HIV positives between September-December 2016 in Manicaland and December 2016 to March 2017 in Midlands province when "test and treat" was adopted were abstracted and analysed. We examined documented access to HIV services at-least three months after positive diagnosis.

Results: 2297, PLHIV were newly diagnosed and comprised of 101 (4%) children < 15 years and 2183 (95%) adults 15+ years. Attrition was highest between testing and HIV care, 35% (798/2297) and 27% (403/1096) between HIV care services and ART initiation. While there was no significant difference in the losses of PLHIV from testing to enrolment into care by gender, a significantly higher proportion of men were lost between enrolment into care and ART initiation compared to women, 36% vs 26%, p=0.0007.



[Attrition along HIV care and treatment cascade of a Cohort of clients at 13 health facilities]

Conclusions: Although, the "test and treat" strategy simplified and shortened processes of getting HIV treatment, the evaluation demonstrated pervasive attrition along the HIV cascade. As HIV treatment program expands, it is imperative that linkages be strengthened specifically between testing and enrolment in care, as this initial step into HIV treatment is crucial for second and third 90s.

THPEC239

Progress in achievement 90-90-90 in Armenia

S. Grigoryan, A. Papoyan, T. Grigoryan
National Center for AIDS Prevention, Yerevan, Armenia

Background: Creation of prerequisites for achieving the UN 90-90-90s and ending the AIDS epidemic by 2030 are implied by the overall goal of the National AIDS Programme for 2017-2021. Existing level of outbound migration, gaps in reaching key populations by testing, late diagnosis of HIV remain significant challenges today. Calculation of HIV Treatment Cascade, comparative analysis of its changes occurred over the recent years allow assessing possible influence of the implemented activities at different stages of the treatment cascade, identifying weaknesses and gaps in the sequential steps starting from HIV-positive diagnosis to provision of effective ART.

Methods: The HIV treatment cascade was built using the data on estimated number of PLHIV, programmatic data on number of people with HIV knowing their status, on those linked to HIV care, those received ART and those achieved viral suppression. The cascade indicators for 2014-2016 were compared to show the trends.

Results: The treatment cascade analysis showed that percentage of PLHIV who know their status increased from 38.3% in 2014 to 60% in 2016, of those linked to HIV care - from 86.8% in 2014 to 91% in 2016, percentage of PLHIV on ART - from 48.4% in 2014 to 59.7% in 2016.

In 2016 number of PLHIV on ART increased sharply due to change in criteria of eligibility for ART initiating from CD4 count ≤350 cells/mm^3 to ≤500 cells/mm^3. Indicator of ART efficacy, viral load suppression, remained at high level, making up more than 80% in 2014-2016.

Conclusions: There is a significant increase in indicator of PLHIV who know their status, but for attaining the first 90s there is need to enlarging coverage of targeted testing, increasing number of those seeking HIV services, including extension of routinely offered HIV testing in health care facilities, as well as scaling up testing among outbound labour migrants and other key populations.

In July 2017 Armenia adopted new HIV/AIDS Treatment Guidelines comprising the «Treat All» strategy. However, prospective impact the outbound migration high level on treatment and adherence causes difficulties in reaching the UN 90-90-90 targets, which could be addressed by coordinated actions of host and originating countries.

THPEC240

Nepal's progress towards 90-90-90 targets by 2020: The case of HIV care cascade

K. Deuba[1,2], U. Shrestha[1], B. Rawal[3], R. Khanal[1], B.D. Pandey[3], R.K. Bhattarai[4], R. Shrestha[5], A.M. Ekstrom[2,6]
[1]*National Centre for AIDS and STD Control/ Global Fund Programs, Kathmandu, Nepal,* [2]*Karolinska Institutet, Department of Public Health Sciences, Stockholm, Sweden,* [3]*National Centre for AIDS and STD Control, Ministry of Health, Kathmandu, Nepal,* [4]*Save the Children, Kathmandu, Nepal,* [5]*Public Health and Environment Research Centre, Lalitpur, Nepal,* [6]*Karolinska University Hospital, Department of Infectious Diseases, Stockholm, Sweden*

Background: Measuring progress towards the HIV care cascade provides an opportunity for modifying the response to achieve UNAIDS 90-90-90 targets by 2020.

This study assesses progress in the HIV care cascade among people living with HIV (PLHIV) in Nepal and subgroups analyses by sex. We also conducted a cohort analysis of mortality, retention and loss to follow-up (LTFU) over time.

Methods: We estimated the number of PLHIV in the country using mathematical modelling (Estimation and Projection Package/Spectrum). Routine program data of 2016 from 68 antiretroviral therapy (ART) centres were used to calculate progress in different steps of the cascade.

For cohort analysis, we analysed data between 2012 and 2016. Retention in treatment was defined as the percentage of PLHIV alive and on ART at 12, 24, 36 and 60 months following ART initiation. LTFU was defined as those who have not visited the ART centre for at least 90 days.

Results: Of the total estimated number of PLHIV (32735) in 2016, 62% were men, and 38% were women. Almost 55% of the total estimated PLHIV [men: 56% (11241/20232) and women 55% (6889/12503)] were alive and linked to HIV care by the end of 2016. Only 40% PLHIV were on ART and significantly fewer men [34% (6790/20232) than women [50% (6289/12503)]. Of the total estimated PLHIV, only 19% had been tested for viral load, and 17% remained virologically suppressed. Retention on ART was 88%, 83%, 76% and 73% at 12, 24, 36 and 60 months respectively, and higher among women than among men (at 12 months: 90% vs 78% and at 60 months: 82% vs 66%). The LTFU rate increased from 5% at 12 months to 12% at 60 months. Similarly, the mortality rates sharply rose from 7% at 12 months to 15% at 60 months.

Conclusions: To achieve the 90-90-90 targets by 2020, more efforts are needed to identify PLHIV who are not aware of their status, linking them to treatment and improving access to viral load testing. Interventions to address gender differences in the engagement of the HIV care cascade, mortality rates and LTFU need to be prioritized and implemented in Nepal.

THPEC241

HIV treatment cascade among MSM in Brazil

I. Prado[1], C.R.d.S. Barros[2], I. Dourado[3], L. Magno[4], M.D.C. Guimarães[5], C. Kendall[6], L. Kerr[7], R.M.S. Mota[8,9], L. Fernando de Macedo Brigido[10], M.A. Veras[11], the Brazilian MSM Group
[1]Faculdade de Ciências Médicas da Santa Casa de São Paulo, Collective Health Department, São Paulo, Brazil, [2]Universidade Católica de Santos, Santos, Brazil, [3]Federal University of Bahia, Collective Health Institute, Salvador, Brazil, [4]Universidade do Estado da Bahia, Departamento de Ciências da Vida, Salvador, Brazil, [5]Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, [6]Tulane University, Global Community Health and Behavioral Sciences, New Orleans, United States, [7]Universidade Federal do Ceará, Departamento de Saúde Comunitária, Fortaleza, Brazil, [8]Universidade Federal do Ceará, Fortaleza, Brazil, [9]Universidade Estadual do Ceará, Fortaleza, Brazil, [10]Instituto Adolfo Lutz, São Paulo, Brazil, [11]Faculdade de Ciências Médicas da Santa Casa de São Paulo, São Paulo, Brazil

Background: Brazil ratified UNAIDS 2030 Agenda for Sustainable Development. However, data about HIV among MSM appear to be moving in the opposite direction, and it is imperative to identify gaps in the MSM HIV continuum of care. We analyzed the cascade among MSM in Brazil and estimated factors associated with two stages: previous diagnosis (HIV Awareness) and viral suppression.

Methods: Cross sectional study of 4,176 MSM, conducted in 12 Brazilian cities in 2016, using respondent driven sampling. Participants were interviewed and tested for HIV. The cascade was defined as:
1) diagnosis (HIV test results in the study, and self-reported HIV positive status),
2) self-reported ART use,
3) viral suppression (viral load ≤ 50 copies/mL).
Statistical analysis was carried out using complex sampling design procedures. Poisson regression was used to estimate factors associated with "HIV awareness" and "Viral Suppression". Prevalence rate ratio (PRR) with 95% confidence interval (CI) was calculated.

Results: Overall HIV prevalence was 18% and 44% of the participants were unaware of their positive serostatus before the study, representing the biggest gap in the care continuum. Only 18% of HIV positive young men (18-20 years) were previously diagnosed, while older MSM (51-67 years) had higher HIV infection awareness (87%), (PRR 1.9 [95%CI 1.1-3.4]). MSM self-identified as Black had the lowest HIV awareness (50%). Among the participants testing positive before the study, 98% were taking ART, and in this group the proportion of viral suppression was 74%. Only 8.6% of the participants with the lowest education level were virally suppressed, while 90% of those with college education had viral load < 50 copies/mL (PRR 8.6 [95%CI 1.4-50.9]).

Conclusions: The biggest challenge for the HIV continuum of care for MSM in Brazil was testing for HIV, suggesting deficits in promotion and potential barriers to access. In contrast, use of ART among HIV positive MSM and its effectiveness was high. The association between level of education and viral suppression may reflect the extreme inequalities prevailing in the country, emphasizing the importance of the structural interventions in UNAIDS Agenda to end the epidemic.

THPEC242

Patterns of retention of mothers and their children in an HIV/ART clinic in Southern Mozambique: Evidence to support a family-centered care model

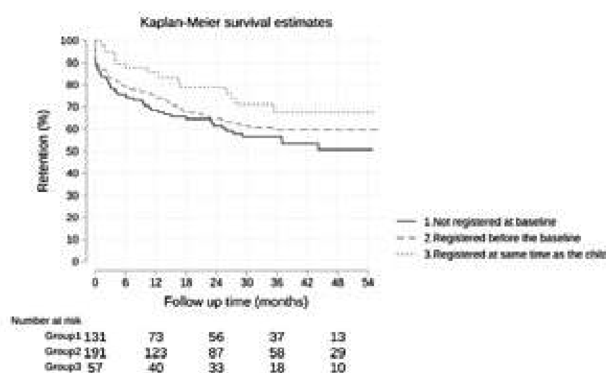
E. Lopez-Varela[1,2], T. Nhampossa[2], L. de la Fuente Soro[1], S. Maculuve[2], S. Fernandez[2], E. Bernanrdo[2], W.C. Buck[3], O. Augusto[2], D. Naniche[2]
[1]Barcelona Institute for Global Health, Barcelona, Mozambique, [2]Manhiça Health Research Center, Manhiça, Mozambique, [3]University of California, Department of Pediatrics, Los Angeles, United States

Background: For HIV infected children, adherence to care is determined largely by their caregivers. It is often assumed those children and their caregivers either stay in care together or abandon together, but few studies have actually evaluated this. We sought to describe the pattern of care among a cohort of HIV infected children and mothers enrolled in care at the Manhiça District Hospital (MDH), Southern Mozambique.

Methods: This was a retrospective review of routine HIV clinical data collected for children enrolled in an open prospective HIV cohort at the MDH. Children initiating HIV care from February 2013 to November 2015 who had been followed up for at least 12 months at the time of the study were included and their mother´s clinical data extracted. Retention in care was estimated 12 months after first consultation for children (baseline). We used Kaplan-Meier estimates and Fine and Grey competing risks models to estimate the effect of mother´s pattern of care in their child´s LTFU.

Results: A total of 395 children initiated HIV care during the study period. At baseline, 34.6% of the mothers had never enrolled in care, 15% had initiated care at the same time as their child and 50.4% had initiated care before their child, of whom 57% were lost to follow-up (LTFU). Fifty-four % children were female and the median age was 3.0 years (IQR:1.0-9.0). Median CD4 was lower for children born to mothers LTFU (676 cells/mm3) as compared to mothers retained or initiating at the same time (850 and 864, respectively p=0.034). One year after baseline, 77.1% of children were retained in care (95%CI 71.9-.81.5). LTFU was less likely among children of mothers initiating care at the same time as compared to children whose mothers had never initiated care (sub-distribution hazard ratio 0.57, 95% CI 0.33-0.99, p=0.045).

Conclusions: The overall low retention rates suggest the need for family-centered care models that facilitate enrollment and re-engagement in care of both mothers and children in order to improve their health outcomes.



[Figure: Cumulative incidence of children´s LTFU in the first 12 months of HIV care according to mother's engagement in care at baseline]

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THPEC243

Second line ART switching in Mozambique: Coverage and time line

A. Torrens[1], J. Rodo[1], L. Molfino[1], C. da Silva[1], G. Ferrario[1], L. Haldna[2]
[1]Medecins Sans Frontieres, Maputo, Mozambique, [2]Medecins Sans Frontieres-Belgique, Maputo, Mozambique

Background: For HIV patients failing on first line treatment, switching to second line ART can be crucial for treatment success. In Mozambique, during the time of this study, all second line ART switching of suspected therapeutic failure cases had to be approved by the National or an autonomous Provincial ART Committee. The purpose of this analyzes is to determine the percentage of patients with virological failure (two viral loads ≥ 1000 cp/mL) who were submitted to the ART committee, approved to switch and that effectively switched to 2ndline ART, and the time it took for each one of these steps to occur.

Methods: A retrospective cohort study design with routine program data was used. The study was conducted between October 2013 and March 2016 in 18 MSF supported health centers of Maputo and Tete, including a referral center for HIV treatment - CRAM in Maputo, where routine VL was implemented. All eligible patients with 2 high viral loads (≥ 1000 cp/mL) were included in the study. Standard descriptive statistics were used to report all results.

Results: Among 1,934 ART patients with two high viral loads, only 37% were referred to the ART Committee. Of these, 96% were approved for switching to a 2nd line ART and 71% switched regimens. Effectively, 27% of all patients with virologic failure switched to 2nd line ART. The median of days between: the 2nd high VL sample collection date and referral to the ART Committee was 183 days; referral to the ART Committee and approval was 5 days and approval by the ART Committee and switch to 2nd line was 28 days. The whole cascade of 2nd line switch lasted a median of 216 days. Results differ between health centers of Maputo, Tete and CRAM.

Conclusions: These results highlight the complexity and delay in switching patients with 1st line treatment failure to 2nd line regimens. The referral of patients to the ART Committee is challenging and access to second-line ART is low. Factors contributing towards these values include a resistance of the clinician to switch patients, stock out of 2nd line drugs and lost to follow up, among others.

Estimating the need for ART and other clinical services

THPEC244

Occupational blood exposure (OBE), seroconversion and coinfection HIV/HBV in CAR

D. Mossoro-Kpinde[1], D.C. Mossoro-Kpinde[2], C.E. Gaunefet[3]
[1]Paediatrics Complex, Bangui, Health, Bangui, Central African Republic, [2]Laboratoire National de Biologie Clinique et de Santé Publique, Health, Bangui, Central African Republic, [3]Hôpital Communautaire de Bangui, Health, Bangui, Central African Republic

Background: CAR has been heavily affected by HIV (4.9%) hepatitis B (15%) and C (8%), but has not yet developed a prevention plan against OBE, even though its health care staff, already low in numbers, is overwhelmed by a massive patient load. This study aims to assess the current OBE situation and develop a national plan for the management of these accidents.

Methods: A study was conducted in 2017 amongst health care facilities groups in Bangui. The parameters being studied were collected using a standard form including serological status for HIV, HBV and HCV, vaccination against hepatitis B, incidents of OBE and their subsequent management.

Results: Three hundred members of the health care staff were included in the study. 18,4% had been vaccinated against hepatitis B. Thirty six percent (36%) had already been tested for HIV, with 7.3% of the tests performed within the last three months. Fifty four percent (54%) cited an incident of OBE within the last six months. Sixty eight percent (68%) of these were from accidental needle stick injuries. At the time of the accident, 39.9% knew their HIV serological status, and 22% their HBV status. Three percent had been vaccinated against hepatitis B. Three per cent (3%) of the accidents received subsequent care. The post-OBE care management did not cover hepatitis B. Among them one showed documented seroconversion for HIV despite post exposure treatment. The victim was a carrier of HBV before the accident, which placed her directly in the category of HBV-co-infected persons and HIV, which makes treatment more difficult.

Conclusions: There is a high prevalence of OBEs in the sites studied. The number of health care staff receiving subsequent care is low. Five years after the introduction of OBE surveil, we are facing the first documented seroconversion. How many other occupational seroconversions are ignored In addition, this observation highlights the protection of healthcare workers and the establishment of mechanisms for compensating and managing staff against OBE.

Expanding the HIV care cascade

THPEC245

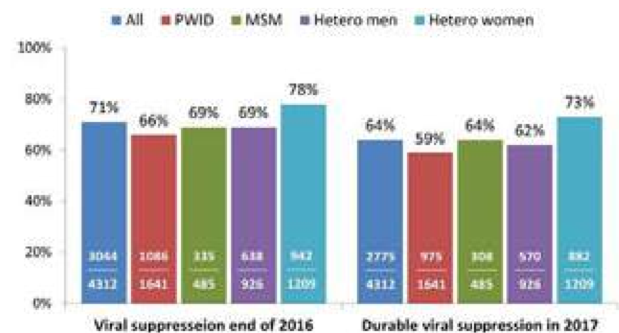
Durability of viral suppression in the Eastern European country of Georgia

N. Chkhartishvili[1], E. Karkashadze[1], O. Chokoshvili[1], N. Dvali[1], A. Abutidze[1], T. Tsertsvadze[1,2]
[1]Infectious Diseases, AIDS & Clinical Immunology Research Center, Tbilisi, Georgia, [2]Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia

Background: HIV care continuum provides cross-sectional snapshot of population level viral suppression and does not capture changes in viral load dynamics. Proportion of persons with viral suppression may substantially fluctuate even in short period of time. We assessed durability of viral suppression over one year period among persons diagnosed with HIV in the Eastern European country of Georgia.

Methods: Standard of HIV care in Georgia includes antiretroviral therapy (ART) regardless of CD4 cell count and 4-6-monthly viral load monitoring. We calculated number and percentage of persons with viral suppression from the end of 2016 through the end of 2017. Viral suppression was defined as viral load < 1000 copies/ml. Analysis included all adult (age ≥18 years) cases of HIV diagnosed through the end of 2016, who were known to be alive by the end of 2017. Data were extracted from the national AIDS health information system.

Results: Among 4312 persons with diagnosed HIV, 3044 (71%) had viral load suppressed at the end of 2016 and 3046 (71%) - at the end of 2017. Over 2017, 269 (6%) persons reverted from suppressed to detectable and 271 (6%) improved from undetectable to suppressed. A total of 2775 (64%) persons maintained viral suppression through the end of 2017 translating into 10% relative difference compared to a single viral load measure. Analysis by transmission categories showed that heterosexually infected women had the highest rates of viral suppression (figure). Of 1537 persons without durable viral suppression, 326 (21%) had at least one episode of viral suppression in 2017, 415 (27%) were in care, but did not achieve viral suppression in 2017 and 796 (52%) were fully disengaged from care.



[Proportion of diagnosed persons with viral suppression]

Conclusions: 91% of persons with initial viral suppression maintained it over 2017. Single viral load measure overestimated durable viral suppression by 10%. Majority of unsuppressed cases are due to disengagement from care. Efforts are needed to ensure high retention and treatment uptake.

THPEC246

The role of access to HIV services at opioid antagonist treatment sites in reaching 90-90-90 in people who inject drugs in Ukraine: Country-level data

A. Meteliuk[1], T. Prokhorova[1], S. Filippovych[1], O. Iakunchykova[2]
[1]Alliance for Public Health in Ukraine, Kyiv, Ukraine, [2]Public Health Center of Ministry of Health of Ukraine, Kyiv, Ukraine

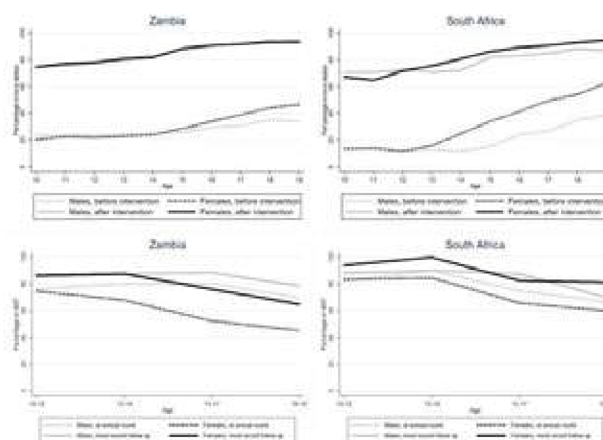
Background: Opioid antagonist treatment (OAT) is an effective means to prevent HIV transmission. Recently, Ukraine started integrating HIV services into OAT sites to improve PWID access to treatment.
Methods: National register of OAT patients (n=10,053) managed by the Alliance for Public Health was analyzed. These data are quarterly collected from all 179 OAT sites throughout Ukraine and entered into SYREX database. For building the cascade, HIV-positive OAT patients (n=4,084) were stratified into two categories: 'OAT alone site' (those who receive their OAT medication at one site and ART at different location, n=1,598) and 'integrated care site' (patients who receive both OAT medication and ART at one location, n=2,486) for comparison. The HIV cascade categories were: (1) proportion of HIV-positive OAT patients linked to HIV care; (2) proportion of them receiving ART; and (3) proportion of them virally suppressed (viral load< 75 copies) stratified by the type of site. Chi-square tests were performed to assess the associations between the variables.
Results: Majority of HIV-positive OAT patients in Ukraine are male (74.1%); mean age is 40 years old (range: 23-64); mean length of injecting before starting OAT-18 years (range:1-47); mean length on OAT 2.9 years (range: less than a year-12 years). Even though all of the HIV-positive OAT clients are aware of their HIV status, progress along the cascade was greater in the 'integrated care sites' stratum compared to the 'OAT alone site'. The proportion of HIV-positive clients who received ART was higher at an integrated care sites (84%) compared to 73% at OAT alone sites; and the distribution of viral suppression among those who receive ART across the strata were 79 and 59% for 'integrated care sites' and 'OAT only sites' respectively. The bivariate analysis showed statistically significant associations between all the variables of interest (p< 0.05).
Conclusions: The results of the analyses clearly demonstrate much better results in reaching the 90-90-90 goals among those OAT patients who receive integrated care services (both OAT and ART) at one site at each stage of HIV cascade, thus there is an urgent need in further expansion of integrating OAT and HIV services in Ukraine.

THPEC247

HIV care cascade among adolescents in a ´test and treat´ community based intervention in Zambia and South Africa: HPTN071 (PopART) for Youth study

K. Shanaube[1], D. Macleod[2], J. Mwate Chaila[1], G. Hoddinott[3], A. Schaap[1,2], S. Floyd[2], C. Mackworth-Young[1,2], P. Bock[3], R. Hayes[2], S. Fidler[4], H. Ayles[1,2], HPTN071 (PopART) Study Team
[1]Zambart, Lusaka, Zambia, [2]London School of Hygiene and Tropical Medicine, London, United Kingdom, [3]Desmond Tutu TB Centre, Stellenbosch University, Pediatrics and Child Health, Cape Town, South Africa, [4]Imperial College, London, United Kingdom

Background: Adolescents have worse outcomes across the HIV care cascade compared to adults. Dropouts at each stage of the cascade lead to poor individual health outcomes and pose challenges for 'test and treat' efforts. The PopART for Youth (P-ART-Y) study is nested within the HPTN071 (PopART) trial, a 3-arm community randomized study in 21 communities in Zambia and South Africa (SA).
The P-ART-Y study aims to evaluate the acceptability and uptake of an HIV prevention package, including universal HIV testing and treatment (UTT), among young people. We report the HIV care cascade for adolescents aged 10-19 years from 7 Arm A intervention communities in Zambia and SA.
Methods: Using a door-to-door approach that included systematically visiting and re-visiting households, across entire communities, all adolescents enumerated were offered participation in the intervention and verbal consent was obtained. Data analysed were collected from September 2016 to December 2017, covering the third round (R3) of the PopART intervention.
Results: Overall, we enumerated 60,515 adolescents (Zambia: 45,271, SA: 15,244). Participation was lower among males. Of all offered HIV testing, 78.8% accepted in Zambia and 70.9% in SA. Knowledge of HIV status was associated with age and increased from 30.6% to 87.5% after the intervention in Zambia and from 29.5% to 81.6% in SA. The intervention closed the gap in HIV-status knowledge between males and females (figure 1). Overall, 774 adolescents were HIV-positive (222 new diagnoses and 552 self-reported), the majority of new diagnoses (144) being females aged 17-19 years. Among the 774 HIV-positives, 64.6% (62.7% in Zambia and 70.3% in SA) reported being on ART at the time they were first seen in R3. Among newly diagnosed and self-reported HIV-positive, median time to initiate ART was 5 months in Zambia and 3 months in SA. At the last follow-up, ART coverage had increased to 78.5% and 85.1% in Zambia and SA respectively, with differences observed by sex (figure 1). Self-reported ART retention was high (approximately 95%).
Conclusions: Despite increased attention to adolescent HIV, gaps remain in the HIV care cascade by age and sex. Differentiated models of care and UTT can help close identified gaps.



[Figure 1: Proportion of adolescents who know their HIV status pre and post intervention & proportion of known positives on ART stratified]

THPEC248

Prior incarceration associated with missed HIV care visits among young people living with HIV in the US

C. Ludema[1], C. Wilson[2], M.A. Lally[3], J.D. Fortenberry[4]
[1]Indiana University, Epidemiology and Biostatistics, Bloomington, United States, [2]University of Alabama Birmingham School of Medicine, Epidemiology, Birmingham, United States, [3]Lifespan Hospital Systems and Alpert Medical School of Brown University, Providence, United States, [4]Indiana University School of Medicine, Adolescent Medicine, Indianapolis, United States

Background: Maintenance in HIV care is important to achieve optimal personal health and HIV viral load suppression for young people living with HIV (PLWH). Prior studies have identified incarceration as a risk factor for poor long-term HIV outcomes. We assessed the relationship between incarceration and missed visits among young PLWH in the US.
Methods: Longitudinal data were collected on a cohort of PLWH (n=924), ages 12-24, from 14 adolescent trial network sites across the US. Incarceration histories were self-reported, missed HIV care appointments and viral load measurements were ascertained by records review. The time from study entry to missed visits was modeled using Cox proportional hazards models.

Results: The cohort was mostly male (78%) and African American (75%) with a median age of 22 (IQR: 20-23). Prior incarceration (i.e., being put in jail, prison, or juvenile detention, or held overnight after an arrest) had been experienced by 40% of the cohort, with a median number of times incarcerated of 2 (IQR: 1-3).
The hazard ratio for missed HIV care visits comparing those with incarceration histories to those without was 1.28 (95% CI: 1.06, 1.54). After adjustment for study site, age, gender, and race the hazard ratio was 1.46 (95% CI: 1.19, 1.79).
While time to re-connection to care after a missed visit did not differ between the two groups, HIV viral loads upon returning to care differed comparing those with incarceration history to those without (43% unsuppressed viral load (>200 copies/mL) versus 29%, p=0.03).

	With incarceration history	No incarceration history
VL ≥ 200 at enrollment*	105/289 (33%)	119/479 (25%)
Missed a scheduled visit	191/363 (53%)	257/561 (46%)
Returned to care	168/191 (88%)	222/257 (86%)
VL ≥ 200 on return to care*	45/105 (43%)	39/133 (29%)
*May not sum to total due to missing viral load measurements		

[Characteristics of cohort (n=924)]

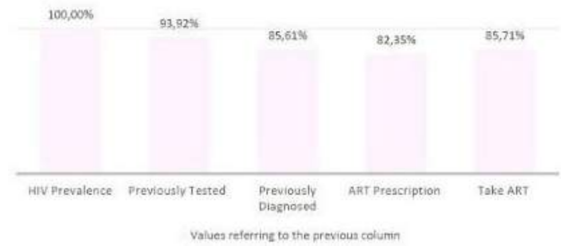
Conclusions: One mechanism by which incarceration may affect HIV viral load suppression is through missed HIV care visits. To achieve the goal of retaining young PLWH with incarceration histories in the HIV care cascade, programs to maintain regular HIV care through and following incarceration periods are needed.

THPEC249

HIV care cascade among transwomen living with HIV in São Paulo-Brazil

A. B M Rocha[1], E. C. Wilson[2], C. Turner[2], G. B. de Souza[1], I. Prado[1], M.A. M. Veras[1], Divas Project
[1]Faculdade de Ciências Médicas da Santa Casa de São Paulo, Public Health, São Paulo, Brazil, [2]San Francisco Department of Public Health, San Francisco, United States

Background: Transwomen bear a large burden of HIV worldwide and are a key population in the HIV epidemic whose prevention and care needs have largely been ignored. In Brazil, estimates suggest at least 30% of transwomen are living with HIV. Testing and treatment access are essential to reducing the impact of HIV on transwomen. This study was conducted to examine the HIV care cascade among transwomen in the most populous city in South America, São Paulo-Brazil.
Methods: Divas Project was a cross-sectional study conducted from November 2016 to May 2017 in São Paulo-City. Respondent driven sampling was used to recruit 386 transgender women (i.e., transwomen and travesits) who participated in a HIV risk survey and were tested for HIV. A multivariable Poisson regression model with robust variance was conducted to identify associations between socio-demographic factors (gender identity, race/ethnicity, education level, income, age, housing situation, health care service registration, and hormone use) and HIV treatment utilization.
Results: In total, 148 (38.34%) participants tested positive for HIV. Almost all had been previously tested for HIV (N=139/148,93.92%) and knew they were HIV positive at the time of the survey (N=119/148,85.61%). The majority of transwomen living with HIV had been prescribed ART (N=98,82.35%), of which 84(85.71%) took the medication. Those who were not registered in primary health care had a lower adjusted prevalence of being on ART compared to those who were registered (adjusted prevalence ratio, aPR:0.56,95%CI:0.32-0.98). Those who identified as transwomen had higher adjusted prevalence of being on ART compared to women (aPR:1.31,95%:1.02-1.68). Transwomen who were between 31-40 years old and those above 40 had a higher adjusted prevalence of being on ART (aPR:2.22,95%CI:1.23-4.00 and aPR:2.21,95%CI:1.22-3.98, respectively) compared to younger transwomen.
Conclusions: Over a third of transwomen in our sample were living with HIV, but most knew they were HIV-positive, were engaged in HIV care and taking ART. These data suggest successful testing and treatment policy implementation among transwomen in São Paulo-City. However, young transwomen and those not registered in health care service may benefit from multi-level efforts to engage this part of the population in care to improve HIV treatment and care outcomes.



[HIV Care Cascade Graph]

THPEC250

Community initiated treatment intervention (CITI) improves linkage to art for key populations

P. Smyrnov[1], I. Sazonova[2], K. Boiko[1], T. Mykhalchuk[2], O. Denisiuk[1]
[1]Alliance for Public Health, Kyiv, Ukraine, [2]Alliance for Public Health, Monitoring and Evaluation, Kyiv, Ukraine

Background: For many KPs knowing their HIV positive test result is not leading to ART initiation. Multiple barriers on personal and health system side delay life-saving treatment despite its availability.
Methods: Community initiated treatment intervention (CITI) facilitate immediate treatment access for active drug users and other KPs. This intervention is aimed to locate HIV positive clients, and their sexual partners and link them to HIV treatment using intensive need-based case management approach. CITI supports HIV positive clients up to 6 months into ART if no support was granted through other projects during CITI implementation (care and support, ST, integrated services). The case manager responsibilities include assessment of the clients' status, their needs and motivation; eliciting information on specific client's barriers to ART access; perform analysis of available resources and services; creating individual assistance plan; coordination of social and health services, representation of client's interests in health care institutions, monitoring of implementation of client progress through cascade. Program data are routinely collected for each HIV positive case on its progress through the cascade despite participation in the CITI. We have analyzed data from 2016 for 3,774 HIV positive cases detected in outreach. Out of them 2,034 received CITI support. We compared program data for clients who received CITI support and those who had standard referral to AIDS clinics.
Results: During 2016 out of all who received HIV positive test in outreach: 75% visited health facility, 53% have registered in care and 30% initiated ART. Participants who received CITI had significantly higher odds to visit health facility (OR=16.7, 95%CI:13.4 - 20.8), register in care (OR=5.4, 95%CI:4.7 - 6.2), initiate ART (OR=4.2, 95%CI:3.6 - 4.9). CITI group represented slightly older age group with mean age 37 (SD=7.7) in comparison with referral group mean age of 35 (SD=8.1). There was no difference between group in gender.
Conclusions: Based on program data CITI improves linkage to ART for HIV positive KPs and should be introduced as a standard practice to HIV programs among KPs to ensure 90-90-90 strategy.

THPEC251

Enhanced Peer Outreach Approach (EPOA): A quick way of reaching out to key populations, linkages project, Malawi

M. Ngulube, MSM Group
Center for the Development of the People, Lilongwe, Malawi

Background: The Centre for the Development of People (CEDEP), with support from FHI 360, has been implementing the USAID-funded LINKAGES project since 2015. In Malawi, the project reaches men who have sex with men (MSM) with HIV prevention, care, and treatment. At CEDEP, we noted that we were getting a lower HIV-positive yield than the na-

tional prevalence of 17.5% among MSM. We therefore sought to identify hard-to-reach MSM by piloting the Enhanced Peer Outreach Approach (EPOA).

Description: EPOA is a time-limited approach for improving access to HIV services for MSM never reached by the program. It uses existing social networks among MSM in the community, in which peers reach out to fellow MSM using coupons. Trained peer educators (PEs) identify other influential helpers called peer mobilizers (PMs), who facilitate the identification of fellow MSM and engage them to be tested for HIV and enroll in antiretroviral therapy (ART), if found HIV positive. Treatment defaulters are also brought in for ART. The peers identified by the PMs are requested to also become mobilizers, who help quickly expand reach to other eligible peers.

Lessons learned: Within two weeks of implementing EPOA, we broke into new MSM networks and identified more HIV-positive MSM. We distributed 881 coupons through 58 PMs, with 286 MSM returning their coupons and getting screened for eligibility. Ninety-three were tested for HIV for the first time; fourteen (15 percent) tested HIV positive and were linked to treatment (whereas the routine HIV-positive yield trend since the inception of the program has been between 4 and 6 percent). Among 180 repeat testers, three (1.7 percent) tested HIV positive. All recruited participants were also screened for STIs and gender-based violence. Previously, using the peer educators model, it was not possible to reach such a large number of MSM in a two-week period, except during social events. Additionally, MSM diagnosed HIV positive took much longer to be initiated on treatment.

Conclusions/Next steps: EPOA is playing a significant role in increasing the identification of new MSM, case detection, treatment initiation, STI screening, violence screening, and linkage to services.

THPEC252

Higher HIV testing yield and lower linkage to treatment among selected key populations compared to general population in mixed epidemics: Evidence from PEPFAR program data Oct 2016 - Sep 2017

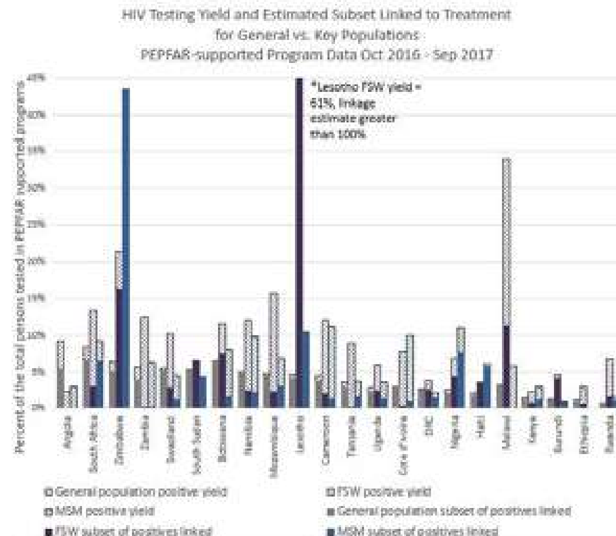
T. Lim[1], P. Vinayak[2], M. Au[3], S. Mital[1]
[1]U.S. Centers for Disease Control and Prevention, Division of Global HIV & Tuberculosis, Atlanta, United States, [2]PricewaterhouseCoopers, Public Sector LLP, Washington, United States, [3]United States Agency for International Development, Office of HIV/AIDS, Washington, United States

Background: Mixed epidemics are the confluence of elevated HIV prevalence among key populations (KP), including female sex workers (FSW) and men who have sex with men (MSM), within a generalized HIV epidemic. HIV programs may disproportionately target the general population (GP), even if HIV prevalence and barriers to services are much higher among KP. The extent of this disparity in the HIV treatment and prevention cascade has not been globally quantified across KP. PEPFAR is the largest bilateral funder of HIV programs globally and began collecting KP-disaggregated testing and treatment data in October 2016.

Methods: Program data on HIV testing and treatment are reported on a quarterly basis as site-level totals by all PEPFAR-supported partners. Standardized program indicators for HIV tests performed, HIV positive test results returned, and treatment naïve patients newly initiated on ART, are each disaggregated by KP type. For each country with a GP prevalence ≥1% and prevalence ≥5% in at least one KP, we calculated HIV testing yield as total positive tests divided by total tests performed. We estimated linkage to treatment as new patients initiated on ART divided by total positive tests for each population.

Results: In the countries that met inclusion criteria (n=22), 31% of testing partners and 37% of treatment partners, respectively, reported KP type disaggregates. Median GP testing yield was 4.0%. FSW had higher HIV testing yield in 21/22 countries (median 4.8% absolute higher yield overall) and MSM in 16/20 countries (median 1.5% absolute higher yield overall). Median GP linkage was 86.7%. FSW had lower linkage to treatment in 16/22 countries (median linkage 39.6%) and MSM in in 15/18 countries (median linkage 57.0%).

Conclusions: The elevated HIV testing yield for KP is consistent with findings of higher prevalence among KP and highlights need for targeted testing strategies. The lower linkage to treatment in PEPFAR programs could be due to underreporting of KP status disaggregation in treatment results, at sites where stigma may discourage disclosure of KP status or treatment initiation altogether. PEPFAR should continue to improve reporting of KP-specific data to highlight and respond to service delivery gaps for KPs.



[Figure 1. HIV positive testing yield (hashed bars), and the subset of which are estimated to be linked to HIV treatment initiation (solid bars), across PEPFAR-supported countries with mixed HIV epidemics among the general population, female sex workers (purple), and/or men who have sex with men (blue)]

THPEC253

Data from large electronic medical record dataset reveal significant improvements and gaps in HIV treatment cascade in Ukraine

K. Dumchev[1], Y. Novak[2], O. Shestakovskyi[2], T. Saliuk[2]
[1]Ukrainian Institute on Public Health Policy, Kyiv, Ukraine, [2]Alliance for Public Health, Kyiv, Ukraine

Background: Rapid expansion of ART, including implementation of 'Test-and-Start' approach, is a top priority for national HIV programs in Ukraine and globally. Key national stakeholders and international donors have set ambitious fast track goals to increase the number of patients from 88,270 on 01/01/2018 to 140,000 by the end of the year.

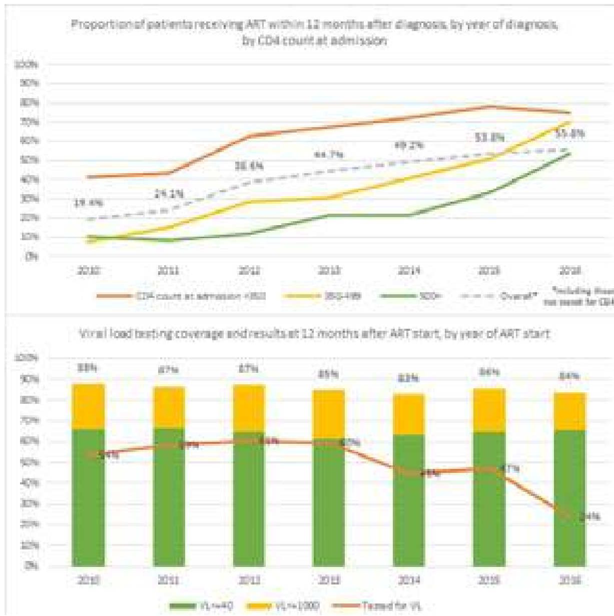
This study was commenced to obtain reliable data on key treatment quality indicators, contributing factors and trends to inform program planning.

Methods: Data from medical charts of all patients who received care at HIV facilities in 2010-2016 in 18 out of 27 regions of Ukraine were entered into an electronic medical record system. After verification of data quality, depersonalized datasets linked by unique patient code were extracted at each facility and merged for analysis. Entire dataset, excluding children younger than 15 at diagnosis, was analyzed using time-to-event methods, including Kaplan-Meier and log-rank test to assess difference between sub-groups.

Results: The cohort included 52,813 patients with HIV infection, approximately 40% of all patients receiving care in Ukraine in 2016. 46.5% were females. Median time from diagnosis to ART receipt decreased from 69 months (95%CI: 65.2-72.8) among patients diagnosed in 2010 to 3 months (95%CI: 2.6-3.4) in 2016 (p< 0.001). Proportion of patients who had received ART within 12 months after diagnosis increased from 19.4% to 55.8%, with most notable increase among patients with CD4>350, from 7.8% to 70.2% (see Figure; p< 0.001 for all strata).

Coverage with viral load testing within 12 months after ART initiation moderately increased from 53.8% in 2010 to 60.6% in 2012, then declined to 23.8% in 2016 (p< 0.001). Among those tested, proportion reaching viral suppression (< 1000 copies/ml) within 12 months after treatment initiation declined from 87.9% to 83.5% (p< 0.001).

Conclusions: First results of the analysis of the large national clinical dataset confirm rapid acceleration of ART uptake, especially among those with less severe immunosuppression, reflecting the change in national guidelines. On the other hand, access to viral load testing and level of suppression remains suboptimal, calling for urgent programmatic actions to improve clinical management of virologic failure and to ensure uninterrupted availability of laboratory services.



[ART coverage and viral suppression in Ukraine]

THPEC254

"A way of escaping": Exploring reasons for silently transferring between clinics among HIV-infected women enrolled in Option B+ in Malawi

A. Bengtson[1], W. Kumwenda[2], V. Go[3], A. Kutengule[2], M. Lurie[1], P. Simelane[2], W.C. Miller[4], M. Hosseinipour[2,3]
[1]Brown University, Providence, United States, [2]UNC Project, Lilongwe, Malawi, [3]University of North Carolina, Chapel Hill, Chapel Hill, United States, [4]Ohio State, Colombus, United States

Background: In order for Option B+ to improve HIV outcomes, women must remain engaged in HIV care. In Malawi, 25% of women default from Option B+ programs within 6 months. However, up to 30% of defaulting women may have unofficially or "silently" transferred to a new clinic and remain in care. Little is known about women's reasons for silently transferring and its impact on clinical care.
Methods: We conducted a qualitative study among HIV-infected pregnant women enrolling in Option B+ and healthcare workers (HCWs) at two large ART clinics in Lilongwe, Malawi between October and December 2017. We conducted focus groups (n=8) among women and HCWs and in-depth interviews (n=5) among HCWs to examine key drivers of silent transfers.
Results: Both women and HCWs reported a high degree of silent transfers between clinics. Silent transfers were often brought on by a specific trigger, such as seeing a friend at the clinic and fearing their HIV status would be disclosed, moving for a husband's job, or a marriage dissolving after a woman disclosed her status. Women described complex and ongoing considerations about disclosure to their partner, relatives, and neighbors as a key driver of where they sought care. In particular, anticipated or experienced stigma and being the subject of "gossip" among neighbors was a major reason for women to move clinics to avoid inadvertent disclosure. Giving false names and contact information to avoid being traced by HCWs to their communities was also common. To avoid disclosure to non-HIV HCWs, many women used two health passports (personal medical records); one for HIV visits and one for all other visits. HCWs reported that women silently transferring often presented as not knowing their HIV status and often repeated HIV testing and ART initiation procedures at the new clinic, leading to an inefficient use of resources and treatment disruptions.
Conclusions: Among women enrolled in Option B+ in Malawi, silent transfers were common and adversely affected clinical HIV care. More flexible systems that accommodate movement between clinics by monitoring engagement in care across clinics are urgently needed to streamline clinical care and optimize HIV treatment outcomes.

THPEC255

Syndemic factors and HIV risk among men who have sex with me in Taiwan

D.-M. Chuang[1,2,3]
[1]University of Toronto, Factor-Inwentash Faculty of Social Work, Toronto, Canada, [2]Asian Community AIDS Services, Toronto, Canada, [3]Committee for Accessible AIDS Treatment, Toronto, Canada

Background: Multiple health problems occurring in a population simultaneously experiencing poor physical and social conditions comprise a syndemic. The current study aimed to examine a possible syndemic and its association with HIV risk among Taiwanese men who have sex with men (MSM). Understanding the phenomenon of the syndemic necessitates comprehensive assessment in order to offer comprehensive community services and curtail the epidemic for this key population.
Methods: From July-September 2017, a cross-sectional, on-line survey was implemented among a convenience sample of MSM recruited from five LGBTQ community-based organizations across Taiwan. Survey items included socio-demographic characteristics, syndemic factors, including childhood abuse (CA), intimate partner violence (IPV), recreational drug use, and discriminatory experiences, and HIV risk index (total score, HIV status, and condom use). Multivariate logistic regression was conducted with HIV risk index as dependent variables, adjusting for socio-demographic characteristics.
Results: Among participants (n = 1000), 81.6% identified as gay; 92.2% had a university degree or more; 55.9% had a full-time job; 71.4% had a monthly income < $39,999 TWD ($1360 USD); 61.0% were single. Regarding syndemic factors, 41.4% experienced CA; 33.8% experienced IPV; 13.2% used recreational drugs, and 73.2% had discriminatory experiences toward their sexual orientation. In multivariate logistic regression, identified as gay (AOR=1.63, 95% CI=1.13-2.36) and experienced more than two syndemics (AOR=2.47, 95% CI=1.63-3.73) were associated with higher HIV risk (total score). Participants who experienced more than two syndemics (AOR=4.45, 95% CI=2.01-9.87) were associated with HIV seropositive; moreover, participants who experienced more than two syndemics (AOR=1.87, 95% CI=1.28-2.74) were associated with inconsistent condom use.
Conclusions: The results of this study provide evidence that syndemic factor on HIV risk among MSM in Taiwan. Multivariable analyses suggest that increased syndemic is associated with HIV risk in total and HIV serostatus. Social and behavioral research among MSM in diverse cultural settings may support the syndemic theory, which may facilitate service providers in applying a comprehensive biopsychosocial perspective in working with MSM.

Surveillance of drug resistance

THPEC256

Patterns of HIV-1 acquired drug resistance in children and adolescents from Argentina in the period 2006-2015

N. Lopez[1], S. Arazi[1], D. Mecikovsky[1], R. Bologna[1], A. Mangano[1,2,3], P. Aulicino[1,2,3]
[1]Hospital de Pediatría 'J.P Garrahan', Buenos Aires, Argentina, [2]Laboratorio de Biología Celular y Retrovirus, Buenos Aires, Argentina, [3]CONICET, Buenos Aires, Argentina

Background: HIV-1 infected children and adolescents have a higher risk of virologic failure and development of drug resistance than adults. In addition, subtype-specific variability can have implications for resistance monitoring, and for resistance development. Our aim was to investigate HIV-1 acquired drug resistance (ADR) in vertically infected children and adolescent from Argentina, and compare patterns of drug resistance mutations (DRMs) between the two major circulating subtypes (BF recombinants and subtype B).

Methods: DRMs and viral subtype were assessed in HIV-1 pol sequences obtained during routine genotypic testing of 247 children and adolescent with virologic failure between 2006 and 2015. Subtype along the PR-RT HIV-1 pol region was determined by phylogenetic inference and bootscanning analysis using Simplot. DRMs were identified according to the guidelines of the International AIDS Society-USA. Chi square test with Bonferroni correction was used for pairwise comparisons, and linear regression for the analysis of longitudinal trends.

Results: Of the 247 patients, more than 90% showed ≥ 1 DRM. The level of ADR was: 76,9% to NRTI, 93,1% to NNRTI and 80,2% to PIs. The frequency of NRTI and PI-associated DRMs decreased between 2006 and 2015, since to 2012 (73% to 19% for NRTIs, p:0,00007; 70% to 30% for PIs, p:0,0017). For NNRTI-DRMs, levels remained high, with a median of 65%.

BF recombinant were identified in 217 cases (87,8%), and subtype B in 30 (12,1%). More that 90% of BF recombinants showed 3 recombination breakpoints, defining subtype F regions between codons 36 to 54 of PR, and 87 to 131 of RT. In PR, I54V prevailed among BF recombinants (28,0% BF vs 6,0% B, p:0,0037), while in RT, K103S was more frequent in subtype B (12,0% B vs 4,0% BF, p:0,0482). DRMs to TAM1-NRTI profile (M41L, L210W, T215Y) were more frequent in the BF subtype (80% BF vs 61% B, p:0,0106).

Conclusions: In HIV-1 infected children and adolescents from Argentina, levels of ADR decreased significantly in association to the use of NRTIs and PIs, but not to NNRTIs. Specific selection of DRMs in regions defined as subtype F in most BF recombinants might have an impact on differential response to treatment among subtypes.

THPEC257

Increasing levels of pre-treatment HIV drug resistance in South Africa, 2000 - 2016

B. Chimukangara[1,2,3], R. Lessells[1], S.-Y. Rhee[4], J. Giandhari[1], K. Naidoo[2], S. Reshmi[5], A. Kharsany[2], A. Vandormael[1], B. Stray-Pedersen[6], M. Gordon[1], T. Makadzange[7], P. Kiepiela[8], G. Ramjee[8], U. Parikh[9], J. Mellors[10], J. Ledwaba[11], M. Kalimashe[11], L. Morris[11], G. Hunt[11], R. Shafer[4], D. Katzenstein[4], P. Moodley[3], R. Gupta[12,13], D. Pillay[12,13], S. Abdool Karim[2], T. de Oliveira[1,2]
[1]KwaZulu-Natal Research Innovation and Sequencing Platform (KRISP), Virology, Durban, South Africa, [2]CAPRISA, Durban, South Africa, [3]NHLS, Durban, South Africa, [4]Stanford University, Stanford, United States, [5]National Health Laboratory Service, Durban, South Africa, [6]University of Oslo, Oslo, Norway, [7]Ragon Institute of Massachusetts General Hospital, Cambridge, United States, [8]South Africa Medical Research Council, Durban, South Africa, [9]University of Pittsburgh, Pittsburgh, South Africa, [10]University of Pittsburgh, Pittsburgh, United States, [11]NICD, Johannesburg, South Africa, [12]University College London, London, United Kingdom, [13]Africa Health Research Institute (AHRI), Durban, South Africa

Background: South Africa has the largest HIV/AIDS treatment program globally. There are concerns over increasing levels of pre-treatment drug resistance (PDR) to levels of resistance ≥10%. To establish if there is a consistent increase in PDR with continued expansion of access to antiretroviral treatment (ART), we assessed studies on PDR from South Africa. This included two population-based studies: a longitudinal population-based HIV surveillance programme in northern KwaZulu-Natal (AHRI, 2013-2014) and a HIV Incidence Provincial Surveillance System in central KwaZulu-Natal (HIPSS, 2014-2015).

Methods: Trends in PDR were assessed through a meta-analysis of HIV-1 sequences from published and unpublished studies between 2000 and 2016. Pol gene sequences from studies on adult ART naïve patients were obtained from GenBank and corresponding authors. The sequences were analyzed for surveillance drug resistance mutations. Overall and drug class-specific trends of PDR were assessed using a generalized linear mixed effects regression model.

Results: We obtained 6880 pol gene sequences from published and publicly available data. From the analysis, an overall increase in PDR mutations was observed from low (< 5%) to moderate (5-15%) levels of resistance, with a 1.11-fold (95% CI: CI: 1·06-1·15) annual increase in PDR (p< 0.001). PDR was estimated as 11.3% (95% CI: 9.6-13·2) in 2014 and 11.9% (95% CI: 9.2-15.0) in 2015, and prevalence of non-nucleoside reverse-transcriptase inhibitor (NNRTI) PDR was 10.0% (95% CI 8.4-11.8) in 2014. Overall, the most prevalent mutation was the K103NS, observed in 278/6880 (4.0%) sequences. Mutations associated with reduced susceptibility to tenofovir (A62V, K65R, K70E and K70NT) were present at levels below 2%.

Conclusions: The high level NNRTI-PDR (≥10%) observed suggests a need to modify the standard first-line ART regimen, and to improve quality of HIV prevention, treatment and care. Although NRTI and NNRTI resistance have both increased, there is no evidence of increasing tenofovir resistance. There is need to consider replacing NNRTIs in first-line regimens with drugs that have a higher genetic barrier to resistance.

THPEC258

HIV pretreatment drug resistance surveillance in eight sub-regions of Mexico: Time to change to first-line regimens without NNRTI?

S. Ávila-Ríos[1], C. García-Morales[1], M. Valenzuela-Lara[2], D. Tapia-Trejo[1], M. Pérez-García[1], D.M. López-Sánchez[1], L.C. Maza-Sánchez[1], S.J. del Arenal-Sánchez[1], E.A. León-Juárez[2], C. Magis-Rodríguez[2], G. Reyes-Terán[1], for the Mexico HIVDR Surveillance Network.
[1]National Institute of Respiratory Diseases, Department of Research in Infectious Diseases, Mexico City, Mexico, [2]National Center for the Prevention and Control of HIV and AIDS (CENSIDA), Mexico City, Mexico

Background: HIV pretreatment drug resistance (PDR) to non-nucleoside reverse transcriptase inhibitors (NNRTI) in persons initiating antiretroviral therapy (ART) is increasing in Mexico. We present results of a large PDR survey carried out in 2017 with sub-regional representativeness, following WHO recommendations, in eight regions of Mexico, and discuss the option of a regionalized public health response to rising HIVDR levels.

Methods: A large PDR survey was implemented in Mexico in 2017 with sub-regional representativeness for eight regions of the country, previously defined by common socio-economic and cultural characteristics. All larger clinics providing ART to 90% of all initiators were included, allocating sample size per clinic using the probability-proportional-to-size method. HIV PDR levels were estimated from *pol* sequences according to WHO criteria, considering as resistant viruses with a Stanford score >15 to efavirenz, nevirapine, any NRTI, atazanavir, lopinavir or darunavir.

Results: From September to December 2017, 2182 participants were enrolled in 71 clinics. For all eight regions, PDR to NNRTI was higher than to other drug classes (p< 0.0001). We observed significantly higher levels of NNRTI PDR in the South-West region, including the three poorest states of Mexico, compared to the reference Centre-South region including Mexico City (p=0.03). NNRTI PDR was >10% in the Centre-North, North-West, East, South-East, and South-West, remaining under this threshold in the Centre-South, North-East and West regions. The proportion of persons re-initiating ART varied significantly by region from 4% to 16%, with higher prevalence in the North-East, West, East, and South-West (compared to the Centre-South, p< 0.01 in all cases). Nevertheless, the proportion of re-initiators did not correlate with NNRTI PDR level by region (r=0.3, p=0.5). As expected, PDR levels were significantly higher in re-initiators compared to ART-naïve individuals for all drug classes (p< 0.01 in all cases).

Conclusions: In large and complex countries such as Mexico, diversification of the public health response to HIVDR based on regional prevalence could be considered. Higher NNRTI PDR levels were associated with poorer regions, suggesting opportunities to strengthen local HIV programs. Price and licensing negotiations of drug regimens containing integrase inhibitors are warranted.

THPEC259

Emergence of the transmitted resistance of HIV-1 to antiretroviral drugs in Cuban patients during the period 2009-2016

L.Y. Machado[1], H.M. Díaz[2], M. Blanco[1], E. Noa Romero[3], M. Dubed[1], N. Ruiz[1], L. Martínez[2], E. Silva[4], L.S. López[1], D. Romay[1], N. Valdés[1], C. Nibot[1], J. Joanes[5], C.B. Rivero[1], I. Cancio[5], M. Rodríguez[1]
[1]AIDS Research Laboratory, San José de las Lajas, Mayabeque, Cuba, [2]Hermanos Ameijeiras Hospital, Havana, Cuba, [3]AIDS Research Laboratory, Mayabeque, Cuba, [4]Immunoassays Center, Havana, Cuba, [5]STI/HIV/AIDS Department, Ministery of Public Health, Havana, Cuba

Background: The emergence of antiretroviral-resistant HIV-1 variants compromises the first-line treatment regimens and the achievement of worldwide 90-90-90 UNAIDS target. Since 2009, the surveillance of HIV-1 transmitted resistance to antiretroviral drugs in newly diagnosed patients was introduced in Cuba. The aim of the present study is to evaluate the behavior of transmitted resistance of HIV-1 in Cuban patients of recent diagnosis and without antiretroviral treatment.
Methods: A cross-sectional descriptive and retrospective study was carried out that included 469 samples of HIV-1 Cuban patients diagnosed in the 2009-2016 period. The viral subtype was determined by phylogenetic analysis. Transmitted drug resistance was determined using the CPR tool v6.0. Some clinical and epidemiological variables were evaluated. A possible association of viral variants with sexual preference, disease progression and resistance to antiretroviral drugs was determined. For statistical analysis, the software package R was used.
Results: The predominant HIV-1 genetic variants were subtype B (27%), CRF 20, 23, 24_BG (23.5%) and CRF19_cpx (20.2%). An increase of the URF in the newly diagnosed patients was described in the period 2015-2016 (24.5%, $p < 0.05$). The most frequent URFs presented the combinations CRF19_cpx/B, BF1, BC, and CRF19_cpx/CRF18_cpx. Overall, 19% of the patients presented viruses with any mutation associated with the transmitted resistance of HIV-1 to ARVs (10.4% to NRTI, 12.8% to NNRTI, 2.8% to PI). The most frequent mutations were K103N/S and Y181C in the family of NNRTI, and M184V/I and D67N in the family of NRTI, which decrease the susceptibility to NVP, EFV and 3TC, AZT, respectively. The resistance to the NNRTI increased in the period 2015-2016 with respect to the 2009-2012 period (16.9% vs 11.9%). No significant differences were found between the genetic variants of HIV-1, the mutations associated with transmitted drug resistance, and the disease progression in the sample studied.
Conclusions: A high genetic diversity of HIV-1 and emergence of resistance transmitted to ARV in untreated population was described. These results demonstrate the need to continue epidemiological surveillance and search for new therapeutic strategies that contribute to accelerated compliance of worldwide 90-90-90 UNAIDS target.

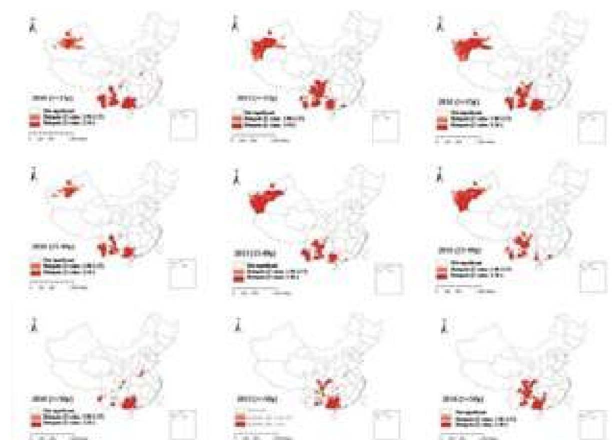
Describing the spread of HIV through geographical information systems

THPEC260

Trend and spatial analysis of the HIV epidemic among female adults in China, 2010 - 2016

F. Chen, W. Guo, Q. Qin, C. Cai, Y. Cui
National Center for AIDS/STD Control and Prevention, China CDC, Beijing, China

Background: Previous studies have shown an increasing burden of the HIV epidemic due to heterosexual transmission in China. Due to their biological susceptibility and social and cultural inequality, women are more likely to be infected than men. There are gaps in knowledge on the geographical distribution and evolution of the HIV epidemic among women in China. The purpose of this analysis was to identify epidemic clustering and temporal trends among HIV/AIDS cases in female adults in China through temporal and spatial analysis in order to inform intervention planning and optimization of resource allocation.
Methods: Data on newly identified HIV/AIDS cases among women aged >=15 years old from 2010 to 2016 were extracted from the HIV/AIDS Case Reporting System in China. Trends in demographic indicators were assessed using Cochran-Armitage trend tests. Spatial autocorrelation by year and age were evaluated to detect epidemic clustering at county level.
Results: From 2010 to 2016, 149,660 HIV/AIDS cases were identified among female adults in China (70.8% aged 15-49 years), which increased annually from 16,603 in 2010 to 26,196 in 2016. Differences in trends by age were detected with the proportion of cases among older women greatly increasing relative to decreasing cases among younger women (Z value=-56.21, P< 0.001). Spatial analysis demonstrated a county-level clustered distribution of HIV/AIDS cases among female adults across the country. Hotspots were concentrated in western and southern regions, including 6 provinces (Yunnan, Sichuan, Guizhou, Guangdong, Henan and Hunan), 2 autonomous regions (Guangxi, Xinjiang) and 1 municipality (Chongqing), with the trend of epidemic among younger women shifting towards western border and southern coastal provinces, and that of elderly women spreading northward from southwestern provinces.
Conclusions: Findings indicate an increasing clustering of the HIV epidemic among female adults in China, particularly in western and southern regions. Prevention and intervention strategies targeted to women by age, particularly in regions of increasing HIV epidemic, are urgently needed.



[Spatial clustering of newly identified HIV/AIDS cases among female adults in 2010,2013 and 2016 by age]

THPEC261

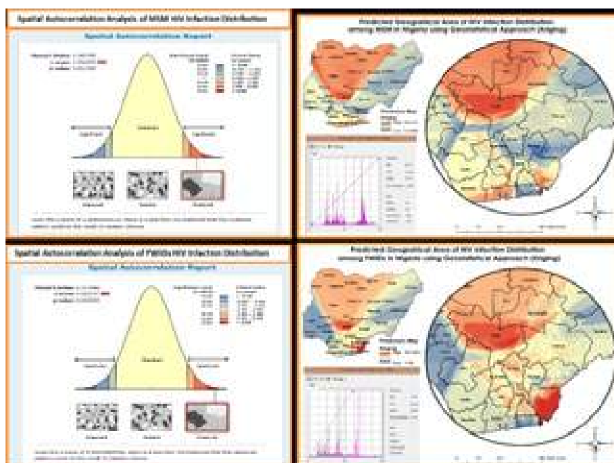
Geographical disparities in HIV seroprevalence among men who have sex with men and people who inject drugs in Nigeria: Mapping spatial clustering of HIV infection using GIS

A. Onovo[1], A. Kalaiwo[2], M. Katbi[2], P. Chen[1], U. Roxo[3], O. Keiser[4], G. Sarfaty[5], K. Badiane[6], H. Kang[6]
[1]U.S. Agency for International Development, Strategic Information, Office of HIV/AIDS & TB, Abuja, Nigeria, [2]U.S. Agency for International Development, Key Population, Office of HIV/AIDS & TB, Abuja, Nigeria, [3]U.S. Agency for International Development, Office of HIV/AIDS, Washington, DC, United States, [4]University of Geneva, Switzerland, Professor Epidemiologist, Head of Division, Institute of Global Health, Geneva, Switzerland, [5]U.S. Agency for International Development, Office of HIV/AIDS, Health Informatics Branch, Washington, DC, United States, [6]U.S. Agency for International Development, Office of HIV/AIDS & TB, Abuja, Nigeria

Background: Epidemiological assessment of geographical heterogeneity of HIV among men who have sex with men (MSM) and people who inject drugs (PWIDs) is necessary to inform targeted HIV prevention and care strategies in Nigeria. This study aimed to measure HIV seroprevalence, identify the spatial clustering of HIV infection among MSM and PWIDs and detect hotspots to prioritize program resources towards control efforts in Nigeria.

Methods: This was an ecological descriptive design conducted between Oct 1, 2016 and Sept 30, 2017. Study population were MSMs and PWIDs assessing HIV testing services across seven prioritized states (Lagos, Nasarawa, Akwa Ibom, Cross Rivers, Rivers, Benue and the FCT) in three geographic regions (NC, SS, SW**).** We georeferenced all HIV test results from 93 of 774 Local Government Areas (LGA). Seropositivity rate was calculated from data extracted from national testing registers. Global spatial autocorrelation techniques showed HIV infection distribution patterns and Hotspot analysis highlighted regions of significant clusters of HIV cases. Geostatistical approach using Ordinary Kriging predicted clusters of HIV infection in unmeasured program locations.

Results: Of the 40,423 MSMs and 20,336 PWIDs, 4,410 MSM (10.9%) and 1,761 (8.7%) PWIDs tested HIV positive. Global spatial autocorrelation Moran´s I statistics revealed a clustered distribution pattern of HIV infection among MSMs and PWIDs. Given the z-score of 2.29 [p< 0.021, Moran´s Index=0.162] for MSM and z-score of 4.03 [p< 0.000054, Moran's Index=0.317] for PWIDs, there is a less than 5% and less than 1% likelihood that this clustered pattern could be the result of random chance respectively. Getis-Ord-Gi* statistics indicated significant clusters of HIV infection among MSMs and PWIDs that were confined to LGAs in the NC and SS regions of the country. Kriging interpolation predicted cases of HIV infection to be similar among MSMs and PWIDs and confined to states in the NC and NW regions of Nigeria.



[Figure 1: Global Spatial Autocorrelation and Kriging Interpolation (Spatial Clustering of HIV Infection Distribution among MSM and PWIDs)]

OBJECTID/ LGA	Source ID	MSM (# HIV Positive)	Shape Length	Shape Area	GiZ Score	GiPvalue	GiBin
34	181	234	0.510309	0.011384	1.977624	0.047971	2
44	285	430	1.884064	0.145477	3.282569	0.001029	3
45	286	69	1.236706	0.075298	4.205538	0.000026	3
70	537	155	2.535182	0.216937	3.559387	0.000372	3
77	684	58	2.205402	0.073217	2.157567	0.030962	2
85	693	204	0.492685	0.008801	2.645243	0.008163	3

[Table 1: Hot Spot Analysis (Getis-Ord-Gi) Report of HIV Infection Distribution among MSM by Significant LGA]*

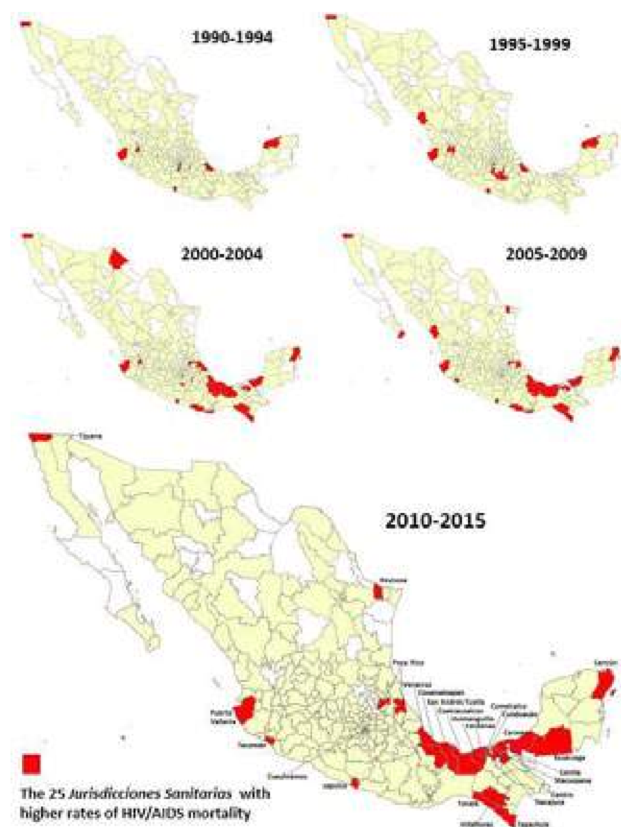
Conclusions: The study showed the north-central, north-west and southern regions of the country are most likely endemic cluster region. This study identified geographical areas to prioritize for control of HIV infection, thus demonstrating that geographical information system technology is a useful tool to inform interventions for epidemic control of HIV infection.

THPEC262

Where to strengthen the prevention and HIV/AIDS health services: Identifying critical areas to reduce HIV/AIDS mortality in Mexico

E. Bravo-García[1], C. Magis-Rodriguez[1], M. Palacios-Martínez[2], N. Guarneros-Soto[2]
[1]Censida, Mexico, Mexico, [2]INSP Tlalpan, Mexico, Mexico

Background: Free and universal access to HAART in Mexico became a public health policy since 2003. As a result, at the end of 2015, a total of 107,000 persons were receiving HAART. The HIV/AIDS mortality in Mexico declined 3% annually between 2008 and 2015. However, there are important differences between his distribution among the Mexican States, and inside them. The *Jurisdicciones Sanitarias* (**JS**) are geographics zones where the State Health Services that must coordinate the execution of the actions of prevention and control of HIV/AIDS.The aim was to analyzed the magnitude, distribution, and trends of HIV/AIDS mortality by **JS** in Mexico, from 1990 to 2015.



[The 25 Jurisdicciones Sanitarias with higher rates of HIV/AIDS mortality in Mexico from 1990 to 2015]

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Methods: Official vital statistics on mortality from *CONAPO*, and population estimates from *INEGI*, were used to calculate AIDS mortality standardized rates. HIV/AIDS mortality trends were analyzed by *JointPoint regression model*. *Mapa Digital de Mexico* (*GIS software*) were used to mapping.
Results: The 25 **JS** with higher rates of HIV/AIDS mortality has only 11% of the population of the country, but they account for 28.6% of the total deaths due to HIV/AIDS. They have a standardized mortality rate that is at least twice the national rate (3.7 per 100,000), and among them, seven **JS** have a rate three or more times higher. The highest average annual mortality rates, from 2010 to 2016, were observed in Tonalá, Chiapas (14.4 per 100,000 inhabitants), Veracruz, Veracruz (14.3 per 100,000), Carmen, Campeche (13.7 per 100,000), Centla, Tabasco (13.5 per 100,000 inhabitants), Cosamaloapan, Veracruz (13.3 per 100,000), Coatzacoalcos, Veracruz (13.3 per 100,000 inhabitants and Cárdenas, Tabasco (11.6 per 100,000 inhabitants). These 25 JS are located mainly in coastal areas, tourist sites, migration corridors or border areas of the country.
The most recent trend shows that HIV/AIDS mortality rates were increased in 9/25 **JS**; decreased in 8/25 **JS**; and has not changed in 8/25 **JS**.
Conclusions: The 25 geographic and operational areas (*JS*) were identified, where the prevention, and HIV/AIDS health care services should be focused. Otherwise, will be difficult to continue reducing the HIV/AIDS mortality in Mexico. It is the first study that analyzes a health problem (HIV/AIDS mortality) in all *JS* of Mexico.

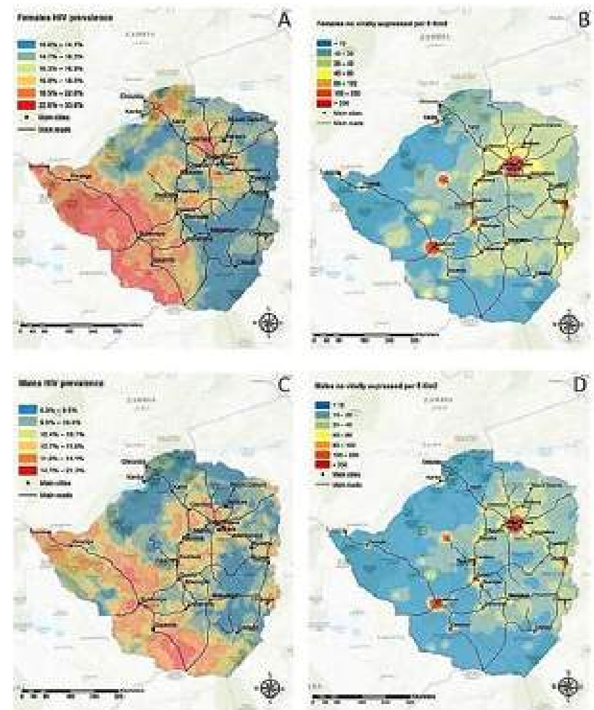
THPEC263

Towards UNAIDS 95-95-95 goal: Targeting priority geographic areas for HIV prevention and care in Zimbabwe

D. Cuadros[1], J. Li[1], Z. Mukandavire[2], G. Musuka[3], A. Branscum[4], B. Sartorius[5], F. Tanser[6]
[1]University of Cincinnati, Department of Geography and Geographic Information Science, Cincinnati, United States, [2]London School of Hygiene & Tropical Medicine, Department of Global Health and Development, London, United Kingdom, [3]ICAP-Columbia University, New York, United States, [4]Oregon State University, Biostatistics Program, Corvallis, United States, [5]University of KwaZulu-Natal, Department of Public Health Medicine, Durban, South Africa, [6]University of KwaZulu-Natal, Africa Health Research Institute, Durban, South Africa

Background: Zimbabwe has obtained substantial progress toward the UNAIDS targets of 95-95-95 by 2030, with 85% of PLHIV diagnosed, 87% of those diagnosed on antiretroviral therapy (ART), and 86% of those on ART virally suppressed. Despite this exceptional response, more effort is needed to completely achieve the UNAIDS targets and diminish the current HIV epidemic.
Here, we conducted a detailed spatial analysis of the geographical structure the HIV epidemic in Zimbabwe to include geographical prioritization as a key component of their overall HIV intervention strategy.
Methods: Data were obtained from Zimbabwe Demographic and Health Survey (ZDHS) conducted in 2015 as well as estimations from the Zimbabwe Population-Based HIV Impact Assessment (ZIMPHIA) 2016 report, and the maps for population density generated by the Worldpop project. Associations between covariates and HIV prevalence for males and females were assessed using non-spatial logistic regression models.
The prediction formula generated from the covariate analysis along with kriging interpolation techniques were used to produce high resolution continuous surface maps of HIV prevalence. Using these maps combined with the population density maps, we mapped HIV-infected, undiagnosed, and non-virally suppressed individuals.
Results: Behavioral and socio-economic factors such as lifetime number of sexual partners, age at first sex, and wealth index were associated with the spatial distribution of HIV prevalence for both males and females in Zimbabwe. HIV maps for both genders illustrated similar geographical variation of HIV prevalence within the country (Figure A, C). Maps of non-virally suppressed individuals localized areas where undiagnosed and not-currently on ART populations were concentrated, particularly in the main cities and urban settlements such as Bulawayo, Harare, Ruwa, and Chitungwiza (Figure B, D).

Conclusions: Our study showed an extensive local variation in HIV disease burden across Zimbabwe for both females and males. About 16% of the females, and 26% of the males in Zimbabwe are living in areas of intense HIV transmission. The high-resolution maps generated here identified the areas where high density of HIV-infected individuals that are still missing HIV care and treatment. These results suggest that there is need to tailor HIV programmes to address specific local needs to efficiently achieve epidemic control in Zimbabwe.



[Distribution of HIV prevalence in females (A) and males (C); Population density of females (B) and males (D) undiagnosed and not-currently on ART]

Optimizing vertical transmission prevention programs

THPEC264

Utilization of preconception care by HIV-infected women attending antenatal care in Kenyatta National Hospital

K. Mutai Kipyegon[1], E. Mundia Nyawira[1], K. Nyawira Gitahi[2], E. Sheila Juliet[1], L. Njagi[1], M. Njeri Mukunga[1], E. Yatich[3], O. Gachuno W[4]
[1]University of Nairobi, Centre of Excellence in HIV Management, Nairobi, Kenya, [2]LVCT Health, Nairobi, Kenya, [3]Kenyatta National Hospital, Nairobi, Kenya, [4]University of Nairobi, Obstetrics and Gynecology Department, Nairobi, Kenya

Background: Preconception care is fundamental for women planning to conceive and especially for those with chronic illnesses like HIV to optimize obstetric outcomes. There is little information on evaluation of preconception care implementation among HIV infected women in Kenya. This study described preconception care utilization by HIV-infected women with knowledge of their HIV status prior to pregnancy.
Methods: This was a cross-sectional study of 280 HIV positive pregnant women seeking antenatal care in Kenyatta National hospital between April 2015 to March 2016. Women who had tested sero-positive for HIV prior to conception were eligible for this study. Nurse counselors working in HIV care collected preconception care information from consenting women during routine antenatal care visits. Uptake of preconception care counseling was analyzed and presented as a percentage. The associated factors were tested using Chi square and Mann Whitney U tests. Statistical significance was set at a p value ≤ 0.05.

Results: The mean age of women was 30.7 years (SD 5.4 years), 62.5% had secondary or higher level of education and 43.1% were unemployed. Majority (85.7%) had sexual partners who had a lower unemployment rate (22.1%). HIV disclosure to the partner was at 91.3% and use of HAART before conception was at 89.3%. Pre-conception care counseling was reported among 35% (95% CI 28.9-40.7%) of the women. Those who sought preconception care counseling were those in employment, for women [OR 1.9 (95% CI 1.2-3.2), p=0.011] and their partners [OR 2.7 (95% CI 1.3-5.6), p=0.005], had disclosed their HIV status to the partner [OR 2.4 (95% CI 1.2-4.8), p=0.010] and had known their status for a longer duration (median of 75.5 months), p< 0.001.
Conclusions: There was low uptake of preconception care counseling services in HIV-infected women. Low socio-economic status is a likely barrier to access of the services. HIV disclosure has a positive influence on the preconception care uptake.

THPEC265

Sustained elimination of mother to child transmission of HIV and predictors of residual adverse outcomes at a large teaching and referral centre in Nairobi, Kenya

L.N. Njagi[1], C.O. Ojwang[1], K.K. Mutai[2], E.N. Kubo[1], S.C. Ilovi[1], R.C. Kenei[1], O.W. Gachuno[3], J.O. Mecha[1]
[1]*University of Nairobi, Clinical Medicine and Therapeutics, Nairobi, Kenya,* [2]*Kenyatta National Hospital, Nairobi, Kenya,* [3]*University of Nairobi, Obstetrics and Gynaecology, Nairobi, Kenya*

Background: Elimination of new pediatrics HIV infections is possible with existing public health and medical armamentarium. The global community has set as a target the virtual elimination of mother to child transmission (eMTCT) to < 5% in the breastfeeding and < 2% in the non-breastfeeding populations. We sought 1) to demonstrate that sustained virtual eMTCT to < 2% can be achieved in the breastfeeding populations, and 2) to explore the factors contributing to residual adverse outcomes; under programmatic conditions.
Methods: This was a retrospective cohort analysis of data on HIV exposed infants (HEI) and their mothers followed up at Kenyatta National Hospital, Nairobi Kenya from 2013 to 2015. We extracted data from the electronic medical database. Mothers were categorized as adolescent girls and young women (AGYW) 15-24.9 years and adults ≥25. We calculated the MTCT rates by birth cohort. Chi-square was used to determine association between attrition and maternal characteristics, and Kaplan-Meier analysis to estimate time to attrition by age group.
Results: Among 607 HIV infected women with singleton live born infants, the mean age was 34.8 years (standard deviation [SD] 5.4), 15 (2.5%) being AGYW. The infant outcomes were; 484 (79.7%) HEI discharged as HIV uninfected, 14 (2.3%) transferred out, 101(17%) lost to follow-up and 8 (1.3%) HIV infected. The MTCT rate remained < 2% during the follow-up period. Among the eight women with documented vertical transmission, the mean CD4 was 446 cells/ml (range 113-760), six (75%) had not attended antenatal care (ANC) and 5 (62%) were transfer-in postpartum. Women who were lost to follow-up were more likely to have a viral load >1,000 copies/ml (aOR = 5.011, CI = 1.02-15.49), be AGYW (aOR = 3.112, CI = 2.322-5.18) and be unmarried (aOR = 2.02, CI = 1.02-4.44). Attrition at 12 months was higher among AGYW compared to adults (p 0.0001).
Conclusions: Virtual eMTCT of HIV at < 2% can be achieved and sustained in the breastfeeding population. The likely factors for adverse outcomes such as delayed access to ANC and PMTCT interventions and attrition remarkably with AGYW are preventable through optimized and case-based facility and community level intervention.

THPEC266

Interactive Voice Response (IVR) messages and reminders increase completion of early infant diagnosis in a private sector PMTCT intervention in Southern India

L. Ramakrishnan[1], R. Gangula[2], J.S. Prashanth[2], A.R. Yeruva[2], R. Gill[3], A. Vuchelen[4], R. Rutten[4], K. Sen[5], V. Rasquinha[6], M.K. Suryadevara[2], S.K. Angappan[1], L. Ramakrishnan[1], S.S. Raghavan[5]
[1]*Solidarity and Action Against The HIV Infection in India (SAATHII), Chennai, India,* [2]*Solidarity and Action Against The HIV Infection in India (SAATHII), Hyderabad, India,* [3]*Jannsen Pharmaceutical Companies of Johnson and Johnson, London, United Kingdom,* [4]*Jannsen Pharmaceutical Companies of Johnson and Johnson, Antwerp, Belgium,* [5]*Solidarity and Action Against The HIV Infection in India (SAATHII), Delhi, India,* [6]*Mahiti Infotech, Bangalore, India*

Background: Effective PMTCT interventions require that pregnant women living with HIV (PPW) and Mother-Baby (MB) pairs be retained in the care cascade. India's national PMTCT program shows attrition at all stages, a problem exacerbated when women visit multiple sites (e.g. private sector for maternity services, public sector for HIV treatment and early infant diagnosis). SAATHII is currently implementing Svetana, a 22-state Global Fund-supported PMTCT initiative in the private sector. m-Maitri, an IVR initiative, was bundled with the intervention and piloted in Andhra Pradesh and Telangana, with support from Janssen Pharmaceutical Companies of Johnson and Johnson, and technology partner Mahiti.
Description: Over 250 IVR messages on maternal and child health, and HIV, are delivered to PPW and mothers of exposed infants via m-Maitri, an adaptation of the Connect for Life™ platform developed by Janssen. From June-Nov 2016, content was developed, vetted, translated into Telugu, the platform was developed and User Tested in parallel. Beginning December 2016, consenting women were enrolled in m-Maitri. They registered through a toll-free number, and received three health messages weekly on self-selected days and times. Additionally, m-Maitri sent reminders for immunization, early infant diagnosis and confirmation. As part of concurrent evaluation, timely completion of early infant diagnosis was compared between mothers receiving m-Maitri and outreach (intervention group) and the non-intervention group, which only received outreach visits. Quantitative results were supplemented with in-depth interviews of 50 women receiving m-Maitri messages.
Lessons learned: By end of Jan 2018, 672 of 753 eligible PPW mothers had registered, and 509 had received m-Maitri messages as well as outreach. Completion of early infant diagnosis was higher (P < 0.05) in the intervention group for six (OR 1.86), 12 (OR 1.68) and 18 months (OR 2.22). In-depth interviews indicated that m-Maitri messages and reminders motivated women to visit the doctor for timely antenatal consultations, prepare for institutional delivery, complete EID, and follow recommended infant feeding practices.
Conclusions/Next steps: The intervention is being scaled up with requisite adaptation of content to local contexts and languages across the country. Further work will examine the role of m-Maitri in enhancing other elements of retention such as maternal adherence to ART.

THPEC267

Formative research informs and guides intervention development for prevention of mother to child transmission of HIV: Barriers and strategies to improve adherence to Option B+ in urban and rural Uganda

R. King[1], J. Rujumba[2], J. Namale Matovu[3], P. Wavamunno[3], A. Amone[3], G. Gabagaya[3], P. Musoke[3]
[1]*University of California, San Francisco, Global Health Sciences, Entebbe, Uganda,* [2]*Makerere University, Kampala, Uganda,* [3]*Makerere University/ Johns Hopkins University Research Collaboration, Kampala, Uganda*

Background: Option B+ strategy is a recommendation by WHO to initiate all HIV-positive pregnant and breastfeeding women on antiretroviral therapy (ART) for life. Our aim was to conduct formative research to assess knowledge and attitudes regarding Option B+ among individual

HIV-positive PMTCT clients, community members and health workers and inform design of an enhanced group peer support intervention in a randomized controlled trial.

Methods: We conducted qualitative research at baseline using Focus Group Discussions (FGDs) to explore knowledge, beliefs, attitudes and challenges towards the Option B+ strategy for PMTCT among HIV infected pregnant and post-partum women enrolled on the Option B+ PMTCT programme (n=51 individuals). Key Informant Interviews (KIIs) were conducted with health workers, policy makers and community leaders to document their perceptions about the new PMTCT Option B+ strategy (n=14). FGDs and KIIs were conducted in Luganda or English using a pre-designed, semi-structured, IRB-approved guide. Topics explored included: PMTCT Option B+ understanding and benefits, program strategies, barriers and recommendations. We used content analysis to describe key emerging and existing themes and compared across participants using the social ecological framework to theoretically ground our analysis.

Results: Findings across both urban and rural sites indicated that participants had a good understanding of the benefits of the Option B+ program to the mother, baby, family and community including "*restoring hope for the future*". However, the barriers to adherence were clearly related to personal, relational and structural factors in a complex web of interactions. Key themes were: severe drug side effects both anticipated and experienced as well as non-disclosure at home and work and personal and community stigma. Structural drivers included health facility factors such as drug stock outs, human resource constraints, and nutritional limitations at home.

Conclusions: Our findings suggest that continuous education is needed on anticipated drug side effects, as well as ongoing psychosocial support at facility and community levels including use of peers, village health teams and political structures. Use of an innovative male involvement strategy (couple counseling and testing, home based testing), supply chain management to avoid stock outs, and ensuring that health workers are respectful to all clients are key.

THPEC268

Evaluating the vertical HIV transmission risks among South African female sex workers. Have we forgotten PMTCT in FSW HIV programming?

J.O. Twahirwa Rwema[1], S. Baral[2], N. Phaswana-Mafuya[3], A. Lambert[4], A. Rao[2], Z. Khose[3], H. Hausler[4], S. Schwartz[2]
[1]Johns Hopkins Bloomberg School of Public Health, Public Health, Kigali, Rwanda, [2]Johns Hopkins University, Epidemiology, Baltimore, United States, [3]Human Sciences Research Council, Port Elizabeth, South Africa, [4]TB/HIV Care Association, Cape Town, South Africa

Background: Female sex workers (FSW) have a greater HIV burden compared to other reproductive-aged women and experience high incidence of pregnancies. However, there are limited data on mother-to-child transmission of HIV in the context of sex work. This study assessed the uptake of prevention of mother-to-child transmission (PMTCT) services to understand the vertical HIV transmission risks among FSW in South Africa.

Methods: FSW ≥18 years were recruited into a cross-sectional study using respondent-driven sampling (RDS) between October 2014-April 2015 in Port Elizabeth, South Africa. An interviewer-administered questionnaire captured information on demographics, reproductive health histories, and HIV care, including engagement in PMTCT care and ART. HIV and pregnancy testing were biologically assessed. This analysis characterizes FSW engagement in HIV prevention and treatment cascades of the four prongs of PMTCT.

Results: Overall, 410 FSW were enrolled. The RDS-weighted HIV prevalence was 61.5% (95% bootstrapped confidence interval 54.1-68.0). A comprehensive assessment of the four PMTCT prongs showed gaps in cascades for each of the prongs. In Prongs 1 and 2, gaps of 42% in consistent condom use with clients among HIV-negative FSW and 43% in long-term high efficacy contraceptive method use among HIV-positive FSW were observed. The analyses for prongs three and four pertained to 192 women with children < 5 years; 101/192 knew their HIV diagnosis prior to the study, of which 85% (86/101) had their children tested for HIV after birth, but only 36% (31/86) of those who breastfed retested their children post-breastfeeding. A substantial proportion (35%, 42/120) of all HIV-positive women with children < 5 years of age were HIV-negative at their last delivery and seroconverted after delivery. Less than half (45%) of mothers with children < 5 years (45/101) were on ART and 12% (12/101) reported at least one child under five living with HIV.

Conclusions: These findings show significant gaps in engagement in the PMTCT cascades for FSW, evidenced by sub-optimal uptake of HIV prevention and treatment in the peri/post-natal periods and insufficient prevention of unintended pregnancies among FSW living with HIV. These gaps result in elevated risks for vertical transmission among FSW and the need for PMTCT services within FSW programs.

THPEC269

Virological suppression among pregnant and breastfeeding women in 105 clinics in Kinshasa: A baseline assessment for a data driven continuous quality improvement intervention trial

M. Yotebieng[1,2], C. Mpody[1], N.L.R. Ravelomanana[1,2], M. Tabala[2], F. Malongo[2], B. Kawende[2], P. Ntangu[3], P.W. Okitayemba[4], F. Behets[5], E. Okitolonda[2], OSU/UNC/KSPH PMTCT Team
[1]Ohio State University, College of Public Health, Columbus, United States, [2]University of Kinshasa, Kinshasa School of Public Health, Kinshasa, Congo, Democratic Republic of the, [3]National AIDS Program, Kinshasa's Provincial Coordination, Kinshasa, Congo, Democratic Republic of the, [4]National AIDS Program, Kinshasa, Congo, Democratic Republic of the, [5]University of North Carolina at Chapel Hill, Department of Social Medicine, Chapel Hill, United States

Background: Virological suppression is the central pillar of the UNAIDS strategy to end the AIDS epidemic. Despite being a priority population, limited attention has been given to viral load monitoring among pregnant and breastfeeding women.

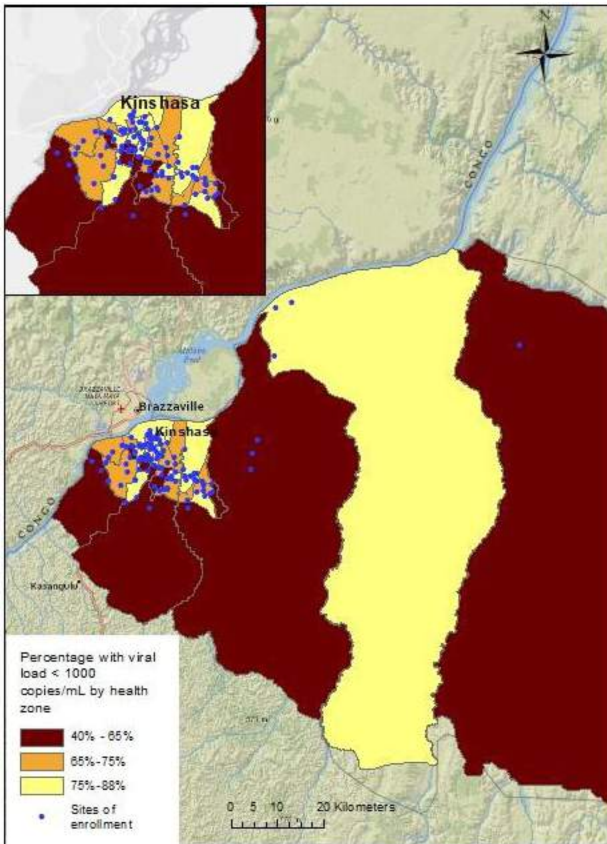
We assessed the prevalence of virological suppression (viral load < 1000 copies/mL) among pregnant and breastfeeding women in Kinshasa, Democratic Republic of Congo.

Methods: Data collection was done as part of a baseline assessment for an ongoing trial that will evaluate the use of data-driven continuous quality improvement to optimize PMTCT outcomes (NCT03048669).

From November 2016 to December 2017, in each of the 35 Kinshasa province health zones, study teams visited the top (by number served) three maternal and child health (MCH) clinics and enrolled all HIV-infected pregnant or breastfeeding women (< =1 year post-delivery). At enrollment, each participant provided a dry blood sample that was used for viral load testing at the national reference laboratory.

Results: At the end of December 2017, viral load results were available from 1160 (96%) of the 1214 women enrolled. Overall, 69% (803/1160) of participants were virologically suppressed including 71% (411/576), 62% (156/251), and 71% (236/333), of those tested respectively during pregnancy, at delivery, or in the postpartum period. 64% (304/473) of participants newly diagnosed during the current pregnancy were virologically suppressed as compared to 73% (465/634) among those diagnosed earlier (*P*=0.001). In multivariable logistic models stratified by time of HIV diagnosis, among participants diagnosed prior to current pregnancy, older age, being married, disclosure of HIV status to partner, receiving care in an urban health zone (figure) or one supported by PEPFAR were all strongly associated with higher odd of virological suppression (table). Participants enrolled at delivery or in the postpartum period were less likely to be virologically suppressed compared to those enrolled during pregnancy. Similar associations though attenuated, were observed among newly diagnosed.

Conclusions: Despite full implementation of option B+ in Kinshasa since 2015, the proportion of HIV-infected pregnant and breastfeeding women receiving care in MCH clinics, in Kinshasa, with virological suppression is far below the UNAIDS target of 90% even among those who were diagnosed prior to current pregnancy.



[Prevalence of viral load <1000 copies/ml among pregnant and breasfteeding women by health zone in Kinshasa]

	N	Virological suppressed: N (%)	Crude OR (95%CI)	adjusted OR (95%CI)
Age (25+ vs <=24 years)	55 vs 577	30 (55%) vs 434 (75%)	2.53 (1.44, 4.44)	2.36 (1.30,4.28)
PEPFAR support (Yes vs No)	395 vs 237	299 (76%) vs 164 (69%)	1.39 (0.97, 1.99)	1.48 (1.02, 2.17)
Location (Urban vs Rural)	580 vs 54	434 (75%) vs 31 (57%)	2.21 (1.25, 3.90)	2.30 (1.28, 4.22)
Testing time (Delivery vs pregnancy)	120 vs 332	79 (66%) vs 256 (77%)	0.57 (0.36, 0.90)	0.58 (0.40, 0.93)
Testing time (Postpartum vs pregnancy)	182 vs 332	130 (71%) vs (256 (77%)	0.74 (0.49, 1.12)	0.72 (0.46, 1.11)
HIV disclosure to partner (Yes vs No)	389 vs 236	299 (76%) vs 159 (67%)	1.61 (1.12, 2.31)	1.54 (1.06, 2.25)
Marital status (married/cohabing)	457 vs 176	349 (76%) vs 116 (66%)	1.68 (1.14, 2.44)	1.44 (0.96, 2.18)

*The data presented is only for 634 women who were diagnosed with HIV prior to the current pregnancy. Similar associations were found among 473 participants newly diagnosed (during the current pregnancy), but with attenuated strength. Odds ratios and their 95% confidence intervals were obtained using logistic regression models. #the delivery period includes the first 72 hours after delivery and prior to discharge from maternity. The postpartum period is anytime from 6 weeks to 12 months postpartum. Abbreviations: OR: Odds ratio, CI: confidence interval, PEPFAR: The US President's Emergency Plan for AIDS Relief.

[Associations of between socio-demographic and ecological factors and virological suppression (<1000 copies/mL) among pregnant and breastfeeding wome]

THPEC270

Pregnancy outcomes in women perinatally infected with HIV-1(PHIV) in Argentina: An emerging population

L. Guzzi[1,2], M. Barris[3], L. Figueras[3], S. Lauro[4], A. Cospito[4], V. Silenzi[5], A. Conesa[5], C. Zala[6]

[1]Instituto de Maternidad Santa Rosa, Servicio de Infectología, Vicente López, Argentina, [2]Clínica Olivos, Swiss Medical Group, Servicio de Infectología, Vicente López, Argentina, [3]Hospital Materno Infantil 'Dr. Carlos Gianantonio', Infectious Diseases, San Isidro, Argentina, [4]Instituto de Maternidad Santa Rosa, Social Work, Vicente Lopez, Argentina, [5]Hospital Central de San Isidro, Biochemistry, San Isidro, Argentina, [6]Hospital Central De San Isidro, Infectious Diseases, San Isidro, Argentina

Background: Widely available antiretroviral therapy has allowed for HIV infected girls to growth into women of reproductive age. However, concerns exist regarding the impact of long term HIV infection, co-morbidities and extensive drug exposure on pregnancy outcomes. In this context, limited information is available to guide counseling and care of this particular population.
We analyze the obstetric and clinical characteristics and the perinatal outcomes of pregnancies in women with PHIV and their exposed newborns.

Methods: Prospective observational study that included all pregnant women (PW) with PHIV at two hospitals in the northern area of Buenos Aires, from 1/1/2014 to present.

Results: Of a total of 41 pregnant women infected with HIV, 7 (17%) were PHIV, 2 of them continue in care and 1 was lost to follow-up at week 36. Median age at presentation was 18 years (range 17-20).5/7 (71%) had a history of one or more pregnancies, including one stillbirth. The median CD4 was 595 cells /uL (range 20-1030). All women were on ARVs at conception, 5 of them (71%) with irregular adherence. 3/7 (43%) had virological failure, with the K103N mutation in two and multidrug resistance in one. HIV viral load was < 50 copies/mL close to delivery in 40% and < 1000 copies/mL in 40% . Fifty percent had vaginal delivery. There was one preterm childbirth (week 35). All newborns remain alive and HIV negative at the time of this report. No mayor malformations were identified by clinical exam so far.

Patients	Age at conception	AIDS	Inicial HIV-1 RNA Viral Load (copy/mm3)	CD4 count (cells/mm3)	Sexual Transmitted diseases	HIV-1 RNA Viral Load (copy/mm3) at near delivery	Mode of Delivery	Infant Prophylaxis	HIV Vertical Transmission
1	17	NO	<50	1030	NO	<50	Elective cesarean section	Zidovudine	NO
2	20	NO	<50	700	NO	<50	Vaginal Delivery	Zidovudine	NO
3	17	YES	400.000	20	NO	200	Not Know	Not Know	Not Know
4	20	NO	32.400	Not Know	NO	Not Know	Elective cesarean section	Zidovudine Lamivudine Nevirapine	NO
5	18	NO	1600	345	NO	Ongoing Pregnant			
6	17	NO	483	840	NO	91	Vaginal Delivery	Zidovudine Lamivudine	NO
7	17	NO	<50	600	Herpes Simplex Virus	Ongoing Pregnant			

[Table 1 shows main characteristics from seven PW PHIV]

Conclusions: Pregnant women perinatally HIV-1 infected, seems to be able to carry a healthy pregnancy to term, despite long term HIV infection and massive exposure to antiretrovirals. Risk of lost to follow up and poor adherence resulting into ARV resistance is a serious concern. Further observations are needed to identify and to prevent potential complications in this particular population.

THPEC271

Combating the challenges of women with disabilities in the uptake of EMTCT services in Ekiti State, Nigeria

A. Ajumobi[1], R. Ajayi[2], B. Osuolale[3]
[1]Ekiti State AIDS Control Agency, Parnerships, Programme Planning and Community Mobilization, Ado Ekiti, Nigeria, [2]Ekiti State AIDS Control Agency, Community Mobilization, Ado Ekiti, Nigeria, [3]Ekiti State AIDS Control Agency, Partnerships and Programme Planning, Ado Ekiti, Nigeria

Background: An estimated 36% of women in sub-Saharan Africa have some form of disability. Identified factors such as susceptibility to sexual abuse, poor access to health care services and HIV prevention education, and discrimination related to the double burden of both gender and disability put them at increased risk of HIV. Despite policy and legal frameworks to support disability rights in Ekiti State, implementation of accessible PMTCT programs for women with disabilities remains limited. In 2014-2016, Ekiti State AIDS Control Agency designed and implemented HIV programmes targeting women with disabilities in the State.
Description: Baseline survey was conducted. 206 sign language experts were trained to implement "on-call" sign language interpretation in ANC clinics providing information on EMTCT to women and their partners who were hearing impaired. 522 health workers were trained on PWD targeted health care in a supportive environment to encourage access to HIV services and eliminate discrimination. EMTCT IEC materials were printed in braille and distributed to those who were visually impaired while bill boards and braille door signs were produced and strategically located within the communities and at health facilities/ANC clinics for easy access. Radio and TV jingles targeting pregnant women with disabilities were produced and aired. Trained health workers were engaged to provide home visits to the physically impaired HIV positive pregnant women while helplines were provided for ambulance services in case of emergencies. The trained sign language experts were also engaged during community outreaches to create demand for HTS and EMTCT services within the community of people with disabilities. Disabled persons were employed in ANC clinics for sustainability.
Lessons learned: Women with physical, hearing and visual disabilities who attended maternal/child health services increased from 8% to 46%, HTS service uptake increased from 37% to 66% and out of 24 HIV positive pregnant women with disability identified, 19 of them accessed EMTCT services while 16 infants had accessed EID services.
Conclusions/Next steps: Strategies and interventions targeted at addressing inequities in health care for women with disabilities is needed to achieve the goal of eliminating pediatric HIV by 2020 and improving the health and wellbeing of women.

THPEC272

Unintended pregnancy in women living with HIV in sub-Saharan Africa: A systematic review and meta-analysis

T. Feyissa[1], M. Harris[2], A. Sufa[1], D. Loxton[2]
[1]Wollega University, Public Health, Nekemte, Ethiopia, [2]University of Newcastle, Research Centre for Generational Health and Ageing, Newcastle, Australia

Background: In 2014, about 1.5 million pregnancies occurred among HIV-positive women in low and middle-income countries. Despite this, the magnitude of unintended pregnancies in women living with HIV is not well understood.
Methods: A systematic search of MEDLINE, PubMed, Embase, PsychINFO, Scopus, and CINAHL electronic databases was undertaken in November 2016. Only articles published from 2005 to November 2016 and written in English were included. Titles and abstracts were screened, and eligible articles reviewed. Two scholars with knowledge of the subject area independently extracted and appraised the quality of included papers. Data were summarized narratively and then random-effects meta-analysis was used to pool estimates.
Results: Eighteen studies from 12 countries were included for qualitative synthesis. The majority of studies (n=16) were conducted in health institutions. The studies covered a period from 2003 to 2014 with most publications concentrated after 2010. The magnitude of unintended pregnancy ranged from 37.2% in Nigeria to 75% in Malawi. Pooling the magnitude of unintended pregnancy reported by 15 studies yielded a crude summary prevalence of 55.5% (95% confidence interval (CI): 50%-60.9%). The magnitude of unwanted pregnancy in six studies ranged from 14% to 59%, while the magnitude of mistimed pregnancy ranged from 9% to 47.2%. Contraceptive failure was an important factor for many unintended pregnancies though a substantial number is related to unmet needs for family planning. The magnitude of unintended pregnancy was significantly higher in HIV-positive women than for HIV-negative women in three out of six studies.
Conclusions: Although robust prevalence studies for unintended pregnancy in women living with HIV are sparse, the available studies suggest that there is a high magnitude of unintended pregnancy. The existing data are insufficient to characterize unintended pregnancy (mistimed and unwanted) in women living with HIV in sub-Saharan Africa fully. Improving effective family planning utilization in women living with HIV is a priority to address unintended pregnancies and to prevent mother to child transmission of HIV.

THPEC273

Retention rate among pregnant women under Option B + and factors of the loss to follow up in 7 health institutions in Haiti

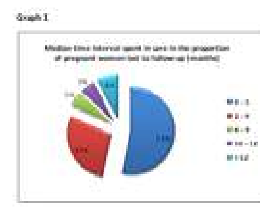
C. Beauharnais[1], N. Bertrand[2], G. Lapomarel[3], C. Sampin[4], E. Thoby[5]
[1]Catholic Medical Mission Board (CMMB), ALESIDA Technical Team, Port-au-Prince, Haiti, [2]Hôpital Alma Mater, HIV Project Coordination, Gros-Morne, Haiti, [3]Clinique Béthel, Monitoring & Evaluation, Aquin, Haiti, [4]Hôpital Saint François de Sale, PMTCT Service, Port-au-Prince, Haiti, [5]Hôpital Saint Jean, HIV Project Coordination, Limbé, Haiti

Background: Following WHO recommendations in 2013, the implementation of Option B +, the percentage of HIV+ pregnant women enrolled on life-long treatment increased from 40% to more than 90% between 2012 and 2014 in Haiti according to the National HIV / AIDS Program. However, the PMTCT program is confronted with a low retention of care among pregnant women infected with HIV. The treatment abandonment before delivery can compromise the health of the mothers and also causes many exposed children fail to be diagnosed to receive appropriate care. We proposed to quantify the number of HIV infected pregnant women receiving option B + lost to follow-up before delivery and to identify associated factors.
Methods: This is a cross-sectional descriptive survey. It was conducted at the cohort level of pregnant women enrolled in the PMTCT program and placed on ART from January 1, 2014 to June 30, 2017. Data were collected from 7 health institutions providing HIV testing, care and treatment services in 5 departments of the country. Data collection was done through the PMTCT registers, and electronic medical records. We defined as lost to follow up a patient who has not renewed her ARV prescription for 90 days after the date of her last missed appointment.

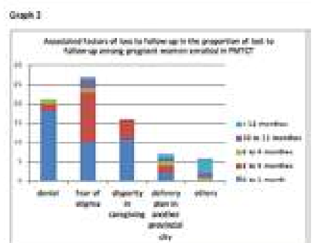
Table 1. - Characteristics of the 368 pregnant women enrolled in PMTCT program from January 2014 to June 2017

Table 2. - Proportion of lost to follow-up among PW enrolled in PMTCT

Graph 1



Graph 2



[Results]

Results: For the period evaluated, 368 new pregnant women were screened HIV + and placed under option B +. Nearly three quarters of pregnant women in the cohort are enrolled on ARV in WHO clinical stage I. The mean CD4 count at entry was 514 cells / µL (min: 15 max: 1337). The median day interval for enrollment of pregnant women under Option B + is 0-15 days. Before delivery, 20.9% of pregnant women diagnosed with HIV + and enrolled in the PMTCT program are lost to follow-up in the median time interval of 0 to 1 month. Associated factors identified include the denial (27%), fear of stigma (35%), mobility (29%).
Conclusions: The low retention rate among pregnant women is very worrying. We need to find immediate strategies to improve patient retention, taking into account the major factors associated with loss to follow up.

THPEC274

Stop Vertical Transmission (SVeT) Program as effective approach for Prevention of mother-to-child transmission (PMTCT)

A. Solovyeva[1,2], M. Dobkina[3], N. Zemlyanaya[4], A. Chernov[3], A. Yedilbayev[5]
[1]Partners In Health, Moscow, Russian Federation, [2]RUDN University, Department of Infectious Diseases with Courses of Epidemiology and Phthisiology, Moscow, Russian Federation, [3]Tomsk AIDS Center, Tomsk, Russian Federation, [4]Partners in Health, Tomsk, Russian Federation, [5]Partners in Health, Boston, United States

Background: The WHO determined a likelihood of HIV passing from a mother to a child as 15% to 45%. Antiretroviral therapy (ART) and other effective PMTCT interventions can reduce this risk below 5%. Success of PMTCT depends on adherence to the regimen. In 2014, a growth of HIV cases increased HIV rate in pregnant women in Tomsk, Russia. Some of them did not accept HIV diagnosis, refused taking ART, or did not visit AIDS center on time. In 2015, SVeT Program was implemented by Partners In Health (PIH) in collaboration with the Tomsk AIDS Center to reduce HIV mother-to-child transmission among women with poor ART adherence or refusal of PCTMT.
Methods: A multidisciplinary team was created at the Tomsk AIDS center. The project uses a patient-centered approach (PCA) to perform a set of comprehensive activities: searching for patients, building trustful patient-provider relationships, providing directly-observed ART for pregnant women and ARV prophylaxis in newborns. In addition, the SVeT team provided psychosocial support, counseling and patient education. Nutritional support and hygiene packages were used as incentives to improve compliance to PMTCT.
Results: During 2015-2016, 70 HIV-positive pregnant women were included in to SVeT Project. 42.8% (30) were not registered in AIDS Services before pregnancy and 75.7% (53) refused PMTCT. 15.7% (11) were diagnosed as intravenous drug users (IDU), 44.2% (31) had a history of being IDU, and 62.8% (44) were unemployed. 55 women completed PMTCT, 1 rejected and other were still on treatment. By the time of delivery, in 83.3% of women (45/54) viral load was undetectable. 55 children were born, 100% had negative PCR for HIV at birth. 48 of them were included into SVeT Project and 33 were followed up for 6 months and had three negative HIV PCR results.
Conclusions: The SVeT Project showed that a comprehensive PCA focused on daily DOT of ARV therapy, introduction of psychosocial support and building patient's ability to overcome medical and social barriers resulted in increase of favorable outcomes of PCTMT. Further scale up is possible in settings where burden of HIV epidemic is rising and resource-limited settings, especially in Eastern Europe and Central Asia.

Combination prevention strategies

THPEC275

Factors influencing the uptake of safe male circumcision among Makerere University undergraduate students, Kampala - Uganda

J. Nyamwiza[1], M.S. Kiwuwa[2], J. Mukisa[1], A. Bosco Bekiita[3], C. Karamagi[4]
[1]Makerere University, Clinical Epidemiology Unit, School of Medicine, College of Health Sciences, Kampala, Uganda, [2]Child Health Development Centre, Mulago National Referral Hospital, Kampala, Uganda, [3]Ministry of Health, National Disease Control, Kampala, Uganda, [4]Makerere University, College of Health Sciences, Paediatrics and Child Health, Kampala, Uganda

Background: Safe male circumcision (SMC) is currently recognized as a preventive strategy in reducing the risk of HIV; however, the prevalence of circumcised men in Uganda is still quite low at 26%. This study aimed to determine the uptake of SMC and associated factors among Makerere University undergraduate students, in Kampala Uganda.
Methods: We conducted a cross-sectional study in which we selected 602 participants with the multistage probability sampling strategy. Pretested semi-structured questionnaires and focus group discussions were used to collect data. Quantitative data were analyzed with Stata 12, where the prevalence ratio and *p*-values were calculated. Possible interactions and confounding variables were assessed with the Poisson regression model while qualitative data was analyzed with content analysis.
Results: The overall uptake of SMC among male undergraduates was 58.3% (95% CI: 54.37 - 62.24). Factors associated with SMC uptake included: safety of SMC procedure (PR = 1.13, 95% CI: 1.03 - 1.25) and friendly health workers (PR = 0.78, 95% CI: 0.74 - 0.83). The perceived benefits of SMC uptake included hygiene (86.5%, n = 521), reduced risk of HIV transmission (4.5%, n = 26) and reduced risk of penile cancer (45.7%, n = 275) while, the perceived barrier was pain (10.1%, n = 61). The general perception was that SMC recipient's first sexual partner post-procedure would not be his girlfriend.
Conclusions: The overall reported SMC success rate among participants was high, along with the safety of SMC services and friendly health workers as important factors among male students. There is a need for continuous sensitization campaigns and communication strategies to address beliefs about SMC, some related misconceptions, and barriers so as to increase its uptake.

THPEC276

Dramatic reductions in time to ART initiation among HIV+ individuals referred to HIV care following home-based testing services: Experiences from the HPTN071(PopART) trial between 2014 and 2017

S. Fidler[1], S. Floyd[2], B. Yang[3], M. Phiri[4], D. McLeod[2], A. Schaap[4], R. Sloot[3], K. Shanaube[4], S. Griffith[5], P. Bock[6], N. Beyers[3], H. Ayles[4], R. Hayes[2], on behalf of the HPTN071(PopART) Study Team
[1]Imperial College London, Medicine, London, United Kingdom, [2]LSHTM, London, United Kingdom, [3]University of Stellenbosch Desmond Tutu TB Centre, Cape Town, South Africa, [4]ZAMBART, Lusaka, Zambia, [5]FHI 360, North Carolina, United States, [6]University of Stellenbosch, Cape Town, South Africa

Background: To reach zero AIDS deaths and zero new HIV infections, antiretroviral therapy (ART) must be delivered to all people living with HIV. As HIV testing is decentralized and community testing and self-testing become more widely available, identifying and implementing strategies that facilitate linkage to HIV care (LTC) from the community to the clinic to start ART is crucial.
Methods: In seven urban communities in Zambia and South Africa, randomised to receive the universal-testing-and-treatment intervention (UTT) within the HPTN071(PopART) trial, Community HIV-care Providers (CHiPs) offer home-based HIV testing, referral to government clinic services for HIV-positive individuals, support for LTC, and ART initiation. CHiPs deliver the intervention in "rounds", during which they (re-)visit all

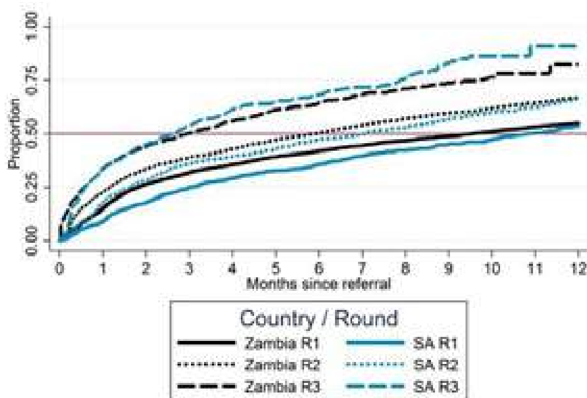
households in their community. Round 1 (R1) was November 2013-June 2015, R2 June 2015-September 2016, and R3 was September 2016-December 2017; 19 and 15 months respectively. CHiPs record data on electronic registers, including dates of referral, LTC and ART initiation, and conduct follow-up visits to support LTC and retention. From R2, with intensified efforts in R3, various strategies were implemented to facilitate LTC, including: targetted follow-up of individuals not yet LTC, extra counselling, more supervisory support to CHiPs, and increased coordination with the clinic. For each round, we estimated the time to ART initiation after first referral to care among individuals aged ≥15 years, using the Kaplan-Meier method and Cox regression for "time-to-event" analysis.

Results: In Zambia 6,197, 3,435, and 2,295, and in South Africa 1,375, 1,262 and 754 individuals were referred by CHiPs to HIV care in R1, R2, and R3 respectively (Table 1). The median time to ART initiation after CHiP referral to care was ~10 months, ~6 months, and ~3 months in R1, R2, and R3 respectively (Figure 1,p< 0.001), with a reduction overall and for both men and women (Table 1).

Conclusions: More rapid ART initiation for HIV-positive individuals after referral to HIV care was achieved over three rounds of community-wide intervention. We believe that improvements came from a combination of better targeted community and clinic activities, expanded national HIV treatment guidelines, increasing understanding of universal ART, and enhanced community acceptance of UTT.

Country	Referred to HIV care, and self-reported they were not on ART on the date of referral (N)	ART initiated, by months after referral (%) 3 months	ART initiated, by months after referral (%) 6 months	ART initiated, by months after referral (%) 12 months Estimates for % initiated ART by 12 months after referral are not given for individuals referred to care in R3, because as yet (as of Sep 30 2017) there is insufficient follow-up time during Round 3 to report reliable estimates for this time point; it will be possible to report such estimates (or at least up to 9 months after referral) after Dec 31 2017	Hazard ratios adjusted from Cox regression, adjusted for gender, age group, and community of residence
Zambia Overall	R1 6,197 R2 3,435 R3 2,296	32 % 39% 50%	42% 50% 64%	55% 67%	1 (Ref) (p<0.001) 1.37 [1.29-1.46] 2.13 [1.97-2.29]
Zambia Men	R1 2,053 R2 1,117 R3 698	33% 44% 51%	43% 56% 66%	57% 71%	1 (Ref) (p<0.001) 1.51 [1.35-1.68] 2.18 [1.90-2.50]
Zambia Women	R1 4,144 R2 2,318 R3 1,598	31% 37% 50%	42% 48% 64%	54% 65%	1 (Ref) (p<0.001) 1.32 [1.22-1.43] 2.14 [1.95-2.34]
South Africa Overall	R1 1,375 R2 1,262 R3 754	25% 36% 54%	36% 47% 68%	54% 66%	1 (Ref) (p<0.001) 1.46 [1.28-1.66] 2.88 [2.50-3.32]
South Africa Men	R1 457 R2 436 R3 276	20% 31% 46%	28% 42% 62%	47% 58%	1 (Ref) (p<0.001) 1.57 [1.24-2.00] 2.82 [2.16-3.68]
South Africa Women	R1 918 R2 826 R3 478	27% 39% 58%	39% 50% 71%	57% 71%	1 (Ref) (p<0.001) 1.42 [1.22-1.65] 2.93 [2.48-3.46]

[Table 1 - Time to ART initiation after CHiP referral in Rounds 1-3, by country and gender]



[Figure 1 time to ART start by country and by round]

THPEC277

Making combination prevention packages work for adolescent girls and young women through PEPFAR

J. Saul[1], N. Toiv[1], T. Beamon[1], C. Cooney[1], S. Allen[1], K. Sato[2], A. Achrekar[1], I. Zaidi[1]
[1]Office of the US Global AIDS Coordinator and Health Diplomacy, Washington, United States, [2]U.S. Peace Corps, Washington, United States

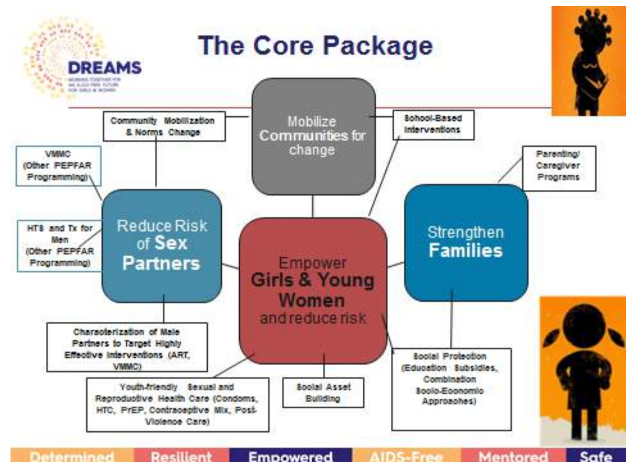
Background: In 2014, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) partnered with the Bill & Melinda Gates Foundation, Girl Effect, Gilead Sciences, Johnson & Johnson, and ViiV Healthcare to create the DREAMS Public-Private Partnership (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe). DREAMS was created to reduce the staggering rate of new HIV infections in adolescent girls and young women (AGYW) 15-24 in 10 high HIV burdened African countries.

Description: PEPFAR-supported DREAMS countries implemented a multi-faceted package of interventions in 63 high-burden districts to support AGYW, their families, and communities. DREAMS guidance examined contextual factors affecting HIV acquisition, such as sexual violence, limited access to education, and early pregnancy, and set out program requirements, including: engaging recipients and partners in conceptualization; recruiting the most vulnerable AGYW; utilizing evidence-based interventions; and ensuring layered programs so AGYW receive multiple interventions.

Lessons learned: DREAMS is a successful and vibrant public-private partnership. Since the launch of DREAMS, the DREAMS Innovation Challenge was created and country governments have embraced and expanded DREAMS. Given the deep inequalities AGYW experience in their communities, accessing the most vulnerable girls is challenging. Tools like The Girl Roster are pivotal in identifying them. Although combination prevention was emphasized in past PEPFAR programming, ensuring the practice and monitoring of layering has been challenging. In two years of DREAMS implementation, the five countries that have infrastructure to monitor layering provided three or more services to at least 50% of DREAMS-enrolled AGYW. Other DREAMS countries are developing systems to track layering.

Despite the challenges of such a massive effort, PEPFAR has reached over 2.5 million AGYW with comprehensive HIV prevention in DREAMS districts. In the 10 countries implementing DREAMS, a majority (65% or 41) of DREAMS districts achieved greater than a 25% decline in new diagnoses among AGYW 15-24 since 2015, including 14 districts that had a decline of greater than 40%. Importantly, new diagnoses declined in nearly all DREAMS districts.

Conclusions/Next steps: DREAMS showed the world a blueprint for evidence-based combination prevention among AGYW, and is showing success. Responding to lessons learned is critical to improve DREAMS and broader prevention programming for AGYW.



[The DREAMS Core Package]

THPEC278

Service workers in group (SWING): Addressing multi-level HIV risks associated with male sex workers through key population-Led comprehensive approach in Bangkok and Pattaya

S. Janyam[1], P. Srimanus[2], C. Phaengnongyang[1], S. Niamtanom[1], S. Sumalu[1], J. Jantarapakde[2], S. Pengnonyang[2], P. Rattakitvijun Na Nakorn[2], S. Charoenying[3], S. Mills[3], R. Vannakit[4], N. Phanuphak[2], P. Phanuphak[2]

[1]Service Workers in Group Foundation, Bangkok, Thailand, [2]The Thai Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand, [3]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [4]Office of Public Health, U.S. Agency for International Development Regional Development Mission Asia, Bangkok, Thailand

Background: Criminalization and penalization of male sex workers (MSW) in Thailand often result in continuous exposure to violence and discrimination from the society, law enforcement officers and health care providers. In addition to biological risk from anal sex behavior, these multi-level social risks pose MSW at high level of vulnerability to HIV infection.

Description: Service Workers in Group (SWING) Foundation is the first MSW-led organization in Thailand. In order to address the multi-level risks of HIV among MSW, SWING uses a comprehensive approach which comprises i) Outreach through regular offline and online activities to empower MSW with HIV prevention and other life-saving skills; ii) Drop-in Centers (DiCs) in the heart of two major red-light districts in Bangkok and Pattaya to provide safe space for MSW; iii) HIV-related clinical services including HIV/STI testing and PrEP/PEP dispensing performed by trained community health workers who are members of MSW community, either at their DiCs or via a mobile clinic, as part of Key Population-Led Health Services (KPLHS) model; iv) Educational sessions for MSW including classes for non-formal education, English and other languages; and v) Human rights protection through legal consultation/assistance and serious engagement of police officers and business owners.

Lessons learned: From October 2015-December 2017, SWING reached 22,308 MSW (11,516 offline; 5 online) and tested 3,533 for HIV, with an overall HIV-positive yield of 12.6%. Among those tested positive, 47.3% were successfully linked to antiretroviral treatment (ART). Among HIV-negatives, 5.24% were provided with PrEP and there was no seroconversion among those who took PrEP continuously. Of 276 MSW who attended non-formal education at SWING, 97.8% graduated secondary education, 1.8% achieved their bachelor's degrees, and 0.36% master's degrees. Engagement of police officers and business owners has been crucial for SWING to be able to continue their outreach and clinical services activities during the periods of heightened enforcement of laws against human-trafficking in Thailand.

Conclusions/Next steps: SWING successfully implemented a comprehensive approach to address multi-level risks for HIV among MSW. KPLHS demonstrated high HIV-positive testing yield and successful linkage to ART and PrEP. Sustainability in the country would need strong policy support and clear financing mechanism.

THPEC279

Differential trends in biomedical HIV prevention among younger and older men who have sex with men in a treatment as prevention environment: A 5-year prospective cohort study

N.J. Lachowsky[1,2], L. Wang[1], N. Bacani[1], S. Chown[3], K.A. Closson[1], H.L. Armstrong[1,4], K.G. Card[5], G. Olarewaju[1], E.A. Roth[2], R.S. Hogg[1,5], D.M. Moore[1,4], Momentum Health Study

[1]British Columbia Centre for Excellence in HIV/AIDS, Division of Epidemiology & Population Health, Vancouver, Canada, [2]University of Victoria, Victoria, Canada, [3]YouthCO HIV & Hep C Society, Vancouver, Canada, [4]University of British Columbia, Faculty of Medicine, Vancouver, Canada, [5]Simon Fraser University, Burnaby, Canada

Background: Post-exposure prophylaxis (PEP), pre-exposure prophylaxis (PrEP), and viral load sorting (VLS) provide novel combination prevention strategies for men who have sex with men (MSM). Despite promotion of Treatment as Prevention as policy since 2010, new HIV diagnoses among MSM in British Columbia remain unchanged (58.9% of all new diagnoses in 2015). Younger MSM are a key priority population locally and globally. We sought to evaluate and compare trends in awareness and use of biomedical HIV prevention (PEP, PrEP, and VLS) between younger and older MSM in Vancouver, Canada from 2012-2017.

Methods: The Momentum Health Study is a prospective cohort study of sexually-active MSM aged at least 16 years in Vancouver, recruited using respondent-driven sampling from 02/2012-02/2015. Follow-up visits occurred every 6 months with data included to 02/2017. Visits included a computer-assisted self-interview on sexual behaviour, HIV prevention practices, attitudes, and demographics. Three-level mixed effects models (RDS recruitment chain: participant: visit) addressed clustered longitudinal data. Multivariable trend analyses controlled for gender, sexual orientation, income, and HIV status ($P< 0.05$ considered significant). We compared trends using statistical interactions between calendar time (6-month periods) and age (younger versus older).

Results: Of 698 cohort participants, median follow-up was 3.42 years (n=3722 visits). At baseline, 257 (36.8%) participants were aged under 30 years and 201 (28.8%) were living with HIV. Overall, there were significant increasing trends in having heard of PEP (64.1% to 85.2%, $P< 0.001$), having heard of PrEP (29.3% to 81.0%, $P< 0.001$), having used PrEP (0% to 4.2%, $P=0.003$), higher HIV treatment optimism (50.0% to 82.1%, $P< 0.001$), and practicing VLS (15.5% to 25.3%, $P=0.006$). Two significant statistical interactions indicated differential trends for younger and older MSM. First, PrEP awareness (interaction $P< 0.001$) increased more for younger than older MSM. Second, VLS (interaction $P=0.004$) increased for younger MSM, but remained stable for older MSM. For both PrEP awareness and VLS, levels among younger MSM outstripped older MSM over time.

Conclusions: There have been marked increases in awareness and use of biomedical HIV prevention among MSM in this Treatment as Prevention environment. Differential trends by age group highlight particular success in health education among younger MSM.

THPEC280

School attendance and sexual behavior among adolescent girls and young women living in high-burden settings and receiving conditional cash transfer: Description of the MP3 youth cohort

S.O. Rao[1], I. Inwani[2], K. Agot[1], M.C. Cleland[3], J. Buttolph[4], M. Anam[1], J. Kinuthia[2], P. Cherutich[5], R. Nduati[2], A.E. Kurth[6]

[1]Impact Research and Development Organization, Research, Kisumu, Kenya, [2]University of Nairobi, Nairobi, Kenya, [3]Rory Meyers College of Nursing, New York University, New York, United States, [4]Interagency Collaboration for Program Improvement (ICPI), Atlanta, United States, [5]Ministry of Health, Nairobi, Kenya, [6]Yale University School of Nursing, Connecticut, United States

Background: Conditional cash transfer (CCT) can address some of the gender inequalities in school dropout rates and HIV risk perpetuated by poverty and economic dependence on older sexual partners. We assessed the effect of CCT on school attendance, sexual behavior and HIV incidence among school-going adolescent girls and young women (AGYW) in a high-burden setting of Homabay County, western Kenya.

Methods: Quarterly cash disbursements of $72 were offered to eligible HIV-negative school-going girls aged 15-24 years and their family as a component of gender-specific combination prevention packages in MP3 Youth study. The girls were required to attend school at least 80% of the time for her and family to receive the CCT. School attendance and sexual behavior was monitored every quarter for 12 months. Participants were retested for HIV after 12 months.

Results: We recruited 689 AGYW and enrolled 50 girls (mean age, 16.3 years) and their caregivers in the CCT cohort. During the intervention, 97.5% (195/200) of planned follow-ups were completed. In the first three quarters post-enrollment, 90% of the girls achieved the set mark (of at least 80%) for school attendance; however, only 60% of the girls maintained the required school attendance in the final quarter, with 24% of girls across follow-ups reporting missing school due to inability to pay school fees. In terms of sexual behavior, the change in the percentage of girls who were sexually active was insignificant at all follow ups, but

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the proportion having sex without a condom was higher at months 9 (3/6; 50%) and 12 (3/6; 50%) compared to month 3 (1/12; 14.3%). Receiving money or gifts in exchange for sex was rare
(< 10% of girls) at all follow-ups. Seven cases of pregnancy and 1 HIV seroconversion was reported.
Conclusions: Although overall school attendance was good in this cohort, a small proportion of girls missed school due to inability to pay fees, implying that either the amount was insufficient, or families did not prioritize using the funds to pay fees. Pregnancies and incident HIV suggest sexual risk remain for some girls despite CCT, which highlights the importance of combination prevention targeting AGYW in high-burden settings.

THPEC281

Mapping of key populations of Morocco: Empowering community

E.Z. Azza[1,2], Y. Yatine[2,3], M. Choukri[1,2], M. Lamouri[1,2], P. Huygens[4], L. Ghargui[5], A. Ben Moussa[1,2], L. Ouarsas[2,6], H. Himmich[1,2], M. Karkouri[1,2]
[1]ALCS, Casablanca, Morocco, [2]Laboratoire de Recherche Communautaire Coalition +, Casablanca, Morocco, [3]ALCS, Marrakech, Morocco, [4]Independent Consultant of the Global Fund, Brussels, Belgium, [5]Ministry of Health, Rabat, Morocco, [6]ALCS, Agadir, Morocco

Background: Since 2013, mapping of key populations (KPs) in areas with higher HIV prevalence has been part of the identification of "Corridors of vulnerability" in Morocco. In 2017, in order to gain better understanding about distribution of KPs and KP-friendly services in the country, the mapping of the Greater Casablanca was launched by the Ministry of Health supported by Global Fund and UNAIDS. Mapping of hotspots was conducted by community peer educators (PE) and outreach workers (OW) from the "Association de Lutte Contre le Sida" (ALCS).
Methods: A team of 56 PE, from Female sex Workers (FSWs) and men having sex with men (MSM) were mobilized and trained, beside 10 supervisors experienced in mapping.
The team received training on methodology and on using tools and smartphone Apps for GPS geolocation.
The mapping followed a four steps planning:
(1) sites and services identification,
(2) a census of MSMs and FSWs
(3) a first capture distributing tagging card to KPs included,
(4) a recapture counting all KPs met, as well as those who received the card during the first visit and those who refused contact.
Results: While performing the census the teams discovered many new KP-sites as compared to those initially identified. This led the program to realize that the needs for combined prevention are much higher than expected highlighting that the coverage has to be improved. Most hidden categories of FSWs and MSMs were also found thanks to enhanced mobilization by PE. Overall 519 FSWs' sites and 331 MSMs' sites were identified among which respectively 61% and 82% were unknown to prevention teams. Thanks to this enhanced peer-outreach work, a total of 8768 FSWs and 3032 MSM have been estimated for Casablanca.
Conclusions: Despite of the risk of violence during night exercises, the challenge of mapping of these KPs in a large city as Casablanca was met successfully. Thanks to mapping, peer-outreach work has been crucially enhanced. At the programmatic level, teams and KP were empowered as they have now the capacity to self-conduct mapping and to participate in the follow-up of strategic planning of comprehensive prevention over new corridors of vulnerability in the Country.

THPEC282

New South Wales HIV strategy 2016-2020: Working towards ending HIV transmission

C. Selvey[1], A. Grulich[2], J. Holden[3], P. Keen[2], M. Holt[4], C. Cooper[5], T. Duck[3], R. Guy[2], K. Price[6], B. Whittaker[7], B. Telfer[8]
[1]NSW Health, North Sydney, Australia, [2]The Kirby Institute, University of New South Wales, Kensington, Australia, [3]NSW Ministry of Health, North Sydney, Australia, [4]Centre for Social Research in Health, University of New South Wales, Kensington, Australia, [5]Positive Life NSW, Surry Hills, Australia, [6]ACON, Surry Hills, Australia, [7]NSW HIV Strategy Implementation Committee, NSW Ministry of Health, North Sydney, Australia, [8]Health Protection NSW, Sydney, Australia

Background: The HIV epidemic in New South Wales (NSW), Australia, is concentrated among gay and bisexual men (GBM). The second NSW HIV Strategy builds on our efforts to end HIV transmission by 2020 through improving: access to pre-exposure prophylaxis (PrEP); earlier diagnosis; and antiretroviral treatment (ART) coverage and early initiation.
Methods: Social media, gay press and broader community-based advertising was used to raise awareness of HIV testing, treatment as prevention and PrEP. Regular reporting of progress towards targets for increased HIV testing, higher ART coverage and earlier ART initiation was used to drive clinical redesign within NSW Health clinics. A large PrEP implementation trial began in March 2016 with the aim of rapidly increasing PrEP uptake. Progress is being monitored via testing data from laboratories and services, routine data on ART prescriptions, HIV surveillance and enhanced HIV surveillance undertaken six months after diagnosis.
Results: Between 2012 and 2017, HIV testing increased by 35% with increases among populations most at risk of HIV. In quarter 3 2017, 95% of HIV positive patients attending NSW Health HIV clinics and general practice clinics serving GBM had been prescribed ART. Seventy five percent of people newly diagnosed with HIV in January 2017 to March 2017 initiated ART within 6 weeks of diagnosis with a median time to treatment initiation of 28 days. Over 8,000 participants were enrolled in the PrEP trial by the end of 2017. The number of new diagnoses (166) among GBM in January 2017 to September 2017 was 24% lower than that for the previous six year average for same period (219). The number of Australian-born GBM diagnosed in 2017 with evidence of HIV acquisition within 12 or 3 months of diagnosis was the lowest seen in a decade. However, declines in recent infection were not seen in overseas-born GBM or heterosexual people.
Conclusions: Implementation of the NSW HIV Strategy is associated with a significant decline in HIV diagnoses with evidence of recent infection among Australian-born GBM. NSW is one of few jurisdictions that has taken a comprehensive approach to eliminating HIV transmission with positive progress so far.

THPEC283

HIV free testing services and distributions of incentives to indigent students in Orozo community, Nasarawa State Nigeria: Impact of incentives as a mobilization strategy

E.A. Bonderk, HIV/AIDS Medical CDS Team Group
National Agency for the Control of AIDS (NACA), Partnerships Coordination, FCT, Nigeria

Background: Nigeria has HIV prevalence of 3.4% and the second highest burden of HIV/AIDS globally. The National HIV & AIDS and Reproductive Health Survey, 2012, shows very low uptake of HIV testing in Nigeria. About 23% of males and 29% of females had tested in the year preceding of the survey. The desire to test for HIV was 77%, among adults. This prompted a push to increase the number of testing sites and improve on testing strategies. To complement this effort, community outreach was organized in the Orozo community to fast track effort in making more Nigerians' aware of their HIV status.
Description: The community testing model for HIV was adopted. A total of 6000 adults (4230 female-70.5% and 1770males- 29.5%) turned out for HIV testing service. Free note books and insecticide treated nets distributed to indigent students and parents. The mobilization efforts promot-

ed the availability of people tested. The incentives distributed only to those that took the test. The Rollback Malaria Programme, SFH provided the insecticide treated net used for the outreach, while IHVN provided the testing venue, testers, test kits and consumable, partnering private school provided the exercise books that were distributed.

Lessons learned: There was increased service uptake as a result of the incentives. Out of 6000 adults aged 18 and above that came out for the test, 5986 were tested and received their results. About 20% tested positive. The result of the outreach proves that incentives added to the call for HIV test uptake increases yield. The community members were eager to take up HIV testing despite stigma and fear of test outcome that have always hindered service uptake.

Conclusions/Next steps: HIV testing services should be routine for every Nigerian, Community based NGOs and other service providers should supplement HIV testing services with incentives to increase service uptake as this is the surest way to guarantee an HIV free generation. Due to increased number of people tested using this strategy, there is need to scale up to other communities to increase testing and general awareness on HIV/AIDS. Incentives can be leverage from other health implementing partners as a support for an intervention.

THPEC284

Combination Prevention among young people in key populations: A Brazilian experience through peer-to-peer education

D.A. Calixto, C.B.d. Sousa, L.P. Ribeiro, G.C.d. Silva, A.S. Benzaken
Ministry of Health of Brazil, Department of STI, HIV/AIDS and Viral Hepatitis, Brasilia, Brazil

Background: Young people represent 40% of new HIV infections worldwide. In Brazil, according to the 2017 Epidemiological Report, youngsters aged 15 to 19 accounted for 44.1% of new HIV cases. In order to understand the specific context of the HIV epidemics in this population, we need a focuses on their specificities and vulnerability contexts. Combination Prevention Workshop with the participation of young key populations (YKP) was marked by an assertive strategy through peer-to-peer education, emphasizing approaches to enhance sexual health through the exchange of experiences. The purpose of this study is to provide a snapshot of Combination Prevention among YKP, based on the information collected through this strategy.

Description: The Combination Prevention Workshop with YKP is an initiative launched by the Ministry of Health of Brazil in 2017. Six workshops have been conducted, qualifying 380 young people all over the national territory, to act as peer educators for Combination Prevention in their communities. In this strategy, the MoH, in partnership with local STIs and HIV/AIDS managers, carries out the workshops and activities with the purpose of promoting participation and building an atmosphere of empathy and belonging among these young people. This methodology has enabled the qualification of young peer educators while simultaneously strengthening the teams in charge of the strategy.

Lessons learned: This strategy has helped expanding knowledge and acceptance of Combination Prevention by YKP, paving the way for approaches that are coherent with their specificities and vulnerabilities. Besides sharing experiences, this strategy has also helped young people deconstructing biased ideas and discriminatory attitudes associated with sexual orientation, gender identity, use of alcohol and other drugs, sex work, skin color, race or culture, living with HIV, and people with disabilities, among others.

Conclusions/Next steps: Peer education has shown to improve quality of life of young people. Through this strategy, qualified youngsters have learned to use their knowledge on Combination Prevention and sexual health to develop interventions in their communities, take initiatives and commit themselves to their own health.

THPEC285

Depression and anxiety as risk factors for delayed care-seeking behavior in HIV positive individuals in South Africa

M. Rane[1], T. Hong[2], S. Govere[3], D. Ntshangase[3], H. Thulare[3], M. Yunus-Moosa[4], C. Celum[5], P. Drain[6]
[1]University of Washington, Department of Epidemiology, Seattle, United States, [2]University of Washington, Department of Global Health, Seattle, United States, [3]AIDS Healthcare Foundation, Durban, South Africa, [4]University of KwaZulu-Natal, Department of Infectious Diseases, Durban, South Africa, [5]University of Washington, Department of Global Health, Department of Medicine, Seattle, United States, [6]University of Washington, Department of Epidemiology, Department of Global Health, Department of Medicine, Seattle, United States

Background: Clinic- and community-based efforts to improve HIV testing in sub-Saharan Africa may benefit from understanding how mental health influences HIV care-seeking behavior. We evaluated the associations of depression and anxiety with delayed presentation to care and late HIV testing in an HIV positive cohort in South Africa.

Methods: We conducted a cross-sectional study among adults presenting for voluntary HIV testing in the Umlazi township of South Africa. Prior to HIV testing, we measured depression using the Patient Health Questionnaire-9 (PHQ-9) scale and anxiety using the Generalized Anxiety Disorder-7 (GAD-7) scale. We categorized HIV care-seeking behavior using standardized definitions for *delayed presentation* (presenting to clinic >3 months after first HIV positive test regardless of CD4 count), *late testing* (presenting within 3 months of HIV diagnosis or at the time of enrollment with CD4 ≤200 cells/μ l), or neither (presenting within 3 months of HIV diagnosis or at enrollment with CD4 >200 cells/μl). We used multinomial logistic regression models adjusted for socio-demographic and behavioral characteristics to determine the effects of depression and anxiety on HIV care-seeking behavior.

Results: Among 1,483 HIV-infected adults, 59% were female, mean age was 33 years and 65% of the participants had been tested for HIV prior to study enrollment. The prevalence of depression in the cohort was 33% and that of anxiety was 9%. In adjusted models, HIV-infected adults with mild/moderate and severe depression had 2.5 greater odds [95% confidence interval (CI): 1.5, 4.3] and 4.8 greater odds (95% CI: 1.6, 13.6) of delayed presentation respectively, as compared to those without depression. Individuals with generalized anxiety had 3.3 greater odds (95% CI: 1.7, 6.2) of delayed presentation compared to those without anxiety. Depression was associated with late testing (OR: 1.4; 95% CI:1.05, 1.9), while anxiety was not (OR:1.3; 95%CI: 0.8, 2.1).

Conclusions: Depression was associated with delayed presentation and late testing, while anxiety was associated only with delayed presentation. This study underscores the influence of mental health on various types of HIV care-seeking behavior in a poor, South African township. Brief mental health screening at initial HIV testing and presentation may improve enrollment and linkage in HIV treatment programs.

THPEC286

HIV-positive women's perspectives on integrating a screening and brief intervention (SBI) for harmful alcohol use into HIV post-test counseling in Ugandan fishing villages: Assessing acceptability and barriers to implementation

A.P. Miller[1], G. Kigozi[2], E. Bonnevie[1], N. Nakyanjo[2], W. Ddaaki[2], C. Ssekyewa[2], J. Wagman[1]
[1]University of California San Diego, Medicine, La Jolla, United States, [2]Rakai Health Science Program, Kalisizo, Uganda

Background: Women who consume alcohol have increased risk for HIV infection and alcohol use among people living with HIV (PLHIV) is associated with numerous adverse health outcomes. Alcohol prevention research is a global priority, particularly in Uganda's fishing villages where HIV prevalence reaches 37% and more than half of women drinkers consume hazardous quantities. Evidence suggests reducing hazardous alcohol use can also reduce HIV risk behaviors and that integrating

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alcohol screening and brief interventions (SBI) into health services (e.g. HIV testing and counseling services, HTC) is both effective and low-cost. This study examined women PLHIV's perceptions of:
(1) alcohol's role in HIV acquisition/transmission,
(2) how learning about HIV-positive status impacts drinking behaviors, and;
(3) the acceptability of integrating an alcohol reduction SBI into HTC among women in fishing communities in Uganda.
Methods: In-depth qualitative interviews were conducted in January 2017 with twenty female PLHIV
(15-49 years) from three Rakai fishing villages. Participants were drawn from a subset of Rakai Community Cohort Study respondents who requested an HIV test and post-test counseling. Interviews were conducted in Luganda by trained female researchers.
Results: Participants felt alcohol contributes to HIV infection by decreasing inhibitions and increasing HIV risk behaviors (e.g., condomless sex). Most felt receiving an HIV-positive diagnosis catalyzes people to change their alcohol behaviors but the direction of change varies, with some placing an increased emphasis on preserving their health and other feeling a diminished incentive to invest in their health. Most felt it was acceptable to intervene on harmful alcohol use at the time of HIV diagnosis and that it would be beneficial to include sex partner(s) in the intervention. Several considerations were flagged as areas to be addressed when designing the SBI (Table 1).

Thematic Area		Supporting Quotes from Interviews
Receiving an HIV+ diagnosis can serve as a catalyst for behavior change	Sometimes these changes are positive, to improve their life expectancy...	***"Normally people change their drinking patterns by drinking less in terms of the amount of alcohol they are used to drinking before because alcohol is like poison, when some is diagnosed HIV + they do not need to drink alcohol because alcohol reduces on CD4 count, and yet they struggle to increase on their CD4 count." [Female, 23 yrs, Ddimo]***
	Sometimes, the change is destructive...	***"There are those who can change. One says, ´I have been diagnosed with HIV let me reduce drinking alcohol.´ and there is one who decides to drink too much after being diagnosed with HIV. He says, ´Why not drink alcohol? After all I am going to die.´ So he starts drinking [more] than before the diagnosis to the extent of sleeping in bars. He says, ´Let me drink. I was diagnosed with HIV.´" [Female, 50 yrs, Namirembe]***
Assessing alcohol use at time of HIV diagnosis is appropriate	Because people are receptive to change after learning they have seroconverted...	***"I think its good time because you get to learn how to live your life well." [Female, 40 yrs, Namirembe]***
	And because drinking presents additional risks after diagnosis...	***"Yes. I think it would be good. If one has been going to the bar to drink, he or she can be counseled to stop drinking. A person may drink and then come back and swallow four tablets of ARVS instead on one or two tablets the health worker instructed him to swallow. He wrongly takes the medicine because of drinking alcohol. So I think it would be good for the counselor to talk about alcohol use during the time of diagnosis." [Female, 23 yrs, Malembo]***
Having HTC counselors implement the SBI is acceptable and culturally appropriate	Most respondents said discussing alcohol use with HTC counselors was appropriate and that they would have been willing to do so. Reasons provided for why it was not appropriate included...	***(1) Perceived Stigma around consuming alcohol "But about alcohol use, the counselor might feel that that is how you grew up. The person who drinks is taken to be in another group. I realized that when I drink they see me in a different image. Now that I no longer drink, I see myself in a different image and the people I associate with are respected compared to those I had before. I now sit with different people even though the other ones were my friends. People can now confide in me and tell me their secrets but before, they used to see me moving with people in groups. There are many things that I learnt and can compare them to when I used to drink and now that I am not drinking." [Female, 23 yrs, Malembo]***
		(2) Not feeling there was anything to gain from discussing their alcohol use with the counselors. NP: "No I would not feel uncomfortable because the advice I receive from [the] HTC counselor will be of much benefit, because it is about protecting my life so there is no need to discuss with the HCT counselor." [Female, 23 yrs, Ddimo]
Partners should be included in the alcohol intervention	So that both partners have access to the same information...	***"Because if they come and counsel me alone without counseling my partner, this will leave me informed when for him he is ignorant. If we are counseled together we all benefit together." [Female, 23 yrs, Malembo]***

[Table 1. Women PLHIV's (n=20) perceptions about an HTC-based alcohol SBI in their fishing village community]

Conclusions: Integrating an alcohol reduction SBI into HTC seems both acceptable and feasible in Rakai's fishing areas. Our next steps are to tailor the World Health Organization's alcohol risk reduction intervention, for scale up and evaluation - through a cluster randomized trial— in this setting. This combination prevention approach holds potential to improve the health of the population, the specific community members in fishing areas, and individuals in Rakai, Uganda.

THPEC287

High rates of linkage to care outside referral clinics in Botswana: Implications for accurate counting of PLHIV linked to care

P. Bachanas[1], M.G. Alwano[2], S. Behel[3], R. Lebelonyane[4], L. Block[5], W. Sento[6], W. Abrams[2], M. Pretorius-Holme[7], K. Manyake[8], S. Lockman[7,8,9], J. Moore[3]
[1]Centers for Disease Control and Prevention, Division of Global HIV/ AIDS, Atlanta, United States, [2]Centers for Disease Control - Botswana, Gaborone, Botswana, [3]Centers for Disease Control and Prevention, Division of Global HIV/AIDS, Care and Treatment, Atlanta, United States, [4]Ministry of Health and Wellness, Department of HIV, Gaborone, Botswana, [5]Intellectual Concepts, Atlanta, United States, [6]Tebelopele VCT, Gaborone, Botswana, [7]Harvard T. H. Chan School of Public Health, Boston, United States, [8]Botswana Harvard Partnership, Gaborone, Botswana, [9]Brigham and Women's Hospital, Boston, United States

Background: Evidence indicates that a substantial percentage of persons identified as HIV positive do not link to care. Emerging evidence suggests that many HIV-positive persons enroll in care in clinics outside their local communities; however, the data are often not captured in existing medical records thus artificially lowering linkage to care estimates. We were able to track patients referred through the Botswana Combination Prevention Project (BCPP) to determine the extent to which persons sought care at clinics outside their community of residence.
Methods: BCPP is a community-randomized trial evaluating the impact of a combination prevention package on population level HIV incidence in 30 communities. HIV testing in the 15 intervention communities included home-based and targeted mobile testing of residents age 16-64. Newly-identified and known HIV-positive persons not on ART were referred to the local clinic for HIV care and treatment; those who did not keep appointments were tracked and traced. Non-linkers were tracked through the national electronic medical record system and enrollment at outside clinics was verified by the nurse in that clinic.
Results: 13,434 HIV-positive persons were identified; of those, 3,635 (27%) were not on ART and were referred to their local clinic. Overall, 91% (3,311/3,635) of referrals linked to care and received an HIV service (e.g., consultation, labs); 76% (2,772/3,635) linked to their local clinic and 15% (539/3,635) linked to clinics outside their community. Only 9% of referrals did not link at all, with a higher proportion of youth than adult males or females never linking (X^2 =53.1, p< .0001).

	Linked to Referral Clinic	Linked to Outside Clinic	Never Linked
Women > 25	1,406 (79%)	275 (15%)	97 (5%)
Men > 25	991 (75%)	176 (13%)	154 (12%)
Youth (16-24)	375 (70%)	88 (16%)	73 (14%)
TOTAL	2,772 (76%)	539 (15%)	324 (9%)

[Table 1: Linked to Referral Clinic vs Outside Clinic by Age and Sex in BCPP Combination Prevention Communities 1-15]

Conclusions: A sizeable proportion of HIV-positive persons linked to clinics and received care and treatment outside their communities of residence. These data highlight the importance of tracking HIV-positive individuals referred for care beyond referral clinics, as estimates of linkage to care that do not account for linkage to outside clinics underestimate the number of PLHIV who enrolled in care. These findings also

emphasize the importance of a national data system with individual identifiers that can track patient data to all clinics so rates of both linkage and retention in care estimates are accurate.

THPEC288

Implementing World Health Organization (WHO) recommended Linkage services: Methods, outcomes, and costs of the Bukoba Tanzania combination prevention evaluation peer-delivered linkage case management program, 2014-2017

O.E. Rwabiyago[1], D. MacKellar'[2], H. Maruyama[3], C. Steiner[3], H. Cham[2], O. Msumi[3], G. Kundi[3], J. Byrd[4], E. Churi[3], R. Weber[5], S. Pals[2], C. Madevu-Matson[6], T. Mengistu[2], C. Suraratdecha[2], D. Mbilinyi[7], K. Kazaura[1], F. Morales[3], J. Justman[6], A. Rwebembera[8]
[1]Centers for Disease Control and Prevention, Dar es Salaam, Tanzania, United Republic of, [2]Centers for Disease Control and Prevention, Atlanta, Georgia, United States, [3]ICAP at Columbia University, Dar es Salaam, Tanzania, United Republic of, [4]ICF International, Atlanta, Georgia, United States, [5]Centers for Disease Control and Prevention, Yaounde, Cameroon, [6]ICAP at Columbia University, New York, Tanzania, United Republic of, [7]United Nations Children's Fund, Dar es Salaam, Tanzania, United Republic of, [8]National AIDS Control Program, MoHCDGEC, Dar es Salaam, Tanzania, United Republic of

Background: Despite improved access to antiretroviral therapy (ART), many people living with HIV (PLHIV) in sub-Saharan Africa, particularly those tested in community settings, continue to delay enrollment in care following HIV diagnosis. To enroll ≥90% of PLHIV within three months of diagnosis, we implemented a peer-delivered, linkage case-management (LCM) program providing WHO recommended linkage services.
Description: Conducted in Bukoba Municipality Tanzania (population: ~150,000) as part of a larger combination prevention evaluation, LCM was provided to clients who tested HIV-positive at 11 health facilities (facility clients), and at homes or community events in 14 urban and rural wards (community clients). LCM services were provided by HIV-positive, peer counselors for up to 90 days. During Test & Start, LCM was combined with same-day ART initiation for both facility and community clients.
Lessons learned: Of 4,805 eligible persons, 4,273 (89%) consented to LCM. Of 4,206 (98%) clients with complete indicator data, most received recommended services: counseling on early enrollment in care (100%); escort to HIV clinic (83%); treatment navigation (94%); telephone support (77%), and in two separate sessions, counseling on disclosure and partner/family testing (77%); and on real and perceived barriers to care (69%). Enrollment in HIV care and ART initiation within three months of diagnosis increased over time, exceeding 95% and 85% during Test & Start, respectively, for both facility and community clients (Table). During Test & Start, 98% and 97% of males (n=310) and females (n=442), and 96% and 98% of clients aged 15-24 (n=150) and 24-49 (n=535) years, respectively, enrolled in HIV care. Of 463 clients who participated in the last three months of the roll-out of Test & Start, 91% were initiated on ART. Per-client LCM service cost was $54 USD.

	All clients			Facility			Community		
	Total	Enrolled	ART	Total	Enrolled	ART	Total	Enrolled	ART
Client Characteristics	n	n (%)	n (%)	n	n (%)	n (%)	n	n (%)	n (%)
Total	4206	3918 (93)	2521 (60)	3538	3367 (95)	2247 (64)	668	551 (82)	274 (41)
ART-eligibility periods:									
Oct 2014 - Dec 2015 (CD4<350)	2233	2018 (90)	1057 (47)	1876	1738 (93)	971 (52)	357	280 (78)	86 (24)
Jan 2016 - Sep 2016 (CD4≤500)	1221	1168 (96)	815 (67)	1031	1013 (98)	732 (71)	190	155 (82)	83 (44)
Oct 2016 - Mar 2017 (Test & Start)	752	732 (97)	649 (86)	631	616 (98)	544 (86)	121	116 (96)	105 (87)

[Enrollment to HIV care and ART initiation in different ART-eligibility periods]

Conclusions/Next steps: WHO-recommended peer-delivered LCM services achieved early ART initiation for the majority of both facility and community clients in Tanzania at modest cost, and was more successful when combined with same-day ART. In Tanzania, peer-delivered LCM was approved by the Ministry of Health as a new service delivery model in 2017 and is being adopted for national implementation in 2018 by three PEPFAR-supported HIV-prevention and treatment organizations.

THPEC289

Achieving the first two UNAIDS 90-90-90 targets on completion of a three-year universal testing and treatment (UTT) intervention in the HPTN 071 (PopART) randomised trial in Zambia and South Africa

R.J. Hayes[1], S. Floyd[1], A. Schaap[1,2], K. Shanaube[2], B. Yang[3], S. Griffith[4], P. Bock[3], N. Beyers[3], H. Ayles[1,2], S. Fidler[5], HPTN 071 (PopART) Study Team
[1]London School of Hygiene and Tropical Medicine, London, United Kingdom, [2]Zambart, Lusaka, Zambia, [3]Desmond Tutu TB Centre, Western Cape, South Africa, [4]FHI360, Durham NC, United States, [5]Imperial College, London, United Kingdom

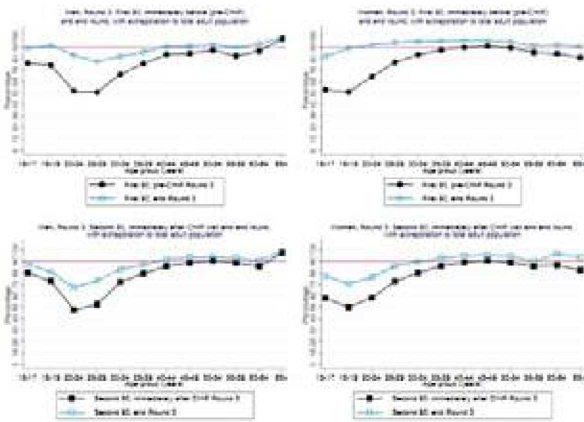
Background: The 90-90-90 targets aim to substantially decrease HIV transmission but it is unknown whether they can be achieved in urban communities with severe HIV epidemics. We report data from HPTN 071 (PopART), the largest programme delivering universal testing and treatment (UTT) in sub-Saharan Africa, to determine whether the targets have been reached after the three-year intervention.
Methods: PopART is a combination prevention intervention comprising annual rounds of home-based HIV testing delivered by Community HIV-care Providers (CHiPs) who also support linkage to care, ART retention and other HIV-related services. CHiP data from four communities in Zambia and three in South Africa receiving the full PopART intervention (including universal ART) were extrapolated to estimate the overall numbers of HIV-positive (HIV+) adults (15+) in these communities, the proportions who knew their HIV+ status (first-90) and the proportions of known HIV+ adults on ART (second-90), after the third annual round (R3:Sep 2016-Dec 2017) .
Results: By the end of R3, 75,472 (~100%) households had been visited by CHiPs, and 193,907 adult residents were enumerated of whom 139,951(72.2%) were contacted and consented to the intervention. Estimated total numbers of HIV+ adults (Table) were 9,332 men and 17,861 women, of whom 87% of men and 94% of women knew their HIV+ status following R3 (first-90) in Zambia, and 86% of men and 95% of women in South Africa.

	Estimated number of HIV+ individuals/Total population (%)	First 90: Immediately before R3 visit (%)	First 90: End of R3 (%)	Second 90: Immediately after R3 visit (%)	Second 90: End of R3 (%)
ZAMBIA: Adults who participated Men:	3,736/41,332 (9.0%)	78	97	73	85
Women:	9,395/56,345 (16.7%)	82	97	77	89
Extrapolated to total population Men:	6,244/64,704 (9.7%)	75	87	79	88
Women:	11,418/69,458 (16.4%)	82	94	79	89
S AFRICA: Individuals who participated Men:	1,557/17,813 (8.7%)	77	93	70	84
Women:	4.366/24,461 (17.8%)	88	97	82	92
Extrapolated to total population Men:	3,088/34,245 (9.0%)	77	86	77	85
Women	6,443/36,859 (17.5%)	88	95	84	92

[90-90 estimates before/after R3 among individuals (age 15+) who participated in intervention and extrapolated to total adult population]

Among these, 88% of men and 89% of women were estimated to be on ART (second-90) by the end of R3 in Zambia, and 85% of men and 92% of women in South Africa. Estimates displayed by gender and age (Figure; illustrated for Zambia) show that both indicators were achieved or exceeded in older adults, but gaps remained in men aged 18-34 years and women aged 15-29 years.

Conclusions: After three rounds of intervention in these urban communities with high mobility and migration, we estimated that the first and second 90 targets were reached overall among women and almost reached among men. Continuing efforts are needed to reach the remaining HIV+ adults not yet diagnosed or on ART, particularly among younger adults where important gaps remain.



[90-90 estimates before/after R3 extrapolated to total adult population, by age/gender (Zambian communities; data for S Africa will also be presented)]

THPEC290

Reaching men and young adults: Methods and outcomes of a 2.5 year comprehensive facility-and community-based HIV testing intervention in Bukoba Municipal Council, Tanzania, 2014-2017

O. Msumi[1], H.J. Cham[2], D. Mackellar[2], H. Maruyama[1], O.E. Rwabiyago[3], G. Kundi[1], C. Steiner[1], R. Weber[4], J. Byrd[5], E. Churi[1], S. Pals[2], C. Madevu-Matson[6], K. Kazaura[3], D. Mbilinyi[7], F. Morales[1], J. Justman[6], A. Rwebembera[8]
[1]ICAP at Columbia University, Dar es Salaam, Tanzania, United Republic of, [2]Centers for Disease Control and Prevention, Atlanta, United States, [3]Centers for Disease Control and Prevention, Dar es Salaam, Tanzania, United Republic of, [4]Centers for Disease Control and Prevention, Yaounde, Cameroon, [5]ICF International, Atlanta, United States, [6]ICAP at Columbia University, New York, United States, [7]United Nations Children's Fund, Dar es Salaam, Tanzania, United Republic of, [8]National AIDS Control Program, MoHCDGEC, Dar es Salaam, Tanzania, United Republic of

Background: Few communities in sub-Saharan Africa have achieved the UNAIDS goal of diagnosing ≥90% of people with HIV, particularly for men and persons aged 15-24 years (young adults). To increase diagnostic coverage in Bukoba, Tanzania (population: ~150,000), the Bukoba Combination Prevention Evaluation (BCPE) implemented a community-wide, enhanced provider-initiated (PITC), home- (HBHTC) and venue-based (VBHTC) HIV testing and counseling (HTC) strategy. We report methods and outcomes of our three HTC models implemented from Oct 2014 through March 2017.

Description: For all models, HTC was recommended for persons who were not in HIV care or had not previously tested in the prior 90 days. PITC was implemented in outpatient clinics in all eight public and three ministry-supported private health facilities in Bukoba. In each clinic, one of two lay counselors routinely screened patients in waiting areas and referred them for testing conducted by one dedicated nurse. In all 14 urban and rural wards of Bukoba, five-six teams, each with four lay counselors and one nurse, offered HTC to persons encountered at 31,293 home visits and 79 HTC events at male- and youth-frequented clubs, workplaces, and other venues.

Lessons learned: Of 138,259 client encounters during which HTC was recommended, 133,695 tests were conducted (66% PITC, 21% HBHTC, 13% VBHTC), including 56,304 and 43,247 tests among men and young adults, respectively. Compared with other HTC models, PITC had proportionally more female testers (65%), VBHTC had proportionally more male (69%) and young-adult (42%) testers, and HBHTC had proportionally more children testers (22%) (Table). Of 5,550 (4.2%) clients who tested HIV-positive, 4,143 (3.1% of all tests) were newly diagnosed, including 1,583 (2.8%) men and 881 (2.0%) young adults. Yielding more new HIV diagnoses than HBHTC and VBHTC in all sex and age groups, PITC accounted for 79% of new diagnoses.

Conclusions/Next steps: BCPE HTC models are promising interventions to help achieve ≥90% diagnostic coverage for all persons with HIV, including men and young adults. In Tanzania, BCPE PITC was approved by the Ministry of Health as a new service delivery model in 2017 and is being adopted for national implementation in 2018 by three PEPFAR-supported HIV-prevention organizations.

	HIV Tests (October 2014-March 2017)				New HIV Diagnoses (October 2014-March 2017)			
	All Models	PITC	HBHTC	VBHTC	All Models	PITC	HBHTC	VBHTC
Total	133,695	88,813	27,407	17,475	4,143	3,270	499	374
	n (%)	n (%)	n (%)	n (%)	n (% of tests)	n (% of tests)	n (% of tests)	n (% of tests)
Men	56,304 (42)	31,329 (35)	12,917 (47)	12,058 (69)	1,583 (2.8)	1,182 (3.8)	203 (1.6)	198 (1.6)
Women	77,391 (58)	57,484 (65)	14,490 (53)	5,417 (31)	2,560 (3.3)	2,088 (3.6)	296 (2.0)	176 (3.2)
<15	19,204 (14)	12,785 (14)	6,146 (22)	273 (2)	137 (0.7)	119 (0.9)	16 (0.3)	2 (0.7)
15-24	43,247 (32)	26,644 (30)	9,337 (34)	7,266 (42)	881 (2.0)	638 (2.4)	125 (1.3)	118 (1.6)
25-49	63,435 (47)	44,122 (50)	10,257 (37)	9,056 (52)	2,824 (4.5)	2,257 (5.1)	329 (3.2)	238 (2.6)
>49	7,809 (6)	5,262 (6)	1,667 (6)	880 (5)	301 (3.9)	256 (4.9)	29 (1.7)	16 (1.8)

[HIV Tests and New HIV-Positive Diagnoses, Bukoba Combination Prevention Evaluation, Bukoba Municipal, Tanzania, Oct 2014-Mar 2017]

THPEC291

Is it time to integrate innovative combination prevention approaches with conventional peer outreach to enhance HIV case-finding? An experience from India

D.R. Damara[1], P. Todankar[1], R.K. Bandi[1], N.M. K[1], J. Naga Dasu[1], A.K. Reddy[1], M.R. Parthasarathy[1], M. Doddamanne[1], M. Mathew[1], S. GS[1], B. George[1], J.J. Baishya[2]
[1]FHI360, LINKAGES, New Delhi, India, [2]USAID India, Project Management Specialist HIV/AIDS, New Delhi, India

Background: In India, the national HIV prevention program for key populations (KPs) is implemented through targeted interventions (TIs) run by non-governmental organizations**.** Program reviews document 0.11-0.66% HIV case detection, which is much lower than estimated HIV prevalence, pointing to the need to develop more efficient and effective approaches to engage unreached KPs. Hence, the USAID- and PEPFAR-supported LINKAGES project, led by FHI 360, sought to adapt and integrate surveillance-inspired strategies into outreach programming to reach and engage KPs.

Description: LINKAGES in India piloted enhanced peer outreach approach (EPOA), which adapts respondent-driven sampling from surveillance to reach hidden KP networks at high HIV risk. The referral chain starts with the primary seeds, who in turn refer the peers in their social and sexual networks to HIV testing services, through a coupon-based referral system. These clients, if willing, were recruited as peer mobilizers (PM) and were provided coupons with unique identifiers to refer their peers. In 2017, EPOA was rolled out among female sex workers (FSWs) and transgender women (TG) in Mumbai beginning in November; among people who inject drugs (PWID) in Krishna and Guntur districts beginning in October; and among men who have sex with men (MSM) and TG in Krishna District (JulyOctober).

Lessons learned: EPOA reached 737 KPs (170 PWID, 123 FSWs, 158 TGs, and 286 MSM) through 32 primary seeds. In Krishna, the coupon return ratio was 54.5% (648 coupons were distributed) while it was 34% in Mum-

bai (636 coupons were distributed). Overall, 101 participants were found positive, with HIV case finding rates of 8.9%, 11.4%, 19.2% and 10% among FSWs, TG, MSM and PWID, respectively. Of these 101 clients, 91% were linked to antiretroviral therapy (ART) centers, and 76% were initiated on ART.

Conclusions/Next steps: LINKAGES in India has demonstrated EPOA is effective at enhancing HIV case finding across geography and KP typologies. Complementing the EPOA with traditional peer outreach would further increase HIV case finding. LINKAGES will transfer the EPOA tools to the national program, ensuring sustainability of EPOA, and train TI outreach workers in reaching KPs outside traditional hot spots.

THPEC292

Community-based interventions as an entry point for men to access HIV testing services

A. Malima-Manana[1], T. Mmusi[2], L. Legoabe[1], S. Benyera[1], B. Pearce[1], E. Azibuike[3], L. Kamidzhi[4]

[1]Centre for Communication Impact, Community Responses Programme, Pretoria, South Africa, [2]Centre for Communication Impact, Community Responses Programme M&E, Pretoria, South Africa, [3]Project Support Association of Southern Africa, Monitoring and Evaluation, Bethel, South Africa, [4]Project Support Association of Southern Africa, Programmes, Bethel, South Africa

Background: According to a recent study by Sharma et al. 2017, in Sub-Saharan Africa, uptake of HIV testing services by men remains a challenge. HSRC 2017 shows HIV prevalence in South Africa was 21.17%. among female compared to men. Many men do not know their HIV status, and this lack of information hinders prevention efforts and attainment of the first 90 of the UNAIDS 90-90-90 strategy. The Community Responses (CR) programme is a USAID/PEPFAR funded community-based HIV prevention partnership with the South African government. It is implemented by the Centre for Communication Impact and Project Support Association of Southern Africa (PSASA).

Description: Using the participatory communication model for dialogue, reflection and action (DRA), we implemented the CR Programme in informal settlements in high burden sub-districts in Mpumalanga Province, South Africa. Community mobilizers and facilitators use evidence-based HIV Prevention and gender norms curriculum Stepping Stones and One-Man Can to engage both men and women to explore and address the drivers of HIV and Sexual and Gender-Based Violence (SGBV), challenge harmful gender norms in their community and to protect themselves from HIV. An added component is referral to and provision of HIC testing in collaboration with community-based partners outside or close to these sessions. This approach has led to an enabling environment for uptake of HTS by men.

Lessons learned: From June 2016 to December 2017, we reached 21,221 men with our sessions, of whom 8892 were referred (42%) and 8617 tested for HIV (96% of those referred). This shows that by bringing services closer, men are able to access HIV testing.

Conclusions/Next steps: Community-based interventions targeting men, can be used as an important platform to reach and mobilise men to access HIV testing services in the community and at health facilities.

THPEC293

Achieving HIV programming goals with male sex workers (MSW) and men who have sex with other men (MSM) through the innovative application of information, communication and technology platforms

P. Njoroge

Health Options For Young Men on HIV/AIDS/STIS, Communications, Nairobi, Kenya

Background: In Kenya, men who have sex with men and male sex workers are responsible for 18.2% of HIV prevalence against the 5.5% prevalence in the general population. Overall rates of HIV continue to decline within the general population while it continues to rapidly increase between MSM and MSW. Since 2015, the Health Options for Young Men on HIV/AIDS and STIs (HOYMAS) has taken advantage of the exponentially growing access to information and communication technology (ICT) to leverage its HIV and AIDS programming enabling it to achieve significant HIV and AIDS prevention and treatment health outcomes.

Description: HOYMAS uses ICT platforms such as Short Messaging Services (SMS), WhatsApp, Facebook, Twitter, and Website to mobilize MSMs and MSWs to access various HIV and AIDS prevention , care and treatment services. 300 SMS, 150 WhatsApp messages, targeted messages through HOYMAS Facebook and Twitter accounts with more than 5,000 followers. Messages are sent every week to MSM and MSWs based in Nairobi to visit HOYMAS community led clinic in order to access HIV services. In 2016/2017, HOYMAS reached 1,440 new MSM/MSW through ICT based mobilization and 75% of those mobilised visited the clinic for tests. Out of these 202 individuals received HIV positive results and 93% were put on treatment with a 95% adherence level. The PrEP service launched at the clinic has within one year achieved 69% of the two-year target period.

Lessons learned:

· The use of technology based interventions implementation is crucial in enabling key populations led organisations achieve quality health outcomes in HIV programming

· Combining the virtual with the physical while mobilizing MSM/MSW for HIV services is more effective than the use of ICT alone

· Privacy and confidentiality remain crucial issues but they are non-deterring concerns

Conclusions/Next steps:

· As an organisation, we will increase our monitoring and evaluation of our ICT based mobilization approaches.

· The evidence from our experience lay a strong emphasis on the utilization of ICT in better implementation of HIV services thus the need to expand it

· HOYMAS to champion for the inclusion of ICT platforms in HIV programming into the key national guidelines

THPEC294

Misunderstanding PrEP among rural Latino Immigrants: Likening PrEP to reproductive health strategies

C. Garcia[1], R. Melendez[2], S.J. Zepeda[3], I. Lozano-Verduzco[4], G. Alaniz[5]

[1]San Francisco State University, Sociology and Sexuality Studies, Burlingame, United States, [2]San Francisco State Univeristy, Sociology and Sexuality Studies, San Francisco, United States, [3]San Francisco AIDS Foundation, Latino Program, San Francisco, United States, [4]Universidad Pedagogica Nacional, Psychology, Mexico City, Mexico, [5]San Francisco State University, Sociology and Sexuality Studies, San Francisco, United States

Background: Research shows that HIV Pre-Exposure Prophylactics (PrEP) can lower HIV rates. However, PrEP may increase sexual risk behaviors and Sexually Transmitted Infections (STI). Recently, the United States (US) has experienced an increase in STI particularly among rural Latinos. Barriers such as language, migration patterns, poverty, and undocumented legal status makes it less likely for Latino immigrants to access PrEP and makes HIV prevention outreach more difficult. Insufficient and incorrect information about PrEP may lead to misunderstandings on the effectiveness of PrEP; likening it to a reproductive contraception, such as birth control and condoms.

Methods: We partnered with community-based organizations in three rural counties of California to inquire on PrEP knowledge and usage among Latino immigrants. The counties consist of largely migrant Latino communities. Participants were comprised of clients (n=56), many of whom identified as migratory agricultural workers, and health providers (n=29). In-depth interviews were conducted from February through March of 2017. Interviews were transcribed and coded.

Results: Many clients and providers used birth control analogies when discussing PrEP. Nearly 25% of health providers framed their understanding of PrEP and its effectiveness in terms of reproductive health, specifically birth control pills. One female provider noted, "It´s protecting yourself, like anybody on birth control. Whether it´ll be a condom, whether it´ll be...[an] IUD, whether it´s the shot, whether it's the pill..." Clients who likened PrEP to reproductive health, explicitly discussed it rela-

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tive to contraception, "it´s like a contraceptive pill… take that pill before having sex but with the risk that… they are not going to catch infection, that is, they are preventing the infection." Each of the three gender-identity categories (male, female or trans-women) clients framed PrEP along birth control lines.

Conclusions: While birth control may be an efficient way of explaining PrEP to individuals, there is a risk that some may understand PrEP as a contraceptive pill rather than one that decreases chances of sero-converting. Strengthening health education on the effectiveness of PrEP may lead to more accurate dissemination of PrEP information. Carefully discerning between PrEP, birth control and STI prophylactics may decrease risky sexual behavior, STI rates, and unintended pregnancies.

THPEC295

Optimizing the HIV yield through targeted community-based HIV testing strategies: Experience of resources towards elimination of child vulnerability in Côte d'Ivoire

G. Abla Epse Semde[1], J. Tabler Mullis[2], A. Kouakoussui[3], S. Kanon[4], V. Noba[4], K. Ouattara[3]
[1]Save the Children, Program, Abidjan, Cote D'Ivoire, [2]Save the Children, Washington, United States, [3]Jhpiego, Abidjan, Cote D'Ivoire, [4]Save the Children, Abidjan, Cote D'Ivoire

Background: Community-based HIV testing is one of the flagship interventions of the PEPFAR/USAID funded project, Resources towards Elimination of Child Vulnerability (REVE) in Côte d´Ivoire. After 14 months of implementing HIV testing services (HTS), project data analysis in April 2017 revealed a yield of 0.6%. Although 20,731 individuals (4,913 adults and 15,818 children) were reached by the project with HTS and received their results (75% of the target), only 134 people including 96 adults and 38 children were found HIV positive. This low yield indicated that the project needed to revise the HTS strategy to reach the right people with HTS.

Description: The revision of the HTS strategy early in May 2017 led to a more aggressive approach in the search for sexual partners, and the development of new tools for identification of sexual partners and a HIV risk assessment tool for children, adolescents and adults. Community counselors (CCs) received intensive training on the revised HTS strategy followed by close mentoring and supervision of REVE staff in collaboration with health district officials.

Lessons learned: The deployment of the revised strategy led to the expansion of HIV testing service delivery in the community beyond beneficiary households through HIV screening of other households where sexual partners were found. Individuals identified using the new tools received counseling and testing by CCs. From July to September 2017, 1,254 individuals including 942 adults and 312 children were identified, tested and advised of their HIV status. Sexual partners accounted for 70% of those reached with HTS. Out of the 1,254 individuals tested, 591 (530 adults and 61 children) were found HIV positive recording 19.5% and 56.20% respectively for children and adults HIV yield. The project HIV yield increased from 0.6% to 3.2% by the end of fiscal year 17.

Conclusions/Next steps: As a result of the revised HTS strategy, REVE not only achieved a significant increase in the HIV yield, but also increased the number of individuals reached with HTS, from 75% of the target to 95% of the target.

THPEC296

HIV testing patterns in two community-based approaches to universal test and treat in the HPTN 071 (PopART) intervention in South Africa

B. Yang[1], R. Sloot[1,2], S. Floyd[3], F. Esau[1], J. Molaolwa[1], D. Awoniyi[1], Y. Saunders[1], P. Siboto[1], L. Gqiba-Tunywa[1], D. Myburgh[1], B. Cimi[1], S. Griffith[4], P. Bock[1], H. Ayles[5,6], S. Fidler[7], R. Hayes[3], N. Beyers[1], HPTN 071 (PopART) Study Team
[1]Stellenbosch University, Desmond Tutu TB Centre, Department of Paediatrics and Child Health, Faculty of Medicine and Health Sciences, Cape Town, South Africa, [2]Amsterdam Institute of Global Health and Development, Amsterdam, Netherlands, [3]London School of Hygiene and Tropical Medicine, Department of Infectious Disease Epidemiology, London, United Kingdom, [4]FHI360, Durham, South Africa, [5]Zambia AIDS Related Tuberculosis Project, University of Zambia, Lusaka, Zambia, [6]London School of Hygiene and Tropical Medicine, Department of Clinical Research, London, United Kingdom, [7]Imperial College, Department of Infectious Disease Epidemiology, London, United Kingdom

Background: HPTN 071 (PopART) is a community-randomised trial conducted in 21 communities in Zambia and South Africa (SA) with a population of over 1 million, to measure the impact of a combination HIV prevention intervention on population-level HIV incidence; delivered in annual rounds by Community HIV-care Providers (CHiPs), who provide home-based HIV testing services (HTS) door-to-door in the community. In response to a lower proportion of men being reached during home-based HTS (HBHTS), CHiPs offered HTS in tents in areas of high foot traffic.

We analysed HTS data to determine whether more men were tested through tent-HTS as compared to HBHTS, and compared other demographic characteristics between HBHTS and tent-HTS to understand HIV testing patterns.

Methods: During annual round three from April 2017-December 2017, when both HBHTS and tent-HTS were offered by CHiPs in six SA communities, tent-HTS was conducted at public transport hubs(4 days), shopping centres(13 days), schools/libraries(6 days), and a community event(1 day). 3-5 tent-HTS events were conducted in each community. HTS was offered through a finger-prick rapid test using the SA National HTS serial testing algorithm. CHiPs collected data on an electronic register. Multivariable logistic regression analysis was used to compare the population reached through HBHTS versus tent-HTS on gender, age, history of prior HIV testing, status as a presumptive TB case, and community.

	HIV test done		
	At home n (%)	In Tent n (%)	p-value[1]
Sex			
Male	14,639 (46)	239 (59)	<0.001
Female	17,393 (54)	163 (41)	
Age			
0-19	10,596 (33)	84 (21)	<0.001
20-24	5,177 (16)	61 (15)	
25-29	4,320 (13)	63 (16)	
30-39	5,678 (18)	86 (21)	
40-49	3,149 (10)	54 (13)	
50+	3,112 (10)	54 (13)	
Previously tested for HIV			
No	6,522 (20)	96 (24)	0.128
Yes	11,026 (34)	123 (31)	
Unknown	14,484 (45)	183 (46)	
Presumptive TB case[2]			
No	30,128 (94)	365 (91)	0.023
Yes	1,812 (6)	35 (9)	
Not screened for TB/ Unknown	92 (0.3)	2 (0.5)	
Community[3]			
SA1 (<48 km to the capital)	5,463 (17)	32 (8)	<0.001
SA2 (<48 km to the capital)	2,617 (8)	27 (7)	
SA3 (<48 km to the capital)	9,604 (30)	64 (16)	
SA4 (<48 km to the capital)	6,363 (20)	33 (8)	
SA5 (>77 km to the capital)	3,844 (12)	132 (33)	
SA6 (>77 km to the capital)	4,141 (13)	114 (28)	

[1] Chi-squared test
[2] Considered to be a presumptive TB case if an individual had any of the following signs and symptoms (coughing for more than two weeks, night sweats, weight loss of more than 1.5 kg) and/or in contact with an individual who has TB in the house or at work
[3] SA5 and SA6 are furthest from the capital (Cape Town) of the Western Cape Province, South Africa. They are also in areas of agriculture.

[Table 1. Characteristics of individuals tested for HIV by lay HIV counsellors at home and in tents in high traffic areas]

Results: 32,032 HIV tests were done through HBHTS and 402 during tent-HTS (Table 1 shows characteristics of the population tested). Those testing through tent-HTS were more likely than those testing through HBHTS to be men (aOR 1.9, 95%CI 1.5-2.3), more likely to be from the older age-groups of 25-29/30-39/40-49/50+ (p-values of all aOR's < 0.01), and more likely to be residents of communities SA5/SA6 (agricultural communities further from Cape Town). HIV positivity was slightly higher during HBHTS as compared to tent-HTS but was not significant (2.1%vs1.7%).

Conclusions: Tent-HTS in high traffic areas proved successful in reaching a higher proportion of men, although the absolute number of additional tests was relatively small. Tent-HTS was relatively more successful in agricultural areas. Studies with larger sample size are required to understand differences in HIV testing patterns between HBHTS and tent-HTS.

THPEC297

Integration of PrEP as combination prevention among lesbian, gay, bisexual, transgender and intersex (LGBTI) in public health facilities in Kenya. A case of Mombasa County

Z. Ahmed[1,2]
[1]County Government of Mombasa, Department of Health, Mombasa, Kenya, [2]LVCT Health, Health, Nairobi, Kenya

Background: High levels of self-stigma coupled with negative attitude, discrimination and lack of adequate skills among health care workers to handle LGBTI continue to be a hindrance to LGBTI in accessing HIV services. HIV services to LGBTI are predominantly offered by non-governmental organization in most part of Kenya. Since May 2017, LVCT Health a non-governmental organization has been implementing "Towards Universal Comprehensive Health services for LGBTI (TOUCH Plus)" project in collaboration with the County government of Mombasa to integrate HIV services for LGBTI in public health facilities. The main aim of this paper is to demonstrate integration and uptake of PrEP among LGBTI in public health facilities model in Kenya.

Description: A baseline need assessment was conducted targeting LGBTI community based organizations, peer educators and health care workers in public health facilities. Health care workers were trained on delivery of PrEP to the LGBTI. LGBTI peer educators were also trained as mobilizers and attached to the public health facilities. A mentorship, supervision and stakeholders engagement plan was developed and implemented. Data collection and reporting tools were piloted in the facilities from the national system.

Lessons learned: A total of 8 facilities were selected in phase 1 for integration of PrEP from May 2017-December 2017. A total of 67, 59 gay men, 8 bisexual male and female were initiated on PrEP. By December 50 (84.7%) of gay men were active on PrEP, and 5 (62.5%) of bisexual men and women. Cumulatively 55 (82.1%) were actively enrolled on PrEP program in public health facilities.

Conclusions/Next steps: Integration of PrEP in combination prevention for LGBTI is important to achieve the goal of zero new infections. There is need to for the public health care system to fully integrate PrEP in comprehensive HIV services for LGBTI through creating link with the community, capacity building of providers, provision of PrEP, and strengthening of national and county LGBTI health data management.

THPEC298

Reaching more key and vulnerable population with HIV services through combination prevention campaign

P. Urasa[1,2], A. Ramadhani[3], E. Matechi[4], B. Mpora[5], G.J.I. Lija[6,7], L. Subi[8]
[1]National AIDs Control Programme, Dar-es-Salaam, Tanzania, United Republic of, [2]Ministry Health, Prevention, Dar-es-Salaam, Tanzania, United Republic of, [3]Ministry of Health, Prevention, Dar-es-Salaam, Tanzania, United Republic of, [4]SMART RIDE, Dar-es-Salaam, Tanzania, United Republic of, [5]National AIDS Control Program (NACP), Ministry of Health, Community Development, Gender, Elderly and Children, Dar-es-Salaam, Tanzania, United Republic of, [6]Ministry of Health-, National AIDS Control Programme, Dar-es-Salaam, Tanzania, United Republic of, [7]Ministry of Health-, Dar-es-Salaam, Tanzania, United Republic of, [8]Ministry of Health-Tanzania, Dar-es-Salaam, Tanzania, United Republic of

Background: In Tanzania, ten regions with highest HIV prevalence covered 38% of the general population and constituted to 56% of HIV infections in the country. The nation recognized the need to target these regions with high impact prevention, care and treatment support interventions in order to achieve higher impact. The 2007 national HTC campaigns showed evidence of increased uptake of new testers. However, there was expressed need for other preventive services including VMMC, STI diagnosis and treatment, condoms and social behaviour change communication (SBCC).

Combination prevention is an evidence-based approach focusing on provision of structural, behavioural and biomedical interventions at once. We adopted this approach to target key and vulnerable populations, adolescents and youth.

Methods: To guide implementation of the combination campaign, standard operating guide was developed for ten diverse regions in 200 wards. The package was not a "one size that fits all" but an ideal menus tailored for specific behaviors within the targeted communities, regions, and risk categories/ drivers of the epidemic. Consideration were made to meet prevention needs of targeted population. A minimum package services included HTS, STI, SBCC, condom programming (public and social marketed), family planning services and provision of VMMC where applicable. Community leader's were involved from the planning including identification of hot spots wards and sensitization. The campaigns and follow up activities were implemented from July 2016 to December 2017.

Results: A significant Increased up-take of HIV testing to 739,944 first time testers (M- 374461 and F= 365483); HIV positive 4,736 (Male 2080 & Female 2656); 7,429 women screened for cancer; Family planning services offered to 2,654 women; TB screening 21,166; VMMC 3,594; STI services-727 and GBV 229. Other services offered were Prostate cancer screening 292. Formulation of 200 income- generating groups in each ward.

Conclusions: Community mobilization and empowerment during planning including identification of the drivers of the epidemic and location of the hotspots was crucial for a successful Campaign. Follow up activities post campaign promoted linkage and referral to other services.

THPEC299

HIV testing rates among young women aged 15 - 24 years in Nigeria: A situation analysis

R. Aguolu, G. Ashefor, K. Ogungbemi, J. Anenih
National Agency for the Control of AIDS, Abuja, Nigeria

Background: National data suggests that 4.2% of young people aged 15-24 years are living with HIV. (Nigeria GAPR 2015). Over the last few years, a number of prevention interventions aimed at improving access to HIV testing and care programmes have been implemented for these young people aged 15-24 years. The objective of this paper is to ascertain the HIV testing rates among young women aged 15-24 years in Nigeria, identify gaps in prevention interventions and proffer solutions.

Methods: Data used in this paper was derived from the nationally representative Multiple Indicator Cluster Survey conducted between September 2016 to January 2017, in the 6 geopolitical zones of Nigeria. A household pre-tested questionnaire was used to collect data in the field

which was captured electronically using Computer Assisted Personal Interviewing application 5.0. Data was analyzed using the Statistical package for Social Scientists (SPSS) software.

Results: Of the 12,637 young women aged 15-24 years interviewed, 81.8% had heard about HIV and AIDS. 54.4% of these young women knew where to get HIV test done while 23.1% had ever been tested for HIV and knew the result of their most recent test. 12.1% of these young women aged 15-24 years had been tested for HIV in the 12 months preceding the study and knew their results. The proportion of sexually active young women aged 15-24 years who had been tested for HIV in the 12 months preceding the study and knew their result was 16.7%.

Conclusions: HIV testing rates was significantly low among these young women aged 15-24 years, and barely half of the women interviewed knew where to get HIV test done. Hence, there is a dire need to design and implement targeted interventions aimed at improving access of young women aged 15-24 years to HIV testing and counseling services, so as to stem the tide of infections among them and the general population.

Innovative behavioural interventions

THPEC300

Sheroes: Feasibility and acceptability of a community-driven, group-level HIV intervention program for transgender women

J.M. Sevelius, T.B. Neilands, S. Dilworth, D. Castro, V. Warri, M.O. Johnson
University of California, Medicine, San Francisco, United States

Background: Transgender women, especially those of color, experience high risk of HIV acquisition and transmission. To meet the unique needs of transgender women with a focus on those of color and in close collaboration with community, we developed 'Sheroes,' a peer-led group-level intervention with 5 weekly sessions addressing the unifying lived experiences of HIV-positive, HIV-negative, and unknown status trans women.

Methods: We conducted a feasibility and acceptability pilot randomized controlled trial implementation of Sheroes. Participants in the intervention group received 5 weekly sessions of Sheroes; topics included healthy sexuality, communication, transition-related health information, and coping skills. Participants in the control group attended 5 weekly sessions of a group movie night (time and attention control). Preliminary outcome analyses were performed using generalized linear mixed models (GLLMs) stratified by HIV serostatus containing fixed effects for group (control, intervention), time (baseline, 3 month followup, 6 month followup), and their interaction. Pre-specified simple main effects compared outcomes on time points within each group.

Results: Participants were 45% Black/African-American, 10% Latina, 17% White, 19% Multiracial, 3% Native American, and 2% Asian/Pacific Islander. We found high levels of feasibility and acceptability; 82% of those randomized to intervention attended at least one session and 92% rated their overall experience with Sheroes as "excellent".

Regarding outcomes (see Table 1), for HIV-negative participants in Sheroes we observed reductions in the number of sex partners with whom participants had condomless intercourse and improved social support. For HIV-positive participants, both groups reduced their total number of sex partners; the change was sustained at the 6-month follow-up for the Sheroes group (p=.04), but not for the control group (p=.169) relative to baseline.

Conclusions: Sheroes was found to be highly feasible and acceptable to transgender women. Both groups reduced risky sexual behavior, which may indicate a high need for social support among transgender women, making even the control group therapeutic, though its beneficial effects may be more short-lived than those for Sheroes. Additional research with larger samples over a longer time horizon is needed to evaluate this innovative strategy for reducing sexual risk among transgender women at risk for acquisition or transmission of HIV.

	Condomless Sex Partners b		Total Sex Partners c		Social Support d	
Time	Control	Intervention	Control	Intervention	Control	Intervention
Baseline	3.39 (1.16)	4.60 (1.55)	8.93 (3.59)	6.10 (2.40)	0.28 (0.09)	0.28 (0.08)
3 months	1.62 (0.76)	1.91 (0.86)	2.92 (1.36)	3.45 (1.57)	0.36 (0.10)	0.35 (0.10)
6 months	1.57 (0.82)	1.15 (0.56)	5.18 (2.72)	2.73 (1.41)	0.40 (0.14)	0.57 (0.13)
p-value a	.169	.007	.001	.049	.522	.044

a Test of simple main effect of overall time difference within group (2 degree of freedom test) b n=42 HIV-negative participants. Group-by-time interaction p=.67. c n=34 HIV-positive participants. Group-by-time interaction p=.31. d n=41 HIV-negative participants. Group-by-time interaction p=.67.

[Estimated Means (Standard Errors) of Sexual Behavior Outcomes]

THPEC301

Outcome evaluation of HIV prevention interventions for people who use drugs in Ukraine based on a bottom-up common factors approach

J. Owczarzak[1], T. Nguyen[2], A. Mazhnaya[1], O. Filippova[3], S. Phillips[4], T. Zub[3], P. Alpatova[3]
[1]Johns Hopkins School of Public Health, Health, Behavior and Society, Baltimore, United States, [2]Johns Hopkins School of Public Health, Mental Health, Baltimore, United States, [3]VN Karazin Kharkiv National University, Sociology, Kharkiv, Ukraine, [4]Indiana University, Anthropology, Bloomington, United States

Background: Current models of HIV prevention intervention dissemination involve packaging interventions developed in one context and training providers to implement that specific intervention with fidelity. Research shows that providers rarely implement these programs with fidelity due to perceived incompatibility, resource constraints, and preference for locally-generated solutions. In this study, we used the concept of "common factors," or broad constructs shared by most evidence-based HIV prevention interventions, to train service providers to develop their own programs. Our study examined whether the provider-developed and implemented interventions based on common factors of effective behavioral interventions led to reduction in drug-related HIV risk behavior.

Methods: This study took place in Ukraine between 2012 and 2016. We trained service providers from eight nongovernmental organizations (NGOs) to develop interventions based on a "common factors" approach. Four NGOs' interventions were selected for effectiveness evaluation. Each NGO conducted its intervention with at least N=130 participants (total N=520). Participants completed a baseline and a 90-day follow-up assessment. The assessment included sociodemographic characteristics and injection and sex-related risk behaviors. Our analysis focuses on injection-related HIV risk behaviors associated with drug acquisition (buying drugs in a preloaded syringe or giving one's syringe to someone to fill) and injection (common drug container, sharing drug preparation equipment, and front/backloading). We analyzed the prevalence of any risky behavior in drug acquisition and drug injection at baseline and 3-month follow-up.

Results: In three sites, prevalence of both any risk in drug acquisition and any risk in drug injection decreased. In the fourth site, the prevalence of any risk in drug injection decreased substantially, but the prevalence of any risk in drug acquisition did not change. Injection related risks decreased between 17 and 30 percent, with baseline prevalences ranging from 53 to 81 percent. Acquisition risks decreased between 14 and 35 percent, with baseline prevalences ranging from 50 to 89 percent.

Conclusions: Our findings suggest that a common factors approach may provide an alternative model to current intervention development and dissemination methods that aim to reduce HIV risk. However, more rigorous assessment is needed such as through a randomized controlled trial and with different target populations in other contexts.

THPEC303

Leveraging social networks and technology for HIV prevention and treatment with transgender women

I. Holloway[1], S. Jordan[1], S.L. Dunlap[2], C. Reback[3]
[1]University of California, Luskin School of Public Affairs, Los Angeles, United States, [2]University of California, Department of Social Welfare, Los Angeles, United States, [3]Friends Research Institute, Inc., Los Angeles, United States

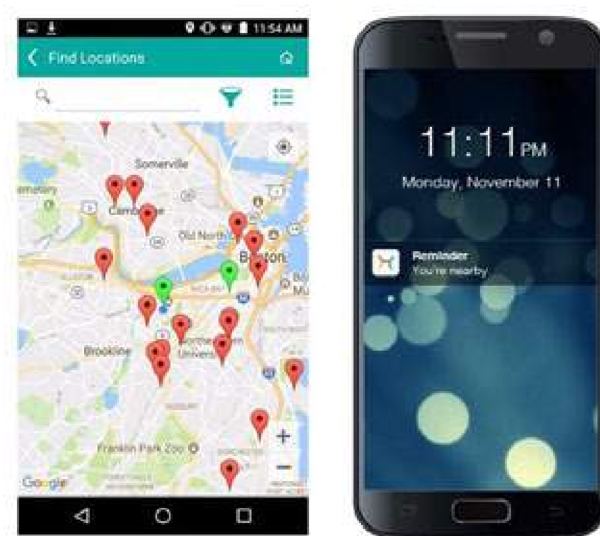
Background: In the United States, transgender ("trans") women are among the groups most disproportionately impacted by HIV/AIDS. Trans women use social networking sites (SNS) gain access to trans-specific resources and develop social networks. Five focus groups were conducted to better understand how trans women's social networks and technology-based networking platforms may be leveraged in developing health promotion strategies to prevent HIV acquisition and transmission.
Methods: Between January and February 2015, potential participants were recruited from community-based organizations, through street outreach, and through word-of-mouth (N=39). Each focus group lasted approximately 60 minutes and was audio recorded, transcribed verbatim and analyzed using Atlas.ti. Prior to the focus group, a brief assessment was administered to each participant to obtain sociodemographic and technology use data (i.e., age; race/ethnicity; sexual identity; HIV status; educational attainment; living situation; main source of income; and frequency of using technology, social network sites and apps). During the focus groups, open-ended questions focused on social network composition, and the use of technology for socialization, partner seeking, and health information.
Results: Participants were racially and ethnically diverse and ranged in age from 20 to 72 years old, with a mean age of 37; 28% were African American/Black, 28% Latina, 26% Caucasian/White, 5% API, and 13% mixed/other. Nearly three-quarters of participants owned a smartphone. The structure and composition of trans women's online networks were diverse with several participants describing robust and interconnected social networks comprised of many other trans people. Participants relied on technology to establish affiliations and support networks, find and exchange health information and advice, create and share media content, and connect with sexual partners and relationships. Many participants preferred trans-specific or inclusive SNS sites due to experiences of objectification and harassment on mainstream platforms.
Conclusions: In order to reduce risk for acquisition and transmission of HIV among low income trans women, culturally relevant prevention and intervention strategies are needed. The knowledge and expertise that trans women possess in establishing social networks, in using technology to organize resources, and to access to health care can be harnessed by practitioners and policymakers to inform HIV prevention and care interventions.

THPEC304

Repurposed technology: The process of integrating location-based alerts into an HIV testing app for young men who have sex with men

E. Marrow[1], K. Mayer[1,2,3], J. Dormitzer[1], L. Hightow-Weidman[4], P. Sullivan[5], K. Biello[1,6,7]
[1]Fenway Health, The Fenway Institute, Boston, United States, [2]Harvard Medical School/Beth Israel Deaconess Medical Center, Division of Infectious Disease, Boston, United States, [3]Harvard T. H. Chan School of Public Health, Global Health and Population, Boston, United States, [4]University of North Carolina-Chapel Hill, Institute for Global Health and Infectious Diseases, Chapel Hill, United States, [5]Emory University, Rollins School of Public Health, Atlanta, United States, [6]Brown University School of Public Health, Behavioral & Social Sciences and Epidemiology, Providence, United States, [7]Brown University School of Public Health, Center for Health Equity Research, Providence, United States

Background: Location-based alerts that use real-time geo-data from a mobile device are commonly used in retail (e.g., Starbucks) and social/sexual networking apps to impact behavior, but have not been widely adopted for health promotion apps. We describe the development and integration of a location-based alert system for HIV testing into "MyChoices"—an app to increase HIV testing among young men who have sex with men (YMSM).
Methods: The location-based alert system for HIV testing evolved via an iterative development process with a multidisciplinary team of researchers, providers, app developers and youth. This included initial focus groups (n=6) with YMSM to obtain feedback on the concept, collaboration with the app developers to create and integrate the system, and additional focus groups (n=4) for feedback on the developed product.
Results: In initial focus groups with 33 YMSM in 3 U.S. cities, participants expressed interest in location-based alerts for HIV testing but wanted to be able to customize the alert frequency based on individual testing needs or preferences. Using available online resources, local expert consultation and calls to clinics and community-based organizations, we constructed a comprehensive database of HIV testing sites (including hours, cost, type of testing offered) in Boston, MA and Bronx, NY—our initial field-testing sites.
This database was integrated into the app along with a location-based alert system that "pings" users with a pop-up notification when geographically near (e.g. within ½ mile) an HIV testing site and due for a test based on their personalized, app-facilitated testing plan.
Focus groups were then conducted in Boston and Bronx to demonstrate the location-based alert system. YMSM (n=28) indicated that these alerts were acceptable, would facilitate testing as an immediate priority, and would increase long-term adherence to a test plan. Participants appreciated the ability to set alert frequencies and distance to the HIV testing site.



[Location-based alert screenshots from the MyChoices app]

Conclusions: Acceptability and efficacy testing of the MyChoices app and the location-based alert system is ongoing. If acceptable and efficacious, location-based alerts could be further customized (e.g., set "favorite" locations), expanded to include notification for other services (e.g., pharmacy refills, care appointments), and applied to a broad range of health promotion apps.

THPEC305

Acceptability and feasibility of m-health application for young MSM/TGs using real time data: Lessons from end line assessment of cohort population

L. Uppal, T. Khanna
MAMTA Health Institute for Mother and Child, Delhi, India

Background: India is third largest contributor to HIV in the world, epidemic being concentrated largely in adolescent key populations. Due to inequity in HIV policy and programming, young MSM and TGs have largely been excluded from national HIV response. To improve their equity in HIV access and prevention, mobile application (*Sabrang*) was de-

signed in consultation with community based organizations for improving their knowledge on safe sexual practices, HIV/AIDS prevention and linkages to HIV services.
Methods: We assessed the acceptability and feasibility and impact of application that provides knowledge (Q/A, games based, audio messages) and encourages access through doctors/professional counselors using peer led approach. A mix method pre-post study design was used along with real time data through dashboard. A cohort of 117 was retained at end line out of 167 participants (15-24 years) who used mobile application.
Results: Knowledge on all methods of HIV transmission increased from baseline (53%) to end line (65%) (p< 0.01). Misconceptions about HIV transmission was dispelled by 17 per cent point at end line significantly (p< 0.01). Chat with a doctor was found most useful feature for seeking health knowledge and counseling. Feasibility was demonstrated as participants who interacted with the doctor/counselor had correct knowledge on all methods of HIV transmission as compared to those who did not (p< 0.001). Around two-third respondents felt the ease of usage of app due to privacy and availability of GPS enabled health facility map (54%). Most respondents were satisfied as they received response within 24-hours and had interpersonal counseling. Qualitative investigation showed this application was accepted well since it provided safe and instant pocket information on safer-sex practices as well as 'near-by' access to health services.
Conclusions: m-Health tools designed in consultation with community through careful planning of the user interface, results in high acceptability. The application provided an opportunity to express sexual orientation or gender identity to many hidden community members, especially below 24 years. There are limited evidence based digital interventions focused on key populations in India due to policy implications, however, this application has shown to reach and impact the vulnerable community and link them to HIV services.

THPEC306

A qualitative study of perceived barriers and facilitators to the implementation of social network testing for HIV among MSM with a non-Western migration background

C. Den Daas[1], M. Geerken[2], M. Bal[3], J. de Wit[3], S. Bergh[2], R. Spijker[2], E. Op de Coul[4], PREVENT Study Group
[1]RIVM, STI/HIV, Bilthoven, Netherlands, [2]Soa Aids Nederland, Amsterdam, Netherlands, [3]Utrecht University, Utrecht, Netherlands, [4]RIVM, Bilthoven, Netherlands

Background: Peer-driven social network testing (SNT) for HIV is proposed as method to promote HIV testing in hard-to-reach populations. This qualitative study explored perceived barriers and facilitators to SNT for HIV among men having sex with men with a non-Western migration background (MSM-NW) in the Netherlands. How is SNT best implemented to reach this vulnerable population, while respecting cultural differences and minimizing any negative impacts?
Methods: Thirteen MSM-NW, recruited through STI clinics in Rotterdam and Amsterdam, were interviewed about SNT from the perspective as a peer providing HIV self-tests to network associates (NAs). The interviews were recorded, transcribed verbatim, and analysed by thematic content analysis.
Results: We identified four major barriers: fear, denial, time concerns, and being seen. For example, participants experienced fears that others will find out (either their HIV status or homosexuality), and although Prevent does not seem to be able to reduce fear, being able to test privately and get the result immediately seemed to alleviate some of the experienced fears. A major advantage of SNT is that it serves men who don't openly identify as homosexual, and those who are afraid of being seen at regular testing sites. For implementation, training of peers about HIV testing was also considered an important aspect of SNT, peers needed practical, informational, and emotional support. Finally, participants had very different opinions about sharing test results; while some saw it as an invasion of privacy, others considered it a natural consequence of SNT.
Conclusions: We expect that SNT will be most successful in networks with a certain level of trust between peers and NAs, because of the experienced barriers. Peers should be trained in how to start the conversation, how to deal with possible negative reactions, and how to support them after taking the test. Prevent does this by offering support via an e-tool and a peer-coordinator, a person who will personally answer questions and help where necessary. Although fear for the test result will remain, SNT can be tailored to the personal situation of individual friendships, and thus remove general barriers to testing, and facilitate HIV testing among hard-to-reach MSM-NW.

THPEC307

Addressing social support and social isolation in online interventions for young Black MSM and transgender women: Examining the role of peer-to-peer sharing

K.J. Marsh[1,2], S. LeGrand[3], Q. Wang[4], K. Muessig[5], K.J. Horvath[6], L. Hightow-Weidman[7]
[1]University of Minnesota, Division of Infectious Diseases and International Medicine, Minneapolis, United States, [2]University of Minnesota, Division of Pediatric Infectious Diseases and Immunology, Minneapolis, United States, [3]Duke University, Duke Global Health Institute, Durham, United States, [4]University of Minnesota, Clinical and Translational Science Institute, Minneapolis, United States, [5]University of North Carolina at Chapel Hill, Department of Health Behavior, Chapel Hill, United States, [6]University of Minnesota, Division of Epidemiology and Community Health, Minneapolis, United States, [7]University of North Carolina at Chapel Hill, Institute of Global Health and Infectious Diseases, Chapel Hill, United States

Background: Young black men who have sex with men and transgender women (YBMSM/TW) are disproportionately burdened by human immunodeficiency virus (HIV). Poor social support and social isolation are associated with decreased viral suppression and risky sexual behaviors, particularly for persons of color. Technology-based interventions that facilitate peer interaction through online forums may improve perception of social support and reduce isolation.
Methods: HealthMpowerment (HMP) was a randomized controlled trial of a mobile-optimized online intervention designed to reduce sexual risk behaviors through interactive features including a forum. 474 YBMSM/TW aged 18-30 (HIV-negative/status unknown [n=275] and HIV-positive [n=199]) enrolled and completed surveys at baseline, 3, 6, and 12 months. Items included sociodemographics, the Medical Outcomes Study Social Support Survey (MOS-SSS), and the Lubben Social Network Scale (for social isolation). Linear mixed models and generalized linear mixed models explored differences in change over time by intervention group, general HMP site use, number of forum posts, and HIV status.
Results: Mean age was 24.3 (SD 3.2). Baseline mean score for all participants of perceived total social support was low at 72.0 (SD 27.3) out of 100, and 30% were socially isolated (score < 12). At each time-point, there were no differences in social support or social isolation by intervention group, by overall HMP usage, or by use of the peer interaction features. HIV-positive participants had lower mean social support scores at baseline than HIV-negative participants (total social support p=0.02, emotional p=0.03, tangible p=0.05, interaction p=0.002) and reported more isolation (40% vs 23%, p< .001). Social support scores declined over time, for both HIV-negative and HIV-positive groups.
Conclusions: Perceived social support was low and social isolation was high in this sample of YBMSM/TW, especially among those living with HIV. Neither factor improved over time regardless of intervention group, intervention dosage, or use of HMP features that facilitated peer discussion. Future technology-based interventions that aim to impact these factors should consider how to optimize virtual spaces to foster peer-to-peer interactions. Additionally, measures that are more sensitive to changes in social support and isolation due to online intervention participation should be explored.

THPEC308

Coaching: Leveraging existing evidence-based interventions (EBI) to create a scalable, adaptable implementation model to increase uptake of the HIV prevention continuum among youth

D. Swendeman[1], E. Arnold[2], D.M. Harris[3], J. Fournier[4], M.J. Rotheram-Borus[3], S.E. Abdalian[4], Adolescent Medicine Trials Network (ATN) CARES Project
[1]David Geffen School of Medicine at UCLA, Department of Psychiatry & Biobehavioral Sciences, Semel Institute, Los Angeles, United States, [2]University of Central Florida, College of Health and Public Affairs, School of Social Work, Orlando, United States, [3]University of California, Department of Psychiatry & Biobehavioral Sciences, Semel Institute, Los Angeles, United States, [4]Tulane University, Department of Pediatrics / Adolescent Medicine, New Orleans, United States

Background: The U.S. CDC's portfolio of evidence-based interventions (EBI) has been broadly diffused with the intention to replicate intervention manuals with fidelity. Substantial evidence suggests that community and clinical agencies, even after extensive training, do not replicate these manuals. Coaching reflects an alternative strategy for synthesizing EBI into their shared theoretical model, foundational skills, common components, and targeted outcomes, and then training paraprofessionals to apply these to coaching young people to adhere to the HIV Prevention Continuum.
Methods: Ratings of five adolescent EBI for HIV and 800 child and family EBI for mental health have identified a common theory, set of skills and components, and a strategy for application to the HIV Prevention Continuum. Five B.A.-level coaches were recruited, each of whom had cultural similarities and sensitivities to youth at highest risk for HIV. After six weeks of training, 43 youth are receiving virtual/in-person coaching. Youth are 49% gay, bisexual, or transgender males (GBTM), 65% are African American, 15% Latino, 28% were previously hospitalized for mental health issues, 14% received substance abuse treatment, and 58% were formerly homeless. Coaches track each contact with youth, including the content areas discussed, skills employed and the goals established. Thus far, youth have been followed for an average of four months, but will be followed for 24 months.
Results: To date, Coaches have held an average of 2.5 coaching sessions per youth. Youth discussed problems related to daily living (housing, employment) most often (during 80% of sessions), with social relationships (48%), HIV-related behaviors (43%), substance abuse (25%) and mental health problems (31%) concurrently reviewed. Of the foundational skills that Coaches were trained to use, goal setting (61%), problem solving (62%), and praise (76%) were employed most often. Youth goals tended to focus on employment, school and transportation (about 15% each). Coaches provided referrals during 22% of sessions.
Conclusions: Coaching allows interventions to be customized to the risk profiles of youth; embraces diversity in the Coaches' ethnic, gender, language and cultural styles; and, includes strategies for ongoing monitoring of intervention delivery.

THPEC309

Dance for hope, dance to the light: A school-based multimodal approach to address HIV epidemic among youth in Pasig City, Philippines

R. Berba[1], J. Joaquin[2], M.J. Torres[3], C. Villa[3]
[1]The Medical City, I-REACT Clinic, Pasig City, Philippines, [2]University of the Philippines, Quezon City, Philippines, [3]The Medical City, Pasig City, Philippines

Background: The precipitous rise in new HIV cases in the Philippines is alarming! In August 2017, the UN announced that we are now the fastest-growing HIV/AIDS epidemic in Asia-Pacific. DOH reports that two of every three new HIV infections were 15-24 year-old men. Insufficient awareness about HIV continue to be cited as one of the main reasons behind this problem. Systematic reviews on HIV prevention have shown that school-based approaches were efficacious, cost-effective and can produce the largest impact in changing HIV-related behaviors. This report describes a multimodal school-based public-private partnership strategy on HIV/AIDS prevention for Grade 10 students of Pasig City.
Description: This TMC IREACT-initiated outreach project was completed in coordination with the Office of the Mayor, Departments of Health and Education, principals and parents.The target vulnerable population reached were 10122 Grade 10 students. We introduced a ***multimodal educational strategy*** with a 2-hour lecture on HIV/AIDS prevention; and an interschool Black Light dance competition on artistic interpretation of HIV prevention. The lecture was based on the UNICEF guidance for HIV in youth and the DepEd K-12 Curriculum Guide Grade 10 and was jointly made by Kalusugang Patrol(KP) of the City Government and TMC I-REACT. At the end of each lecture students were invited to join the challenge of an interschool
Black Light dance competition: Dance to the Light, Dance for Hope!
On January 2017, 4 schools with over 100 students competed in Black Light theater showing off their original creative works on HIV prevention at TMC auditorium.
Lessons learned: Teaching HIV to the youth requires extensive planning for efficient and effective execution. Teachers themselves must be comfortable to teach HIV and sensitive to the needs of their students. A creative approach to teach complex as HIV to youth is recommended. Volunteers from both private or public groups are valuable. The positive comments of the distinguished judges of the contest inspired the fighting spirits of the performing students, and affirmed the dedication of the coaches, teachers, organizers and parents.
Conclusions/Next steps: An innovative strategy to engage youth into getting interested, fully understand and use the information to change behavior and prevent HIV is badly needed.

[Trophies for Dance to the Light Dance for Hope HIV Prevention Dance Contest Winners]

THPEC310

Radio as a tool used by girls in Gulu and Gomba-Uganda to broadcast their own created programs around gender roles and HIV prevention

E. John Paul
Wizarts Foundation, Monitoring and Evaluation, Wakiso, Uganda

Background: Negative attitudes towards girl child education among rural communities of Uganda have led to high dropout rates in school among AGYW which has exposed them to the risk of contracting HIV . Observations from project work in Gulu and Gomba districts in Uganda indicate that when a girl has the opportunity to voice her thoughts, opinions, fears, experiences, dreams and aspirations on the radio there are two visible outcomes.
Her confidence and sense of self-worth grows. Secondly, when her teachers, friends, parents and neighbors listen to her on the radio they develop a sense of pride towards her and are positive and supportive.
Description: In year 1 of this project funded by PEPFAR through the DREAMS Innovation Challenge through a grant managed by JSI, 918 AGYW ages 15-24 from 10 secondary schools in Gulu and Gomba participated in school meetings to develop radio shows. 279 AGYW received

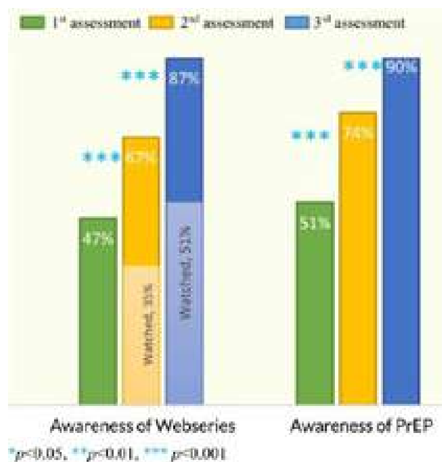
basic radio training and produced 85 shows and broadcast. 58 AGYW received have been recognized for their exceptional performance at community awards galas attended by 1566 boys, girls, parents, teachers and duty bearers.
Anecdotal evidence from Kyayi seed SS in Gomba district indicated that when a girl was heard speaking on radio by her father; it was impactful enough to reverse her fathers' decision to marry her off.
Lessons learned: Of the 918 AGYW enrolled into the program in year 1, 916 girls stayed in school at the end of the period, this is a 99.8% retention rate. 6 AGYW who had dropped out of school were re-enrolled in secondary school.
Conclusions/Next steps: More girls should have access to radios in their formed listener groups in school and in their communities. The schools can be assisted in acquiring laptops/desktops with supervised internet access and capacity building for AGYW to use internet and interact with a wider community on the Superwoman website. Year 1 has seen implementation covering all girls in some schools; therefore expansion/scale up of the intervention to other schools and districts is possible
in year 2.

THPEC311

GayOk Bangkok: Increasing PrEP awareness among young gay men in Bangkok with a scripted web series

S. Soeparna[1,2,3], R. Figueiredo[1], T. Guadamuz[4]
[1]APCOM, Bangkok, Thailand, [2]Elton John AIDS Foundation, London, United Kingdom, [3]FHI 360, Bangkok, Thailand, [4]Mahidol University, Bangkok, Thailand

Background: With support from EJAF and LINKAGES/Thailand—which is led by FHI 360 and funded by USAID and PEPFAR—TestBKK (APCOM's HIV testing campaign targeting young men who have sex with men [YMSM] in Bangkok) produced a scripted web series called GAYOK Bangkok (http://testbkk.org/GAYOKBangkok). GAYOK Bangkok follows fictional gay characters that represent different ages, body types, gender expression, and HIV status, and it provides a realistic and diverse portrayal of gay individuals of Bangkok. The sexual health messages, including PrEP, are threaded subtly into the storyline, which paints a picture of life drama among the characters. Partnering with Mahidol University of Thailand, APCOM conducted a study to assess the correlation between exposure to the web series and the trend of PrEP use among YMSM.
Methods: A serial cross-sectional survey was conducted with a closed cohort of 500 YMSM ages 1524 years who reside, work, or attend college/university in central or suburban Bangkok for a baseline evaluation (first assessment) before the release of the web series' first episode. The participants were then followed up for a second and third assessment at six-month intervals between September 2016 and April 2017. During that period, the web series had released five episodes for Season 1 and seven episodes for Season 2. The numbers of YMSM who participated in the second and third assessments are 270 and 207, respectively.
Results:



[Figure. Outcomes among 1st, 2nd and 3rd assessments]

Although the first assessment was done before the launch of the web series' pilot episode, awareness of the series among participants was caused by the pre-premiere promotional materials, such as the posters and teaser promoted through TestBKK's social media channels.
The study found that while the cohort's exposure to the series increased by 20% between the first and second assessments and between second and third assessments, the awareness of PrEP increased by 23% (between the first and second assessments) and by 16% (between the second and third assessments). All increases were statistically significant ($p < 0.001$).
Conclusions: Including PrEP into a plot of a scripted gay-themed web series increased the awareness of the medication among YMSM audiences, and therefore, should be considered as an additional strategy for online outreach to this demographic.

THPEC312

Factors related to lack of HIV-screening in people attending French adult erotic industry shows

P. Enel[1,2], M. Bonierbale[3], A. Alexandre[4], F. Brunel-Dalmas[5], K. Baumstarck[1,2]
[1]University Hospital Center, Assistance Publique - Hôpitaux de Marseille, Public Health Department, Marseille, France, [2]Aix Marseille University AMU, Center for Studies and Research on Health Services and Quality of Life EA 3279, Marseille, France, [3]University Interdisciplinary Association of Sexology, AIUS, Marseille, France, [4]Health Prevention National Association for Festive Venues, ENIPSE, Paris, France, [5]University Hospital of Edouart Herriot, Infectious Diseases Unit, Lyon, France

Background: The current aim of the fight against the HIV epidemic is to reduce the proportion of missed opportunities for HIV diagnosis. French regional adult erotic industry shows (ES) were thought to be good places to organize awareness campaigns and to propose HIV-RDT to people potentially at risk, with quite an appetite for sex and unsafe practices. This study aimed to document the individual factors associated with HIV screening test approach, sexual behaviors and the proportion of HIV-positive-RDT results.
Methods: A cross-sectional study was conducted in 2015 during 4 ES in which prevention booths were set up with confidential spaces to offer HIV-screening to individuals < =18 years volunteers for HIV-RDT and for respond to a validated anonymous questionnaire.
Results: We tested 943 people, mainly men (64%), young (mean age 30 years), living as a couple (63.7%). A very large majority (95.1%) reported having sexual intercourse over the last year, with 4.8 mean number of sexual partners and 68.6% with unprotected sex at least once; 37.5% had never been tested and had their first test during this campaign. Drugs (cannabis, 42.0%) and alcohol (64.4%) use were significant. We found 3 (0.32%) HIV-positive RDT results. In multivariate analysis, the 430 participants who reported no previous HIV-testing in the last 5 years compared to the 434 without previous HIV-test, more frequently declared heterosexual intercourse (OR: 2.31), being a man (OR: 1.82), transactional sex (OR: 1.92), living as a couple (OR: 1.67) and having fewer sexual partners (OR: 1.06).
Conclusions: These data showed for the first time the usefulness of HIV-screening and awareness campaigns, in new locations as fun and commercial backdrop events. We were able to find individuals never been HIV-tested and who had no intention of doing so before this campaign. This innovative and original intervention in ES had also enhanced the mobilization of local screening services, both health professionals and associations, who gave HIV informations and talked about sexuality and sexual risk behaviors. However this new model of additional intervention did not prove to be more valuable but complementary of the previous existing HIV screening services in approaching at-risk individuals for targeted intervention.

THPEC313

Improvement in HIV care continuum outcomes among young Black men who have sex with men: Results from forum engagement in in the HealthMPowerment intervention

J. Bauermeister[1], K. Muessig[2], S. LeGrand[3], S.K. Choi[2], L. Hightow-Weidman[2]
[1]University of Pennsylvania, Family & Community Health, Philadelphia, United States, [2]University of North Carolina, Gillings School of Global Public Health, Chapel Hill, United States, [3]Duke University, Global Health Institute, Durham, United States

Background: HIV-related stigma impedes HIV prevention and care. HealthMpowerment.org (HMP) is an interactive online HIV prevention and care intervention for young Black men who have sex with men (YBMSM) in the United States. HMP included three forums where participants shared experiences. We explored whether engaging in stigma-related discussions was associated with changes in HIV-positive YBMSM care-related outcomes.

Methods: HIV-positive YBMSM (ages 18-30; N=107) in HMP completed surveys at baseline, three-
(end of intervention) and six- (3 month post intervention) months that included HIV care continuum items (e.g. retention in care, disclosure to partners). We also coded instances when HIV-positive YBMSM posted HIV-related stigma content on the site. We employed growth curve modeling to examine whether changes in HIV-positive YBMSM's care-related outcomes were associated with stigma-related discussions in the site.

Results: Twenty percent of HIV-positive YBMSM (N=21; 19.6%) composed posts with HIV-related stigma content. HIV-positive YBMSM whose posts challenged HIV stigma were more likely over the 6-month follow-up to report greater provider communication (Cohen's d=.51; p< .01), serostatus disclosure to partners (Cohen's d=.38; p< .05), easier access to antiretroviral therapy (ART) (Cohen's d=.42; p< .05), and more likely to be in care (Hazard Rate=2.92 [1.25,6.83]; p< .01). Conversely, participants whose posts reflected anticipated HIV stigma were less likely to be in care (Hazard Rate =.05 [.01, .20];
p< .001) and to have a viral load test in the prior 3 months (Hazard Rate =.05 [.01, .040]; p< .01). Participants whose posts reinforced HIV stigmatizing norms were less likely to report disclosing their serostatus to recent sexual partners over time (Cohen's d=-.39; p< .05). Participants who shared experiences of HIV stigma were more likely to report lower ART adherence over time
(Cohen's d=-.67; p< .001).

Conclusions: Developing online strategies to combat stigma remains a key priority. HMP created a space where YBMSM could discuss HIV-related stigma. These discussions were associated with changes in the sample's HIV care continuum outcomes over time. Online interventions (e.g., social media, apps) should consider the inclusion of forums to address stigma, including resources to overcome anticipated stigma and leverage online peer support within their sites to improve YBMSM's HIV care outcomes.

THPEC314

A mobile app improves anti-retroviral therapy adherence in HIV-positive stimulant-using men who have sex with men

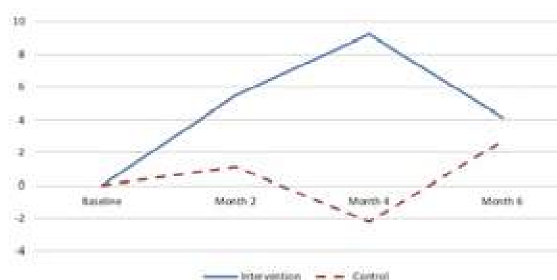
K. Horvath[1], S. Lammert[1], R. Maclehose[1], T. Danh[1], A. Carrico[2], J. Baker[3]
[1]University of Minnesota, Epidemiology and Community Health, Minneapolis, MN, United States, [2]University of Miami, Department of Public Health Sciences, Miami, United States, [3]University of Minnesota, Infectious Disease, School of Medicine, Minneapolis, United States

Background: Among HIV-positive men who have sex with men (MSM), the use of stimulants such as methamphetamine is associated with elevated HIV viral load and amplified risk of onward HIV transmission. The aim of this study is to assess the feasibility, acceptability, and preliminary efficacy of a mobile app intervention (called "APP+") on anti-retroviral therapy (ART) adherence among stimulant-using MSM (SUMSM).

Methods: We enrolled 90 HIV-positive SUMSM on ART and randomized them to either the APP+ intervention (n=45) or a no treatment control (n=45). Grounded in the IMB model, APP+ intervention components included HIV/ART information, adherence motivational content, and adherence strategies and self-monitoring to improve behavioral skills. Participants randomized to the APP+ intervention were given access to the intervention for an average of 108 days (i.e., 3.5 months; range=80-120 days). Study assessments occurred every 2 months over a 6-month period, including time in which men no longer had access to the intervention. Data collected were the percentage of men retained, the System Usability Scale (SUS) to assess intervention acceptability, and self-reported percentage ART adherence in the past 30 days.

Results: Participants were a mean age of 37 years (sd=9.9) and living with HIV for 8 years (sd=7.1). Most (56%) men identified as a racial/ethnic minority, 82.2% reported recent stimulant use, and 71% reported condomless anal sex (< 2 months). Retention at the 6-month assessment point was 81%. The mean SUS score was 68 (sd=19.6), which is considered average acceptability. Adjusting for baseline 30-day adherence, the APP+ intervention resulted in a 5.3 unit-increase in percent 30-day adherence over the 6-month follow-up period (p< .05; see Figure). Greatest differences were found at month 4, with higher 30-day adherence scores reported among intervention (89%) than control (77%; p< .05) participants. These improvements were not sustained once men lost access to the intervention.

Conclusions: Results provide proof of concept that a scalable mobile application can improve ART adherence in HIV-positive SUMSM. Findings support the need for a Phase II efficacy trial to examine the efficacy of APP+ for optimizing the benefits of HIV treatment as prevention with this high priority population of HIV-positive SUMSM.



[Figure. Change in 30-day ART Adherence, APP+ Study]

Structural interventions

THPEC315

Impact of third party supports on increased access to condoms and outreach services amongst a community-based cohort of sex workers in Canada (2010-2016): Implications for HIV prevention and policy reform

B. McBride, S.M. Goldenberg, A. Murphy, S. Wu, M. Braschel, A. Krüsi, K. Shannon, AESHA Study Team
BC Centre for Excellence in HIV/AIDS, Gender and Sexual Health Initiative, Vancouver, Canada

Background: Despite growing evidence of the harms associated with criminalization, many countries continue to criminalize all/most aspects of the sex industry, including third party actors (e.g., receptionists, security), in large part due to misconceptions that assume third parties to be inherently exploitative (e.g., ´pimps´). Given limited epidemiological research on how third party involvement shapes access to health and HIV/STI prevention, we draw on longitudinal community-based research to examine the impact of third parties supports on access to HIV prevention and community-led services amongst sex workers in a Canadian setting.

Methods: Prospective data (2010-2016) were drawn from AESHA, a community-based open cohort of 900+ cis and trans women sex workers working across diverse indoor, outdoor, and online spaces in Metro

Vancouver. Women with lived experience (sex workers) are represented across interviewer, nursing and coordinator teams. Women are invited through mobile outreach and complete interviewer-administered questionnaires on a semi-annual basis. Bivariate and multivariable logistic regression with generalized estimating equations were used to 1) examine factors correlated with accessing administrative or security third party support, and 2) evaluate the impact of third party supports on HIV prevention and community-led services access, using time-updated measures.

Results: Of 816 cis and trans women sex workers, 29.5% (n=241) accessed any administrative or security third party supports over the six-year study. In multivariable GEE analyses, sex workers who were im/migrants (adjusted odds ratio[AOR] 2.32, 95% confidence interval[CI] 1.35-3.98), worked in in-call establishments (e.g., massage parlours) (AOR 3.41, 95%CI 1.89-6.15) and who experienced recent physical/sexual violence from clients (AOR 2.07, 95%CI 1.41-3.04) had higher odds of accessing third party supports. In separate multivariable GEE confounder models, accessing third party support was independently correlated with accessing condoms through mobile outreach (AOR 1.84, 95%CI 1.47-2.31) and accessing sex worker-specific/community-led services (AOR 1.61, 95%CI 1.15-2.24).

Conclusions: This research suggests that access to third party supports increases sex workers' access to HIV/STI prevention and community-led outreach services. Given continued criminalization of third parties in Canada and globally, this evidence suggests health and safety needs for policy reforms to fully decriminalize sex work to ensure sex workers´ labour rights and protections, including access to third party supports.

THPEC316

'Community Squad' a vehicle to address violence against female of sex workers (FSWs)

S. Sultana[1], K. Tarique[2], M. Imran[3], F. Karim[4], M. Omar Faruque[5], S. Begum[2]
[1]Save the Children, Health, Nutration and HIV/AIDS, Dhaka, Bangladesh, [2]Light House, Dhaka, Bangladesh, [3]Save the Children US, Washington, United States, [4]Save the Children, HIV Program, Dhaka, Bangladesh, [5]Save the Children, Dhaka, Bangladesh

Background: Violence against women is very high in Bangladesh. A recent government survey revealed violence in any means against married women from common walk is very high (80%). [Bangladesh Bureau of Statistics, 2015]. This situation is worse for 102,206 (Mapping Estimates, 2015) FSW's in Bangladesh. These population is highly stigmatized and subjected to many forms of discrimination in the society and at the government facilities. Police and administrative entities also harass them.

Description: Save the Children provides HIV prevention services to 17300 FSWs in 11 districts through Light House (LH) Consortium and maintains 27 drop in centers for them. To address the violence against this population with an approach of 'community for the community', in July 2015, LH created a central 'Community Squad' with senior FSWs & their leaders and members of community based organization (CBOs). This team is available for 24 hours to respond to any harassment cases. A dedicated hot number has been assigned. Lawyers, journalist, relevant NGOs and service providers are intervened by the community squad to resolve the cases for FSWs.

Lessons learned: During July 2016 - November 2017, community squad got huge responses from the FSWs community under the coverage. 519 cases of different merits were addressed by them. Analyzing the addressed cases 242 were violence victims 227 cases were discriminated. Victims were referred for treatment at public health facility and was linked for legal aid support. Different measures for gender sensitization and empowerment have been communicated by the Squad and the case studies have been documented for future references.

Conclusions/Next steps: Community squad for FSWs has been proved as a sustainable services to address violence against FSWs. It helps to see the scale of violence in different tires of the society and raise voice of the community. Presently the squad is operating only in the capital, Dhaka city, but soon the arena will be widened countrywide.

THPEC317

Preventing HIV in Botswana through support networks of young women

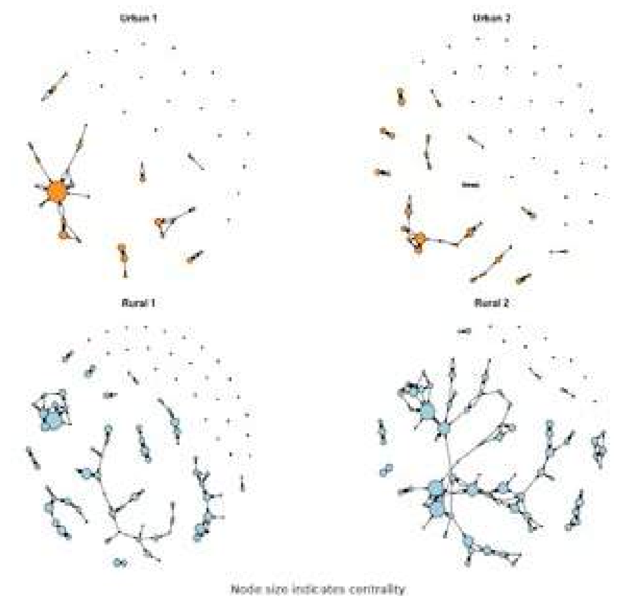
D. Loutfi[1], S. Law[2], L. Kgakole[3], N. Andersson[1], A. Cockcroft[1]
[1]McGill University, Family Medicine, Montreal, Canada, [2]Trillium Health Partners, Toronto, Canada, [3]CIET Botswana, Gaborone, Botswana

Background: One fifth of the population in Botswana is infected with HIV, and most new cases occur in young women. Poverty, poor education, and gender-based violence mean that many rely on transactional sex to provide for themselves and families. The INSTRUCT trial is a structural intervention that aims to help marginalized young women access existing government support programs to find work or return to education. The challenge is to figure out how to reach marginalized young women to include them in the intervention and ensure we are reaching those who will benefit most.

Methods: We carried out a social network analysis with 307 young women (16-29) not in work and not in school in 4 communities in Moshupa, Botswana in 2017. In a cross-sectional survey, we asked about their support networks, including who they turn to when socializing, for emotional support, and for information about jobs or school. Qualitative focus groups allowed for a contextualization of our findings. Our participatory approach involved community members, including young women, in recruitment and dissemination of results.

Results: Sociometric analysis found that marginalized young women were more connected to each other in rural rather than urban settings (see attached image). Participants sought a diversity of young women for support (in terms of age, education, and others), though the poorest young women were rarely the most central. Ego-centric analysis allowed us to explore the broader support networks of young women. When seeking information about work or about returning to school, they tended to seek support from family members (67%), rather than friends, and they turned to women (86%) more often than men. Multivariate analysis showed that the least educated participants were more likely to seek information from others that were poorly educated (OR = 2.36 (1.63-3.41)), or that lived in the same community (OR = 1.89 (1.28-2.78)), findings that were corroborated during the focus groups.

Conclusions: Studying social networks can provide insight into reaching marginalized populations with interventions. Targeted outreach of the poorest and least educated young women may be necessary and outreach through young women´s networks seems more feasible in rural settings.



[Network graphs (Urban vs. Rural)]

Measuring and enhancing retention and adherence in HIV prevention programs

THPEC318

Increasing trends in PrEP use in young men who have sex with men from 2014 - 2016: Interim findings from the P18 cohort study

F. Kapadia[1,2], P. Halkitis[3,4], R. Greene[5]
[1]New York University, College of Global Public Health, Department of Epidemiology, New York, United States, [2]New York University, School of Medicine, Department of Population Health, New York, United States, [3]Rutgers University, Department of Biostatistics, East Brunswick, United States, [4]Rutgers University, Department of Social and Behavioral Health Sciences, East Brunswick, United States, [5]New York University School of Medicine, Bellevue Adult Primary Care Center, New York, United States

Background: There is substantial evidence supporting the use of pre-exposure prophylaxis (PrEP) to prevent HIV seroconversion in adult men who have sex with men (MSM). While awareness of PrEP has increased among both older adult and young/emerging adult MSM, information on PrEP uptake among young men who have sex with men (YMSM) is limited.
Methods: The P18 Study is on-going, prospective cohort study of young men who have sex with men residing in the New York City metropolitan area. The cohort study was initially launched in 2009 with enrollment re-opened in 2014; all participants were between the ages of 23-24 at re-enrollment. Participants were recruited via community- and venue-based recruitment efforts. All participants took part in semi-annual visits that included audio-computer based behavioral assessments.
Results: In this sample of n=665 YMSM (25.1% White, 27.4% Black, 32.2% Hispanic/Latino, 7.7% Asian Pacific Islander, and 7.7% Multi-Ethnic or Other), n=274 were retained from the original cohort and n=391 were newly recruited. At baseline, 8.9% of participants reported ever using PrEP with increases in PrEP use across 4 waves of semi-annual visits (wave 2: 10.7%, wave 3: 12.8%, wave 4: 13.7%; p(trend) < 0.05). There were no racial/ethnic differences in PrEP uptake across all study waves. In multivariable logistic regression analysis, ever use of PrEP was associated with an increased odds of condomless anal insertive sex in the last 30 days (OR=2.27, 95% CI 1.29, 3.98) and use of gamma hydroxybutyrate (GHB) in the last 30 days (OR=10.93, 95% CI 2.78, 43.02).
Conclusions: These interim findings suggest that, between 2014 - 2016, PrEP use increased among YMSM residing in the NYC metropolitan area. Also, based on these data, these increases in PrEP use did not differ by race/ethnicity. However, since engagement in sexual and drug use behaviors that may increase risk for HIV acquisition persist in this sample of YMSM, efforts to continue providing PrEP information and promoting PrEP uptake should be maintained. Targeted efforts to inform providers serving YMSM are warranted as well.

THPEC319

Attrition of HIV-exposed infants from early infant diagnosis services in low- and middle-income countries: A systematic review and meta-analysis

J. Carlucci[1], Y. Liu[2], H. Friedman[3], B. Pelayo[4], K. Robelin[4], E. Sheldon[5], K. Clouse[5], S. Vermund[6]
[1]Vanderbilt University Medical Center, Pediatric Infectious Diseases, Nashville, United States, [2]University of Rochester, Department of Public Health Sciences, Rochester, United States, [3]College of Charleston, Charleston, United States, [4]Meharry Medical College, Nashville, United States, [5]Vanderbilt Institute for Global Health, Nashville, United States, [6]Yale School of Public Health, New Haven, United States

Background: Identification and retention of HIV-exposed infants in early infant diagnosis (EID) services helps ensure optimal health outcomes. This systematic review and meta-analysis examines the magnitude of attrition from EID services in low- and middle-income countries (LMICs).
Methods: We performed a comprehensive database search through April 2016 following PRISMA guidelines (PROSPERO#: CRD42016034180). We included original studies reporting retention/attrition data for HIV-exposed infants in LMICs. Outcomes included loss to follow-up (LTFU), death, and overall attrition (LTFU + death) at time points along the continuum of EID services. At least two authors determined study eligibility, performed data extraction, and made quality assessments. We used fixed- or random-effect meta-analytic methods to aggregate effect sizes and perform meta-regression analyses.
Results: We identified 3279 unique studies, of which 92 met eligibility criteria and were included in the quantitative synthesis. The included studies represent data from 110,805 HIV-exposed infants, the majority of whom were from Africa (77%). LTFU definitions varied widely, and there was significant variability in outcomes across studies. The bulk of attrition occurred in the first six months of follow-up, with additional losses over time. Overall, 39% of HIV-exposed infants were no longer in care at 18 months and, when restricted to non-intervention studies, 43% were not retained at 18 months.
Conclusions: These findings underscore the high attrition of HIV-exposed infants from EID services in LMICs and the urgent need for implementation research and resources to improve retention among this vulnerable population.

THPEC320

Daily or event-driven PrEP? Interim results of “Be-PrEP-ared”, a PrEP demonstration project among men who have sex with men in Belgium

B. Vuylsteke[1], T. Reyniers[1], I. De Baetselier[2], K. Wouters[2], C. Nöstlinger[1,3], J. Buyze[2], M. Laga[1]
[1]Institute of Tropical Medicine, Public Health, Antwerp, Belgium, [2]Institute of Tropical Medicine, Clinical Sciences, Antwerp, Belgium, [3]University of Vienna, Faculty of Psychology, Vienna, Austria

Background: ‘Be-PrEP-ared’ aims to assess uptake, acceptability and feasibility of daily and event-driven Pre-Exposure Prophylaxis (PrEP) regimens among men who have sex with men (MSM) and transgender women at high risk for HIV. We present findings of regimen choices, sexual behaviour and adherence of the first 12 months of follow-up (FU).
Methods: In this prospective cohort study, participants choose between daily or event-driven Truvada (TDF/FTC). They are allowed to switch, discontinue or restart regimens at three-monthly visits. At each visit, participants receive preventive counselling, fill in a behavioural questionnaire, and provide samples for STI testing. Daily sexual behaviour and PrEP use are self-reported using a web-based diary. We performed an interim analysis on data from baseline (M0) to month 12 (M12).
Results: From 09/2015 - 12/2016, 197 MSM and 3 transgender women were enrolled in the study. Their median age was 38 years (range 22 - 70 yrs).
Initially, 76.5% chose daily and 23.5% event-driven PrEP. Feeling able to anticipate HIV risk was the most frequent reason for preferring event-driven PrEP. During 12 months FU, 28 participants (14%) switched regimen and five discontinued PrEP. Main reasons for switching included changes of life/partner situations, frequency of sexual contacts, simplicity, travel and side effects of Truvada. Adherence, measured as the proportion of participants reporting 100 % high risk sex acts covered by PrEP, was 77.7%, 80.5%, 85.6% and 79.8% at respectively M3, M6, M9 and M12. The reported median number of sexual partners in the past 3 months was 12, 6 and 3 for all, anonymous and occasional partners respectively. These numbers remained steady over the FU period of 12 months and were consistently higher when comparing daily with event-driven users. In total, 54.7% of the participants reported less condom use during receptive anal intercourse with occasional partners at M12 as compared with the baseline. The incidence of bacterial STI was 75% Persons-Years, but no new HIV infections were observed.
Conclusions: Event-driven PrEP was chosen by 23% of the participants and adherence to PrEP was high. Despite high rates of receptive condomless sexual intercourse and STI during FU, no new HIV infections were observed.

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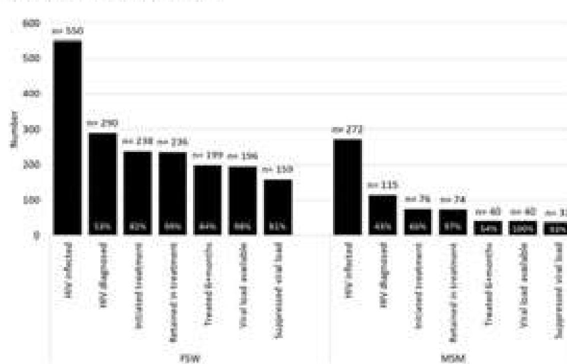
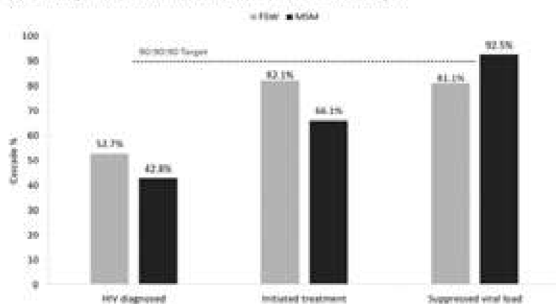
THPEC321

HIV treatment outcomes among female sex workers and men who have sex with men in Cameroon

A.L. Bowring[1], S. Zadrozny[2], I.N. Mfochive[1,3], G. Fako[3], A. Rao[1], S. Ketende[1], G. Turpin[1], C. Lyons[1], U. Tamoufe[3], G. Fouda[4], F. Ndonko[4], D. Levitt[5], A. Bissek[6], O. Njoya[7], S.C. Billong[8], S. Baral[1]
[1]Johns Hopkins Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States, [2]University of North Carolina, Chapel Hill, United States, [3]Metabiota, Yaounde, Cameroon, [4]CARE Cameroon, Yaounde, Cameroon, [5]CARE USA, New York, United States, [6]Ministry of Health, Department of Operational Research, Yaounde, Cameroon, [7]Yaounde University Hospital Centre, Department of Internal Medicine, Yaounde, Cameroon, [8]Groupe Technique Central (CNLS), Yaounde, Cameroon

Background: In Cameroon, there are significant numbers of female sex workers (FSW) and men who have sex with men (MSM) living with HIV. Specific strategies to diagnose and initiate treatment are integral to optimize health outcomes and decrease onward HIV transmission.
Methods: In 2016, FSW (sex work as principal source of income in past year) and MSM (anal sex with man in past year) aged 18+ years were recruited via respondent-driven sampling from five cities of Cameroon for a biobehavioral survey including HIV and viral load (VL) testing. Among participants living with HIV, indicators of the HIV treatment cascade were compared between FSW and MSM using ²-test-of-proportions(< 0.05 significance); viral suppression (VS) was defined as < 1000 copies/ml. Association between population and VS was assessed using Poisson regression, controlling for clustering by site and time since diagnosis.
Results: Overall, 2,255 FSW (median age:28; IQR:23-36) and 1,322 MSM (median age:23; IQR:21-26) were recruited. Prior HIV testing was reported by 2,029(90.1%) FSW and 958(72.5%) MSM (p< 0.01), and in the past year by 1,329(59.1%) FSW and 728(55.1%) MSM (p=0.02). Unadjusted-HIV prevalence was 24.5% among FSW and 20.7% among MSM (p=0.01); 290(52.7%) FSW and 115(42.8%) MSM were previously diagnosed (p< 0.01). Of these, 238(82.1%) FSW and 76(66.1%) MSM reported initiating antiretroviral therapy (ART) (p< 0.01).





[Development and overview of the HIV treatment cascade among FSW and MSM in Cameroon, 2016]

The median time since initiating ART was 51.5 months (IQR:15.7-98.4) among FSW and 8.0 months (IQR:3.9-27.9) among MSM. After initiation, 37(15.6%) FSW and 21(28.0%) MSM reported any treatment interruption (p=0.02), but the majority (99%) self-reported currently on ART. Among individuals who had initiated ART at least 6-months prior to survey and with VL result available, 159(81.1%) FSW and 37(92.5%) MSM were virally suppressed (p=0.08). When controlling for years since diagnosis, MSM were marginally more likely to be virally suppressed than FSW (RR 1.13; 95%CI:1.00-1.26; p=0.04).
Conclusions: Once diagnosed and enrolled into treatment services, both populations reported engaging in sustained treatment, but there were notable gaps and disparities in testing/treatment uptake. There is evident need to rapidly expand testing modalities-including HIV self-testing, consider novel strategies for ART delivery, and evaluate PrEP as a means of reducing new diagnoses among key populations in Cameroon.

THPEC322

Dapivirine vaginal ring-004: Male partner perceptions and experiences

M. Malherbe, M. Isaacs, A. Nel
International Partnership for Microbicides, Clinical Affairs, Paarl, South Africa

Background: The dapivirine vaginal ring (DVR) demonstrated to be safe and effective in preventing HIV-1 infection in a Phase III trial (IPM 027/The Ring Study). Adherence to ring use may be influenced by multiple factors, including the perceptions and experiences of male sex partners.
Methods: The Ring Study was a phase III, randomized, double-blind, placebo-controlled trial using DVR; inserted monthly in healthy, sexually active HIV-negative women, 18 to 45 years of age. The trial was conducted at seven research centers in Sub Saharan Africa over 104 weeks.
Results: 1958/1959 women enrolled used the ring. The majority of those enrolled had a main sex partner (1924/1959, 98.2%). Results are provided according to the number of women who completed a questionnaire. Most women reported that their male partner knew they participated in the trial (1295/1913, 67.7%). Some participants reported concern that their partner might not like the ring (278/1820, 15.3%). At each post-enrollment assessment, >95% of participants self-reported they were ≥90% adherent to ring use. After 24 weeks, most women reported that their partner did not feel the ring during sex (1419/1709, 83.0%). Of those who reported that it was felt by the partner (289/1709, 16.9%), most partners did not mind the way it felt (189/288, 65.6%). After 104 weeks, most reported that their partner knew they were in the trial (686/813, 84.4%) and that their partner knew they were wearing the ring (654/686, 95.3%). By 104 weeks, few women were worried about their partner not liking the ring (3/819, 0.4%). Most participants reported that they could not imagine wearing the ring without telling their partner (472/808, 58.4%). HIV-1 risk reduction was higher when the participant reported that her partner was aware of ring use (53.8%, 95% CI: 21.15 - 73.02) than when not aware (4.1%, 95% CI: 57.54 - 41.62). Degrees of partner support differed, and partner resistance or lack of support was more common among young women.
Conclusions: Social and behavioral data from this trial suggest that partner perceptions and support could affect ring use. Male engagement in future trials should be considered.

THPEC323

Retention on ART within the HPTN 071 (PopART) universal testing and treatment programme in Zambia and South Africa

D. Macleod[1], B. Yang[2], S. Floyd[1], A. Schaap[3], S. Griffith[4], K. Shanaube[3], M. Phiri[3], R. Sloot[2], P. Bock[2], N. Beyers[2], H. Ayles[3,5], S. Fidler[6], R. Hayes[1]
[1]London School of Hygiene and Tropical Medicine, Dept. of Infectious Disease Epidemiology, London, United Kingdom, [2]Stellenbosch University, Desmond Tutu TB Centre, Cape Town, South Africa, [3]University of Zambia, Zambia AIDS Related Tuberculosis Project, Lusaka, Zambia, [4]FHI 360, Durham, United States, [5]London School of Hygiene and Tropical Medicine, Dept. of Clinical Research, London, United Kingdom, [6]Imperial College, Dept. of Infectious Disease Epidemiology, London, United Kingdom

Background: HPTN 071 (PopART) is a community-randomised trial of the impact of a combination HIV prevention intervention on population-level HIV incidence, conducted in Zambia and South Africa (SA). The PopART intervention is delivered in three annual rounds (R1-R3) by Community HIV-care Providers (CHiPs) who provide home-based HIV testing services, referral for HIV care and antiretroviral therapy (ART), and follow up HIV+ clients to provide adherence and retention support. The aim of this analysis was to provide estimates of retention on ART among individuals in seven communities randomised to receive the PopART intervention, where routine viral load testing was not readily available.
Methods: The analysis included individuals aged 18+ from R3 (September 2016-December 2017) known to the CHiPs as HIV+ and had self-reported ever taking ART. A cross-sectional measure of retention during R3 was defined as the proportion who, on the date of the R3 visit, self-reported taking ART within the last month and had not missed pills in the last three days. Retention at 6/12 months was defined using an individual's self-reported ART start date and the CHiP visit closest to 6/12 months after this date.
Results: In the four Zambian communities, on the date of the R3 visit 95.9% (9,491/9,902) adults were retained on ART. Restricting to those who initiated ART after the start of the PopART intervention in 2014, 94.1% (4,882/5,186) were retained on ART. Corresponding proportions in the three SA communities were 94.6% (4,339/4,651) and 93.5% (2,270/2,427) (table 1).
In Zambia retention in care 6/12 months following ART start was 93.9%/95.4% compared with 90.9%/91.1% in SA. A difference was observed whether an individual first participated in the PopART intervention in R3 or had participated previously in R1 and/or R2. Those participating previously had a lower proportion retained than those participating for the first time (e.g. 6 month retention in Zambia was 92.6% in previous participants compared to 98.5% in first time participants, with 89.4% vs. 96.0% in SA).
Conclusions: Overall self-reported retention was high. Estimates from individuals who participated in R1 and/or R2 are considered more reliable, as they use a history of CHiP follow-visits rather than a single self-report during R3.

ART initiation timing		Started ART anytime	Started ART pre-2014	Started ART in 2014 or later		
Time at which retention was measured		At time of R3 visit	At time of R3 visit	At time of R3 visit	6 Months after ART start date	12 months after ART start date
Zambia	% Retained (All)	95.9 (9,491/9,902)	97.7% (4,609/4,716)	94.1% (4,882/5,186)	93.9% (3,209/3,419)	95.4% (2,918/3,058)
	%Retained (First participated Rd3)	94.3% (2,765/2,931)	96.8% (1,185/1,224)	92.6% (1,580/1,707)	98.5% (712/723)	99.5% (589/592)
	% Retained (Prev participated in Rd1/2)	96.5% (6,726/6,971)	98.1% (3,424/3,492)	94.9% (3,302/3,479)	92.6% (2,497/2,696)	94.4% (2,329/2,466)
SA	% Retained (All)	94.6% (4,339/4,651)	95.7% (2,129/2,224)	93.5% (2,270/2,427)	90.9% (1,365/1,502)	91.1% (1,302/1,429)
	%Retained (First participated Rd3)	95.1% (1,320/1,388)	95.0% (575/605)	95.2% (745/783)	96.0% (316/329)	95.6% (280/293)
	% Retained (Prev participated in Rd1/2)	94.4% (3,079/3,263)	96.0% (1,554/1,619)	92.8% (1,525/1,644)	89.4% (1,049/1,173)	90.0% (1,022/1,136)

[Self-reported retention on ART in the seven communities in Zambia and S Africa in the HPTN 071 (PopART) trial]

THPEC324

On feasibility and effect of extended Integrated next step counseling on subjects' adherence to HIV pre-exposure prophylaxis in the Senegal PreP demonstration project

E. Tousset[1], S. Mboup[2], D. Gueye[2], M. Sarr[3], A. Mboup[4,5], M. Mane[4], R. Paiva[1], G. Gottlieb[6], M. Aikenhead[7], J. Presley[7], T. Blaschke[7], P. Salif Sow[7]
[1]Westrock Healthcare, VISE, Belgium, [2]RARS, Dakar, Senegal, [3]Westat, Rockville, United States, [4]IRESSEF, Dakar, Senegal, [5]Universite Laval, Québec, Canada, [6]University of Washington, Seattle, United States, [7]BMGF, Seattle, United States

Background: Prophylactic use of antiretroviral drugs among individuals at high risk of HIV infection constitutes a cornerstone for HIV eradication programs. The effectiveness of orally administered PrEP is however dependent on subjects' adherence to the once daily dosing regimen. Demonstration projects in Senegal, Kenya and Nigeria have been implemented to test the feasibility, scalability and effect of measurement-guided adherence-enhancing interventions in resource-limited settings. This abstract focuses on the project conducted in Senegal.
Methods: The program has been conducted among female sex workers in 4 Ministry of Health (MoH)-run clinics in Dakar, Senegal. An Integrated Next Step Counseling (iNSC) was used for adherence counseling to optimize exposure to prophylaxis. The iNSC is a strengths-based discussion focused on PrEP adherence needs and tailored strategies to support individuals. The iNSC has been extended to rely on reliable and precise measure of medication adherence using Medication Event Monitoring System (MEMS). MEMS timestamped each opening of a medication package, providing a sound proxy for medication intake. Resulting dosing history data were used as individual feedback during the adherence counseling. The effect of this adherence-enhancing intervention is quantified and tested using longitudinal logistic regression models.
Results: Between July and November 2015, 350 individuals were identified, 321 (91.7%) were preliminarily eligible, and 267 (83.1%) were enrolled for up to 12-months of PrEP. 181 subjects were electronically monitored and entitled to receive extended iNSC counseling sessions.
According to MEMS data, an estimated 63% of the subjects took their medication daily as prescribed during the month preceding the first intervention, with large disparities between centers ranging from 51% to 76%.
The odds of taking the drug daily as prescribed after intervention was twice the odds pre-intervention (Odds Ratio 2.06, 95% CI 1.57-2.70; $p < 0.001$). Therefore, daily, the proportion of subject adherent to the prophylaxis was 17% higher after receiving extended iNSC counseling.
Conclusions: These results suggest the feasibility of adherence counseling sessions using adherence data as feedback in resource-limited settings. They also show the effect of the extended iNSC intervention on adherence to PrEP prophylaxis. Further analyses on the effect of recurrent interventions and their effect over time are ongoing.

THPEC325

Bi-directional communication in a text-messaging intervention with pregnant and postpartum women living with HIV in Kenya

M. Manwari[1], T. Odwar[1], I. Wanga[1], K. Owuor[1], T. Odeny[1,2], M. Onono[1,3], A. Helova[4], P. Musoke[4], E. Akama[1], P. Oyaro[1], E.A. Bukusi[1], L.L. Abuogi[5], J.M. Turan[4], MOTIVATE!
[1]Kenya Medical Research Institute, Center for Microbiology Research, Nairobi, Kenya, [2]University of Missouri-Kansas City, Department of Medicine, Kansas City, United States, [3]The University of California, San Francisco, Department of Global Health, San Francisco, United States, [4]University of Alabama at Birmingham, Health Care Organization and Policy, Birmingham, United States, [5]University of Colorado Denver, Department of Pediatrics, Denver, United States

Background: Text-messaging interventions can be an effective method for enhancing antiretroviral therapy (ART) adherence and retention in care. An important component of text-messaging interventions is a bi-directional aspect, in which recipients of messages can communicate with healthcare providers for additional information and support.

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Methods: The MOTIVATE! Study (R01HD0808477) is a cluster-randomized trial of interventions to support adherence and retention in care among pregnant/postpartum women living with HIV in southwestern Kenya. Women in two arms of the study receive weekly text messages starting in pregnancy, up to 12 months postpartum. Calls from participants to the free call-back number are recorded in a log, including date, type of contact (SMS or call), caller, content of the call, and response made. Content analysis methods were used to code the log and multivariate logistic regression analysis was utilized to examine which types of participants were more likely to utilize this service.
Results: From May 2016-Nov 2017, out of 670 participants at text-messaging sites, 225 calls/messages were received from 202 participants (30.2%). Around half of calls (49.8%) were made during pregnancy. Content of calls included: asking help regarding a health problem (32.9%), asking for health-related information (17.8%), updating the study team (11.0%), general support requests (4.5%), questions/complaints about health services (12.9%), and questions/acknowledgement about text messages (11.0%).
Types of health problems reported included maternal symptoms during pregnancy, delivery, or postpartum; infant illnesses; and ART side effects. Health-related information requested included infant feeding options, risks of mother-to-child transmission, family planning choices, and labor/delivery preparations.
Between June-November 2017, effects of the national nurse's strike were also reflected in the calls, with participants asking about the availability of basic health services. In multivariate analyses adjusted for study arm and parity, women who had been on ART for less than 24 months were 1.8 times more likely to use the bi-directional service, as compared to women who had been on ART longer (95% CI: 1.4-2.5).
Conclusions: The opportunity for bi-directional communication is well utilized by participants in this text-messaging study, especially by women with less time on ART. Bi-directional communication may help explain the effectiveness of text-messaging interventions.

THPEC326

Randomized controlled trial of daily text messages to support adherence to pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM) and transgender women (TGW): PrEP Brasil pilot substudy

L.M.S. Marins[1], T.S. Torres[1], R.I. Moreira[1], I. Costa Leite[2], B. Hoagland[1], J.V. Madruga[3], E.G. Kallas[4], P.L. Anderson[5], A.Y. Liu[6], B. Grinsztejn[1], V. Veloso[1], PrEP Brasil Study Team
[1]Fundação Oswaldo Cruz, Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro, Brazil, [2]Fundação Oswaldo Cruz, Escola Nacional de Saúde Pública, Rio de Janeiro, Brazil, [3]Centro de Referência e Treinamento em DST/AIDS, São Paulo, Brazil, [4]Universidade de São Paulo, School of Medicine, São Paulo, Brazil, [5]University of Colorado, Skaggs School of Pharmacy and Pharmaceutical Sciences, Denver, United States, [6]San Francisco Department of Public Health, Bridge HIV, San Francisco, United States

Background: Short-text-messaging (SMS) has emerged as an important communication tool in the health arena and may improve adherence to treatment. We evaluated the effectiveness of SMS in improving adherence to daily emtricitabine/tenofovir (FTC/TDF) for PrEP among MSM and TGW.
Methods: PrEP Brasil was a prospective, multicentre, open-label demonstration project assessing PrEP delivery in the context of the Brazilian Public Health System. A pilot sub-study of interactive SMS was offered to all participants at the screening visit. Individuals who agreed to participate were randomized 1:1 to intervention (SMS) or standard-of-care (SoC), which included adherence counseling. SMS was launched weekly to participants at a pre-determined time. Retention at week 48 was evaluated, as well as adherence, evaluated by tenofovir-diphosphate (TFV-DP) concentrations measured using LC-MS/MS. Adequate and optimal adherences were defined as TFV-DP≥700fmol/punch and ≥1250fmol/punch, respectively. Medication-possession-rate (MPR)≥1 at week 48 was used to verify if participants had enough pills for daily PrEP since the last pharmacy refill. Chi-square test was used to compare study arms. Logistic regression was used to evaluate factors associated with MPR≥1.
Results: From 450 participants included on PrEP Brasil, 417(92.7%) were randomized to SMS or SoC; 6.9%(31/450) refused to participate, 0.4%(2/450) were ineligible. Median age was 30 years(IQR: 25-35); 246(59.0%)were from São Paulo, 102(24.5%) aged 18-24 years, 25(6.0%) TGW, 188(45.4%) non-white and 110(26.4%) had < 12 years of education. A total of 347(83.2%) participants were retained at week 48, and there was no difference between arms. No difference between arms was observed either for adequate and optimal adherence. Conversely, a greater proportion of participants in the SMS arm had a MPR≥1 (Table 1). In an analysis adjusted by site location, SMS appeared to be a predictor of MPR>=1, as the association was borderline significant (AOR=1.57;CI 95%:0.98-2.51).
Conclusions: SMS-intervention had no impact on optimal and adequate adherence as measured by TFV-DP concentrations. Conversely, the SMS-intervention improved durability of PrEP coverage as measured by MPR. As individuals can make PrEP decisions based on perceived risk of HIV infection and having FTC/TDF is a necessary condition for high rates of adherence, SMS can be a useful method to improve drug coverage and prevent poor adherence.

	SMS n=207 (49.6%)	SoC n=210 (50.4%)	Total n=417	p-value (chi-square)
Retention at week 48	177(85.5)	170(81.0)	347(83.2)	0.21
Adequate adherence (≥4doses/week)	133(75.1)	125(73.5)	258(74.3)	0.73
Optimal adherence (≥7doses/week)	44(26.9)	52(30.6)	96(27.7)	0.23
MPR≥1	134(75.7)	113(66.5)	247(71.2)	0.06

[Table 1. Retention, adherence and MPR at week-48]

THPEC327

Retention-in-care after implementation of a phone-call tracing strategy, in HIV-infected individuals on antiretroviral treatment in Guinea

C. Quagliani[1], S. Boutouba-Combe[1], R.E. Harrison[1], Y.D. Ilale[1], A. Diallo[1], I. Adjaho[1], O. Tiemtore[1], M. Sesay[1], E. Casas[2], P. Isaakidis[2], D. Naniche[3]
[1]Medecins Sans Frontieres-Belgique, Conakry, Guinea, [2]Medecins Sans Frontieres, Cape Town, South Africa, [3]ISGlobal, Barcelona, Spain

Background: Retention in care at 12 months remains below 90% in HIV cohorts followed by MSF in Conakry, Guinea. MSF has implemented differentiated-models-of-care to serve the needs of people leaving with HIV/AIDS; among them the phone-call tracing strategy directed at patients who missed a follow-up visit. We describe the impact of this strategy on long-term retention in care.
Methods: This is a retrospective study based on routinely collected MSF program data. The eligible population was HIV patients on ART enrolled at Matam clinic, who missed a scheduled appointment between 2014-16. Cox proportional hazards models were used to assess the association between the phone call strategy and attrition from care following missed visit after adjusting for other demographic and clinical factors.
Results: 2153 patients with a median of 3.7 years (IQR 1.4 - 5.9) on ARVs among those with a contact on file and 2.8 years (IQR 0.6 -5.7) among those without a phone contact, with a total of 3261 missed appointments were included in the analysis. In 37% (n=1203) of the missed appointments the patient was successfully reached by telephone. Amongst the other 63% (n=2058) missed appointments, 41% (n=1342) could not be reached because there was no contact number in the patients file. 33% (n=718) patients returned to care after being telephoned. Thirty-nine percent (n=864) of patients had 6 month spacing between visits.
As compared to individuals reached by telephone, the risk of attrition was significantly higher amongst those that could not be telephoned, but had a telephone (HR=2.05, 95%CI: 1.45-2.91 / AHR=1.86, 95%CI: 1.31-2.64), and those that had no available contact details (HR=1.40, 95%CI: 1.02-1.93/AHR=1.34, 95%CI: 0.97-1.84). Those that did not have 6 month spacing between appointments, had the highest risk of attrition after a missed appointment (HR=3.28, 95%CI: 2.29-4.68 / AHR=3.55, 95%CI:2.61-4.83).
Conclusions: Contacting patients via telephone and implementing six-month visit spacing for stable patients, both elements of differentiated care, are associated with decreased attrition from care. Nevertheless,

in order to maximize efficiency, it is important to ensure contact details are updated in the patient file regularly. Additional understanding of the profiles of patients needing more attention will help contextualize such interventions.

THPEC328

Acceptability of a mobile health intervention to improve retention in care among young adults living with HIV in Peru: A mixed-methods evaluation

M. Prochazka[1], L. Otero[1,2], D.S. Batey[3], J. Dionne-Odom[4], J.M. Rodriguez[4], E. Gonzalez[1,2], A. Zinski[5]
[1]Universidad Peruana Cayetano Heredia, Instituto de Medicina Tropical Alexander von Humboldt, Lima, Peru, [2]Universidad Peruana Cayetano Heredia, School of Medicine, Lima, Peru, [3]University of Alabama at Birmingham, Department of Social Work, College of Arts & Sciences, Birmingham, United States, [4]University of Alabama at Birmingham, Division of Infectious Diseases, School of Medicine, Birmingham, United States, [5]University of Alabama at Birmingham, Department of Medical Education, School of Medicine, Birmingham, United States

Background: Effective interventions tailored to meet the needs of young adults living with HIV are essential to meet UNAIDS' 90-90-90 targets. Mobile Health (mHealth) interventions, including reminder and motivational short message services (SMS), are associated with improved attendance to health facilities. For this reason, we implemented a single-arm pilot mHealth intervention aimed towards improved retention in a public hospital in Peru, and conducted a mixed-methods evaluation of its acceptability among young adults.
Methods: For six months (November 2016-August 2017), young adults (18-29 years) with HIV received
(i) SMS reminders prior to their scheduled visits;
(ii) motivational SMS after each visit; and
(iii) phone call after missed visits.
End-of-study acceptability surveys included Likert scales to assess perceived clarity, utility and privacy, and open fields on positive and negative characteristics of the intervention. Participants were invited to focus group discussions (FGD) to share thoughts and experiences with the intervention, including suggestions for improvement. We analyzed qualitative data thematically to provide supplementary explanatory value to quantitative survey data.
Results: Among 80 intervention participants, 64 (80%) completed end-of-study surveys. Participants agreed that SMS messages were clear (100%), helped to remember appointments (100%), and motivated them towards continued attendance (94%). Participants agreed that privacy was maintained in messages (99%) and phone calls (95%). Reported positive characteristics of the intervention in open fields were effective reminders (n=40), feeling supported (n=32), and respect for their privacy (n=16). Negative characteristics included discomfort due to phone calls (n=7) and SMS being unidirectional (n=2). All participants agreed that they would recommend the intervention to others (100%). Eleven participants joined in three FGD; several reported receiving emotional and instrumental support from the intervention, including a perceived sense of care and timely reminders about visits. Suggestions for improvement included implementing a two-way messaging platform, as well as potentially using chat-based mobile applications.
Conclusions: A mHealth intervention to improve retention in HIV care was shown to be acceptable among young adults in Peru. As SMS may promote retention via discreet reminder prompts and supportive motivational messages, further interventions of this type may be a crucial component to meeting UNAIDS goals.

THPEC329

Sports betting centres and mobile health engagement: How to find, link, and retain men for HIV prevention or treatment

J. Bwanika[1], A. Kiragga[2], D. Musinguzi[1], W. Lubega[1], L.H. Kamulegeya[1], Y. Manabe[3]
[1]Medical Concierge Group Limited, Kampala, Uganda, [2]Infectious Diseases Institute Limited, Kampala, Uganda, [3]Johns Hopkins University, Baltimore, United States

Background: Finding men at high risk for Human Immunodeficiency Virus (HIV) infection is a top priority in sub-Saharan Africa. Mobile phone use offers new avenues for health information dissemination, long term engagement and mobile money reimbursements. We assessed the feasibility of using mobile platforms for HIV prevention messaging, participant reimbursement using mobile money and preliminary pilot assessment of impact on linkage to treatment.
Methods: Men at five sports betting and gaming centers in Uganda were consented for on-site HIV and syphilis tests between May and September 2017. Information on condom use, number of sexual partners, commercial sex and alcohol intake was collected using a structured questionnaire on the REDCap platform. Men were also consented to join a two-year mobile phone follow-up cohort using Short Message Service (SMS). Reimbursement for research participation was done using mobile money payment within seven days of their sign-up.
Results: We enrolled 516 men into the study; the median age was 28 years (Interquartile range: 24, 34), 52.6% were married, and 89.3% were employed with an average monthly income of USD 120. A majority (96%) owned at least one mobile phone and everyone consented to mobile money reimbursement and two-year mobile health engagement. During the first sixty days of the study, 2,919 SMS messages were sent out with either service linkage information for those who were HIV/syphilis positive or prevention content for those with a negative test result. Although the number of patients that tested positive for HIV (4) and syphilis (18) was small, 25% of those that tested positive for HIV and 26% of those with syphilis sought treatment at a health facility within seven days. This increased to 50% at end of twenty eight days, with the rest promising to do so within the second month.
Conclusions: Mobile health engagement coupled with mobile money reimbursement is a feasible way to maintain contact with men for HIV prevention messaging and/or linkage to treatment. Additional qualitative work is needed to improve the impact on linkage to HIV care and behavioral messaging for HIV prevention practices.

THPEC330

Pre-exposure prophylaxis (PrEP) adherence in Black men who have sex with men (MSM) and transgender women (TGW) in a community setting in Harlem

P. Colson[1], F.S. Winterhalter[1], Y. Wu[1], J. Franks[1], Y. Hirsch-Moverman[1,2], H. Ortega[1], J. Knox[2], W. El-Sadr[1,2]
[1]ICAP, Columbia University, New York, United States, [2]Mailman School of Public Health, Dept Epidemiology, New York, United States

Background: PrEP is efficacious for HIV prevention; however, effectiveness needs to be evaluated in community settings and populations most vulnerable to HIV, including black MSM and TGW in the United States (US). We compared the effectiveness of enhanced PrEP (EPrEP) adherence support to standard of care (SOC) PrEP among black MSM and TGW attending a community clinic in New York City.
Methods: EPrEP included behavioral interventions (peer navigation, live and online support groups, and SMS text messages). Interviews at baseline and 6-months assessed potential correlates of adherence including depressive symptoms, substance use, and homelessness. Self-reported adherence over previous 30 days was collected using a validated, structured questionnaire. The sample was divided into quartiles; the top quartile (≥87% adherence) was considered 'adherent.' Those in other quartiles were considered non-adherent, along with those who missed interviews. Adherence was analyzed using intent-to-treat (ITT) and as-treated (AT) methods. Crude and adjusted analyses examined factors associated with being adherent.

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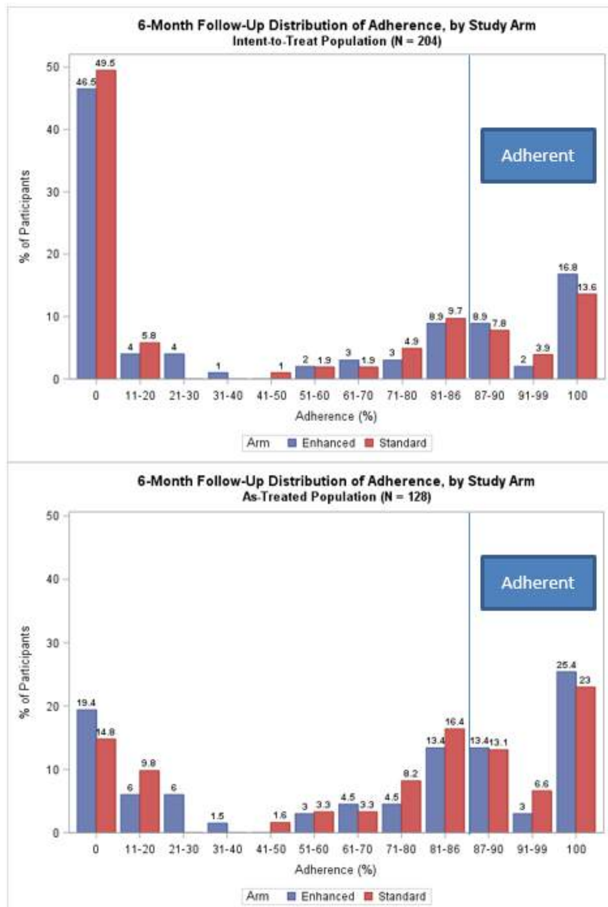
Baseline Characteristic	Total N (col %) (N = 204)	Adherent to PrEP n (row %)	Crude RR for Adherence (95% CI)	Adjusted RR for Adherence (95% CI)
Study Arm				
Enhanced	101 (49.5%)	28 (27.7%)	1.10 (0.64 - 1.87)	1.05 (0.61 - 1.79)
Standard	103 (50.5%)	26 (25.2%)	Ref.	Ref.
Age (years)				
18 - 29	91 (44.6%)	22 (24.2%)	0.80 (0.38 - 1.68)	
30 - 49	80 (39.2%)	22 (27.5%)	0.91 (0.43 - 1.92)	
50 and above	33 (16.2%)	10 (30.3%)	Ref.	
Gender				
Male	194 (95.1%)	52 (26.8%)	Ref.	
Transgender Female	10 (4.9%)	2 (20.0%)	0.74 (0.18 - 3.06)	
Sexual Orientation				
Heterosexual	4 (2.0%)	1 (25.0%)	0.78 (0.11 - 5.73)	
Homosexual	97 (47.5%)	31 (32.0%)	Ref.	
Bisexual	100 (49.0%)	22 (22.0%)	0.69 (0.40 - 1.19)	
Other/Don't Know	3 (1.5%)	0	-	
Education Level				
Less than high school	36 (17.6%)	5 (13.9%)	**0.24 (0.09 - 0.64)***	**0.24 (0.09 - 0.65)***
HS graduate or equivalent	90 (44.1%)	16 (17.8%)	**0.30 (0.15 - 0.60)***	**0.30 (0.15 - 0.60)***
Some college	49 (24.0%)	16 (32.7%)	0.55 (0.28 - 1.10)	0.56 (0.28 - 1.11)
College graduate/ post-college	29 (14.2%)	17 (58.6%)	Ref.	Ref.
Employment Status				
Working	93 (45.6%)	34 (36.6%)	Ref.	
Not Working	111 (54.4%)	20 (18.0%)	**0.49 (0.28 - 0.86)***	
Health Insurance Type				
Private Health Insurance/Self-pay	39 (19.1%)	18 (46.2%)	Ref.	
Medicare/Medicaid	130 (63.7%)	27 (20.8%)	**0.45 (0.25 - 0.82)***	
No coverage of any type	12 (5.9%)	3 (25.0%)	0.54 (0.16 - 1.84)	
Missing	23 (11.3%)	6 (26.1%)	-	
Housing Type				
Marginal	120 (58.8%)	23 (19.2%)	**0.51 (0.30 - 0.88)***	
Not Marginal	83 (40.7%)	31 (37.3%)	Ref.	
Missing	1 (0.5%)	0	-	

[Table. Associations between baseline demographic and psychosocial factors and PrEP adherence at 6 months (Intent-to-Treat population - N=204)]



[Figure 1. 6-Month Follow-Up Distribution of Adherence, by Study Arm]

Results: 204 participants (194 MSM and 10 TGW) were enrolled and randomized to EPrEP or SOC PrEP. Figure 1 shows the adherence distribution by study arm using ITT and AT analyses. Of 204 participants, 76 (37.3%) did not complete the 6-month interview and were assigned 0% adherence; there was no difference by study arm (p=.29). Of the EPrEP group, 28 (27.7%) were adherent, compared to 26 (25.3%) in the SOC PrEP group (p=.69). In the AT analysis, 28 (41.8%) in the EPrEP group were adherent, compared to 26 (42.7%) in the SOC group (p=.92).
As shown in Table 1, variables predicting lower non-adherence in the unadjusted analysis include lower educational attainment, not working, having Medicaid/Medicare, and having marginal housing. Study arm was not a significant factor. In multivariable analysis, only education remained significant.
Conclusions: A substantial proportion of participants were lost to follow-up and no difference was noted in adherence between EPrEP and SOC PrEP arms. Structural factors including education and employment impacted adherence. Findings suggest the need to develop and test interventions targeting multi-level factors associated with PrEP retention and adherence among groups most impacted by HIV, including black MSM and TGW in the US.

THPEC331

Predictors of PrEP continuation among young men who have sex with men (YMSM) in the U.S. that participated in the EPIC study

K. Bojan[1], R. Jackson[1], E. Vittinghoff[2], P. Serrano[1], P. Vonfelton[3], I. Ortiz-Estes[1], J. Brothers[4], K.R. Amico[5], L.M. Henry- Reid[1], J. Rooney[6], S. Hosek[4], J. Fuchs[3], A. Liu[3]
[1]Ruth M. Rothstein CORE Center/John H. Stroger Jr. Hospital of Cook County, Department of Pediatrics, Division of Adolescent Medicine, Chicago, United States, [2]University of California, San Francisco, United States, [3]San Francisco Department of Public Health, San Francisco, United States, [4]John H. Stroger Jr. Hospital of Cook County, Department of Psychiatry, Chicago, United States, [5]University of Michigan, Department of Health Behavior and Health Education, Ann Arbor, United States, [6]Gilead Sciences, Foster City, United States

Background: While PrEP has demonstrated efficacy, uptake and persistent use have been low among YMSM. Demographic and psychosocial variables that may predict continued PrEP use were explored among YMSM who had participated in a randomized clinical trial of a text messaging PrEP adherence intervention.
Methods: HIV-uninfected YMSM aged 18-29 initiating PrEP within Chicago's safety-net system were offered enrollment in the Enhancing PrEP in Community (EPIC) Study, which included provision of 36 weeks of free PrEP and randomization (2:1) to receive standard of care (counseling by health educator) only or standard of care plus PrEPmate (weekly text check-ins and daily reminders).
All participants were counseled about options to continue PrEP post-study. Participants were assessed up to 4 weeks post-study to assess barriers and facilitators to accessing PrEP via computer-assisted self-interview (CASI). Open-ended questions assessing self-reported barriers and facilitators to PrEP access post-study were reviewed by members of the study team and collapsed into thematic categories through consensus.
Results: A total of 79 participants completed the week 36/40 interviews (mean age = 24.2; 33% black, 38% Latino, 17% white). 80% had education beyond high school, and 72% were insured. Almost all respondents were very (85%) or somewhat (10%) interested in continuing PrEP after study completion, and 73.4% of participants reported taking PrEP since the end of the study.
Participants with education beyond high school were significantly more likely to report taking PrEP post-study (p≤0.05). Participants who were Black or unable to find a health care provider to prescribe PrEP were significantly less likely to have taken PrEP post-study (p≤0.05).
Reported barriers to continuing PrEP included lack of insurance (67%), no PrEP access/availability (23%), no PrEP-supportive provider (9%), and lack of self-motivation (7%). Facilitators to continuing PrEP included insurance or having financial resources (45%), more accessible clinic hours/locations (20%), PrEP-supportive provider (13%) and reminders (16%).

Conclusions: Shortly after completing a clinical PrEP trial, use of PrEP persisted for most participants. However, disparities in race and health care access are evident and will continue to inhibit the true potential of PrEP as an HIV prevention strategy for YMSM. Interventions addressing structural-level and provider-level barriers are urgently needed.

THPEC332

High postpartum retention in treatment among HIV positive women who were aware of their HIV status during pregnancy: Results from the Malawi population-based HIV Impact Assessment 2015-16

S. Jonnalagadda[1], E. Radin[2], D. Payne[3], R. Bray[2], T. Kalua[4], G. Bello[4], H. Patel[1], K. Sleeman[1], C. West[3], N. Ahmed[2], A. Voetsch[1], M. Nzima[5], E. Kim[3], MPHIA Study Team
[1]Centers for Disease Control and Prevention, Division of Global HIV and TB, Atlanta, United States, [2]ICAP at Columbia University, New York, United States, [3]Centers for Disease Control and Prevention, Lilongwe, Malawi, [4]Ministry of Health, Government of Malawi, Lilongwe, Malawi, [5]UNAIDS, Lilongwe, Malawi

Background: Postpartum retention of women in HIV care is challenging but critical for achieving HIV epidemic control. We used 2015-16 Malawi population-based HIV Impact Assessment (MPHIA) survey data to describe postpartum viral suppression, as a measure of treatment retention, in HIV positive (HIV+) women.
Methods: Women who provided consent for participation in MPHIA were interviewed and tested for HIV using the national rapid test algorithm; positives were confirmed by Geenius™ (Bio-Rad). HIV RNA viral load suppression was defined as < 1,000 copies/mL. Current antiretroviral treatment (ART) use was defined as self-reported or detectable ART in blood. HIV+ women aged 15-49 years who delivered in the 36 months prior to the survey, were included in this analysis. We used weighted percentages to describe current viral suppression by self-reported HIV status and ART use during the most recent pregnancy in the 36 months prior to the survey.
Results: Of the 369 women who tested HIV+ in MPHIA and delivered in the last 36 months, 72.2% (95% confidence intervals (CI): 66.8% - 77.6%) self-reported being HIV+, 19.8% (95% CI: 14.8% - 24.8%) self-reported testing HIV negative (HIV-) and 6.7% (95% CI: 3.9% - 9.5%) self-reported being unaware of their HIV status during pregnancy. Of the 369 HIV+ women, 75.9% (95% CI: 70.5%-81.3%) were virally suppressed (VS).
Among women who self-reported being HIV+, testing HIV- or being unaware of their HIV status during pregnancy, 87.7%, 47.4% and 33.2%, respectively, were VS as measured in MPHIA. Among women who reported being HIV+ during pregnancy, 98.5% (95% CI: 97.1-99.9%) received ART during pregnancy; 95.5% were currently on ART, of whom, 90.8% were VS. Among women who reported testing HIV- during pregnancy, 39.0% were currently on ART, of whom 93.6% were VS. Among women who were unaware of their HIV status during pregnancy, 32.2% were currently on ART, of whom 89.8% were VS (Table).

Self-reported HIV status during most recent pregnancy in the 36 months prior to the survey	N (unweighted denominator)	Overall viral suppression in women who tested HIV+ in MPHIA (weighted percent)	95% confidence interval	Current ART use (Weighted percent)	95% confidence interval	Viral suppression among women currently on ART (weighted percent)	95% confidence interval
Self-reported HIV positive	276	87.7	82.7 - 92.7	95.5	91.7 - 99.3	90.8	86.6 - 94.9
Self-reported HIV negative	68	47.4	33.6 - 61.3	39.0	26.0 - 52.0	93.6	85.7 - 100.0
Self-reported unaware of HIV status	21	33.2	12.3 - 54.1	32.2	13.5 - 50.8	89.8	66.9 - 100.0

[Current ART use and viral suppression in HIV+ women, by self-reported awareness status during last pregnancy in the 36 months prior to the survey]

Conclusions: Viral suppression was high in women who received ART during pregnancy, indicating high retention on treatment. Our results indicate need to strengthen postpartum engagement in care for women who were unaware of their HIV status during pregnancy or were infected postpartum, through regular screening and re-testing.

THPEC333

Determinants of early retention in HIV care for newly diagnosed HIV-positive pregnant and lactating women in Uganda

A. Watsemba[1], F. Kasajja[2], R. M Flueckiger[3], J. Hayuni[1], B. Wandera[2], A. Mitchell Le Few[3], M. Lopez[4], E. Tanga[2]
[1]RTI International, USAID/Uganda HIV and Health Initiatives in Workplaces Activity, Kampala, Uganda, [2]World Vision Uganda, USAID/Uganda HIV and Health Initiatives in Workplaces Activity, Kampala, Uganda, [3]RTI International, Research Triangle Park, North Carolina, United States, [4]World Vision, Inc., Federal Way, WA, United States

Background: Mother-to-child transmission of HIV accounts for approximately 18% of all new infections in Uganda. According to the World Health Organization, prompt diagnosis, early enrollment and initiation on antiretroviral therapy (ART), and retention in care of HIV-positive women and HIV-exposed infants has the potential to reduce mother-to-child transmission of HIV to less than 2% in the non-breastfeeding population and to less than 5% in the breastfeeding population. The study assessed the retention in HIV care of newly diagnosed HIV-positive pregnant and lactating women after three months of enrollment in care.
Methods: A rapid retrospective assessment was conducted, reviewing all records of HIV positive pregnant women enrolled October 2015 to July 2017 in nine health facilities implementing the Prevention of Mother-to-Child Transmission of HIV Program in Uganda. A total of 191 records were reviewed. Early retention was computed as the proportion of newly ART-enrolled HIV-positive pregnant and lactating women active in care three months post-initial enrollment. Association between background characteristics and retention were tested using Pearson's chi-squared tests and odds ratios.
Results: The study found a 70% retention rate at three-months. Retention was associated with age groups (p< 0.05), parity (p< 0.001), marital status (p< 0.05), and HIV status of spouse (p< 0.001). Women 20-24 years old were 3.1 times more likely to be retained in care than those 15-19 years old (p< 0.05), while those 25-29 years old and 30-40 years old were 2.1 times and 2.8 times more likely to be retained in care, respectively. Women with one or two children were 2.8 times more likely to be retained in care, while those with three children were 3.1 times more likely to be retained in care compared to those with no children.
Conclusions: The study findings indicate sub-optimal retention of pregnant and lactating HIV-positive women newly enrolled in care. For elimination of mother-to-child transmission of HIV, there is a need for strategies to improve retention to at least 90%, with emphasis on young women 15-19 years old, women with no children, and married women.

THPEC334

A qualitative evaluation of women's experience receiving drug feedback in MTN-025/HOPE - an HIV prevention open-label trial of the dapivirine vaginal ring

A. van der Straten[1], A. Katz[2], I. Balan[3], K. Reddy[4], J. Etima[5], K. Woeber[6], T. Tauya[7], M. Atujuna[8], R. Scheckter[9], K. Ngure[10], L. Soto-Torres[11], N. Mgodi[7], T. Palanee-Phillips[4], J. Baeten[12], MTN-025/HOPE Study Group
[1]RTI International, WGHI Program/Center for Global Health, Kensington, United States, [2]RTI International, San Francisco, United States, [3]Columbia University, New York, United States, [4]Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [5]Makerere University - Johns Hopkins University Research Collaboration, Kampala, Uganda, [6]Medical Research Council, Durban, South Africa, [7]University of Zimbabwe College of Health Sciences Clinical Trials Unit, Harare, Zimbabwe, [8]Desmond Tutu AIDS Foundation, University of Cape Town, Cape Town, South Africa, [9]FHI 360, Durham, United States, [10]Jomo Kenyatta University of Agriculture and Technology, Juja, Kenya, [11]NIH/NIAID, Bethesda, United States, [12]University of Washington, Seattle, United States

Background: Adherence to HIV prophylaxis is challenging. Real-time adherence feedback is a potential strategy to promote consistent product use. In MTN-025/HOPE, participants could choose to use the dapivirine ring or not. If yes, they received returned ring residual drug level (RDL) information during feedback adherence counseling.

Methods: The HOPE qualitative component took place at six sub-Saharan African sites. In-depth-Interviews (IDIs) were conducted with a subset of participants who, at enrollment, chose to use the ring. Interviews, conducted in local languages using semi-structured guides, were summarized in reports for rapid thematic analysis. RDL scores were calculated dividing residual dapivirine in ring by ring coverage period. RDL was discussed with participants approximately 2-3 months after the ring was returned. Counseling messages framed RDL adherence results in terms of HIV protection, from no protection (poor adherence; score=0) to high protection (high adherence; score=3).

Results: Among the 50 women interviewed (Malawi n=9; South Africa n=21; Uganda n=9; Zimbabwe n=11), reactions to RDL were often emotional. Participants with scores indicative of high protection usually responded with relief and happiness. However, for some, even a score of 2 created significant distress. Participants with lower scores who insistently reported high adherence often appeared upset, blaming laboratory errors or dysfunctional rings. However, many accepted their results and subsequently reported practices that could explain lower scores. Some participants remained perplexed by low scores in the context of consistent use. Test accuracy was often debated and most participants requested quicker RDL feedback. Participants acknowledged counselors' instrumental role in affecting their post-feedback behaviors and feelings: dominant themes were enhanced motivation to maintain consistent use (those with score=3), or persistence and striving for improvement (those with lower scores). A minor theme was "wait and see" if future scores improve or else choose another prevention approach (e.g. condoms only).

Conclusions: Participants valued the monitoring of protection level against HIV, but RDL was at times challenging and evoked strong reactions. Client-centered counseling helped to channel emotions and behavioral reactions positively. Emphasis on protection minimized confrontational interactions and facilitated alternative, but at times implausible, explanations. Participants recommended improved test accuracy to more precisely reflect product use.

THPEC335

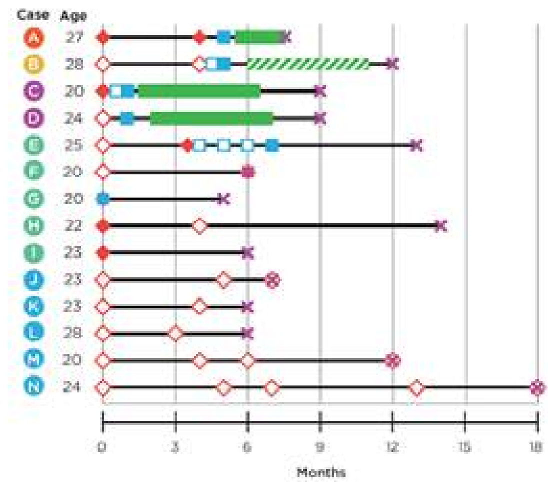
Beyond the biomedical: PrEP failures in a cohort of young Black men who have sex with men in Atlanta, GA

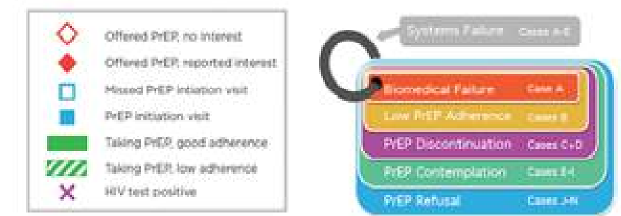
D.P. Serota[1], E.S. Rosenberg[2], A.M. Lockard[3], C.-P.M. Rolle[4], C. Del Rio[1,5], N. Luisi[3], S. Cutro[6], A.J. Siegler[3], T.H. Sanchez[3], P.S. Sullivan[3], C.F. Kelley[1]
[1]*Emory University School of Medicine, Department of Medicine, Division of Infectious Diseases, Atlanta, United States,* [2]*University of Albany School of Public Health, SUNY, Department of Epidemiology and Biostatistics, Rennselaer, United States,* [3]*Emory University Rollins School of Public Health, Department of Epidemiology, Atlanta, United States,* [4]*Orlando Immunology Center, Orlando, United States,* [5]*Emory University Rollins School of Public Health, Hubert Department of Global Health, Atlanta, United States,* [6]*Kaiser Permanente, Department of Infectious Diseases, Atlanta, United States*

Background: HIV pre-exposure prophylaxis (PrEP) has high biomedical efficacy; however, awareness, uptake, and persistence on therapy remain low among black men who have sex with men (BMSM), who are at highest risk for HIV transmission in the US. We implemented an optional PrEP program as standard of HIV prevention care within a cohort of young BMSM; nonetheless, high HIV incidence continues to be observed.

Description: The EleMENt study is a prospective observational cohort of 300 young (aged 16-29), HIV-negative BMSM in Atlanta, USA. At each study visit over 24 months of follow-up, participants complete questionnaires and undergo HIV/STI testing and risk-reduction counseling. We offer non-incentivized PrEP to all participants and provide physician and laboratory services and assistance from a PrEP navigator to obtain the medication at low/no cost. Most studies to date have framed PrEP failure as a rare event of seroconversion despite adequate PrEP adherence (biomedical failure); however, a much larger number of seroconversions will likely occur among those with access to PrEP who either do not initiate or persist in care.

Lessons learned: PrEP was offered to all 300 men, and as of December 2017, 53% (158/300) started PrEP. Over the first half of the study, 14 participants acquired HIV. We identified four additional typologies of 'PrEP failure' that expand beyond traditional biomedical failure: low PrEP adherence, PrEP discontinuation, PrEP contemplation, and PrEP refusal. Among the HIV seroconversion cases, 5 participants reported no interest in PrEP (PrEP refusal), 5 expressed interest but never started PrEP (PrEP contemplation), and 4 took PrEP at some time before seroconversion (PrEP discontinuation and low PrEP adherence). Only 1 participant could be considered a biomedical PrEP failure.





[Timelines of Seroconversions with Respect to PrEP]

Conclusions/Next steps: The majority of PrEP failures resulting in HIV seroconversion in our study, where barriers to PrEP access are minimized, were not due to biomedical failure or lack of adherence, but due to not initiating PrEP. To fully realize PrEP effectiveness for high-risk populations, such as BMSM, a broader understanding of PrEP failure and solutions need to be developed. Using these lessons learned we are optimizing PrEP delivery in our study to avoid additional PrEP failures.

THPEC336

Predictors of self-reported adherence to pre-exposure prophylaxis (PrEP), including barriers and facilitators, among men who have sex with men (MSM) and transgender women (TGW): PrEP Brasil Demonstration Study

T.S. Torres[1], L.M.S. Marins[1], P.M. Luz[1], R.I. Moreira[1], I.D. Costa Leite[2], B. Hoagland[1], E.G. Kallas[3], J.V. Madruga[4], A.Y. Liu[5], B. Grinsztejn[1], V.G. Veloso[1], PrEP Brasil Study Group
[1]*Fundação Oswaldo Cruz, Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro, Brazil,* [2]*Fundação Oswaldo Cruz, Escola Nacional de Saúde Pública, Rio de Janeiro, Brazil,* [3]*Universidade de São Paulo, School of Medicine, São Paulo, Brazil,* [4]*Centro de Referência e Treinamento em DST/AIDS, São Paulo, Brazil,* [5]*San Francisco Department of Public Health, Bridge HIV, San Francisco, United States*

Background: Adherence is a critical factor for efficacy of emtricitabine/tenofovir (FTC/TDF) for PrEP. Strategies for improving, supporting, motivating and sustaining adherence to PrEP are of great importance in maximizing the impact of PrEP in high-risk populations. We evaluated self-reported PrEP adherence and its perceived barriers and facilitators among MSM and TGW retained though 48 weeks in the PrEP Brasil study.

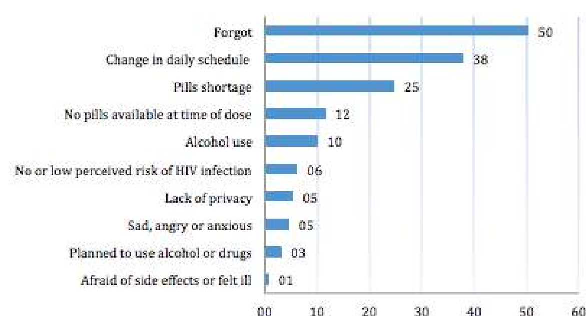
Methods: PrEP Brasil was a prospective, open-label demonstration project with HIV-uninfected MSM and TGW from 3 referral centers in Rio de Janeiro (RJ) and São Paulo (SP). Participants were followed-up for 48

weeks and daily FTC/TDF was provided. PrEP adherence (30-days recall), facilitators and barriers were assessed by the pharmacist using a questionnaire upon study completion (week 48). Logistic regression was used to evaluate predictors for optimal (=100%) adherence in the past 30-days.

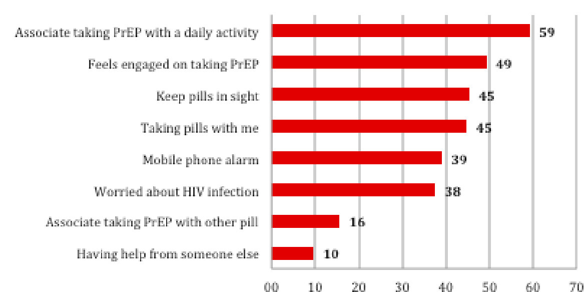
Results: From April/2014 to July/2016, 450 participants initiated PrEP, 375(83.3%) participants were followed through 48 weeks. Of these, 354(94.4%) were dispensed FTC/TDF in the previous 3 months and 338 (90.1%) answered the questionnaire. Median age was 30 years (IQR: 25-35). A total of 27(8.0%), 51(15.1%) and 53(15.7%) reported not missing any dose of FTC/TDF in the past week, 1-2 weeks and 3-4 weeks, respectively. Median adherence in the past 30-days was 100%(IQR:96-100); 60.6% of participants (205/338) reported optimal adherence. The majority (82.2%; 278/338) of participants reported not having difficulty with taking FTC/TDF and 81.3% (274/338) reported excellent or very good capacity to take FTC/TDF in the past 30-days. Perceived barriers and facilitators were reported by 38.2%(129/338) and 98.5%(333/338), respectively; main reasons reported by these participants are depicted in Figure 1. In multivariate analysis, being from RJ, TGW, stimulant use and having perceived barriers to adherence were associated with decreased odds of optimal adherence.

		Number of participants N=338	Optimal adherence (=100%) N=205 (60.6%)	OR (95%CI) (adjusted for site only)	p-value	AOR (95%CI)	p-value
Site Location	RJ (vs. SP)	118 (34.9)	55 (46.6)	0.41 (0.26-0.64)	0.0001	0.38 (0.20-0.73)	0.004
Gender	Transwomen (vs. male)	18 (5.3)	6 (33.3)	0.41 (0.14-1.14)	0.09	0.22 (0.07-0.73)	0.01
Sex with HIV positive partners	Yes (vs. no)	140 (41.4)	93 (66.4)	1.46 (0.92-2.32)	0.10	0.90 (0.48-1.70)	0.75
Stimulants in last 3 months	Yes (vs. no)	73 (21.6)	40 (54.8)	0.58 (0.33-1.00)	0.05	0.40 (0.20-0.80)	0.01
Depression PHQ score	PHQ-2 score ≥ 3 (vs. PHQ-2 score < 3)	20 (5.9)	8 (40.0)	0.39 (0.15-1.01)	0.05	0.41 (0.14-1.22)	0.11
GI symptoms	Yes (vs. no)	140 (41.4)	83 (59.3)	0.64 (0.39-1.05)	0.08	1.02 (0.54-1.93)	0.95
Perceived barriers	Yes (vs. no)	129 (38.2)	35 (27.1)	0.09 (0.05-0.15)	<.0001	0.12 (0.07-0.23)	<.0001

[Table 1. Unadjusted and adjusted odds ratios and 95% confidence interval for factors associated with optimal self-reported adherence at week 48.]



[Perceived barriers to adherence (n = 129; %)]



[Perceived facilitators to adherence (n = 333; %)]

Conclusions: High levels of self-reported adherence were reported among those retained through 48 weeks in the PrEP Brasil study. Our findings provide information for elaboration, reinforcement and/or update of strategies to improve adherence, especially among TGW and stimulant users, and for developing the best practices to promote PrEP adherence in our context. Interventions to reduce patient forgetfulness may be beneficial.

THPEC337

Predictors of loss to follow-up among HIV-infected children in rural Kenya: A retrospective cohort analysis

W.M. Saumu[1], E. Obimbo[2], G. Irimu[2], C. Gichuhi[3], R. Kumar[2]
[1]Ministry of Health, Government of Kenya, Paediatrics and Child Health, Chuka, Kenya, [2]University of Nairobi, Paediatrics and Child Health, Nairobi, Kenya, [3]University of Nairobi, Clinical Medicine and Therapeutics, Nairobi, Kenya

Background: Over the past decade, significant gains have been made in enrolment and care of HIV-infected children in Kenya. Their long-term survival depends on lifetime adherence to antiretroviral therapy. African studies have reported high rates of Loss to Follow up (LTFU) among children in HIV care and treatment centres. Factors associated with LTFU may vary across populations and countries. Few studies have been conducted among HIV infected children in care in rural areas of Kenya.

Methods: This was a retrospective cohort study involving children aged less than 15 years on follow up at Kangundo Level 4 Hospital HIV clinic from January 2010 to December 2015. We obtained sociodemographic and clinical information from patient files and electronic databases. We calculated period prevalence and incidence of LTFU over the 6 year period before and after physical tracing of those LTFU. Univariate and multivariate regression analyses were conducted to identify factors predictive of LTFU.

Results: 261 HIV-infected children were followed up (51.3% males). The mean age was 10.0 years and median CD4 count of 582. By December 2015, 171 children (65.5%) remained in active care, 32 (12.3%) transferred out, 13 (5%) died, while 45 (17.2%) were classified as LTFU giving a period prevalence of LTFU as 17.2% and incidence rate 44.9 per 1000 child years. Out of the 45 children presumed as LTFU, we successfully traced 44 out of the 45 children (98%), and found that their actual current status was as follows: 33 of the 44 children (75.0%) had dropped out of care, hence fulfilled the criteria for true LTFU.

Factors strongly predictive of LTFU included low caregiver level of education (HR 2.3, 1.9-3.9, P =0.001), WHO stage I and II at enrolment (HR 1.6, 1.4-2.1, P =0.05) and children not on ART at last contact with hospital (HR 4.7, 4.4-6.0, p=0.03).

Conclusions: Over the 6 year period, LTFU of HIV infected children was common with a true incidence of 32.9 per 1000 child years and occurred early in treatment and risk factors included poverty, low caregiver education, male child, early HIV disease stage and not being on ART.

THPEC338

Missed clinic appointments in the first six months of care and long term retention of HIV positive adults at a large Urban HIV clinic in Uganda

F. Mubiru, R. Kuteesa Bisaso, B. Castelnuovo, J. Mawejje, A. Kiragga
Infectious Diseases Institute, Research Department, Kampala, Uganda

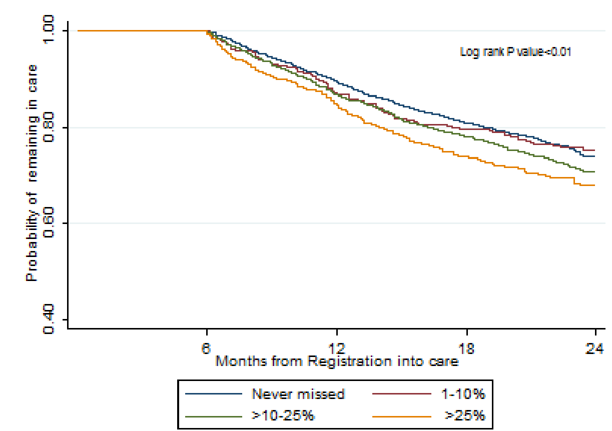
Background: In sub- Saharan Africa, patients started on ART are usually seen monthly during the first year to ensure close clinical and adherence monitoring. However, many patients miss scheduled visits in their first months of treatment. We hypothesize that missed appointments early in HIV care are an indicator of low long term retention. We aim to describe the patterns of missed visit appointments in the first six months, and examine their association with long term retention in HIV care.

Methods: We included HIV positive patients registered into HIV care from January 2008 to December 2014 at the Infectious Diseases Institute clinic in Kampala, Uganda. Data included: age, gender, WHO stage, and CD4 count. A missed appointment was defined as no visit to the clinic within 3 days of the scheduled appointment. Missed visits were classified as: Ever missed(yes/no); categorical (0, 1-2, >2); and Percentage of all scheduled visits missed (0%, 1-10%, >10-25%, >25%). Long term retention

was being active in care at 24 months. We used a Cox Proportional Hazards model to investigate whether missed visits were associated with long term retention.

Results: The study included 9,374 patients, 5,876(62.7%) were female, median age 33 years(IQR:27-40), 1809(19.3%) were young adults(16-<25years), 3,180(33.9%) in WHO stage 3&4, median CD4 count 268(IQR:100-489) cells/µL. 7112/9374(75.9%) were retained at month 6 and 5211/9374(55.6%) at month 24. Figure1 shows the probability of remaining in care by proportions of missed visits in the first 6 months of care. In the multivariable analysis, patients with: higher proportions (>10-25%) of missed visits (HR=1.20, 95%CI:1.11-1.36, P=0.003) compared to no missed visits and higher baseline CD4 count (200-300, >300: HR=1.30(1.22-1.60, p< 0.01, HR=1.23(1.10-1.40, p=0.002 respectively) compared to < 200 cells/µL, had higher risk of non-retention in HIV care.

Conclusions: Tracking missed visits in the first 6 months of ART can be a useful tool to identify patients at risk of low retention in order to target appropriate interventions. In the era of "treat all" our data also re-emphasizes the need for intervention for retaining healthier patients starting ART at high CD4 counts.



[Figure 1: Probability of remaining in care by proportions of visits missed in the first 6 months in HIV care]

THPEC339

Why they get lost: Results of tracing of children lost to follow-up from an HIV programme in lower Eastern Kenya

P.B. Karau[1], W.M. Saumu[2], E. Obimbo[3], G. Irimu[3], C. Gichuhi[4], R. Kuma[3]
[1]*Kenya Methodist University, Internal Medicine and Therapeutics, Meru, Kenya,* [2]*Chuka Level 4 Hospital, Chuka, Kenya,* [3]*University of Nairobi, Paediatrics and Child Health, Nairobi, Kenya,* [4]*University of Nairobi, Clinical Medicine and Therapeutics, Nairobi, Kenya*

Background: Loss to follow-up (LTFU) remains a major obstacle to the success of many HIV care programmes in Africa. Whereas many studies have focused on factors predictive of loss to follow-up, only a few have traced the children or their caregivers and elucidated the real reasons for dropping out of care. This aspect is important in tailoring interventions to increase retention in care.

Methods: A retrospective cohort study was conducted involving all children on follow up at Kangundo Hospital HIV clinic from 2010 to 2015. For those who satisfied the definition of LTFU, an attempt was made to trace the caregivers by phone calls. Those who responded to the calls were informed about the study and requested to come to the hospital or allow a home visit. For those with no phone contacts, physical tracing was conducted. Data was collected from the caregivers by administration of a structured pre- tested questionnaire. The status of the patient follow up was then reclassified as transfer out, dead or true LTFU.

Results: During the study period, 261 children we enrolled, with a mean age of 10 years. 45 children (17.2%) were lost to follow-up. Out of the 45 children who met the criteria for LTFU, 44 caregivers were successfully traced. 33 (75.0%) of the 44 had dropped out of care (True loss to follow up), while 6 (13.6%) were dead, and 5 (11.4%) had transferred to other facilities without referral. The true period prevalence of LTFU over the study period was found to be 12.6% (n= 261). The true Incidence of Loss to Follow- up was 32.9 per 1000 child years.The mean age of the caregivers was 48.5 years, with 29 (87.9%) of them being females. The mean approximate distance from home to Kangundo Level 4 Hospital was 11.8km. Fear of disclosure, stigma, adolescent children rebellion, death of primary caregivers and poverty were the main reasons for LTFU.

Conclusions: This study sheds light on the reasons for LTFU. Health care workers should trace children who don't honour clinic appointments. Interventions to reduce LTFU should focus on social, economic and healthcare related factors associated with LTFU.

THPEC340

Predictors of 1-month retention on PrEP for the general population in the public sector: A longitudinal study in routine care in Swaziland

A. Hughey[1], A. Hettema[1], C. Oldenburg[2], S. Kohler[3], S. McMahon[3], C. Lejeune[1], S. Matse[4], T. Barnighausen[3]
[1]*Clinton Health Access Initiative, Mbabane, Swaziland,* [2]*University of California, San Francisco, United States,* [3]*Heidelberg University, Heidelberg, Germany,* [4]*Swaziland Ministry of Health, Swaziland National AIDS Programme, Mbabane, Swaziland*

Background: Daily oral HIV pre-exposure prophylaxis (PrEP) can dramatically reduce HIV infection among HIV-negative individuals. Therefore, PrEP holds great promise to help end the HIV epidemic but the success of PrEP is contingent upon retention while at risk for HIV. It is thus important to understand predictors of retention among existing PrEP clients for targeting and to inform future designs of PrEP promotion and supporting interventions.

Methods: A PrEP demonstration study for the general population began on 1 August 2017 in Swaziland to assess the operationalization of PrEP as an additional HIV prevention method provided through the country's public-sector primary-care clinics for all clients ≥16 years at risk for HIV infection. Data were collected electronically from clinic-based client records. An analysis of 6-month baseline data through 31 January 2018 is presented. The primary outcome was retention at 1-month after PrEP initiation defined as continued PrEP use during the first month and attendance at the clinic within 7 days of the scheduled one-month follow-up appointment. A total of 217 clients, including 167 (77%) females and 50 (23%) males who initiated PrEP were analyzed for predictors of retention using a generalized linear model with a binomial distribution family and log link function, controlling for clustering of outcomes at the clinic level.

Variable	N (%)	RR	95% CI	P-value
Sex				
Male	50 (23.0)	--	--	--
Female	167 (77.0)	0.87	(0.71, 1.06)	0.178
Age, years				
16-25	83 (38.2)	--	--	--
26-35	80 (36.9)	1.43	(1.03, 1.99)	0.035
36-45	37 (17.0)	1.76	(1.27, 2.43)	0.001
45+	16 (7.4)	1.54	(0.98, 2.42)	0.059
Self-Perceived HIV Risk				
No Risk	4 (1.8)	--	--	--
Low Risk	18 (8.3)	1.00	(0.62, 1.61)	1.000
Some Risk	90 (41.5)	1.09	(0.96, 1.23)	0.183
High Risk	41 (18.9)	1.23	(0.91, 1.63)	0.176
Very High Risk	63 (29.0)	1.37	(1.22, 1.52)	<0.001
Missing	1 (.5)			
Known HIV-Positive Partner				
Yes	75 (34.6)	1.28	(1.03, 1.58)	0.024
No	142 (65.4)	--	--	--
Visited Facility Seeking PrEP				
Yes	173 (79.7)	1.24	(0.94, 1.65)	0.128
No	44 (20.3)	--	--	--
Pregnant or Lactating (females only)				
Yes	65 (38.9)	0.99	(0.79, 1.24)	0.925
No	75 (44.9)	--	--	--
Missing	27 (16.2)			

[Table. Univariate regression results for predictors of retention at 1 month following PrEP initiation]

Results: Overall, 129 (59%) clients were retained at 1-month after PrEP initiation. Gender, pregnancy/lactation status and visiting the clinic specifically for PrEP services did not significantly predict retention. Clients with very high self-perceived risk of HIV infection (p<0.001), clients in middle age (p<0.05) and clients with a partner known to be living with HIV (p=0.024) were significantly more likely to be retained at 1-month after initiation than comparison groups (Table).

Conclusions: Women and men have approximately equal need for PrEP retention-supporting interventions. Interventions for PrEP retention should specifically target clients whose self-perceived HIV infection risk is relatively low, despite clear indications of high objective HIV acquisition risk. Increased support for risk self-assessment and enhanced PrEP counseling may have potential for improving PrEP retention. Younger clients and clients who do not know their partners' HIV status may need additional retention support.

THPEC341

Factors associated with loss to follow up among HIV patients with unsuppressed viral load in primary healthcare clinics

J. Kiwanuka[1], M. Muhindo Kahungu[1], J. Baligobye[1,2], M. Ssemakadde[3]
[1]AIDS Healthcare Foundation, Kampala, Uganda, [2]Makerere University, School of Public Health, Kampala, Uganda, [3]IeDEA Masaka Regional Referral Hospital, Masaka, Uganda

Background: Retention of patients initiated on antiretroviral therapy (ART) and ensuring good adherence remain cornerstone to long term viral suppression. Patients with un-suppressed viral load are presumed to have poor adherence, hence, are taken through intensive adherence counseling before switching treatment. However, how well such patients remain connected to care after unsuppressed viral load is an important metric in the HIV care cascade but hasn't been fully explored. We set out to determine loss to follow up (LTFU) and associated factors in patients with un-suppressed viral load in primary healthcare clinics.

Methods: We drew a sample of patients initiated on ART from January 2012 to December 2016 from two primary healthcare clinics. We analysed data for patients who had spent at least six months on ART, had viral load test results and presented with a most recent un-suppressed viral load. We defined LTFU as failure of a patient to return to the HIV clinic for at least 90 days from the date of their last appointment. We excluded deaths and transfers to other health facilities. We determined the proportion of patients LTFU and used logistic regression to assess factors associated with LTFU.

Results: We included 744 patients in our sample, with 55.7% females and median age at starting ART of 31.5(IQR= 22.5-38.5) years. The median CD4 cell count and weight at starting ART were 277 (IQR= 124-492.5) and 51kgs (IQR=42-58) respectively whereas 22.9% were in WHO stage 3 or 4 at baseline. Overall, 5.7% were LFTU. At bivariate analysis, there was no difference in LTFU between men and women (Female cOR=0.99, 95% CI=0.53-1.84). Compared to patients with a CD4 cell count of < 350, those with CD4 cell count of 350-500 (cOR=0.75, 95% CI=0.30-1.84) and >500 (cOR=0.50, 95% CI=0.20-1.22) were less likely to get LTFU. After adjusting for age, sex and baseline CD4, WHO stage 3 or 4 (aOR=2.1, 95% CI=1.1-4.2) was the only independent factor associated with LTFU.

Conclusions: Patients with a baseline WHO stage 3 or 4 had a higher likelihood of getting LTFU. This strengthens evidence for better treatment outcomes for initiating HIV positive patients in the infancy of disease progression.

THPEC342

Viral load outcomes in a cohort of alcohol consuming PLHIV receiving ART in Mumbai, India

A. Sarna[1], R.J. Singh[2], J.J. Schensul[3], B.B. Mahapatra[2], T. Huu Ha[4], S.L. Schensul[4]
[1]Population Council, HIV and AIDS, New Delhi, India, [2]Population Council, HIV and AIDS, Delhi, India, [3]Institute for Community Research, HIV and AIDS, Hartford, United States, [4]U Connecticut School of Medicine, HIV and AIDS, Farmington, United States

Background: Alcohol consumption among HIV-positive people on ART has been identified as a factor in sexual risk behaviour, poor immunological status and non-adherence to ART. However, less is known about its impact on viral load. We examined the association between alcohol consumption, adherence and viral load (VL) among HIV-positive men receiving ART in Mumbai.

Methods: We analysed enrolment data from a randomised controlled study evaluating the effect of three different counseling interventions to promote adherence and reduce alcohol use, in a cohort of 940 alcohol-consuming, HIV-positive men receiving treatment at government ART centers. Viral load testing was conducted as part of the study protocol. Alcohol consumption was assessed using AUDIT. Nonadherence was defined as self-reported, missed doses over the last 4 days >5%, and virological failure as VL>200 copies/ml.

Results: Mean duration of ART was 54.05 months. In terms of adherence, 16.7% of the participants had missed ≥1 doses in the last 4 days and 17.6% reported ≥1 treatment interruption in the last 12 months.
Of the total sample, 60.8% of the participants consumed alcohol ≥2 times/month, 62.8% consumed ≥3 drinks/typical day and 11.5% reported binge drinking ≥1 times/month. Binge drinking was associated with nonadherence (OR=2.38; 95%CI: 1.70-3.32) and treatment interruption (OR=2.99; 95%CI: 2.11-4.22).
Overall, 76.4% of the participants had VL< 200 copies/ml. On multivariate logistic regression, higher adherence (AOR: 0.98; 95%CI: 0.98-0.99) and better self-assessment of health (AOR: 0.98; 95%CI: 0.97-0.99) predicted a lower risk of virological failure, while treatment interruptions (AOR: 2.1; 95%CI: 1.39-3.16) and HIV symptoms (AOR: 1.06; 95%CI: 1.0-1.13) predicted a higher risk.
Higher alcohol consumption was associated with nonadherence (OR: 1.21, 95%CI: 1.12-1.31) and treatment interruptions (OR: 1.21; 95%CI:1.12-1.31). We found no direct association between alcohol use and VL. However, there was a significant interaction effect of alcohol use and nonadherence on virological failure (AOR: 1.23; 95%CI:1.03-1.47) implying that alcohol negatively impacts VL outcomes but mediated through adherence.

Conclusions: Alcohol consumption plays a significant role in the health status and behavior for HIV-positive men on ART. The study highlights the need for routine alcohol screening and follow up counseling for problem drinkers as an integral component of HIV care.

THPEC343

Understanding the uptake and retention patterns of PrEP users in Zimbabwe by sub population

E. Gwavava
Population Services International Zimbabwe, Social Franchising, Harare, Zimbabwe

Background: PSI Zimbabwe has been offering PrEP using TDF 300mg/FTC 200mg FDC tablets as an additional HIV prevention method at *New Start* centers in 6 districts in Zimbabwe - Mutare, Bulawayo, Chipinge, and Gweru, Masvingo and Harare - since August 2016. The *New Start* PrEP program is one of the demonstration projects that will help inform the MOHCC national PrEP implementation plan to introduce PrEP nationwide as a new HIV prevention strategy. The primary target populations include AGYW aged 15-24 years, FSWs, MSM, and serodiscordant couples.

Description: Programme data since programme inception in August 2016 to December 2017 was analysed for trends. Data for 2,275 clients enrolled on PrEP was analysed for uptake and retention trends by sub-population - AGYW, FSWs, MSM, transgender, serodiscordant couple, and other clients on PrEP.

Lessons learned: Data by subpopulation was analysed to determine the proportion of clients screening high risk and eligible for PrEP, the acceptance rate of PrEP and average retention by subpopulation. Clients with the highest proportions of clients at high risk include discordant male partner (99.2%), MSM and discordant female partner (98.3%); the lowest proportion at high risk were non-KP males (2.4%) and non-KP females (6.8%). The highest acceptance of PrEP was seen among non-KP females (95.2%) and discordant female partner (84.8%). The lowest acceptance rate was seen among MSM (37.2%) and non-KP males (39%). The highest average retention of 4.16 months was seen in female discordant partners.
Conclusions/Next steps: Understanding the various risk profiles by subpopulation of clients at substantial risk of HIV is important to help clients determine how long they need to be on PrEP whilst working on a risk reduction plan. Clients gave various reasons for not accepting PrEP, including the fear of perceived stigma that they are actually HIV-positive and taking ARVs for treatment rather than prevention of HIV. Clients who clearly understood their risk were more likely to stay on PrEP for longer.

[illegible]

[PrEP Risk Profiles, Uptake and Retention Trends in Zimbabwe]

Key population-led prevention programs (from reach, recruit, test, treat, prevent, and retain)

THPEC344

Which MSM are most at risk of becoming HIV-infected in West Africa? (CohMSM ANRS 12324 - Expertise France)

P.-J. Coulaud[1,2], L. Sagaon-Teyssier[1,2], B. M'madi Mrenda[1,2], G. Maradan[1,2], M. Mora[1,2], M. Bourrelly[1,2], B. Dembélé Keita[3], A.A. Keita[3], C. Anoma[4], S.-A. Babo Yoro[4], T.T.E. Dah[5,6], C. Coulibaly[5], E. Mensah[7], S. Agbomadji[7], A. Bernier[8], C. Couderc[9], C. Laurent[9], B. Spire[1,2], The CohMSM Study Group
[1]Aix Marseille Univ, INSERM, IRD, SESSTIM, Sciences Economiques & Sociales de la Santé & Traitement de l'Information Médicale, Marseille, France, [2]ORS PACA, Observatoire Régional de la santé Provence-Alpes-Côte d'Azur, Marseille, France, [3]ARCAD-SIDA, Bamako, Mali, [4]Espace Confiance, Abidjan, Cote D'Ivoire, [5]Association African Solidarité, Ouagadougou, Burkina Faso, [6]Centre Muraz, Bobo-Dioulasso, Burkina Faso, [7]Espoir Vie Togo, Lomé, Togo, [8]Coalition PLUS, Pantin, France, [9]IRD, INSERM, Univ Montpellier, TransVIHMI, Montpellier, France

Background: Understanding the dynamics of HIV infection in men who have sex with men (MSM) can help improve the efficiency of existing prevention strategies. We aimed to describe the sexual behaviour evolutions of MSM most at risk of HIV infection in West Africa.
Methods: The community-based cohort CohMSM has recruited HIV-negative MSM in four West-African countries since 2015 (Mali, Cote d´Ivoire, Burkina Faso, Togo). MSM are followed quarterly for HIV testing and prevention. Socio-behavioural data are collected every 6 months using standardised face-to-face questionnaires. This sub-study used a baseline, 6- and 12-month data cluster analysis to determine sexual behavioural profiles from data on risky sexual practices over the previous 6 months: condom use during anal and oral sex (systematic versus non-systematic); position during anal intercourse (exclusively insertive versus receptive or both); multiple partners (< 2 versus ≥2). The number of HIV seroconversions over the first 12 months of follow-up was recorded for each profile. Factors associated with these profiles were estimated using a country-adjusted mixed-effects logistic regression.
Results: For the 550 MSM included, two sexual behavioural profiles were identified: high-risk exposure (HRE) (61%) and moderate-risk exposure (MRE) (39%). HRE-MSM (versus MRE-MSM) reported greater non-systematic condom use during anal (55% versus 41%) and oral sex (85% versus 42%), receptive anal intercourse (94% versus 9%) and more multiple partners (64% versus 59%). Of the 34 seroconverted MSM in the first 12 months, 91% were HRE-MSM. HRE-MSM were more likely to be younger (adjusted Odds Ratio (aOR) [95% Confidence Interval]: 0.92 [0.88-0.97] per 1-year increase), to report financial difficulties (aOR: 2.06 [1.04-4.06]) and to have experienced stigma in the previous 6 months (aOR: 1.29 [1.09-1.52]). Compared to MSM with at least one female partner and attracted to both sexes, those with no female partner and either attracted only to men (aOR: 7.25 [4.04-12.98]) or to both sexes (aOR: 3.22 [1.66-6.28]), and those with a female partner but only attracted to men (aOR: 2.53 [1.36-4.70]) were more likely to be HRE-MSM.
Conclusions: HIV prevention services tailored to MSM should take into account age, financial difficulties, experienced stigmatisation and sexual attraction.

THPEC345

Health Messaging from by the people or FOR the people? A comparative visual content analysis of crowdsourced and government HIV posters

M.K. Smith[1], B. Cao[2], R. Fu[3], Y. Zhao[4], C. Liu[5], M. Tangthanasup[6], A.J. Lazard[7], J.D. Tucker[8]
[1]University of North Carolina, School of Public Health, Chapel Hill, United States, [2]Shenzhen University, School of Media and Communication, Shenzhen, China, [3]Guangzhou Center for Disease Control, HIV/AIDS Prevention and Control Division, Guangzhou, China, [4]Guangzhou No. 8 Renmin Hospital, Infectious Disease Department, Guangzhou, China, [5]University of California San Diego, Department of Sociology, San Diego, United States, [6]UNC Project China, Social Entrepreneurship for Sexual Health, Guangzhou, China, [7]University of North Carolina Chapel Hill, School of Media and Journalism, Chapel Hill, United States, [8]University of North Carolina Chapel Hill, School of Medicine, Chapel Hill, United States

Background: Visual mass media including posters have been shown to increase HIV testing, but suboptimal global HIV testing rates underscore the need for novel content and messaging. Crowdsourcing, or the outsourcing of tasks to a large group, has been shown by a randomized control trial to induce more HIV testing in audiences exposed to them as compared to conventional images. To better understand the key visual differences between these two types of images, we compared crowdsourced HIV testing posters to those created by local disease control centers (CDC) in China.
Methods: Crowdsourced posters included finalist submissions from a series of nationwide contests in China held between 2014 and 2016 in which teams competed for cash and other prizes. CDC posters were sampled from an online database of health promotional materials related to HIV testing maintained by the Chinese National Center for AIDS. Posters were triple coded according to established visual content criteria, summary measures of which were compared across poster type by assessing 95% confidence intervals (CI) overlap.
Results: CDC posters were more likely to use positive facial expressions (65% [95% CI, 40.9-83.7] versus 12.5% [95% CI, 2.2-4%]) and to employ an educational messaging style (85% [95% CI, 61.1-96%] versus 31.3% [95% CI, 12.1-58.5]). Crowdsourced posters were more likely to exhibit qualities of strong craftsmanship (design simplicity, image diversity, color choice,

design quality, and moderate text use) and use visual metaphors as part of their messaging strategy (56.3% [95% CI, 30.6-79.2] versus 5% [95% CI, 0.2-26.9%]).No differences in visual complexity were found across poster types.
Conclusions: Crowdsourced posters exhibited better craftsmanship than CDC posters, possibly due to diversity of design input of this strategy. CDC posters' use of positive visual reinforcement (smiling faces) and an educational messaging style may be a relic of modern Chinese visual traditions rooted in Socialist ideals of optimism and national well-being. Crowdsourcing posters' use of visual metaphors highlights their potential to embed coded references resonant with key hidden populations, a key factor in models of persuasion process. Further research is planned to assess the impact of CDC versus crowdsourced posters on motivational thoughts on HIV testing in target populations.

[Examples of HIV testing posters designed by Chinese health authorities (left) and by crowdsourcing contestants (right).]

THPEC346

Social contexts as mediators of risks in Rwandan men who have sex with men (MSM): Implications for HIV infection and other STIs

A. Adedimeji[1], J.D. Sinayobye[2], B. Asiimwe-Kateera[3], G. Murenzi[2], V.V. Patel[4], P.E. Castle[1], L. Mutesa[5], J. Palefsky[6], K. Anastos[1,4]
[1]Albert Einstein College of Medicine/Montefiore Medical Center, Epidemiology and Population Health, Bronx, United States, [2]Rwanda Military Hospital, Kigali, Rwanda, [3]AIDS Healthcare Foundation, Kigali, Rwanda, [4]Albert Einstein College of Medicine/Montefiore Medical Center, Division of General Internal Medicine, Bronx, United States, [5]University of Rwanda, Kigali, Rwanda, [6]University of California, San Francisco, United States

Background: Men who have sex with men (MSM) are disproportionately impacted by HIV/AIDS resulting from risky sexual behaviors. Social and contextual factors are known mediators of risk behaviors, but there is limited information regarding the dynamics between practices that increase risk of Rwandan MSM and concomitant socio-contextual determinants. This makes it difficult to assess social determinants that are critical in reducing the vulnerability to HIV/STI transmission in this key population.
Methods: As part of an ongoing mixed methods study, we obtained qualitative data on the socio-contextual determinants of, and prevalence of risk behaviors for HIV/ STIs transmission and preventive measures/coping strategies used by MSM to improve health and wellbeing. Thirty Kigali-based MSM recruited through respondent-driven sampling provided data through individual in-depth interviews. Data were analyzed using standard qualitative data analysis procedures.
Results: Respondents' were 18-40 years old; all had completed primary education and were mostly low-socioeconomic status. Risky sexual practices were common but differed by individual and socio-contextual factors in which MSM live. Older respondents reported long-term relationships with women with whom they have sexual relations to avoid suspicion and stigma. Younger respondents' were more likely to engage in transactional sex that was considered a necessity and mediated by the need for social acceptance and support from a strong peer network. Knowledge of HIV/STIs was poor, but prevalence was high. The perceived options for improving sexual wellbeing were limited and mostly clandestine.
Conclusions: Pervasive stigma, concern for personal safety, social isolation, conservative culture, lack of access to health services and perception of public policies appear to mediate behaviors that increase risk among Rwanda MSM and are barriers to obtaining health-promoting information and services. Effective interventions that address individual and socio-contextual determinants of risk and access to health services are urgently needed to facilitate attainment of Rwanda's national HIV strategic goals for key populations.

THPEC347

Micro-planning, an effective tool for building the bridge and breaking barriers in HIV programming for female sex worker - Ekiti State experience

A. Ajumobi[1,2], K. Green[3,4], R. Ajayi[4]
[1]Ekiti State AIDS Control Agency, Monitoring and Evaluation, Ado Ekiti, Nigeria, [2]Environmental Development and Family Health Organization, Monitoring and Evaluation, Ado Ekiti, Nigeria, [3]University of Manitoba, Country Office, Abuja, Nigeria, [4]Ekiti State AIDS Control Agency, Community Mobilization, Ado Ekiti, Nigeria

Background: Sex workers face stigma,discrimination and violence across the globe hence, effective strategies towards sustainable delivery of Minimum Prevention Package Intervention (MPPI) to key populations in Ekiti State has been a challenge."Micro-planning" is a process that decentralizes programme planning to grassroots-level workers for decisions on how to best reach the maximum number of community members. It is low cost, simple but effective approach for use in Community Based Interventions. In 2015, the project engaged 4 CSOs for a 2 year HIV prevention programme for Female Sex Workers (FSW) using micro-planning tools in 6 Local Governments Areas of the State.
Description: CSOs recruited and trained 420 FSWs as peer educators (PEs) to provide MPPI using micro-planning tools. Peer led mapping were used to validate and define 32 hotspots and 64 geographic clusters. Profiling of the identified hotspot/clusters informed the interventions and components of HIV prevention service delivered at the site, peer social network analyses were used to list all FSWs known to each PE within the cluster/hotspot, the PEs decided on who takes responsibility for what i.e outreach, education and monitoring of each individual FSWs. Other relevant local service providers were identified and engaged. Micro planning tools were utilized to plan and monitor service delivery.
Lessons learned: 9,334 FSWs were reached with MPPI;2,020 brothel based FSW attended peer sessions, while 7,314 were provided with prevention education using interpersonal communication. 49 of them were HIV positive out of which 18 of them were previously known. 31 had a co infection of HIV and different forms of STI and were referred for care while 3,312 were treated for other forms of STI. 36,396,100 pieces of condoms were distributed to the FSWs.
Conclusions/Next steps: Clearly defined area of operation for each PE, improved data collection and reporting by tracking each individual FSW at a site and providing dashboard metrics,shifted the program from merely service delivery (push) by increasing demand generation for services from the community (pull) and created community ownership. It serves as a holistic and sustainable approach to effective service delivery to FSWs in Ekiti State and should be considered for programming for MARPs at national and global levels.

THPEC348

Social media for HIV/AIDS education among men who have sex with men with hearing impairment in Osogbo, Nigeria

A. Adelekan, P. Omoregie, F. Oyelami, A. Fakunle, O. Olaleye
Blue Gate Public Health Promotion Initiative, Ibadan, Nigeria

Background: Possession of accurate knowledge about HIV/AIDS is critical in limiting the spread of the infection. Various studies have shown that hearing impaired individuals lack access to HIV/AIDS information due to problems of communication. Globally, men who have sex with men (MSM) are 24 times more likely to be living with HIV than the general population and homosexual acts are illegal in more than a third of countries, preventing MSM from accessing *HIV* services. This social media intervention was therefore designed to prevent HIV/AIDS among MSM with hearing impairment in Osogbo, Nigeria.

Description: This intervention was carried out among 65 MSM with hearing impairment who are registered users of at least one social media. Participants' were selected at the community level using snowball sampling technique. Semi-structured questionnaire was used to obtained baseline information and HIV/AIDS education, importance of HIV counselling and testing (HCT) and messages on risky sexual behaviour reduction were discussed with participants through Facebook, Twitter, BBM and Whatsapp. Participants' were followed up for a year and the intervention was evaluated at 6 and 12 months. Data were analysed using descriptive statistics, Chi-square and t-test.

Lessons learned: Mean age of participants was 23.9 ± 8.9 years and 43.9% had secondary education. Almost all (97.5%) have a Facebook account, Twitter (56.9%), BBM (65.8%) and Whatsapp (98.1%). Respondents' knowledge of HIV/AIDS increased from 5.8% to 38.5% within 6 months and 86.9% after 12 months. Utilization of HCT services increased from 5.8% to 29.7% within 6 months and 76.9% after 12 months. At baseline, 78.9% of the participants considered themselves at risk of contracting HIV infection and after 12 months only 12.8% considered themselves at risk of HIV. Respondents' consistent use of condom for sexual intercourse increased from 5.8% to 43.3% within 6 months and 87.2% after 12 months.

Conclusions/Next steps: Social media was effective in educating hearing impaired people but internet subscription cost was a major barrier reported during this intervention. The study therefore recommends that service providers should, as their contribution to national development, reduce the cost of access to enable more people to register with and use social media.

THPEC349

Ensuring Linkage to care among key populations in high HIV burden townships in Myanmar

Y.T. Nu Oo[1], K.Y. Yu Hlaing[2], M.K. Lwin[2], L.L. Win[1], C.L. Oo[2], A.P. Phyo[1], H.N. Oo[3]
[1]Ministry of Health and Sports, Department of Medical Research, Lower Myanmar, Yangon, Myanmar, [2]Save the Children International, Global Fund PR, Yangon, Myanmar, [3]Ministry of Health and Sports, Department of Public Health, Yangon, Myanmar

Background: Myanmar implements HIV prevention programs in unison with non-government organizations (NGOs) with the aim of achieving UNAIDS's Fast Track Strategy 90-90-90 targets by 2020. Decentralization of HIV testing is a key component of this strategy, however this may increase the risk of loss-to-follow up in the HIV cascade. This study assesses the factors influencing effective linkage to care after diagnosis.

Methods: Nine NGOs supporting HIV testing in mobile and drop-in centers without HIV care and treatment services across six high HIV burden townships were involved in this study. The study population included HIV cases newly diagnosed in the four months prior to study implementation in 2016. The study sample was drawn proportionally across townships. Secondary data from testing and ART sites were used in this study. Variables included age, gender, geographic location, population type, referral type, and enrollment in care; analyses were completed using SPSS.

Results: A total of 690 PLHIV were included in this study. Males accounted for 66.2%, and females 33.8%. The average age was 31.0 years. Key populations (KP; men who have sex with men (MSM), female sex workers (FSW), and people who inject drugs (PWID)) accounted for 62.8%, and general population (GP) 37.2%.

Overall, 81.0% of PLHIV reached ART centers and were enrolled in care after referral. KP were equally likely to be linked to care as GP. Linkage success rates differed among KPs (MSM 83.8%, FSW 90.4%, and PWID 65.9%) and among townships (from 58.3% to 96.8%).

Gender was not associated with linkage to care, but older age was significantly associated (p=0.001). More accompanied referrals (87.8%) were linked to care than unaccompanied referrals (74.7%) (p< 0.001). The median number of days from diagnosis to enrollment in care was less than one for KP and nine for GP.

Conclusions: This study indicates that the referral system of PLHIV in Myanmar is reasonably effective. Improvements are necessary, however, particularly to increase PWID linkage rates and generally to improve the overall rates toward achievement of the 90-90-90 targets.

Further studies are required to explore the factors that facilitate linkage processes and to achieve the goals of Myanmar National Strategic Plan.

THPEC350

Towards increasing domestic financing for civil society organizations in the HIV response: Accreditation of HIV clinical services provided by key populations

D. Linjongrat[1], P. Srimanus[2], P. Panpet[1], N. Mahachokchai[1], P. Yokchawee[3], D. Kalayanamitr[3], J. Jantarapakde[2], S. Pengnonyang[2], P. Rattakitvijun Na Nakorn[2], S. Charoenying[4], S. Mills[4], M. Kim[5], M. Sanguankwamdee[5], P. Phanuphak[2], N. Phanuphak[2]
[1]Rainbow Sky Association of Thailand, Bangkok, Thailand, [2]The Thai Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand, [3]Rainbow Sky Association of Thailand, Songkhla, Thailand, [4]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [5]Office of Public Health, U.S. Agency for International Development Regional Development Mission Asia, Bangkok, Thailand

Background: To address the low uptake of HIV services among men who have sex with men (MSM) and transgender women (TGW), the key populations (KP) with the highest HIV prevalence and incidence in Thailand, the Key Population-Led Health Services (KPLHS) model was introduced in 2015. Under KPLHS, KP leadership ensures that service packages to address HIV and related health issues in their communities are needs-based, demand-driven, and client-centered.

Description: Rainbow Sky Association of Thailand (RSAT), the largest KP-led organization working with MSM and TGW in Thailand, set up its community health centers to conduct KPLHS in Bangkok and Songkhla in 2015. RSAT's KPLHS model built on its large-scale outreach workers network and trust among MSM and TGW communities from its long-standing advocacy for LGBT rights in these areas. Strong partnership between RSAT and local public health sectors was established to assure that clinical services, including HIV/STI testing and PrEP/PEP dispensing, provided by trained health workers who are members of MSM and TGW communities were of high-quality.

Lessons learned: During October 2015-December 2017, RSAT reached 52,891 MSM and 5,607 TGW through online and offline enhanced peer mobilizer method and tested 9,627MSM and 1,009 TGW for HIV. HIV prevalence was 10.9% among MSM and 8.03% among TGW. Linkage to antiretroviral therapy (ART) was successful among 64.1% of HIV-positive MSM and 66.7% TGW. Among HIV-negatives, 5.59% received PrEP. RSAT was well-recognized by Songkhla Provincial Health Office as key HIV testing site, contributing to 60.0% of new HIV cases diagnosed in the province among MSM and TGW. Regular quality assessment and quality improvement by Songkla public health sectors demonstrated high-quality of KPLHS provided by RSAT's health workers, leading to the first formal accreditation of community health center by the Thai Medical Technologist Council in Thailand.

Conclusions/Next steps: KPLHS implemented by RSAT demonstrated high HIV-positive testing yield, high linkage to ART, and substantial uptake of PrEP. Strong partnership between KP-led organizations and public health sectors was key to secure public sector's endorsement of KPLHS.

To end the AIDS epidemic, accreditation, legalization, and financing mechanisms are urgently needed for scale-up and sustainability of KPL-HS and KP-led organizations.

THPEC351

Mobile testing, ART enrollment and prescription refill may be linked to higher linkage to care and retention for men who have sex with men in Nigeria

T.A. Alamu[1], C. Trout[2], A. Kalaiwo[3], B. Ochonye[4], J. Stapleton[5], O. Ugege[4], G. Emmanuel[4], A. Ojemeire[4], O. Irinoye[4]
[1]Heartland Alliance International, Strategic Information and Knowledge Management, FCT, Nigeria, [2]Heartland Alliance International, HIV/AIDS, Chicago, United States, [3]USAID, HIV/AIDS for Key Population, FCT, Nigeria, [4]Heartland Alliance International, FCT, Nigeria, [5]Heartland Alliance International, Chicago, United States

Background: Globally, men who have sex with men (MSM) are under-served by HIV testing services (HTS) and antiretroviral therapy (ART) compared to the general population: an estimated 51% of MSM did not have access to HTS and only 14% enrolled in ART in 2015. For nine years, Heartland Alliance International (HAI) has implemented large-scale programming offering the continuum of HIV prevention, care and treatment to MSM in Nigeria.
Description: From October 1, 2016 to September 31, 2017, HAI fixed-site "One Stop Shops" (OSS) provided comprehensive HIV medical and community services. Mobile teams also offered testing, ART initiation and prescription refill in some field locations. HAI ensures that MSM are not lost to follow-up through active follow-up and data collection and analysis at every cascade step. Mobile teams were scaled up during the period in four states: Rivers, Akwa Ibom, Lagos and Cross Rivers but not in the Federal Capital (FCT), Nasarawa, and Benue.
Lessons learned: Out of the 3,295 MSM who tested HIV positive, 2,627 (79.7%) were enrolled in care either in the field or at the OSS while 668 (20.3%) declined because they were not prepared to commence ART.
All 2,627 enrolled MSM (100%) commenced ART. Of these, 90 (3%) were transferred out to continue ART elsewhere due to relocation, and seven (7) (0.3%) died. Confirmed transferred out and deaths were removed from and patients who transferred in (13) were added to the denominator when calculating retention. At the end of October 2017, 280 MSM (10.7%) who started treatment during the year were lost to follow-up, while 2,263 were still on ART, leaving a retention rate (0-12 months) of 89%
However, achievement varied by state. The percentage linked to care was below 80% in FCT (52% n=220), Nasarawa (53% n=136) and Benue (66% n=247) and Lagos (77.2% n=233); 0-12-month retention was below 90% in Benue (51.6% n=126) and Lagos (64.6% n=137).
Conclusions/Next steps: The poorer linkage and retention results occurred in the states which had not scaled up mobile services, suggesting that the mobile approach is crucial for these steps. During the next program year, HAI will scale up this approach to the remaining states.

THPEC352

Effectiveness of key population led HIV programmes in achieving the 90-90-90 for most-at-risk-populations in Nigeria

N. Ogbonna[1], O. Olukayode[1], B. Ochonye[2], E. Godwin[3], P. Umoh[1], A. Kalaiwo[4], A. Ojemeiri[5], A. Yusuf[1], O. Tewobola[2]
[1]Heartland Alliance International, Programs, Abuja, Nigeria, [2]Heartland Alliance International, Abuja, Nigeria, [3]Heartland Alliance International, Clinical Department, Abuja, Nigeria, [4]United States Agency for International Development, Programs, Abuja, Nigeria, [5]Heartland Alliance International, Nigeria, Monitoring and Evaluation, Abuja, Nigeria

Background: Female sex workers, men who have sex with men, people who inject drugs and Transgender persons are among key populations in Nigeria. Laws that criminalize their behaviors plus fear of harassment from the public and legal agencies debar them from accessing health-care from public facilities; those that do refuse to revisit due to stigmatizing attitudes of staff. These sustain high HIV prevalence among KPs, like MSM with rate from 13.5% (2007) to 17.2% (2010) and 22.9% (2014) according to Nigeria's Integrated Biological and Behavioral Surveillance Survey (IBBSS) 2014. It therefore became necessary to deliver rights-based and sustainable programs for KPs, within safe spaces, using members of their social/sexual networks.
Description: Heartland Alliance International's Integrated MARPS HIV Prevention Programme (IMHIPP) objective is to establish KP-led Community Based Organizations whose capacities would be built to provide HIV services to their groups with mentoring and support by HAI. Through green-housing, the CBOs gain technical capacity to function effectively and independently. Their trained personnel provide comprehensive HIV services (prevention messages, HIV testing services, condoms/lubricants distribution, STI screening/treatment, PEP, and referral of positive KPs to HAI's ART clinics) to other KPs within safe spaces. HAI's community ART team also enrolls positive clients into care within their milieu, thus, promoting Test and Treat. IMHIPP is implemented in seven high-burden states of Nigeria from September 2009 to October 2018.
Lessons learned:
HIV programmes are effective when beneficiaries occupy the forefront of implementation. This makes KPs active programme participants than passive beneficiaries. Across the IMHIPP states, the nascent organizations have reached the following KPs with HIV related services:

Type of services rendered/Results	Number of program participants reached				
	FSW	HRM	PWID	Transgender	Total
Prevention	188, 767	41, 701	14, 030	457	244, 955
HTS	123, 458	36, 131	16, 200	457	176, 246
HTS Positive	9, 467	4, 078	1, 292	52	14, 889
KPs linked and retained in care as at January 2018	6, 736	3, 624	1, 098	31	11, 489

[Number of persons reached by KP group and type of service received from inception of HTS in October 2015 to September 2017]

Green-housing, as best practice, showed that KPs have capabilities which, when developed, can deliver outstanding results. Following capacities developed, IMHIPP CBOs are now able to access and implement donor grants independently and credibly.
Conclusions/Next steps: Meaningful involvement of KPs in KP programming is vital for increasing service uptake. As IMHIPP outcomes, more KPs now present for HIV testing services; more also practice safer sex. Treatment retention is 77% and viral suppression 82%. These contribute towards meeting 90-90-90 for Nigeria. Heartland Alliance plans to extend IMHIPP strategies to other states to multiply impact.

THPEC353

Low awareness of pre-exposure prophylaxis (PrEP) for protection against HIV transmission among HIV-infected women in HIV-serodiscordant couples in Kenya: Results from a nationwide survey

J. Pintye[1], P. Oluoch[2], D. Achwoka[2], A. Langat[2], B. Singa[3], J. Kinuthia[1,4], A. Katana[2], L. Nganga[2], C. McGrath[1], G. John-Stewart[5], A. Drake[1]
[1]University of Washington, Department of Global Health, Seattle, United States, [2]Centers for Disease Control and Prevention, Nairobi, Kenya, [3]Kenya Medical Research Institute, Nairobi, Kenya, [4]Kenyatta National Hospital, Nairobi, Kenya, [5]University of Washington, Departments of Global Health, Epidemiology and Medicine, Seattle, United States

Background: PrEP for HIV-serodiscordant couples is being scaled-up through HIV care programs in high burden settings. HIV-infected partners' awareness of PrEP as a method for protection against transmission will influence effective PrEP utilization among HIV-uninfected partners. We evaluated PrEP awareness among HIV-infected women in HIV treatment programs in Kenya.
Methods: Data from a cross-sectional survey of HIV-infected women enrolled at 109 HIV care programs with ≥1000 antiretroviral therapy (ART) clients across Kenya were analyzed to evaluate PrEP awareness. Data were collected from June-September 2016 by mobile teams. Participants were aged 15-49 years, not currently pregnant and had vaginal intercourse within the last 6 months. Clinical characteristics and male partner status were determined by women's self-report. PrEP awareness

was ascertained by asking participants to list methods they had heard of to protect their HIV-uninfected partners from acquiring HIV. Correlates of PrEP awareness were determined by logistic regression analysis adjusted for facility-level clustering.
Results: Among 4805 HIV-infected women surveyed, 938 (28%) had a known HIV-uninfected male partner. Of these 938 women in HIV-serodiscordant couples, 67% were married, median age was 34 years (interquartile range, IQR [29-40]), and median education was 9 years (IQR 8-12). Overall, 96% of HIV-infected women in HIV-serodiscordant couples were on ART for a median of 5 years (IQR 2-8). Most (96%) had disclosed their HIV status to their partner and 29% reported inconsistent condom use within the last month. Only 6% were aware of PrEP as a method for protecting HIV-uninfected partners from acquiring HIV. Compared to women unaware of PrEP, women with PrEP awareness were more likely to have completed >12 years of education (odds ratio [OR]=4.45, 95% CI 2.36-8.41, p< 0.001); there were no differences in age or employment between groups. Few (< 1%) women reported that their HIV-uninfected partners had ever used PrEP, though 51% believed their partner could take a daily pill to prevent HIV, if available.
Conclusions: PrEP awareness was low in this large survey of HIV-infected women in HIV-serodiscordant couples, but belief that partners could use PrEP was high. Sensitizing HIV-care clients in HIV-serodiscordant couples about PrEP may enhance awareness and utilization in this high-risk population.

THPEC354

Harm Reduction Community Client Model (HRCCM) for follow up, recruit test and treatment of positive living People Who Inject Drugs (PWIDs)

D. Katende[1], A. Mukanza[2]
[1]Uganda Harm Reduction Network (UHRN), Research and Documentation Officer, Kampala, Uganda, [2]Uganda Harm Reduction Network, Clinical, Kampala, Uganda

Background: In Uganda, the HIV prevalence among key populations is much higher than the national average of 6.2% (MoH & ICAP, 2017). Among PWIDs, the HIV prevalence has remained steadily high ranging between 30-40% (Muhangi et al (2017). Uganda Harm Reduction (UHRN) program data especially the community health outreach data targeting PWIDs shows a much higher figure up to 46% high HIV prevalence among PWIDs drugs in Uganda. Although there was a high prevalence of HIV among PWIDs, only 350 PWIDs had tested for HIV and among those tested positive, only 16%% were enrolled on ART (UHRN programs data from January to December 2016), yet PWIDs have the lowest levels of uptake to HIV services and have the highest dropout rate for HIV treatment standing at 33% according to UHRN program data. The low adherence rate for HIV treatment among PWIDs has been as a result of stigma that adversely affects how and when PWIDs should access HIV services.
Description: UHRN has adopted **HRCCM** Model, a model that is used to link and distribute essential HIV services to PWIDs. The model uses fellow PWID peers and HIV positive living to track their fellow positive living PWIDs who have not attained HIV testing and ART. These PWID peers are trained as community health workers and representatives from different drug use hotspots. It is an, innovative and efficient strategies for delivering HIV and prevention, care, and treatment services.
Lessons learned: The model has increased adherence rate for PWIDs on ART from 33% to 49%, enrolment rate on ART from 16% to 21% , number of PWIDs seeking HIV testing from 350 to 831, number of referrals on ART for PWID from 250 to 450 (UHRN program data January - December 2017).
Conclusions/Next steps: In Uganda health facilities are overcrowded leading to delay in service deliver, this discourages PWIDs from access to ART. Since the implementation of **HRCCM,** Uganda Harm Reduction Network has realized an increase in the adherence rate for PWIDs on ART, an increase enrolment rate for PWID on ART, an increase in a number of PWIDs seeking HIV testing.

THPEC355

Escorted referral by peer navigators improved linkage to HIV care and treatment services for FSW in Mzuzu, Malawi

A. Simwanza[1], B. Kapenuka[2], M. Msiska[3], M. Mkandawire[3], G. Kumwenda[4], S. Sikwese[4], E. Mpunga[5], G. Kamanga[5], M. Ruberintwari[5], C. Akolo[6]
[1]Pakachere IHDC, Lilongwe, Malawi, [2]Pakache IHDC, Blantyre, Malawi, [3]Pakachere IHDC, Mzuzu, Malawi, [4]Pakachere IHDC, Blantyre, Malawi, [5]FHI 360, Lilongwe, Malawi, [6]FHI 360, Washington DC, United States

Background: Since October 2015, FHI 360 has been implementing the PEPFAR-/USAID-funded LINKAGES project for key populations (KP) in six districts in Malawi. The project focuses on HIV prevention, care, and treatment for female sex workers (FSW), men who have sex with men (MSM), and transgender people.
Description: To achieve the project goal, FSW are being reached with HIV prevention messages and tested for HIV. Those who test HIV positive are followed and initiated on treatment. Initially, there was a problem linking FSW who tested HIV positive to treatment. In September 2016, peer navigators (fellow HIV-positive FSW), along with HIV testing providers, were recruited and trained to assist with escorted referral to health facilities. We implemented the escorted referrals from October 2016 through June 2017.
Lessons learned: During this period, 905 FSW were tested for HIV, 144 newly tested HIV positive, of whom 141 (97.9 percent) were initiated on treatment, in addition to 115 FSW known to be HIV positive when reached. The project also returned to treatment 20 FSWs who had defaulted on treatment in other programs. Prior to implementation of escorted referrals (October 2015 to September 2016); 575 FSW were tested for HIV, 193 were HIV positive, only 74 (38 percent) were started on ART, and one treatment defaulter was brought back to treatment.
Conclusions/Next steps: Deployment of peer navigators to assist with referral for ART initiation resulted in a significant increase in identification of HIV-positive FSW for ART initiation. Introduction of escorted referrals by both peer navigators and HIV testing providers has had a great impact on follow-up of HIV positives to link them to antiretroviral treatment. LINKAGES plans to scale up peer navigation across its districts. The project will put in place ongoing mentorship for peer navigators to scale up the escorted referrals as the number of FSWs being reached and tested increases.

THPEC356

HIV prevention and linkage to care among female sex workers in Malawi: Results and lessons learned from the MSF Corridor Project

E. Orban[1], J. Jung[1], A. Shigayeva[1], P. Mangochi[1], R. Piringu[2], L. O'Connel[3], T. Ellman[3], R. Ortuno[1]
[1]Médecins Sans Frontières (MSF), Malawi, Blantyre, Malawi, [2]Zomba District Health Office, Zomba, Malawi, [3]Southern Africa Medical Unit (SAMU), Médecins Sans Frontières, Cape Town, South Africa

Background: Mobile populations, especially sex workers (SWs), are particularly vulnerable and at high risk for HIV infection. The aim of the MSF Corridor project is to reduce HIV/AIDS and TB related morbidity, mortality and incidence among female SWs in Malawi by providing adapted models of care including prevention, access and continuity of integrated HIV, TB, and SRH care through tailored services targeting this key population.
Description: The project is set in three sites along the transport corridors from the Mozambican border into Malawi. SWs are enrolled into the program by peer educators during community outreach activities. HIV prevention, testing, and counselling are offered on-site, including Syphilis and pregnancy testing, STI and TB screening, and referrals for ART treatment and SRH services. Data on the outreach activities and ART information is collected via paper-based forms. By the end of 2017, 3103 SWs were enrolled. Of those, 50% were HIV positive. HIV positivity rate was 22.8% amongst 9-18 years old SWs and 54.2% for those older 18-66 years. The active cohort (seen in outreach visit during the last 6 months)

by end of 2017 comprised 1282 (41.3%). Of the HIV positive active cohort, 81.8% (493/603) were on ART and of those newly diagnosed or not on ART at enrolment, 51.1% (115/225) were initiated in the sites.Of the HIV negative SWs, 59% were seen and tested only once, 22% had two, 10% had three and only few had five or more tests. 32 SWs sero-converted during their follow up with an overall incidence of 5.9 (95% CI 4.2-8.3) per 100 person years - for SWs 9-18 years 9.3 (5.0-17.3) and for women who were 18-66 years 5.0 (3.2-7.6) respectively.
Lessons learned: The program has succeeded in reaching and enrolling a large number of beneficiaries interested in the offered services. The high HIV prevalence and incidence demonstrate the extreme risk among this group and the importance of community strategies to improve access to re-/testing, treatment and prevention, including oral HIV self-testing and PREP.
Conclusions/Next steps: Innovative strategies and further efforts are needed to reach this highly mobile population to enable access to prevention and retention in care.

THPEC357

Does knowledge of HIV status affect sexual behaviors? A longitudinal analysis of female sex workers in Uganda and Zambia

K. Ortblad[1], D. Kibuuka Musoke[2], M. Chanda[3], T. Ngabirano[4], J. Salomon[1,5], J. Haberer[6], M. McConnell[1], C. Oldenburg[7], T. Bärnighausen[1,8,9]
[1]The Harvard T.H. Chan School of Public Health, Department of Global Health and Population, Boston, United States, [2]International Research Consortium, Kampala, Uganda, [3]John Snow, Inc., Lusaka, Zambia, [4]Uganda Health Marketing Group, Kampala, Uganda, [5]Stanford University, Department of Medicine, Stanford, United States, [6]Massachusetts General Hospital, Department of General Internal Medicine, Boston, United States, [7]University of California, San Francisco, Department of Ophthalmology, San Francisco, United States, [8]Heidelberg University, Heidelberg Institute of Public Health, Heidelberg, Germany, [9]Africa Health Research Insitute, Mtubatuba, South Africa

Background: Routine HIV testing campaigns rely on the assumption that knowledge of HIV status, acquired through testing, affects individuals' behaviors in ways that reduce HIV transmission. Female sex workers (FSWs) have strong economic incentives for having multiple sexual partners and providing condomless sex, behaviors associated with increased risk of HIV transmission. We measure the effect of knowledge of HIV status on FSWs' sexual behaviors with clients in Uganda and Zambia.
Methods: We used longitudinal data from two FSWs cohorts; one in Kampala, Uganda, and one in three Zambian transit towns. The cohorts were formed as a part of two cluster-randomized HIV self-testing trials. Participants in the cohorts had ample opportunity for HIV testing, using HIV self-tests and standard HIV testing services. We assessed knowledge of HIV status and sexual behavior outcomes at baseline, one month and four months. We used linear regression models with individual-level fixed effects to measure the effect of knowledge of HIV status on FSWs' sexual behaviors.
Results: The majority of the 1925 FSWs enrolled in the two cohorts tested for HIV (95% of 960 in Uganda, 96% of 965 in Zambia) and experienced changes in knowledge of HIV status (71% in Uganda, 79% in Zambia). Knowledge of HIV status did not significantly affect FSWs' the number of clients, but knowledge of HIV-negative status significantly increased the probability that FSWs' consistently used condoms in sex acts with clients: by 9.5 percentage points in Uganda (95%CI 5.2 to 13.5, $p< 0.001$) and 8.4 percentage points in Zambia (95%CI 3.0 to 13.9, $p=0.003$). Knowledge of HIV-positive status did not significantly affect FSWs' condom use with clients.
Conclusions: In both Uganda and Zambia, FSWs engage in safer sex with clients when they know they are not living with HIV. Even in communities with very high HIV prevalence, the majority of the population will be HIV-negative. Our results imply that expansion of HIV testing programs leading to increased knowledge of HIV status can serve as an HIV prevention measure among FSWs.

THPEC358

Differentiated service delivery models for HIV testing among female sex workers: Lessons from the LINKAGES project in Blantyre, Malawi

M. Kamtimaleka[1], B. Matola[1], F. Kamtumbiza[2], G. Kumwenda[2], S. Sikwese[2], E. Mpunga[3], G. Kamanga[3], M. Ruberintwari[3], C. Akolo[4]
[1]Pakachere IHDC, Blantyre, Malawi, [2]Pakachere IHDC, LINKAGES, Blantyre, Malawi, [3]FHI 360, LINKAGES, Lilongwe, Malawi, [4]FHI 360, LINKAGES, Washington DC, United States

Background: In Blantyre, Malawi, Pakachere Institute for Health and Development Communication is implementing the PEPFAR-/USAID-supported LINKAGES project, which aims to reduce HIV transmission among key populations (KPs), including female sex workers (FSW), men who have sex with men, and transgender people, and extend the lives of those who are HIV positive. Using the HIV cascade framework, Pakachere identifies FSWs, enrolls them in the program, and offers HIV testing and other HIV-related services. The project uses a differentiated service delivery (DSD) model for HIV testing services, which includes testing at drop-in centers (DICs), and moonlight and daylight outreach to complement services offered in traditional public health facilities.
Description: During the design phase of the project, a KP needs assessment was conducted to understand the service needs of FSWs. An intervention was then designed to address FSW preferences for the place, time, and process of accessing HIV testing services. Three DICs were set up in Blantyre, and their catchment areas were mapped and defined based on hot spot mapping. A referral system was established to link FSW who are in need of specialized services and live far from DICs to preferred public facilities. A mobile/outreach clinic plan was also developed based on preferred times to access services, the distance from hot spots to static facilities, and KP needs.
Lessons learned: From October 2016 to September 2017, 1,178 FSW were tested in the program through the three HIV testing services models: 636 (54 percent) at DICs, 339 (28.5 percent) through outreach, and 203 (17.5 percent) at public health facilities. Of the total tested, 370 (31 percent) tested HIV positive, and all were linked to antiretroviral therapy. The DSD model also enabled provision of other services at the outreach and DIC levels. A total of 2,910 FSWs accessed sexually transmitted infection screening services, of whom 1,106 (38 percent) were diagnosed and treated. Sixteen FSWs were linked to prevention of mother-to-child transmission services, and 11 FSW accessed post-GBV services.
Conclusions/Next steps: The DSD model provides an opportunity for maximum linkage to treatment for difficult-to-serve populations such as FSWs because it offers convenience to service access.

THPEC359

Factors associated with HIV non-testing among female sex workers in India: A roadmap to achieve the UNAIDS first 90-90-90 target

S. Mukherjee, D. Bidhubhusan Mahapatra, D.S.k. Patel
Population Council, HIV/AIDS Program, New Delhi, India

Background: Evidence shows that timely diagnosis and effective linkages to care are critical to reduce the HIV risk burden. India's national HIV prevention guideline require Female Sex Workers (FSWs) to test for HIV in every six months. Given the UNAIDS call to achieve, 90-90-90 by 2020, this study examines the HIV testing scenario (first 90) among FSWs in India and identify characteristics associated with non-testing of HIV in last six months.
Methods: Data from a cross-sectional survey conducted among 3589 FSWs using a three-stage cluster sampling approach during Nov-Dec 2017 in five states of India were used. Question on whether FSWs have taken HIV test in last two years and time when they took last HIV test was asked to all FSWs. Bivariate and multiple regression analyses were conducted to find the predictors of HIV non-testing in last six months.
Results: FSWs were, on average, 35 years old, 65% were currently married and 40% were soliciting from homes. Almost all FSWs underwent HIV testing in past two years. More than half (54%) of FSWs had not tested for HIV in past six months. FSWs not going for HIV test in past

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six months was more among young (< 25 year old) than those aged 25 years or older (60% vs 45%, Adjusted Odds Ratio (AOR): 1.55, 95% CI: 1.13 -2.13), currently married than never married (55% vs 47%, AOR (95% CI) 1.93 (1.41-2.65)), soliciting from homes (60% vs 44%, AOR (95% CI): 1.53 (1.28-1.83)), and dependent on sex work than those having alternative income source (62% vs 43%, AOR (95% CI): 1.71 (1.45-2.02)). FSWs using condoms inconsistently with clients were more likely not to go for HIV test than others (75% vs 46%, AOR (95% CI): 3.93 (3.24-4.77)).
Conclusions: While majority of FSWs were ever tested, more than half are not going for HIV testing as per national guideline. Given FSWs are at the core of HIV prevention program in India, efforts for HIV testing of all FSWs in every six months needs to be done in focussed way. FSWs who are home based, young and currently married should be targeted.

THPEC360

Female sex workers as peer educators in HIV prevention program in Ibadan, Nigeria, foundation for family health experience

J. Ojeikere[1], T. Ogunlade[2], T. Daniel[3], A. Tina[4]
[1]Foundation for Family Health, Monitoring and Evaluation Unit, Ibadan, Nigeria, [2]Family Counseling Center, Training, Ibadan, Nigeria, [3]Family Counseling Center, Programs, Ibadan, Nigeria, [4]Family Health, Programs, Ibadan, Nigeria

Background: HIV transmission in the context of sex work plays a significant role in the expansion of HIV epidemics in many countries around the world. Nigeria has a large population of female sex workers with extensive differences between and within states. Brothel -based female sex workers (FSWs) HIV prevalence rate is as high as 27.4%. It is imperative that an effective HIV prevention strategy must be in place. The aim of this study was to establish continuous HIV prevention messages through FSW peer educators.
Description: The program took place between November 2016 and March 2017, in 10 brothels in Ibadan, Nigeria. Brothels were selected using population of sex workers and 50 female sex workers (FSWs) were selected using a structured criteria. Capacity building was carried out on HIV prevention packages and peer education. Selected FSWs mobilized and conducted HIV testing and promoted condom use. Community gatekeepers were sensitized for improved access to the brothels. HIV positive identified were referred, condoms was distributed and FSW with sexually transmission were also referred. The peer educators had six refresher (interactive) meetings. They registered 525 sex workers for HIV counseling and testing and screened all the FSW for other sexually transmitted infected using a screening checklist.
Lessons learned: At the end of the six month activity, out of 525 sex workers that registered, 99.6% had HIV counseling and testing. A total of 9 FSW were found to be positive, they were linked and accessed antiretroviral therapy (ART). 30% of FSW had other sexually transmitted infections which they were referred.
Female sex workers were willing to have HIV test done as encouraged by their peers. Other prevention packages such as use of condoms was promoted by peers and acceptable by 80% of the sex workers.
Conclusions/Next steps: It appears that FSW may increase uptake of prevention programs. Future research with a comparison group is need and much time is needed to evaluate the sustainability of the program with the FSW.

THPEC361

Creating collaborative, client-friendly health services for key populations in Zambia: Overcoming stigma, discrimination, and HIV with sensitivity training for health workers

J.P. Mthoniswa[1], I. Jurkevich[2], K. Utan[2]
[1]American International Health Alliance, Lusaka, Zambia, [2]American International Health Alliance, Washington, United States

Background: In 2016 about 1.2 million people were living with HIV in Zambia, 65% of whom were accessing antiretroviral therapy. Zambia's National AIDS Strategic Framework acknowledges that female sex workers (FSW) and men who have sex with men (MSM) are key populations (KPs) driving the country's HIV epidemic and that more effort to engage these and other vulnerable populations and provide access to non-judgmental, client-friendly health and psychosocial support services.
Description: In 2016, American International Health Alliance (AIHA) established a partnership linking Chreso Ministries with the University of South Carolina to address the increased risk of HIV infection and significant barriers to care and treatment services faced by FSWs, MSMs, and other KPs in Zambia. The overarching goal of the project was to mitigate the impact of HIV/AIDS on KPs by reducing stigma and discrimination and improving access to crucial health and allied services. Activities focused on strengthening the capacity of health workers at Chreso Ministries clinics in Lusaka, Livingstone, and Kabwe, and increasing provider awareness and understanding of the special needs of KPs. The AIHA project team, with support from President's Emergency Plan for AIDS Relief (PEPFAR), developed a sensitivity training package for healthcare, training a total of 86 across the 3 pilot sites and establishing community advisory boards to provide input and feedback.
Lessons learned: Trainings enhanced health worker knowledge, skills, and attitudes toward KPs in general, and specifically the provision of inclusive HIV-related treatment and care. Members of KPs reported increased access to healthcare services and willingness to seek care when needed. In Livingstone, for example, 120 KPs were brought into care.
Conclusions/Next steps: Partnering with facility- and community-based health workers and KP communities is critical for mitigating the impact of HIV on vulnerable populations and attaining the global 90-90-90 targets. Health workers can harbour the same misconceptions that increase stigma and discrimination against KPs as the general population, so sensitivity training is a crucial first step toward developing more welcoming, inclusive healthcare services and achieving epidemic control.

THPEC362

PrEP implementation among gay and bisexual men in a policy vacuum: The power of cross-sector collaboration in New Zealand

J.G. Rich[1], E. Coughlan[2], M. Giola[3], J. Myers[1]
[1]New Zealand AIDS Foundation, Auckland, New Zealand, [2]Canterbury District Health Board, Christchurch, New Zealand, [3]Bay of Plenty District Health Board, Tauranga, New Zealand

Background: In 2016 New Zealand recorded the fifth consecutive increase - and highest number since records began - in HIV diagnoses among gay, bisexual and other men who have sex with men (GBM). Expanded HIV prevention options are urgently needed, yet the national HIV strategy has not been updated since 2003 and there is no policy on HIV pre-exposure prophylaxis (PrEP). Rising awareness of PrEP among GBM, regulatory approval, and improved availability of low-cost generics has increased demand and access. However, the absence of policy places communities and prescribers at risk of using PrEP unsafely and ineffectively.
PrEP is a sexual health programme not just a prescription. Concerns about improper use, workforce readiness and community knowledge prompted the GBM-led New Zealand AIDS Foundation (NZAF) to partner with clinical and community stakeholders to improve knowledge and access to 'grey market' PrEP, while advocating for publicly funded access.

Description: We devised a patient consent form to overcome medicolegal risks that clinicians faced in relation to prescribing for personal importation. We collaborated with clinicians to develop an online PrEP training module for general practitioners (GPs) and shared PrEP prescriber resources at conferences targeting GPs. Community education resources were developed and distributed to clinics and educational events targeting GBM were hosted in four key cities.

Lessons learned: In the absence of policy, cross-sector collaboration can empower communities and workforce to use new technologies safely. From 0 in 2016 there are now 25 providers across ten cities listed on endinghiv.org.nz as being knowledgeable about PrEP and prescribing for personal importation. Between November 2016 and August 2017, self-reported PrEP use among GBM increased from 0.7% to 3.1% and awareness from 40% to 65%.

Conclusions/Next steps: For PrEP to play an effective role in New Zealand's HIV response among GBM it must be implemented at scale and supported by Government policy. PHARMAC, the national drug buying agency, has announced public funding of PrEP for individuals at high risk of HIV from March 2018. This will further accelerate supply, yet there is still no policy or strategy to support its use. Without urgent action, there is continued risk of PrEP being used sub-optimally.

Public-private partnerships

THPEC363

Driving innovation at the community level: How leveraging human resources for health in the private health sector can help scale and sustain HIV/AIDS prevention and treatment

S. Dominis[1], E. Golub[1], S. Callahan[1], L. Weir[2]
[1]Abt Associates, Bethesda, United States, [2]Abt Associates, Rockville, United States

Background: National HIV responses in many countries are constrained by human resources for health (HRH) shortages. In order to accelerate and increase the provision of quality HIV and AIDS services in these settings, it is important to leverage private HRH, which is a significant source of non-HIV services for clients of all income levels. The Sustaining Health Outcomes through the Private Sector (SHOPS) Plus project, funded by USAID through PEPFAR, conducted a qualitative study to identify effective strategies and tools used by private providers to grow and retain HRH and incorporate community-based prevention and outreach activities; and to consider how private providers can be better engaged to support an effective health workforce for HIV.

Methods: The assessment consisted of a global literature review and case studies of private organizations in South Africa and India. In-depth interviews and site visits were conducted with 18 private service delivery organizations (9 per country) that had viable, innovative, sustainable service delivery models.

Results: Private service delivery organizations in India and South Africa are driving innovations that could increase access to comprehensive HIV prevention and treatment services at the community level. These innovations include integrating prevention and care services; maximizing the efficiency of care models and patient flow; implementing scalable and gender-specific staffing models to empower, retain, and increase HRH; and adopting new technologies, such as artificial intelligence and tablet-based information systems, that increase access to services, enhance CHWs' impact, and enable rapid access to patient data. However, their willingness to apply these innovative models to address HIV depends on the regulatory environment, financial incentives, and the organizations' own perceptions about their role in the national HIV response.

Conclusions: The private health workforce is critical to addressing HRH shortages and expanding access to HIV services. To maximize private providers' contribution to national HIV responses, donors and governments need to consider how their programs and policies directly and indirectly incentivize private organizations to scale up HIV service delivery or crowd them out.

THPEC364

Social franchising of community-based HIV testing and linkage to care services: An evaluation of a pilot study in Tshwane, South Africa

S. Shamu[1], T. Farirai[1], L. Mlambo[1], J. Slabbert[1], G. Guloba[1], N. Nkhwashu[1], N. Masihleho[2], J. Kamera[2], S. Johnson[1], V. Wong[3]
[1]Foundation for Professional Development, Pretoria, South Africa, [2]USAID/Southern Africa, Pretoria, South Africa, [3]USAID, Washington DC, United States

Background: In order to meet the 90 90 90 United Nations HIV targets in South Africa, the Foundation for Professional Development (FPD) implemented a Community based HIV counseling and testing (CBCT) programme to complement facility based HIV counselling and testing (HCT). FPD implemented an employee-managed and social franchisee (SFHCT)-managed pilot project. We evaluated the effectiveness of the SFHCT pilot project compared to the traditional CBCT teams.

Description: The goal of social franchising was to design, implement and test a SFHTC model which organizes local entrepreneurs to deliver standards-based HTC services to increase coverage and effectiveness through the use of a commercial relationship between the franchisor (FPD) and franchisees (local entrepreneurs). The pilot was implemented in high HIV prevalent communities in Tshwane district between October 2016 and September 2017. FPD selected unemployed, formally employed or own business individuals as franchisees and engaged, trained, provided branded materials, deployed and gave them minimal support to deliver HCT services under a common brand. FPD provided quality assurance and a remuneration for each test with larger payments for successfully linking HIV positive clients to care. FPD's traditional CBCT was remunerated through its employee's payroll and received similar training and observed similar standards as in the SFHCT.

Lessons learned: The SFHCT had 19 HIV counsellors while FPD employed 25. A combined total of 84556 clients were tested during the period. The SFHCT tested 42697 clients (54% females), while FPD tested 41859 clients (48% females). Overall 8% tested positive with more clients testing positive in the SFHCT (10.2%) than FPD teams (5.9%). In the SFHCT 11% females and 9% males tested positive while in FPD HCT 7% females and 5% males tested positive. In the SFHCT 22% were first time testers of which 9.6% were positive tests while 29% were first time testers with 9% positive tests in FPD's HCT. Linkage to care was 60% in SF and 62.5% in FPD HCT.

Conclusions/Next steps: SFHCT was effective in identifying more HIV positive people and women but slightly less effective in identifying first time testers and linking clients to care than FPD HCT. FPD is now demonstrating the SFHCT programme in more districts.

THPEC365

Same-same but different: Expanding HIV testing and PrEP to new MSM subpopulations through the private-sector Pulse Clinic in Thailand

N. Yaemin[1], M. Avery[2], B. Yaemim[1], R. Vannakit[3]
[1]Pulse Clinic, Bangkok, Thailand, [2]LINKAGES/Thailand, FHI 360, Bangkok, Thailand, [3]United States Agency for International Development Regional Development Asia, Bangkok, Thailand

Background: Men who have sex with men (MSM) account for more than 50% of new HIV infections in Thailand; however, only 1/5 of these individuals is aware of his HIV status. Some MSM reject public-sector facilities due to concerns about stigma and discrimination, while community-based service delivery partners have limited space, human resources, and capacity. Additional and sustainable service delivery models are required.

Description: To expand service delivery options and reach clients not covered by community-based testing services, Pulse Clinic and LINKAGES/Thailand—supported by USAID and PEPFAR and led by FHI 360—collaborated with a gay-operated, for-profit HIV testing clinic (Pulse) in a high-traffic area of Bangkok. LINKAGES supported clinic promotion and standardization of clinic procedures. HIV testing was subsidized for members of the target population while HIV pre-exposure prophylaxis

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(PrEP) and antiretroviral treatment (ART) were paid for by patients. Data on client demographics and risk behaviors were collected via real-time mobile data collection.
Lessons learned: Over 15 months, Pulse provided HIV testing and counseling for 7,511 clients; during the same period two community-based service providers served 4,795 and 2,128 clients. Only 1% of clients overlapped. Pulse clients were on average older than community-based clients (34.3 versus 27.7 years), and more likely to have tested for HIV previously (90.1% versus 37.2%). As a consequence of being English-speaking and a clientele that can afford to pay for services, Pulse clients were also much more likely to be non-Thai (60.1% versus 5.2%) and to be MSM as opposed to other key populations (KPs). HIV testing yield was lower among Pulse clients compared with the community-based service providers (7.7% versus 11.3%); however, 26.1% of clients who tested HIV negative at Pulse accessed PrEP, compared with 8.4% of negative clients at community-based centers.
Conclusions/Next steps: Financial and technical support allowed Pulse to expand and standardize services for KPs, and demonstrated that private-sector partners complement, rather than cannibalize, service delivery for KPs by extending the HIV services cascade to other MSM subpopulations. However, development-sector support to for-profit service providers should be progressively reduced as providers and communities are able to sustainably bear the associated costs.

THPEC366

Working with financial institutions to integrate sexual reproductive health promotion and HIV prevention into financial literacy

R. Isabirye[1], A. Nattembo[2]
[1]*Straight Talk Foundation, Training and Development, Kampala, Uganda,* [2]*Straight Talk Foundation, Advocacy, Kampala, Uganda*

Background: Straight Talk Foundation (STF) is a health and development communications Non-Governmental Organization that is implementing The Youth Enterprise Model (YEM) with funding from UNFPA with the objective of integrating sexual reproductive health (SRH) promotion and HIV prevention into young people's business environments. The project engages 50 Small and Medium Enterprises (SMEs) and 23 Vocational Training Institutes (VTIs) in Mubende and Kampala districts.
Description: According to the Uganda AIDS Commission, it is estimated that 567 young people aged between 15-24 years get infected with HIV every week and of these 363 are girls! Uganda has a predominately young population with young people constituting 24.3% of the population. In an effort to prevent HIV among this population, STF partnered with financial institutions that included a community SACCO, banks and micro finance institutions to provide integrated SRH and financial literacy to young people as part of their corporate social responsibility. 39 officials from 5 financial institutions were trained by STF on how to integrate SRH into business using a manual developed by the financial institutions and relevant Ministries. 30 outreaches targeting young people from the 50 SMEs and 23 VTIs with over 480 members were organised. In these outreaches, officials from financial institutions gave financial literacy talks carefully integrating SRH information.
Lessons learned: From a recent survey conducted by the YEM project, 86% of young people talked to had HIV knowledge while 92% were aware of HIV transmission from mother to baby during pregnancy, delivery and breastfeeding. 5,044 young people accessed HIV counseling and testing. This shows the effectiveness of using financial systems to help in demand creation of HIV prevention services. Engaging financial institutions in SRH integration has contributed to increase in financial discipline among young people. This has led to a reduction in the procurement of risk among this population thus contributing to HIV prevention.
Conclusions/Next steps: With identified success using this strategy in just two districts, STF with support from UNFPA is considering scaling up this model to other districts to reach more young people in business to improve their financial discipline as well as their knowledge and access to SRH services including HIV prevention.

Awareness, information, and risk perception regarding HIV transmission and prevention

THPED367

Making police officers allies in HIV prevention for adolescents using drugs in Kharkiv, Ukraine

O. Mohylka[1], V. Kazus[2], A. Shebardina[3], O. Voskresenska[3]
[1]*NGO 'Charitable Foundation 'Blago', Kharkiv, Ukraine,* [2]*NGO 'Charitable Foundation 'Blago', Kyiv, Ukraine,* [3]*ICF 'AIDS Foundation East-West' (AFEW-Ukraine), Kyiv, Ukraine*

Background: The fear of being arrested and stigmatized by the police is one barrier to accessing HIV prevention and treatment services by adolescents using drugs (AUDs). Current law-enforcement reform in Ukraine puts greater emphasis on crime prevention and refrains from exclusively punitive functions in work with AUDs. Programme "Bridging the Gaps: Health and Rights for Key Populations" implemented in Ukraine since 2012 aims to improve access to services of drug users aged 14-19.
Description: The NGO „Blago" works closely with police to support their involvement in services for youth. The most interesting form is joint prevention activities of police, youth and NGO staff through trainings, urban quests and visits to police departments. One event was held in the form of an urban quest where adolescents together with police officers formed teams and used police cars to find locations/service points in a game format. Trainings of police on human rights and specifics of working with AUDs help to combat stigma and attract more young people to services. As a result police officers motivate ADUs to seek HIV prevention, and actively participate in advocacy (drug policy development and enhancing service delivery to AUDs).
Lessons learned: The police is interested in cooperation with NGOs as one of their tasks is to prevent crimes and risky behaviors. Police officers do not have enough skills and tools for working with youth and appreciate any support from NGOs' experts. Building trustful relationships between young drug users and police contributed to the creation of citywide referral system and increased number of visits to the center for HIV testing and counseling at least by 20%. Adolescents feel more confident in communication with police and are ready to defend their rights in case of detention.
Conclusions/Next steps: Many AUDs have negative experiences with police that make them afraid to request help from any other service providers. Ongoing education of policemen, joint events, including police officers in service delivery team makes interaction between adolescents and policeman constructive, minimizing the punitive component. The timely solution of problems related to delinquency and its prevention help to avoid imprisonment in future, and thereby reduce possible health risks.

THPED368

Barriers to condom use among young men who have sex with men in Lebanon

K. Ghosn
Arab Foundation for Freedoms and Equality, Tayf, Mount Lebanon, Lebanon

Background: In Lebanon, the number of new HIV infections is increasing specifically among YMSM.
One of the reasons is the absence of condoms during sexual intercourse. Understanding the reasons standing behind this behavior was crucial in creating HIV and safer sex related programming.
Description: Sexual health and HIV prevention workshop titled "below the belt" is a fun meeting that where YMSM discuss issues related to dating, sexual health, usage of condoms and peer influence.
During the session, various types of information is being circulated and many questions such as the barriers to condom-use are brought up with the group.
This session has been conducted with a total of more than 100 YMSM in 7 months.

Lessons learned: While many YMSM are aware of the importance of condoms, there were many socio-political reasons to why some would not use:

- Non-availability of the condoms or the cost of buying condoms
- The thoughts of reduced pleasures when using condoms
- Fear of being rejected by their sexual partners or boyfriend for suggesting condoms implying poor negotiation skills for condom use
- Being high on substance such as drugs or alcohol reduces the ability to request or negotiate condoms
- Trusting their partner is HIV negative solely on word of mouth
- For many YMSM who live with their parents buying and storing condoms represents a problem
- Power and Age dynamics specifically when meeting with older MSM
- Lack of school sexual education which plants the idea of condom use early on.

Conclusions/Next steps: During our program we discovered the importance of explaining the benefits of condom use in preventing HIV infection and other STIs. YMSM seem to be more convinced on condom used when pleasure is discussed in addition to prevention. New prevention methods such as Prep, Pep and Undetectable seem to gain more welcome among YMSM as alternatives to condoms. Recommendations around availability of condoms in bars and bathrooms and increased distribution by NGOS. Empowerment around condom negotiations is vital in spreading the culture of safety. Increase HIV testing rates by explaining and promoting MSM friendly spaces.

THPED369

Men's beliefs about likelihood of HIV seroconcordance in couples with an HIV-positive female partner: Evidence from rural Uganda

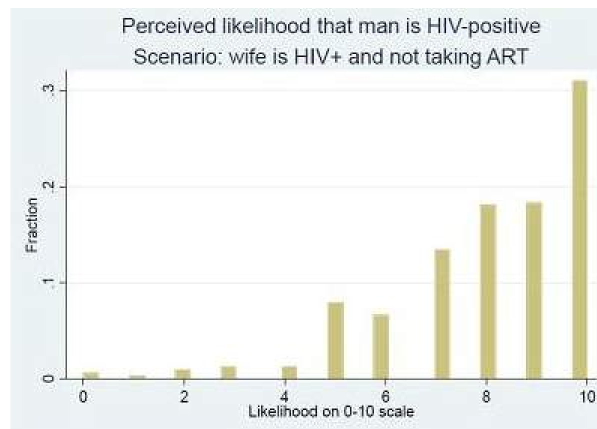
A. Ndyabakira[1], G. Chamie[2], D. Emperador[2], K. Marson[2], M. Kamya[3], D. Havlir[2], D. Kwarisiima[4], H. Thirumurthy[5]
[1]Infectious Diseases Research Collaboration, Kampala, Uganda, [2]University of Calfornia, Division of HIV, Infectious Diseases & Global Medicine, San Fransisco, United States, [3]Makerere University College of Health Sciences, School of Medicine, Kampala, Uganda, [4]Makerere University, Joint AIDS Program, Kampala, Uganda, [5]University of Pennsylvania, Philadelphia, United States

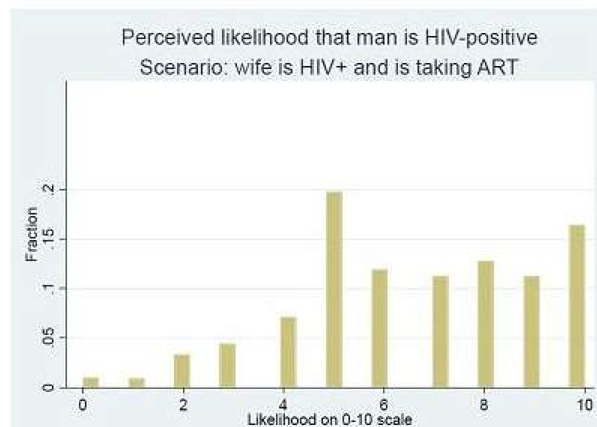
Background: Men's beliefs about the likelihood of serodiscordance in relationships and how it is affected by antiretroviral therapy (ART) may influence their decisions to uptake HIV prevention. However, few studies have assessed men's beliefs in sub-Saharan Africa.

Methods: In 2016, men from four rural parishes in Uganda were enrolled in an HIV testing trial (NCT02890459) and administered a baseline questionnaire that elicited their beliefs about the likelihood of a man being HIV-positive in two hypothetical scenarios: one in which the man's wife is HIV-positive and not on ART and another in which she is on ART. Beliefs were measured using a probabilistic scale from 0-10 (0=no chance of seroconcordance, 10=100% chance of seroconcordance). We assessed participants' responses in each scenario and calculated the difference in responses between scenarios as an indication of beliefs about the preventive effect of ART. Logistic regressions were estimated to explore associations between beliefs and health behaviors.

Results: Of 2,532 men enrolled, 2,386 (94%) had full data and mean age was 38 years. In the scenario in which a man's wife is HIV-positive and not taking ART, participants believed the man was very likely to be HIV-positive (mean seroconcordance likelihood=8.1 on 0-10 scale, standard deviation, sd, 2.0). In the scenario in which a man's wife is HIV-positive and on ART, participants believed the man was somewhat less likely to be HIV-positive (mean seroconcordance likelihood 6.6, sd 2.4). The distribution of responses (Figure) indicated a substantial proportion believed seroconcordance was 100% likely in both scenarios (0.31 and 0.16, respectively). Comparing within-participant differences between scenarios, 57% (N=1,348) reported >0% reduction in seroconcordance likelihood with ART but few reported large reductions. Logistic regressions suggested these beliefs are associated with health behaviors, with those reporting a 100% seroconcordance likelihood even with ART being less likely to seek medical male circumcision (adjusted odds ratio 0.75, 95% CI 0.62-0.91).

Conclusions: Men in rural Ugandan communities over-estimated the likelihood of seroconcordance in couples with an HIV-positive wife and under-estimated the prevention benefits of ART. These incorrect beliefs suggest a need for further education about treatment as prevention and may partially explain men's lower uptake of prevention interventions.





[Figure. Men's beliefs about likelihood of seroconcordance under different scenarios]

THPED370

Evaluating the reach of a prevention campaign for men who have sex with men in Quebec, Canada

I. Robichaud[1], M. Fortin[1,2], R. Légaré[1,2]
[1]COCQ-SIDA, Montreal, Canada, [2]Coalition PLUS Community-Based Research Laboratory, Paris, France

Background: In June 2016, COCQ-SIDA launched "Sex on the Menu", a social marketing campaign aimed at preventing the transmission of HIV and other STIs among men who have sex with men (MSM) in the province of Quebec, Canada. Created by an advisory committee of gay men and other MSM, the campaign sought to inform MSM about different prevention options and encourage them to visit pretpourlaction.com, a sexual health information website. The following year, an evaluation protocol was developed and implemented to assess the reach of the campaign.

Methods: An online survey was developed to measure the proportion of the target population who: a) remembered seeing the campaign; b) were aware of its key message; and c) intended to learn more about the prevention methods. LGBT and HIV community-based organizations (CBO), research groups, and other stakeholders promoted the survey on social media for 10 weeks. Descriptive analyses of proportions were generated from survey responses. Two focus groups (N=12) were held to gather qualitative data that was analyzed thematically.

Results: A total of 123 participants responded to the survey with a completion rate of 68%. Nearly one quarter (24.3%) of respondents recalled seeing the campaign after being shown one of the visuals from the campaign. Of these, 60% were aware it was a prevention campaign, 38.7%

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agreed that it had led them to learn more about or to use one or more prevention methods, and 20% had visited pretpourlaction.com after seeing the campaign. Focus group results suggest that MSM are exposed to many informational campaigns that deal with HIV or STIs. Participants could remember seeing these campaigns but had difficulty recalling the specifics of a particular campaign. Campaigns that they were able to recall in more detail were highly promoted on television for an extended period and were not related to sexual health.

Conclusions: Despite limited financial resources, "Sex on the menu" seems to have met its objectives: participants who saw the campaign remembered it, understood its message, and learned more about prevention options. To increase reach, CBOs should consider extending the longevity of prevention campaigns and tailoring promotional efforts to maximize visibility.

THPED371

Engaging youth in digital discussions about HIV and discrimination: How the initiative #UNAIDSChallenge caused a buzz in Brazil

D. De Castro[1], C. De Lima[2], M. Mayara[1]
[1]UNAIDS, Communications, Brasilia, Brazil, [2]UNAIDS, Community Mobilization and Networking, Brasilia, Brazil

Background: The growth of AIDS cases among young people aged 15-29 in the past decade remains a major concern in Brazil. Recent indicators show that young people living with HIV present lower adherence to treatment and consequently a lower proportion of them achieve viral suppression. The #UNAIDSChallenge aimed to:
(i) mobilize youtubers and digital influencers from different backgrounds and outreach capacity to use their creativity and promote new ways to debate HIV among their followers;
(ii) translate technical and formal language into messages relatable to young audiences;
(iii) provoke reflection on how society, especially young people, is debating HIV-related issues on the internet.

[#UNAIDSChallenge in Brazil with youtubers and digital influencers]

Description: The #UNAIDSChallenge was conceived as a social media informative game to raise awareness on AIDS-related issues. Over 30 digital influencers voluntarily accepted the challenge, and committed to publish their videos on YouTube and Facebook. Fifty of the most frequently asked questions about HIV were taken from the Internet and 15 of them were randomly sent to YouTubers as part of a special game box also containing tokens to skip and google questions, and even consult a specialist through a telephone-style headset. An online platform with quick guides, tips, videos, and all the answers was built to support them during the challenge.

Lessons learned: Altogether, the videos reached more than 1 million organic views, nearly 180,000 tweets and thousands of comments in a one-month period, rekindling an important debate on HIV and discrimination on social media, especially among young people. Mobilization was made on a voluntary basis, proving that young influencers are open to this kind of dialogue and that their followers welcome this kind of initiative. Social media monitoring tools have shown that acceptance and positive evaluation were at 100%.

Conclusions/Next steps: Innovative approaches to break down barriers in the promotion of the dialogue about HIV with young people are feasible and possible when tailor-made strategies are built with and for youth. Although intergenerational dialogue on HIV will continue to be a challenge, young people have proven to be open to the debate as long as it happens according to their preferences, languages and perspectives.

THPED372

Gaps in delivery and uptake of patient-centered HIV testing: Provider and community leader perspectives on HIV testing in fishing and non-fishing villages around Lake Victoria, Kenya

K.R. Amico[1], N. Nguyen[2], Z. Simpson[2], E. Bennett[2], T. Navalta[2], J.E. Mantell[3], Z. Kwena[4], K. Ngure[4], E. Bukusi[4], B. Young[5], T.B. Masvaure[2,6], P. Ochwal[4,7], D. Ochola[2], P. Ryland[2], P. Valente[2], J. Wall[2], E. Stacey[5], J. Zuniga[5], R. Remien[8]
[1]University of Michigan, School of Public Health, Health Behavior and Health Education, Brighton, United States, [2]HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute, New York, United States, [3]HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute, Psychiatry, New York, United States, [4]Kenya Medical Research Institute, Center for Microbiology Research, Nairobi, Kenya, [5]International Association of Providers of AIDS Care, Washington, United States, [6]College of the Holy Cross, Department of Sociology and Anthropology, Worcester, United States, [7]Impact-IRDO, Nairobi, Kenya, [8]HIV Center for Clinical & Behavioral Studies, NYS Psychiatric Institute and Columbia University, Psychiatry, New York, United States

Background: Wide-scale delivery and uptake of HIV Testing in high-prevalence communities around Lake Victoria is critical to controlling the HIV epidemic in Kenya. Engaging young women, men who have sex with men, and heterosexual men in HIV testing remains a challenge. We sought to better understand barriers to uptake and delivery of HIV testing in general, and high-quality patient-centered care specifically, from the perspective of those providing HIV testing and related community services in Homa Bay, Kisumu and Siaya.

Methods: We conducted 16 focus groups (11 with HIV testing and care providers, 5 with community leaders) with a total of 172 individuals. Semi-structured focus group guides focused on multilevel factors influencing the HIV care continuum. Transcripts were double coded and themes extracted inductively.

Results: Factors thought to influence uptake of HIV-testing were generally consistent across regions and focus groups, with main concerns (Figure 1) falling within the areas of lack of **trust** in services, **stigma**, problems in **delivering** high-quality patient-centered **care, fears** of negative consequences of **testing positive** (largely social in nature), entrenched **gender(ed) norms**, and **HIV testing policies**. Gender disparities included lower uptake of testing among men and men using the results of their female partners to determine their own HIV status. Participants recommended, as solutions, extending clinic hours, venue specific in-community testing, creation of welcoming environments that respect patient

dignity, time, privacy and confidentiality, providing incentives/tokens for testing, using peers and improving the counseling surrounding testing, and community-level efforts to reduce stigma and disseminate better information about HIV.
Conclusions: Despite considerable progress in HIV testing in high prevalence areas in Kenya, a number of barriers remain. Providers of HIV testing and care and community leaders offered a number of innovative strategies that should be seriously considered. Bringing opportunities to test into venues commonly accessed by at-risk groups, flexing clinic hours and creating inclusive clinic environments may help to improve current programs. Further research is needed to investigate if and how current policies (e.g., testing pregnant women) may reinforce existing gender disparities in HIV uptake
(e.g., men wait for their partners to test rather than test themselves).

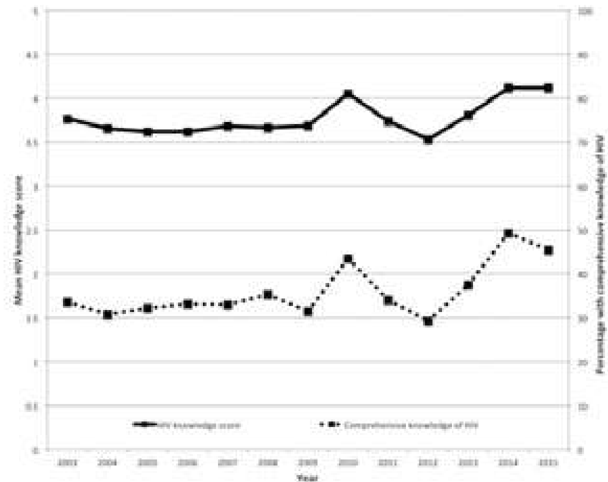
[Barriers to HIV Testing in Fishing and Non-Fishing Communities around Lake Victoria: Perspectives of Health Care Providers and Community Leaders]

THPED373

HIV knowledge trends during an era of rapid antiretroviral therapy scale-up: An analysis of 35 sub-Saharan African countries

B. Chan[1], A. Tsai[2]
[1]Brigham and Women's Hospital, Infectious Diseases, Boston, United States, [2]Massachusetts General Hospital, MGH Global Health, Boston, United States

Background: Population-level improvements in knowledge about HIV may reduce the stigma attached to HIV and ensure maximal uptake of HIV prevention initiatives. It is unknown to what extent levels of HIV knowledge in the general population of sub-Saharan Africa have changed in the current era of antiretroviral therapy (ART) scale-up.
Methods: Data on HIV knowledge in the general population were drawn from the 2003-2015 Demographic and Health Surveys (DHS) and AIDS Indicator Surveys (AIS) of 35 countries in sub-Saharan Africa. The DHS/AIS contain five questions on HIV prevention and transmission that have been used by UNAIDS as a core indicator of HIV knowledge. We created a composite HIV knowledge variable equal to the number of correct responses to these five questions; a participant was considered to have comprehensive knowledge of HIV (yes/no) if he/she answered all five questions correctly. We fitted negative binomial regression models with cluster-correlated robust standard errors and country fixed effects, adjusted for socio-demographic variables, specifying HIV knowledge as the dependent variable and year as the explanatory variable. As an alternative parameterization, we also fitted a multivariable linear probability model with cluster-correlated robust standard errors and country fixed effects specifying comprehensive knowledge of HIV as the dependent variable.
Results: 791,186 women and 395,891 men participating in 75 DHS/AIS were included in the analyses. The mean HIV knowledge score was 3.7 among women and 3.9 among men ($p < 0.001$). Only 35% of women and 41% of men ($p < 0.001$) had a comprehensive knowledge of HIV. We estimated a modest but statistically significant positive association between year of DHS/AIS and HIV knowledge (adjusted $b = 0.005$; 95% Confidence Interval [CI], 0.001-0.009). Similarly, we estimated a statistically significant positive association between year of DHS/AIS and comprehensive knowledge of HIV (adjusted $b = 0.011$; 95% CI, 0.005-0.017), suggesting an approximately 1% relative increase per year in the percentage of the general population who possess a comprehensive knowledge of HIV.
Conclusions: There have been only modest improvements over time in HIV knowledge across sub-Saharan Africa.



[HIV knowledge in 35 sub-Saharan African countries, by year, 2003-2015]

THPED374

Trends of people's HIV/AIDS knowledge and attitude in 42 sub-Saharan African countries

X. Dai, H. Wang, IHME HIV/AIDS Social Determinants Team
Institute for Health Metrics and Evaluation, University of Washington, Department of Global Health, Seattle, United States

Background: People's knowledge and attitude on HIV/AIDS are key determinants of HIV/AIDS epidemics and are crucial contributors to the success of HIV/AIDS interventions as well. However, evidence on country-level HIV/AIDS knowledge and attitude is still scarce and unbalanced across SSA countries. To fill in the gap, this study estimates national trends of HIV/AIDS knowledge and attitude from 1990 to 2016 across 42 SSA countries by using state-of-the-art techniques to borrow information across time and space.
Methods: To find all relevant data, the author searches in IHME's GHDx repository to identify all national surveys that have data on HIV/AIDS knowledge and attitude in the 42 SSA countries. After identifying all relevant surveys, individual level data on HIV/AIDS knowledge and attitude are extracted in a systematic and consistent way. Then, the individual level date are collapsed into country level estimates and multi-level multiple imputation is used to impute missing indicators on country level to make sure that all surveys have all the national indicators of interest. Lastly, spatial-temporal Gaussian process regression (ST-GPR) is used to synthesize all country level estimates and make trends estimation for each indicator in each country.
Results: From 1990 to 2016, across all countries, having heard of aids (**heard_aids**), knowing that having one partner reduces risk of HIV infection (**kw_one_partner**) and healthy looking person can have HIV/AIDS (**kw_look**) slightly increased from 93.7% to 95.0%, from 79.8% to 82.7% and from 67.4% to 75.7%, respectively. However, knowing that condom (**kw_condom**) reducing risk of HIV infection decreased from 77.9% to 73.8%. Regarding attitude, willing to frequent HIV+ vendor (**att_veg**), willing to take care of HIV+ family members in the house (**att_care**) and believing HIV+ teacher should continue to work (**att_teacher**) all increased from 28.4% to 62.7%, from 77.3% to 88.8% and from 47.6% to 69.3% respectively. Country specific trends vary greatly across countries.

Conclusions: Attitude towards people living with HIV has been improved significantly across all countries. However, improvement in knowledge is moderate and knowledge of condom use reducing HIV risk even decreases slightly, suggesting that health education on HIV/AIDS and condom use needs to be not only continued but also strengthened.

THPED375

Longitudinal studies of HIV risk perception and sexual risk behaviour in east Zimbabwe 2003-2013

R. Schaefer[1], S. Gregson[1,2], R. Thomas[1], C. Nyamukapa[1,2]
[1]Imperial College London, Department of Infectious Disease Epidemiology, London, United Kingdom, [2]Biomedical Research and Training Institute, Harare, Zimbabwe

Background: Risk perception is central to behaviour change theories that informed HIV prevention interventions, but mixed evidence exists on associations between risk perception and sexual behaviour. This may be because risk perception is essentially a bi-directional longitudinal concept which is difficult to capture in cross-sectional studies. We use longitudinal data to examine whether changes in sexual behaviour lead to changes in risk perception, and whether changes in risk perception lead to changes in protective behaviour.

Methods: Data on HIV-negative adults (15-54 years) participating in ≥2 of 4 surveys (2003-2013) in a general-population open-cohort study in Zimbabwe were analysed. Individuals not reporting risk perception in the first of two surveys were examined regarding whether changes in sexual risk (having multiple, casual, or concurrent sexual partnerships) between surveys were associated with risk perception at follow-up. Individuals not reporting condom use during last sex in the first survey were examined regarding whether developing risk perception between surveys was associated with condom use at follow-up. Data were analysed as panel and logistic regressions were adjusted for socio-demographic characteristics.

Results: Among respondents not reporting HIV risk perception in the first of two surveys (n=5259/N=10089), increasing sexual risk between surveys was associated with developing risk perception (odds ratio [OR]=1.56, 95% confidence interval=1.09-2.24) (Table). Despite this higher relative risk among those increasing sexual risk, 86.0% of all developing risk perception (993/1155) did not change their sexual risk. Among respondents not using condoms in the first survey (n=7234), developing risk perception was associated with starting condom use (OR=1.52 [1.19-1.94]), controlling for changes in sexual risk, marital status, and other socio-demographic factors (Table). 63.5% of all starting to use condoms (374/590) did not change their risk perception.

Changes in sexual risk between surveys and risk perception at follow-up among those not perceiving a risk in the first survey.				Changes in HIV risk perception between surveys and condom use during last sex at follow-up among those not reporting condom use in the first survey.			
Outcome: Risk perception	**All (N=5180)**	**Males (N=2359)**	**Females (N=2821)**	***Outcome: Condom use***	**All (N=7059)**	**Males (N=2112)**	**Females (N=4947)**
	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)		aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Sexual risk: No change	1 (Reference)	1 (Reference)	1 (Reference)	Risk perception: No change	1 (Reference)	1 (Reference)	1 (Reference)
Sexual risk: Increased risk	1.56 (1.09-2.24)	1.59 (1.03-2.44)	1.34 (0.73-2.44)	Risk perception: Increase	1.52 (1.19-1.94)	1.89 (1.12-3.19)	1.41 (1.01-1.98)
Sexual risk: Decreased risk	0.67 (0.46-0.99)	0.71 (0.45-1.13)	0.67 (0.37-1.20)	Risk perception: Decrease	1.24 (0.98-1.56)	1.51 (0.92-2.47)	1.16 (0.88-1.50)
Values are adjusted odds ratios (aOR), 95% confidence intervals (CI), and sample sizes (N). The sexual risk variable was based on reported multiple partners in the past 12 months, having at least one casual partners in the past 3 years, or having more than one sexual relationship at the time of the survey. A change in sexual risk was from having none of these risk factors to any of these (increase) or from any of these to none (decrease). Data were restricted to those not reporting risk perception in the first survey. The outcome was HIV risk perception at follow-up. Further covariates: Age, sex, change in marital status, change in condom use, survey round, and study site.				Values are adjusted odds ratios (aOR), 95% confidence intervals (CI), and sample sizes (N). A change in risk perception was defined as reporting risk perception at follow-up but not baseline (increase) or reporting risk perception at baseline but not at follow-up (decrease). Data were restricted to those not using a condom during last sex in the first survey. The outcome was condom use during last sex at follow-up. Further covariates: Age, sex, change in marital status, change in sexual risk, survey round, and study site.			

[Changes in sexual risk and risk perception, and changes in risk perception and condom use]

Conclusions: This is the first longitudinal study confirming expected associations between changes in sexual behaviour and HIV risk perception, and between changes in risk perception and protective behaviour. The results support prevention programmes to educate about risky behaviour and increase risk perception. However, only a small proportion of changes in condom use could be attributed to changes in risk perception, underlining the importance of other factors that determine HIV prevention behaviour, including factors beyond individual control.

THPED376

HIV intervention using interactive voice response (IVR) for key populations

S. Sokhan[1], S. Seng[2], V. Lan[3], S. Tep[3], R. Sopha[4], T. Eang[5], S. Kong[6], K. So[7]
[1]FHI 360, Prevention, Phnom Penh, Cambodia, [2]FHI 360, LINKAGES, Phnom Penh, Cambodia, [3]National Center for HIV/AIDS, Dermatology and STD, SBCC, Phnom Penh, Cambodia, [4]KHANA, Phnom Penh, Cambodia, [5]Cambodian Women for Peace and Development (CWPD), SBCC, Phnom Penh, Cambodia, [6]Men's Health Social Service (MHSS), Prevention, Phnom Penh, Cambodia, [7]KHANA, Flagship, Phnom Penh, Cambodia

Background: Physical outreach has been the main prevention approach for key populations (KP) in HIV programs, but is often costly and limited in its capacity to reach geographically dispersed, criminalized, stigmatized, or otherwise "hidden" KP. The use of mobile and internet technologies is a promising approach for young tech-savvy users with internet access. However, the conduct of virtual outreach among KP with low literacy or limited social media or Internet access remains challenging. The use of telephone-based Interactive Voice Response (IVR) systems may help overcome these barriers by supporting keypad-based interactions that require no advance knowledge on the part of end-users and can be accessed by mobile phone virtually anywhere.

Description: A four-digit, easy to remember, free of charge call number (1295), was linked to the VerboiceÒ free and open-source IVR and was promoted through leaflets and social media targeting KPs. A variety of services are available to callers via self-guided menu items, including health information via quizzes and short messages; edutainment using mini-dramas, songs, and testimonials; and, online live counseling. The system also provided an option for callers to register to receive HIV-related voice-message reminders monthly.

Lessons learned: Between September 2015 and November 2017, 55,877 calls were received from 8,027 unique telephone numbers registered. These included 22,809 calls where users opted to receive content relevant to entertainment workers (EW) (40.82%); 17,704 calls selecting content relevant to men who have sex with men (MSM) (31.68%); and 15,364 calls selecting content relevant to transgender (TG) people (27.50%). Edutainment was the most popular service selected, accessed 34,043 times or (60.92%) of the total calls. Approximately 13,204 users chose health information (23.63%), and online-counseling was accessed by 8,630 (15.44%). During the same period, 145,075 reminder messages were sent to numbers registered under the EW option; 132,520 for MSM; and, 29,415 for TG.

Conclusions/Next steps: IVR systems are a viable approach to providing KP with essential HIV-related information and bridging the digital divide. However, in adopting IVR it is also essential to establish online-to-offline referral systems to facilitate and document the connections to HIV testing and treatment services needed to accelerate epidemic control.

THPED377

Promoting HIV risk awareness among key population through tablet-based outreach risk screening in Cambodia

S. Sokhan[1], V. Lan[2], S. Tep[2], S. Seng[3], T. Eang[4], K. So[5], R. Sopha[6]
[1]FHI 360, Prevention, Phnom Penh, Cambodia, [2]National Center for HIV/AIDS, Dermatology and STD, SBCC, Phnom Penh, Cambodia, [3]FHI 360, LINKAGES, Phnom Penh, Cambodia, [4]Cambodian Women for Peace and Development (CWPD), SBCC, Phnom Penh, Cambodia, [5]KHANA, Prevention, Phnom Penh, Cambodia, [6]Khana, Flagship, Phnom Penh, Cambodia

Background: To support the National Center for HIV/AIDS, Dermatology and STD (NCHADS) in improving the effectiveness and reducing the costs of HIV programming, tools are needed to differentiate and prioritize the prevention and treatment response on the basis of individuals' risks and preferences. Persistent stigma, discrimination, and criminalization of key populations (KP) facing the greatest HIV risks prevent many KP from feeling comfortable disclosing their risks through face-to-face interaction. Confidential, self-administered, electronic risk screening tools may provide viable and preferred alternatives for eliciting personal risk information.

Description: We introduced a Tablet-based Outreach Risk Screening (TORS) as an electronic tool used during outreach to determine an individual's risk (high, medium or low) of HIV acquisition or onward transmission. It was piloted by the USAID Flagship project in Siem Reap province between April and July of 2015 and was then implemented more widely in four provinces from January 2016 through October 2017. Individuals categorized as "high-risk" included those reporting multiple partners or unprotected anal/vaginal sex. Following the risk screening, all those identified at risk (high and medium) were invited to participate in a finger-prick HIV screening test. A nine-digit unique identification number (UIC) was used to identify individuals participating in screening and finger prick testing.

Lessons learned: In total between January 2016 and October 2017, 16,424 EW, 7,171 MSM, and 1,318 TG had been screened. Among that 6,618 (40%) EW, 3,860 (53%) MSM, and 834 (63%) TG were identified as "High Risk". 5,465 (33%) EW, 1,344 (19%) MSM, and 114 (0.8%) TG were "Medium Risk". For finger prick testing, 4,767 (39%) EW, 1,829 (35%) MSM, and 186 (20%) TG of all "High Risk" and "At Risk" individual had taken the test; and 36 (0.8%) EW, 4 (0.2%) MSM, and 5 (3%) TG were reactive to the test.

KPs	Reached	Screened	High-Risk	HIV Test	At-Risk	HIV Test	Low-Risk	HIV Test	Total HIV+
EW	19,174	16,424	6,618	3,210	5,465	1,557	4,327	563	36
MSM	9,015	7,171	3,860	1,531	1,344	298	1,967	137	4
TG	1,377	1318	834	184	114	2	370	3	5

[Table 1]

Conclusions/Next steps: Tablet-based risk-screening can produce useful answers to risk assessment questions and promote HIV risk awareness among KPs by letting them know their risk status and behaviors. By knowing the individual risk behaviors, the outreach workers can provide more specific HIV and STI educational messages, and reduce unnecessary HIV testing among those with low risk.

THPED378

Predicting sexual assertiveness among Black women

S. Lewis-Keith, A. Prehn, W.-H. Kuo
Walden University, Maine, United States

Background: Despite the high HIV prevalence rate for Black women in Virginia, few studies have examined how potential protective factors against HIV vary within this group. The purpose of this study was to determine if four aspects of sexual assertiveness differed across demographic categories and were associated with self-esteem in a diversified group of Black women living in Virginia.

Methods: A cross-sectional survey was conducted with a community-based sample of 117 adult Black women. The women provided information on their age group, income level, highest level of education, sexual orientation, and relationship status. Self-esteem was measured using the Single-item Self-esteem Scale (SISES). The Sexual Assertiveness Scale(SAS) was used to measure four types of sexual assertiveness: (a) initiation of sexual interactions, (b) refusal of sexual activity, (c) HIV/AIDS/STD communication, and (d) contraception/STD prevention. ANOVAs determined differences in means of the four SAS subscales across the demographic categories. Pearson bivariate correlations were conducted between the SISES and the four measures of sexual assertiveness.

Results: HIV, AIDS, and STD communication assertiveness mean scores were significantly higher among higher- versus lower-income Black women (p_{adj}=.016) and Black women with a college versus a high school degree (p_{adj}=.047). Homosexual Black women had a significantly higher communication assertiveness mean score in comparison to heterosexual and bisexual Black women (p=.002). Similar results were found for contraception and STD prevention assertiveness. Moreover, self-esteem was significantly positively associated with all but one measure of sexual assertiveness in the sample of 117 Black women. No significant differences in sexual initiation or sexual refusal assertiveness scores were found across demographic groups.

Conclusions: Sexual assertiveness scores around HIV/AIDS and STD prevention and communication were associated with level of income and education. In addition, as the study participants' self-esteem increased, so did their sexual assertiveness. The findings suggest that HIV/AIDS prevention and education initiatives focusing on educational attainment and building self-esteem would be beneficial in building sexual assertiveness attitudes and behaviors among Black women as an HIV/AIDS prevention method.

THPED379

Factors associated with HIV status disclosure to partners and its outcomes among HIV- positive women attending care and treatment clinics in Kilimanjaro region, Tanzania

D. Damian
Kilimanjaro Christian Medical Centre, Community Health Department, Moshi, Tanzania, United Republic of

Background: Sub Saharan Africa continues to be the epicenter of HIV with 70% of people living with HIV globally. Women form nearly 60% of those living with HIV. Studies have shown disclosure of one's HIV status is important in HIV prevention, in increasing partners who are tested and getting into care early as well as in improving retention in PMTCT and ART programs. This study aimed to determine the prevalence, factors and outcomes of HIV status disclosure to partners among HIV-positive women attending HIV care-and-treatment clinics (CTCs) at Kilimanjaro region, northern Tanzania.

Methods: A cross sectional study was conducted from January to June 2014 in 3 out of the 7 districts of Kilimanjaro region. The study population was HIV-positive women aged 15-49, who were attending for routine HIV care at 19 selected clinics. Face to face interviews were conducted with consenting women to collect necessary information.

Results: A total of 672 HIV-positive women in Moshi municipal, Hai and Mwanga districts were enrolled. Of the enrolled, 609 HIV-positive women reported to have a regular partner. Prevalence of HIV-serostatus disclosure to partners was 66%. Of the 400 who had disclosed; 56% did so within the first month of knowing their HIV status. In multiple logistic regression HIV-serostatus disclosure was higher among women who: were married/cohabiting, currently on ART, who reported condom use, and who reported had ever communicated with partners on number of children and contraceptives. Most of the women (81%) who disclosed their HIV status to did not reported negative outcomes.

Conclusions: In this setting still a third of the HIV-positive women (34%) fail to disclose their HIV- serostatus to partners. Interventions to impart skills in communication and negotiation between partners may help in improving disclosure of HIV. Efforts to involve men in general sexual and reproductive health including couple counseling and testing will contribute in improving disclosure and communication on HIV among partners.

THPED380

Impact of workplace HIV interventions on HIV knowledge and risky sexual practices among key and priority populations in Uganda

A. Watsemba[1], L. Ayebale[1], R. M Flueckiger[2], J. Hayuni[1], B. Wandera[3], A. Mitchell Le Few[2], M. Lopez[4], E. Tanga[3]
[1]RTI International, USAID/Uganda HIV and Health Initiatives in Workplaces Activity, Kampala, Uganda, [2]RTI International, Research Triangle Park, North Carolina, United States, [3]World Vision Uganda, USAID/Uganda HIV and Health Initiatives in Workplaces Activity, Kampala, Uganda, [4]World Vision, Inc., Federal Way, WA, United States

Background: The USAID Uganda HIV and Health Initiatives in Workplaces Activity (HIWA) disseminates information on how to reduce HIV transmission, protect oneself from HIV infection, and reduce risky behavior to the following priority populations: Uganda Police Force (UPF), Uganda Wild Life Authority (UWA), private security guards (PSGs), and hotel employees. HIWA disseminates messages through:
1) enlisting workplace HIV champions,
2) conducting peer-to-peer small group sessions,
3) holding workplace-based HIV/health wellness events, and
4) supporting a 24-hour mobile health platform.
This study assessed the impact of these interventions after 2 years of implementation.
Methods: Surveys were conducted comparing baseline (November 2015) and post-intervention (October 2017) data from a random sample of 1,185 and 654 employees, respectively. Comprehensive HIV knowledge was calculated in accordance with Uganda Demographic and Health Survey methodology (survey participants were asked to name recommended ways to prevent HIV infection and reject two common misconceptions about HIV transmission). A composite indicator of participants' risky sexual behavior was generated by analyzing transactional sex, cross-generation sex, multiple sex partners, non-condom use with non-regular partners, and consumption of alcohol before sex.
Results: All indicators were significant at the 5% level. The study identified a 14% (confidence interval [CI] 10-18%) increase in HIV knowledge, a 2% (CI 1-3%) increase in ability to identify HIV preventive measures, and a 16% (CI 13-19%) increase in ability to reject misconceptions in the intervention group. The largest knowledge increase was among UPF and hotel employees (17%, CI 10-24%), followed by UWA (10%, CI 8-12%) and PSGs (5%, CI 3-7%). Reported engagement in risky sexual practices declined overall by 12% (CI 8-16%), with the largest decline among UPF (26%, CI 21-31%). However, an increase in risky sexual practices of 23% (CI 17-29%) was observed among hotel employees.
Conclusions: The study suggests HIWA's interventions contributed to measurable increases in HIV knowledge, with less consistency on their impact on risky sexual behavior. The results contribute to program learning and adaptation of implementation strategies. Additional exploration of workplace setting situations is needed to determine where specific approaches are most appropriate.

THPED381

Should the permanent deferral for blood donation among MSM be revisited: A cross-sectional study in 3 metropolitan cities in China?

X. Meng[1], X. Wang[1], T. Jia[1], H. Yin[1], W. Chen[2], Z. Luo[2], S. Huang[3], Y. Ding[2], H. Zheng[3], B. Yang[3], A. Grulich[4], H. Zou[4,5], T2T Study Group
[1]Wuxi Municipal Centre for Disease Control and Prevention, Wuxi, China, [2]Nanshan District Centre for Chronic Disease Control and Prevention, Shenzhen, China, [3]Dermatology Hospital, Southern Medical University, Guangzhou, China, [4]Kirby Institute, University of New South Wales, Sydney, Australia, [5]School of Public Health (Shenzhen), Sun Yat-sen University, Shenzhen, China

Background: Many countries are evaluating the potential risks and benefits of relaxing deferral policies for blood donation among men who have sex with men (MSM). In China many MSM conceal their same-sex behaviors and donate blood in despite of the permanent deferral. This study aimed to assess the prevalence of and factors associated with blood donation among MSM in China.
Methods: Our observational study was conducted between January and August, 2017 in 3 metropolitan cities: Guangzhou, Shenzhen and Wuxi. Eligible participants were MSM (≥18 years old) who had either ≥2 male sex partners or unprotected anal sex with casual partners, or had been diagnosed with an STI, in the past 6 months. A self-completed tablet-based questionnaire was collected about blood donation history, socio-demographic characteristics, sexual behaviors and HIV testing history.
Results: A total of 603 MSM were enrolled in our study, with a mean age of 27.9 years (SD=7.8). Overall, 29.2% (176/425) reported a history of blood donation, namely 33.1% (100/302) in Guangzhou, 27.6% (42/152) in Shenzhen and 22.8% (34/149) in Wuxi (^{2}=6.421, P=0.093). While 83.0% donated blood out of altruism, only 11.4% did so to get tested for HIV. MSM who had ever used geosocial networking (GSN) mobile applications (apps) (OR=2.4, 95%CI: 1.2-4.8) or had ever tested for HIV ≥2 times in the past 12 months (OR=1.5, 95%CI: 1.1-2.3) were more likely to have donated blood. Some 3.3% (20/603) reported blood donation in the past 6 months, among whom one person was tested HIV-positive with CD4 of 145 copies/mm^3. One other individual donated blood knowing his HIV-positive status. Compared to non-donors, a higher proportion of donors had >10 male sex partners in lifetime (36.4% VS 26.0%, P=0.011). Among 582 men who had sex in the past 6 months, only 20 (3.4%) donated blood in the same period.
Conclusions: Blood donation was common among MSM in China. The great majority of MSM may comply with 6-months deferral which implies the necessity of reconsideration of deferral length. In the meantime HIV testing technologies that can substantially narrow the window period should be scaled-up in blood donation venues.

THPED382

#WhatWomenWant: HIV prevention that works for adolescent girls and young women. Results of a consultation with adolescent girls and young women to operationalise UNAIDS HIV prevention guidance

K. de Graaf[1], J. Stevenson[2], C. Nyambura[3], T. Crone[4], E. Johnson[5], T. Otieno[4]
[1]ATHENA Initiative, Calgary, Canada, [2]ATHENA Initiative, London, United Kingdom, [3]ATHENA Initiative, Nairobi, Kenya, [4]ATHENA Initiative, Seattle, United States, [5]ATHENA Initiative, Washington DC, United States

Background: Adolescent girls and young women (AGYW) are disproportionately affected by HIV, and prevention efforts need to be targeted to meet their specific needs and experiences. As part of the #WhatWomenWant campaign, a global movement to advance gender equality, ATHENA led a consultation to engage AGYW in the new UNAIDS prevention guidance: 'HIV prevention among adolescent girls and young women: Putting HIV prevention among adolescent girls and young women on the Fast-Track and engaging men and boys.'
Methods: We used WhatsApp, an accessible, cheap, low-data tool widely used by AGYW, to convene an extended focus group. AGYW were invited to join, using snowballing recruitment through existing list servs and virtual platforms. The focus group was moderated by an ATHENA team member, who added participants once eligibility had been confirmed. 185 AGYW participated, from at least eight different countries: Botswana, Kenya, Malawi, Namibia, South Africa, Swaziland, Uganda, and Zimbabwe. The focus group adopted a semi-structured approach, with participants asked to respond to a set of questions about each strategy in the guidance, shared as a one-page, accessible summary. The consultation took place over a period of weeks. Findings were analysed thematically using a framework process.
Results: AGYW identified barriers to accessing HIV prevention, including age of consent laws, discriminatory treatment by healthcare staff (based on age, sexuality, disability, HIV status), lack of appropriate services or information, and cost. Very few participants were familiar with PrEP, and many thought it was the same as PEP. Some felt PEP was a better or safer option as it involved more short-term use of antiretrovirals. Fears about resistance and side effects were common. Participants also described barriers to accessing contraceptives, safe abortion and condoms, including legal barriers, age restrictions, cost and health worker attitudes. AGYW called for action to address keeping girls in school, child marriage, and gender-based violence.

Conclusions: WhatsApp is an effective, accessible tool to reach and engage AGYW. Participation was high, and contributions meaningful and on-topic. The application of top-level guidance must be informed by local realities and lived experience, and the consultation provided rich insights into how this can be achieved.

THPED383

Substance use, adherence to antiretroviral therapy, and sexual risk behaviors among people living with HIV in Guangxi, China

Y. Mao[1], Q. Zhao[2], X. Li[1], S. Qiao[1], Z. Shen[3], Y. Zhou[3]
[1]University of South Carolina, Health Promotion, Education, and Behavior, Columbia, United States, [2]Nanjing University of Information Science and Technology, Nanjing, China, [3]Guangxi Center for Disease Prevention and Control, Nanning, China

Background: Sexual risk behaviors among people living with HIV (PLHIV) can have serious public health consequences. Adherence to antiretroviral therapy (ART) can be positively or negatively associated with engagement in sexual risk behaviors. The negative associations can be due to the confounding effect of some factors such as substance use, while the positive associations have sometimes been attributed to treatment optimism. Given a general lack of relevant research in China, this study aims to explore the associations among substance use, ART adherence, and sexual risk behaviors among PLHIV in Guangxi, China.
Methods: Cross-sectional data from 1,134 PLHIV (664 men and 470 women) in Guangxi, who reported having been sexually active and receiving ART were analyzed. Measures included demographics, drug use, alcohol use, smoking status, medication adherence, HIV viral load, and sexual risk behaviors (multiple sex partners and inconsistent condom use). Path analyses were performed using Mplus 7 to identify the associations of interest.
Results: In the first path analysis for testing treatment optimism hypothesis, the participants who reported lower ART adherence were more likely to have an unsuppressed HIV viral load (=.11, p = 0.023), have multiple partners (=-.12, p = 0.017) and have used condoms inconsistently (=-.08, p = 0.037). No associations between HIV viral load and sexual risk behaviors were identified. In the second path analysis for testing confounder hypothesis, alcohol use (=-.12, p < 0.001), smoking (=-.09, p = 0.003), and drug use (=-.19, p < 0.001) were separately associated with poorer ART adherence. Those who reported alcohol use (=.14, p = 0.005), and smoking (=-.19, p = 0.001) were more likely to have multiple partners. Drug use had an indirect effect on partner concurrency (=.02, p = 0.033), while alcohol use had an indirect effect on inconsistent condom use through ART adherence (=.01, p = 0.032).
Conclusions: The findings indicated substance use was a confounder, and ART adherence buffered the positive associations between substance use and sexual risk behaviors. Future interventions to reduce sexual risk behaviors among PLHIV in Guangxi are recommended to focus on reducing substance use, as well as promoting ART adherence.

THPED384

AHF Checkpoint Kyiv: Effective marketing to increase HIV testing

D. Godlevskiy[1], A. Zakowicz[1], Y. Kvasnevska[2], A. Davies[1], Y. Kalancha[2]
[1]AIDS Healthcare Foundation Europe, Amsterdam, Netherlands, [2]AIDS Healthcare Foundation Ukraine, Kyiv, Ukraine

Background: The estimated number of HIV-positive people in Ukraine is more than 230,000, with 132,945 patients in care. The availability of rapid testing in Ukraine is a priority, in line with the recently adopted "Test and treat" strategy. In Eastern Europe there is a lack of effective marketing campaigns to motivate and educate people to get tested. The objective of the intervention was to use creative marketing to motivate people to get tested at AHF Checkpoint Kyiv.
Description: AHF Checkpoint Kyiv is a testing facility, opened in July 2015 that provides free, low-threshold, walk-in HIV rapid testing, counselling and free condom provision. The data reviewed covers January 2016 -December 2017 when the marketing interventions were launched: 1. interactive website with locations of testing site and HIV facts (August 2016), 2. campaign "New love" targeting youth and MSM with 130 outdoor billboards in subway (August 2016) , 3. campaign "Knockout HIV" covering over 200 public transportation stops in Kyiv (June 2017).
Lessons learned: Overall in 2016 and 2017, 9,294 HIV rapid tests were performed at AHF Checkpoint Kyiv with 348 reactive cases and 3.7% positivity rate. During the period of both campaigns the number of visits to the new website exceeded 31,000 people, all of them spent over 2 minutes on the site focusing on testing site locations, condom use guide and HIV facts. With the launch of the campaigns the monthly average of tests performed doubled, from 169 (positivity rate 6,7%) to 399 tests (4.6%) after the first activation to 709 (2,4%) after second activation. 6,489 (70%) clients were first time testers. There were 266 (3.5%) positive results in this group. Young people (15-24 years of age) constituted 30% of all people who tested at the Checkpoint with 44 reactive cases (1.6%).

[AHF Checkpoint Kyiv testing results 01.16 - 12.17]

Conclusions/Next steps: Creative marketing has a potential to motivate people to get tested. The campaigns in Kyiv were effective in increasing numbers of people who test from key populations (MSM, IDUs) and general population including young people. Use of campaigns with positive and motivating messages could close the gap of undiagnosed in the region of EECA.

THPED385

Following the WHO new global guidance on the use of hormonal contraceptives among people at a high risk: What next for women at a substantial risk?

H. Nagadya
International Community of Women Living with HIV, Membership &Programs, Kampala, Uganda

Background: Women make up more than half of all people living with HIV worldwide, and they continue to bear the burden of new infections. Incidence rates vary by age and country. They are particularly high in adolescent girls and young women. The same women at risk of HIV need of a variety of reliable methods of contraception. In sub-Saharan Africa, fewer than 20 percent of women use a modern contraceptive method. A lot has been done to distribute condoms for dual protection against HIV and unwanted pregnancies, but many report inconsistency in condom use. Depo is widely used but there is possible risk of acquiring HIV when on it. Echo trials are on going to establish its safety. In March 2017 World Health Organization issued an updated guidance statement on its recommendations for the use of hormonal contraception by women at high risk of HIV. The new guidance upholds women´s right to informed choice when they access contraceptives.
Description: The International Community of Women Living with HIV Eastern Africa (ICWEA) organized a meeting with 30 sex workers between the age of 15-24 in Mukono District, Uganda aimed at sharing the new WHO recommendation on Depo for women at risk of acquiring HIV and Pre Exposure Prophlaxis (PrEP) as an HIV prevention method.
The sex workers were concerned that the results from the ECO trial to evaluate the impact of different family planning methods on HIV acquisition, may take long yet they have sex on a daily basis. They expressed need for PrEP because it is controlled by women.

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Lessons learned: The demand for PrEP, in Uganda exceeds supply. Information on PrEP still remains scanty as only a few organizations focus on it. The WHO guidance is clear that women should have information as well as full access to the method of their choice, regardless of their HIV risk.
Conclusions/Next steps: Use of Hormonal Contraceptives in Uganda, especially Depo is high. Women therefore need to have full information on the possible risk of acquiring HIV when on Depo so they can make informed choice.

THPED386

Beliefs about HIV treatment-as-prevention among young adults in rural South Africa

J. Bor[1], J. Barofsky[2], D. Flanagan[3], T. Barnighausen[4]
[1]Boston University School of Public Health, Roxbury, United States, [2]Ideas42, New York, United States, [3]Boston University, Boston, United States, [4]University of Heidelberg, Heidelberg, Germany

Background: WHO recommends treating all HIV-infected people with antiretroviral therapy (ART) at diagnosis in order to reduce onward transmission of the virus. Yet uptake of ART among young adults is low, contributing to persistently high transmission rates. We hypothesized that young adults may not be aware of the prevention benefits of ART, leading to potentially sub-optimal uptake of ART.
Methods: We conducted a population-representative household survey of 425 young adults (ages 18-25) in rural KwaZulu-Natal, an area where one in three adults is HIV-infected. Using an innovative method to ascertain quantitative risk perceptions, we assessed young adults' beliefs about the HIV risk environment, including prevalence, survival, and infection risk. We asked about the risk of HIV transmission within a serodiscordant couple under different scenarios, and compared perceived transmission risks to objective risks in the literature.
Results: Young adults had largely accurate beliefs about HIV prevalence and the survival benefits of ART. However, they substantially underestimated the prevention benefits of ART. On average, young adults perceived an 82% annual incidence of HIV in serodiscordant couples where the HIV-infected partner was on virally-suppressive ART. Young adults perceived that consistent condom use would reduce infection risk by 71% relative to unprotected sex - close to published estimates. However, young adults perceived that ART would only reduce per annum incidence by 17%. Published estimates indicate >95% reduction in risk.
Conclusions: Young adults in rural South Africa are growing up in an HIV risk environment that differs dramatically from that faced by the previous generation. Treatment-as-prevention, in particular, offers an opportunity to substantially reduce HIV transmission. However, gaps in knowledge about the benefits of HIV treatment-as-prevention may limit the potential of policies aimed at increasing ART uptake. Further efforts are needed to disseminate this information.

THPED387

Beyond clinicians' recommendations: Understanding the underlying reasons for infant feeding choices among HIV-infected women in the Eastern Cape, South Africa

A. Ajayi[1], O. Adeniyi[2], M. Issah[1], O. Owolabi[1], D. Goon[1], S. Majambe[3], C. Carty[3], L. Sidloyi[3], J. Lambert[4], East London Prospective Study Group
[1]University of Fort Hare, East London, South Africa, [2]Walter Sisulu University, East London, South Africa, [3]Relevance Network, Johannesburg, South Africa, [4]University College, Dublin, Ireland

Background: Prevention of breast milk transmission is the next critical step in attaining the goal of elimination of mother-to-child transmission of HIV in South Africa. This study examines the feeding choices of peripartum women infected with HIV in the Eastern Cape, South Africa; and assesses the underlying reasons for their choices.
Methods: Drawing from the baseline data of the East London Prospective Cohort Study Database, 1709 mother-infant pairs enrolled across three large maternity facilities were interrogated on infant feeding choices in the Buffalo/Amathole districts. All HIV-infected women who gave birth between September 2015 - May 2016 with complete responses (N=1662) were included in the analysis. In addition, semi-structured interviews were conducted among 177 purposively selected participants to gain insights into the reasons for choosing their preferred infant feeding method. Descriptive and inferential statistics were used to summarise the quantitative data, while thematic analysis was performed on the qualitative data.
Results: The participants mean age was 29.63 (SD±6.2) years. Most participants were already diagnosed with HIV prior to the index pregnancy. The majority of the participants (80.3%) preferred to breastfeed their baby. There were no significant associations between demographic characteristics and infant feeding choices. Aside from clinicians' recommendations, perceived benefits of breastfeeding, fear of transmitting HIV to the baby, unaffordability of formula feeding, coercion, low milk supply/painful breast and need to return to work and school were the underlying reasons for infant feeding choices.
Conclusions: The majority of HIV-infected women chose to breastfeed their infants. Beside the clinicians' recommendations, the socio-economic and socio-cultural factors are the facilitators of breastfeeding among women in this setting. Retention and continuous engagement in care post-partum are crucial for elimination of breastfeeding transmission in the exposed infants.

THPED388

Shaping policy with science and stakeholders: Development and administration of a survey on U=U messaging in New York State

J. Morne[1], M. Brown[2], T. Hatton[2]
[1]New York State Department of Health, Director, AIDS Institute, Albany, United States, [2]New York State Department of Health, AIDS Institute, New York City, United States

Background: In September 2017, New York became the first state in the US to adopt the Prevention Access Campaign's Undetectable equals Untransmittable (U=U) consensus statement. The U=U concept, that PLWH with a sustained undetectable viral load cannot sexually transmit the virus to partners, provides a structure to advance positive messages that help to reduce stigma and reinforce retention in care strategies to end the HIV/AIDS epidemic in New York State. The New York State Department of Health AIDS Institute (NYSDOH AI) plans to initiate programmatic efforts and messaging to ensure the U=U concept becomes broadly known throughout the State.
Methods: The NYSDOH AI implemented a statewide online survey to assess knowledge and to guide development of U=U messaging among key stakeholders, including consumers, medical providers, advocates, health workers and others involved in HIV activities from all regions of New York. With 23 questions, the survey assessed awareness and attitudes regarding U=U, verbal and visual image preferences, and potential impact.
Results: Results from this U=U survey provide a framework for a successful policy initiative around HIV prevention and stigma reduction. There were 617 individual respondents, including 90 clinical providers. Responses indicated a high level of awareness and positive attitudes about U=U. Overall, most of the participants (84.4%) had heard of U=U before taking the survey, and over half (57.5%) were very confident in the U=U concept. There were clear preferences for certain messaging terms, visuals that include images of people, and a multifaceted outreach approach. Some regional and occupational variations emerged that indicate a need for targeted messaging as well as informational initiatives.
Conclusions: The survey results affirmed that Undetectable equals Untransmittable represents a social and scientific shift, with significant positive implications for PLWH, their service providers and communities. This key information will be used to develop a statewide U=U messaging campaign adapted to the cultural, geographic, and socioeconomic diversity of New York State. Results also support a possible 'diffusion curve' for accepting certain U=U concepts, and further investigations are needed to assess the ways medical providers discuss U=U with patients.

THPED389

Egocentric networks, HIV knowledge and status disclosure: Case of St. Petersburg

A. Suvorova[1,2], G. Syraeva[3], G. Uraeva[4], A. Sirotkin[2], R. Heimer[5]
[1]SPIIRAS, St.Petersburg, Russian Federation, [2]National Research University Higher School of Economics, St.Petersburg, Russian Federation, [3]St. Petersburg City AIDS Center Hospital, St. Petersburg, Russian Federation, [4]St. Petersburg State University, St.Petersburg, Russian Federation, [5]Yale University, New Haven, United States

Background: Russia is currently experiencing an increase in HIV incidence. St. Petersburg is one of the cities with the highest level of reported HIV prevalence, especially among the heterosexual population. Social context plays a key role in forming attitudes and behavior but there are few studies in Russia examining egocentric networks of people living with HIV (PLWH). This research aims to serve as a pilot study to examine associations between the different aspects of disclosure of HIV-positive status, sexual risk behaviors, and HIV-related knowledge among PLWH and members of their egocentric networks.
Methods: We conducted a cross-sectional study with 134 patients of St.Petersburg AIDS Center and 137 members of their egocentric networks. Each respondent could recruit up to three members of their networks but only 95 patients (71%) recruited at least one alter. All participants completed self-administered questionnaires. We compared patients with their alters separately for parents and peer alters (paired statistical tests).
Results: We identified that men were more likely to recruit friends, women recruited mainly family members. Patients who did not recruit anyone did not differ significantly from the rest part of the sample. Patients showed better knowledge of facts related to HIV-infection compared to their peers (median value of right answers 80% compared to 60% for the peers, Mann-Whitney U=914, p< 0.001) and compared to their parents (median value of right answers 70% compared to 60% for the parents, Mann-Whitney U=98.5, p=0.03). Patients had less casual sexual partners during the last 3 months (exact test p=0.03) than their peer alters. Those who disclosed their status to the parents had lower rates of risky sexual behaviors (0% vs 44% of not using condoms with casual partners, Fisher test p=0.03).
Conclusions: We found that peer alters had poorer HIV knowledge than patients and were more engaged in HIV risk behavior which could result in HIV transmission. These patterns could be related to stigma associated with HIV in Russia. Because network members share features with patients that put them at risk for HIV, it makes egocentric networks a focus for HIV prevention interventions.

HIV services in healthcare settings

THPED390

“I will give you medicine but your behavior is not worthy… …!” Exploring access to health services by transgender women, female sex workers and people who inject drugs in Malawi

V. Jumbe[1], G. Trapence[2], V. Gama[2], D. Kamba[2], L. Kapanda[3], A. Muula[3]
[1]University of Malawi, College of Medicine, Health Systems and Policy, Blantyre, Malawi, [2]CEDEP, Lilongwe, Malawi, [3]University of Malawi, College of Medicine, Public Health, Blantyre, Malawi

Background: Access to sexual and reproductive health services (SRHS) is the first critical step in achieving the triple 90s- an ambitious target by UNAIDS to have 90% of all people living with HIV know their status, 90% of all people diagnosed with HIV initiated on antiretroviral therapy (ART) and 90% of people on ART having viral suppression by 2020. However, access to SRHS is limited among key populations. The purpose of this study was to identify barriers and facilitators of access to SRHS among Transgender Women (TGWs), Female Sex Workers (FSW) and people who Inject Drugs (PIDs) in nine districts in Malawi. This is the first such study on PIDs ever conducted in Malawi.
Methods: This was a cross sectional qualitative study. Purposive and convenience sampling was used to recruit participants from Karonga, Mzuzu and Nkhatabay in the North; Mchinji, Lilongwe and Salima in the central and Mulanje, Blantyre and Mangochi districts in the south. Data analysis was done inductively following grounded theory procedures.
Results: A total of 49 in-depth interviews were conducted; 14 with PIDs, 18 with TGWs and 17 with FSWs. Across populations studied, structural factors such as criminalization (especially of drug use and same sex sexual practice), internal or experienced stigma and discrimination both in private and public settings including health care settings; unavailability or being unware of available health services; human rights violations were key barriers to accessing SRHS among key populations in this setting. Making SRHS available and change of negative attitudes among health care professionals were observed as key facilitators to access of services.
Conclusions: We suggest SRH issues focusing on key populations be introduced into curricula for health care professionals; training should be conducted with already working health care professionals on how to provide health care sensitive to the needs of key populations; mechanism to monitor the implementation of laws addressing social homophobia be implemented by Ministry of Health and key populations should be empowered by human rights focused NGOs to relentlessly pursue their right to health.

THPED391

Expanding access - saving the future: Taking HIV testing to village health facilities increased the access to pregnant women. Results from Global Fund supported AHANA project in 9 states of India

K. Biswas[1], R. KB[2], D. Nirwal[2], R. Mitra[3]
[1]Plan International (India Chapter), Monitoring & Evaluation, New Delhi, India, [2]Plan India, Monitoring & Evaluation, New Delhi, India, [3]Plan India, Programmes, New Delhi, India

Background: While India has made a significant progress in arresting and reversing the HIV epidemic, testing coverage for pregnant women remained very low. Evidence suggests access to HIV testing remained at 18% in the 218 priority districts of 9 identified states with an estimated annual pregnancies of 15 million per year. A strategy study carried out under Plan India's Ahana programme supported by The Global Fund to understand the access to HIV testing among pregnant women.
Description: A mixed method study was carried out in 29 districts of 9 states. 22 In-depth interviews and 58 FGDs were carried out with state and district level health officials and 888 pregnant women were interviewed through a structured interview schedule. Quantitative data was analysed using SPSS and qualitative data was analysed through a structured coding template.
Lessons learned: Findings from the study suggests that as the access to HIV testing has expanded to the district and village level population, HIV testing has increased from 18% to 69% among pregnant women during Oct, 15 to Oct, 17. There has been substantial increase in the public health facilities providing HIV testing services, in CHCs it has increased from 59% to 91%, in PHCs from 7% to 48% and in sub centre from 1% to 19%. Three fold approach; investing in the capacities of community health worker, procurement of Kits and managing supply chain of kits and consumables resulted in increasing coverage of pregnant women with HIV testing. PPTCT related knowledge remained at 98% among the community health workers and only 6% pregnant women concluded saying access of HIV testing is difficult.
Conclusions/Next steps: Increased access to HIV testing led to pregnant women accessing more HIV testing. As the testing services was made available in the peripheral public health units the HIV testing increased manifold. Plan India's Ahana project shows the pathway to how to rationalise the investment in the high load and priority districts with the measures of capacity enhancement and enhancing the supplies so that coverage increases from 18% to 69% within 24 months.

THPED392

Reasons for failed linkage to care across four facilities in Lusaka, Zambia

J. Pry[1,2], S. Gass[1], M. Herce[1,3], J. Chipungu[1], J. Kadota[1], C. Bolton[1,4], T. Savory[1]
[1]Centre for Infectious Disease Research Zambia, Lusaka, Zambia, [2]University of California Davis, Davis, United States, [3]University of North Carolina, School of Medicine, Chapel Hill, United States, [4]University of Alabama Birmingham, School of Medicine, Birmingham, United States

Background: The Centre for Infectious Disease Research Zambia (CIDRZ) routinely monitors progress toward 90/90/90 in 223 government health facilities across four Zambian provinces. HIV testing services (HTS) are provided through a number of entry points. Despite expanding access to HTS, recent estimates for linkage-to-care in Zambia are 50% at 12 months. To better describe the role of HTS entry point on ART initiation, reasons for incomplete linkage in Lusaka Province were analyzed.

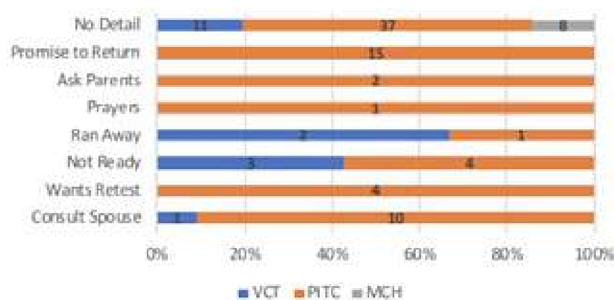
Methods: A mixed methods approach was used to evaluate reasons for ART initiation refusal among a convenience sample of two urban and two rural ART clinics. All individuals with a HIV-positive test recorded 1 May—30 June, 2017 at the four clinics comprised the study population. Data was abstracted from hard copy HTS registers, with specific reasons for failed (within 60-90 days) linkage ascertained using a "Comment" field in the HTS register. Individuals were categorized as: 1) linked-to-care, with evidence of registration in the national HIV electronic medical record (SmartCare); 2) not linked-to-care, with no documented registration in SmartCare; and 3) refused care, in which care refusal was documented in the HTS register. Documented reasons for refusal were categorized by keyword(s).

Results: Of the 1,191 records reviewed, 583 (48.95%) were identified as linked-to-care, 487 (40.89%) as not linked-to-care, and 121 (10.16%) as refused care. Of those that refused, we identified seven reasons for care refusal (figure 1). Of the 99 who refused care and had complete documentation, the majority (68.5%) received HTS through unspecified provider-initiated testing and counseling (PITC). Unspecified PITC had the highest proportion of refusals across all entry points at 15.0% compared to 5.3% for those entering via voluntary counseling and testing and the maternal child health department. The most common reason for refused care included promising to return at a later time (12.4%) followed by needing to consult spouse (9.1%), cited mostly by women (91%).

Conclusions: A better understanding of the reasons for refusing treatment may inform efforts to reach 90/90/90 goals. Tracking linkage-to-care by testing entry point may provide insights for facility-level quality improvement and targeted interventions to promote ART acceptance and initiation.

Factor	Level	Linked, n (%)	Not Linked, n (%)	Refused, n (%)	p-value
Age, mean (SD)		31.85 (10.67)	30.71 (10.70)	30.59 (9.42)	0.23
Sex	Female	355 (61.60)	292 (60.00%)	72 (59.50	0.82
Sex	Male	221 (38.40)	195 (40.00)	49 (40.50)	0.82
Entry Point	VCT	170 (33.10)	136 (28.80)	17 (15.70)	<0.001
Entry Point	PITC	190 (37.00)	230 (48.60)	74 (68.50)	<0.001
Entry Point	Maternal Child Health	109 (21.20)	34 (7.20)	8 (7.40)	<0.001
Entry Point	Tuberculosis Clinic	9 (1.80)	9 (1.90)	0 (0.00)	<0.001
Entry Point	Other/Unspecified	36 (7.00)	64 (13.50)	9 (8.30)	<0.001

[Table 1: Linkage Review Population Characteristics by Linkage Status]



[Figure 1: Refusal Reason by Entry Point]

THPED393

Experiences of patients on the quality of service delivery influencing the uptake of antiretroviral treatment in South Africa

P.T. Simelane[1], A.Y. Amoateng[2]
[1]Northwest University, Demography and Population Studies, Durban, South Africa, [2]Northwest University, School of Research and Post Graduate Studies, Mafikeng, South Africa

Background: Patients' non-adherence to antiretroviral treatment (ART) is now being considered as one of the major obstacles facing public health institutions around the world. Service quality plays a vital role in ensuring patients adherence to ART. A worldwide survey of 59 ART clinics around the world by World Health Organization (WHO, 2016) discovered that poor service quality results into non-adherence to ART. The objective of this study is to ascertain the perspectives of patients on the quality of ART service delivery influencing the uptake of antiretroviral uptake in Piet Retief Wellness Centre, Mpumalanga Province, South Africa.

Methods: This qualitative study draws on 20 individuals, in-depth, face-to-face interviews with both males and females between the ages 15-49 years enrolled at Piet Retief Wellness Centre for ART between the period 2010 and 2014. The quasi-experimental design was utilised whereby both patients who defaulted (10 patients) treatment as well as who have not defaulted treatment (10 patients) formed part of the study. The interviews were 20 minutes on average. To analyse the data, interviews were audio-recorded, transcribed and analysed using thematic analysis and NVIVO 8 software.

Results: The results of the study highlights patients' experiences with regard to service quality influencing the uptake of ART services. Clear instructions from service providers and patients' knowledge about the benefits of ART adherence positively contributed to the uptake of ART. In addition to that, patients' adequate knowledge about the dangers of non-adherence to ART contributed positively to the uptake of ART. However, shortage of staff workers, negative attitude from health care providers as well as long waiting times negatively affected the uptake of ART thus resulting into ART poor service quality at Piet Retief Wellness Centre.

Conclusions: Although ART is readily available in health institutions around the country, poor service quality affect adherence to this life saving treatment. Interventions should aim to ensure that adequate staffing of health workers is put in place to limit long waiting times, psychosocial support should be provided to health workers on an on-going basis and long-term learning should be provided ART patients through community support groups (ART adherence groups).

THPED394

Healthy Mothers, safe babies: EMTCT through strengthening public health system: Result from plan India's Global fund supported Ahana project in 9 state of India

R. Kochukudiyil Balanpillai[1], K. Biswas[2], D. Nirwal[2], R. Mitra[2]
[1]Plan International (India Chapter), Monitoring and Evaluation, New Delhi, India, [2]Plan International (India Chapter), Programme Implementation, New Delhi, India

Background: An estimated 29 million pregnancies in India need to be annually screened for HIV so as to meet the goal for elimination of Mother to Child Transmission. The Government of India accord priority attention to EMTCT of HIV by 2020.The study showed that importance given for strengthening public health system and follow up for saving HIV exposed babies and healthy mothers. Plan International (India) implements Global Fund-supported PPTCT program (AHANA) in liaison with NHM and NACO in 218 priority districts of 9 Indian states to achieve the goal of eMTCT.

Methods: A mixed method study has been carried out to understand the state Level implementation strategies towards strengthening the health system and follow up. All together 888 pregnant women and 51 Positive Pregnant Women were interviewed, FGDs were carried out with ASHA and ANM. Detailed and desk research was carried out to understand the response system.

Results: Continuous capacity Building on PPTCT issues and methods of executing whole blood finger prick testing (WBFPT) provided to peripheral workers through AHANA for streamline HIV screening in periphery level. 32717 ANM got WBFPT training and 37267 ANM got training on PPTCT. Created awareness about PPTCT through Community Mobilization Meeting and Mid media activities There has been substantial scaling up of HIV testing facilities in the periphery level. 95% PPW linked to ART. Continuations follow up leads to safe delivery and timely service. As a result of multipronged strategy engaged by Plan India resulted in increased HIV coverage among pregnant women from 18% to 70%.
Conclusions: The study suggests that a continuous dialogue and collaboration resulted in increased capacities at the periphery level health worker, improved HIV kit supplies which sets the demand and supply equilibrium at a higher level. There has been increased awareness on the issues of PPTCT at the beneficiary and as well as at the service provider level, reduction in stigma observed with the outreach work carried out at the field with existing public health workers e.g. ASHA and ANM. As a result of continuous treatment mothers were healthy and continuous follow up till 18th months leads babies were negative.

THPED395

Improving pediatric HIV testing and counseling and linkage to care: A pilot in Uganda

J.K. Nabalonzi[1], G.T. Taasi[1], B.T. Tumwesigye[1], A. Kiyonga[2], E. Bitalakwate[2], J. Kose[3]
[1]Ministry of Health, AIDS Control Programme, Kampala, Uganda, [2]EGPAF, Clinical Services, Kampala, Uganda, [3]EGPAF, Research, Nairobi, Kenya

Background: In many facilities throughout Uganda, there is low uptake of pediatric HIV testing and counseling (HTC). Of those children who are tested and identified as HIV-infected at different entry points, linkage to care and treatment services is also often poor. Of those eligible for antiretroviral treatment (ART), only 57.6**%,** are currently receiving it.
Description: We conducted a pilot to enhance efforts to improve identification of HIV positive children through high-quality pediatric HTC services and the successful linkage of those children to care and treatment, while ensuring high quality of pediatric HTC services. It was implemented December 2014-July 2015, in 20 health facilities within in 5 districts targeting different levels of the health care system in Uganda. Key activities included: pediatric HTC aligning with the highest-risk populations, successful linkage to care and treatment services of those children who are tested and identified as HIV-infected, and use of Quality Improvement (QI) approach to ensure high quality services. The pilot process had 7 key steps namely; selection of the 5 districts and 20 sites; training health care providers; formation of QI teams at facility level, and monthly mentorship using QI approach.
Lessons learned: Comparing the 4 pilot districts performance access to paediatric HTS has generally improved from an average of 4.75% (at baseline - December 2014) to 47.2% as of June, 2015; with the highest district scoring 60% and the lowest 39%. All the 20 pilot health facilities have functional QI teams and actively QI running projects. Improved from 0% pediatric HTC QI projects to 100% (none of the HF had pediatric HTC projects prior to the pilot).
Conclusions/Next steps: Routine conducting of HTC among children at the different entry point of care like; Outpatient, Pediatrics inpatient, nutrition unit, Immunization Clinics; creates the opportunity to increase coverage of pediatrics HTC and has helped us identify all the positive children and linking them to care.

THPED396

Improved utilization of the national pediatric and adolescent HIV/AIDS/TB call center through targeted marketing: Lessons from Baylor-Uganda

F.F. Tendo[1], L. Engurat[2], J. Balungi Kanywa.[3], A. Kekitinwa[4]
[1]Baylor College of Medicine Children Foundation, Call Center, Kampala, Uganda, [2]Baylor College of Medicine Children's Foundation, Call Center, Kampala, Uganda, [3]Baylor College of Medicine Children's Foundation, Manager Medical Care, Kampala, Uganda, [4]Baylor College of Medicine Children's Foundation, Executive Director, Kampala, Uganda

Background: Real time consultation between health specialists and lower cadre health care providers who are front line workers in the communities through call centers can improve HIV/AIDS and TB clinical management skills to achieve the 90:90:90 goals especially in developing countries like Uganda. There is limited documentation on utilization of this approach and the strategies used to improve access by health workers in periphery health care facilities. We describe how the utilization of the National Pediatric and Adolescent Call Center at Baylor-Uganda by health workers was accelerated nationwide from 2015 to 2017.
Description: Following the Call Center inception in 2015, review of data showed that it was receiving about 20 calls per month from health workers. The marketing strategies used at that time were radio and television advertisements which fetched more calls from patients than the real intended audience of health workers. Using a continuous quality improvement approach, the call center team conducted targeted visits to the ART health facilities across the country. Onsite CMEs were conducted and individual weekly SMS reminders sent out to emphasize health workers' awareness. Monthly feedback on the calls was tracked through client satisfaction surveys using the Likert scale (0-10). Responses were categorized into promoters, passives and detractors after which, the Net promoter score (NPS) was calculated.
Lessons learned: Overall, the calls received from health workers increased from 20 to 400 per month from March 2016 to March 2017. The NPS improved from 60% in 2016 to 73.3% in 2017 from a sample of 187 feedback calls made.
The national call center coverage rose from 40% in September 2016 to 94% in September 2017 with calls from over 95 districts in Uganda. Knowledge gaps were identified from frequently asked questions and 47% of the calls indicated a gap in pediatric TB management.
Conclusions/Next steps: Utilization and awareness of the National Call Center for HIV/TB increased following innovative approaches like targeted health worker marketing and site team improvement strategies. The Call Center, as a tool, can identify knowledge gaps that can guide health implementing partners to prioritize key areas for training such as pediatric TB management.

THPED397

Understanding the experiences of adolescents living with HIV in the context of lay health worker service delivery in Swaziland

C. Ahmed[1], N.P. Dlamini[2], T.C. Dlamini[2], A. Nkambule[2], S. Nkambule[2], M. Calnan[2]
[1]Fulbright U.S. Student Program, Washington, DC, United States, [2]University Research Co, LLC, Mbabane, Swaziland

Background: There is a growing prevalence of adolescents living with HIV (ALHIV) and a rising dependence on lay health workers (LHWs) to deliver HIV services throughout sub-Saharan Africa (SSA). Hence, it is important to understand how ALHIV experience and perceive HIV services delivered by LHWs. Expert clients (ECs) are a cadre of LHWs who are living with HIV and are deployed through Swaziland's National Expert Client Program and are generally recognized for effectively engaging people living with HIV within the health care system. However, there have been no studies done to determine how ALHIV experience services delivered by ECs.
Methods: This study utilized a qualitative descriptive approach to:
1) understand the experience of receiving services from LHWs from the perspective of ALHIV and;

2) explore specific health care needs among ALHIV that are addressed through LHW service delivery in Swaziland. Four focus groups among ALHIV (ranging from age 10 and 20 years) and 21 semi-structured interviews among ECs and key informants were conducted in urban, rural, and peri-urban areas throughout Swaziland from April to May 2017.
Results: The semi-structured interviews and the focus groups reveal that ECs are a necessity for ALHIV because
1) ECs are people or adolescents who are also living with HIV,
2) ECs are role models and can share their health care experiences with ALHIV,
3) ALHIV feel comfortable around ECs because they are a trusted member of the community,
4) ECs encourage ALHIV to adhere to their medications through home visitations and peer support groups,
5) ECs play a crucial role in linking adolescents to HIV care and services,
6) ALHIV are able to interact with ALHIV outside of normal work hours,
7) ECs maintain strong relationships with ALHIV by providing psychosocial support,
8) ECs help health care providers improve clinical care,
9) ALHIV find that ECs are more approachable than are professional health workers, and
10) ECs work directly with professional health workers as well as the caregivers of ALHIV.
Conclusions: ECs are a valuable cadre in adolescent-specific HIV service delivery. Future research should focus on the impact that LHWs have on health outcomes among ALHIV in SSA.

THPED398

Preventing loss to follow up at health facilities during transitioning from pediatric to adult clinic by adolescents living with HIV

F. Umoh[1], O. Morolake[1], T. Oyedemi[2], A. Adegoke[1]
[1]Positive Action for Treatment Access (PATA), Program, Ikeja, Nigeria, [2]Positive Action for Treatment Access (PATA), Administration, Ikeja, Nigeria

Background: In Nigeria, children living with HIV are expected to transit to adult clinic at age 15 as most health facilities do not have adolescent specific clinics offering youth friendly services. This has resulted in loss to follow up of adolescents during the transition from paediatric to adult care. This abstract presents the effort of PATA to address this challenge and ensure retention in treatment for children moving to adult health facilities.
Description: This initiative involves intensive training for selected adolescents living with HIV as peer mentors and treatment educators. At the end of the training, they are supported over a designated period and placed in HIV clinics to provide transitioning treatment support who are transiting from pediatric to adult care. In partnership with treatment sites, clinic based adolescent support groups are also established to serves as platforms for team bonding, experience sharing and promotion of treatment adherence. During the monthly meetings of the support groups, sexuality education sessions are skills acquisition trainings are also carried out.
Lessons learned: Effective in reducing loss to follow up at facility level for adolescents living with HIV.. In just one year 725 adolescents were reached with adherence counseling and support services in 3 sites. Promotes engagement of young people in HIV response. Effective in sustaining clinic based support groups for adolescents 'as monthly meetings and sessions at support groups are coordinated by the adolescents. Reduces the time spent at clinics by the adolescents' who get prompt attention from their peers. Prevents facility based stigma and discrimination as the adolescents are attended to by their peers. Reduces the pressures of work on adult care givers
Conclusions/Next steps: Uptake of treatment services at facilities by adolescents is most successful with the active participation of the adolescents themselves. Adolescents living with HIV are willing to serve as peer mentors, treatment educators and stigma fighters for their peers. All they need is the strengthening of their capacity and creation of appropriate enabling environment.. We recommend active engagement of adolescents at the clinics to provide services for their peers.

THPED399

Identification of barriers and potential strategies to improve the performance of publicly-funded healthcare facilities for people living with HIV in Mexico: A mixed methods and user-centered approach

L. Chavira-Razo[1], L.F. Barraza-Araiza[1], A. Salas-Ortiz[1], G. La Hera-Fuentes[1], S. Bautista-Arredondo[1,2]
[1]National Institute of Public Health, Mexico, Health Economics, Cuernavaca, Mexico, [2]UC Berkeley, School of Public Health, Berkeley, United States

Background: Since 2003, Mexico offers universal access to free antiretroviral therapy (ART). However, only 34% of people living with HIV (PLWH) have an undetectable viral load. Most research to address this issue has focused on the individual determinants of poor health outcomes, yet little is known regarding the influence of the healthcare provision process in middle-income settings, where ART is available through a public network of health services.
Therefore, we aim to analyze the barriers that public HIV healthcare facilities face in Mexico, in order to identify key strategies to improve their performance.
Methods: From September to October 2017 we conducted 40 semi-structured interviews with healthcare providers in 12 Mexican cities. Additionally, we applied an online survey to 196 healthcare providers from a nationally representative sample. Interviews and surveys focused on the barriers that facilities face during the healthcare delivery process.
We used 'Design-thinking', a user-centered approach, to guide the identification of barriers and the building process of the strategies. Finally, we implemented a discourse analysis and triangulated it with the descriptive results of the surveys.
Results: We identified several barriers that the facilities face to provide optimal care, and categorized them into 4 levels of necessity:
1) Lack of basic resources, especially office supplies, human resources and medical equipment.
2) Need of resources to provide ART and clinical monitoring, such as transportation means for antiretroviral drugs and blood samples.
3) Lack of drugs and lab tests for comorbidities, including opportunistic infections. And
4) beyond the facility, mostly discrimination and rejection of patients at referral hospitals.
Finally, we identified two potential strategies to overcome these barriers: improving the communication channels between facilities and higher organizational levels in order to achieve a sustainable and effective resolution of needs; and strengthening the facilities' capacity to find local allies and enrich their networks, to temporarily overcome transportation and supply barriers.
Conclusions: Despite the immense advance in ART access in Mexico, several challenges in the healthcare provision process remain. In order to successfully address them, additionally to delving into the facilities' current obstacles, we need to further test and assess the feasibility and effectiveness of our proposed strategies.

THPED400

Healthcare providers' attitudes and willingness to prioritize HIV prevention and treatment for gay and transgender communities in Manila, Philippines: An opportunity for provider-focused interventions

A. Restar[1], R. Chan[1], P. Rodarte[1], S. Gomes[1], A. Adia[1], E. Yoshioka[1], L. Hernandez[2], D. Operario[1]
[1]Brown University, Department of Behavioral and Social Sciences, Providence, United States, [2]University of the Philippines, Manila, Philippines

Background: Gay and transgender youths who have sex with men (GTYSM, ages 18-29) are disproportionately impacted by the rising HIV epidemic in the Philippines, where HIV incidence has more than doubled in the past six years. In the UNAIDS' 2017 Global Report, 86% of new HIV cases are concentrated among GTYSM. However, little is known about healthcare provider's capacity to servicing these populations. We ex-

plored providers' attitudes and their perspectives on prioritizing delivery of HIV prevention and treatment services to GTYSM communities in Manila, Philippines.
Methods: Between July and August 2017, we conducted semi-structured qualitative interviews with healthcare providers (n=15) delivering HIV-related services in hospitals, clinics, and organizations in Manila. Using Dedoose qualitative software, interviews were transcribed and examined for attitudes and willingness in providing HIV-related services for GTYSM.
Results: Overall, healthcare providers displayed positive attitudes in welcoming GTYSM patients who are at-risk for or living with HIV in their practice. Most expressed treating every patient equally and providing services regardless of their patient's gender or sexual identity. However, many also expressed hesitancy in providing HIV-related services due to: little to no training in providing care specific to GTYSM, difficulty understanding the importance of being sensitive to patient's gender and sexuality when delivering services, and fear that targeted services with GTYSM's could lead to further stigmatization of these communities. Although most healthcare providers were unsure how to tailor and prioritize HIV-related services for GTYSM, some providers acknowledge the importance of engaging GTYSM communities in their practice, learning how to improve their services from GTYSM's perspectives, and expressed willingness for HIV-related trainings focused on providing gender affirmative and culturally sensitive care for GTYSM.
Conclusions: Healthcare providers are willing to deliver HIV-related services to GTYSM patients but unsure how to approach service delivery specifically and sensitively among these highly-impacted populations. Provider-focused interventions that train providers to improve their knowledge, skills, and attitudes on GTYSM' gender and sexual identities, as well as their familiarity and sensitivity with GTYSM's lived experiences and health needs, are likely to increase healthcare providers' engagement in delivering and prioritizing gender affirmative and culturally sensitive care for GTYSM in Manila.

THPED401

"There's More to HIV than a Pill": Operationalizing and measuring a harm reduction approach to HIV clinical care

M. Hawk[1], M.R. Friedman[2], R.W.S. Coulter[3], S. Creasy[1], J.E. Egan[1], S. Krier[2], S. Kinsky[4]
[1]University of Pittsburgh Graduate School of Public Health, Behavioral and Community Health Sciences, Pittsburgh, United States, [2]University of Pittsburgh Graduate School of Public Health, Infectious Diseases and Microbiology, Pittsburgh, United States, [3]University of Pittsburgh, School of Medicine, Pittsburgh, United States, [4]University of Pittsburgh Medical Center, Center for High Value Healthcare, Pittsburgh, United States

Background: Retention in care and adherence remain weak points in the HIV treatment continuum, especially among vulnerable and often-marginalized populations including those living in poverty. Harm reduction refers to interventions aimed at prioritizing the reduction of the negative effects of health behaviors without necessarily extinguishing or stigmatizing the problematic health behaviors. A harm reduction-informed approach to care may help to improve clinical outcomes among vulnerable patient populations.
Methods: To test associations between patient-perceived aspects of care and improved clinical outcomes we conducted a patient survey in an HIV clinic in a mid-sized city in the United States. We identified 3 items, assessed on a 5-point Likert scale, related to the harm reduction principles of humanism: respect; user-friendly, unhurried care; and clinic responsiveness. Multivariable linear regressions assessed differences in perceived clinic humanism by race, ethnicity, gender, and poverty status (n=177). Multivariable linear regressions controlling for sociodemographics assessed effects of perceived clinic humanism on
(a) medication adherence for participants using ART (n=154); and
(b) concurrent viral load result (n=177), via de-identified linkage to participants' electronic health records.
Structural equation models, adjusting for covariates, assessed total and indirect effects of perceived clinic humanism on relationships between poverty and ART adherence and poverty and viral load.
Results: Of sociodemographic predictors, only poverty status was associated with lower perceived clinic humanism (=0.65; $p< .05$). Lower perceived clinic humanism was significantly associated with lower ART adherence (= - 0.34; $p< .05$) and with higher viral load (=0.07; $p< .05$). Perceived clinic humanism significantly mediated the relationships between
(a) poverty and ART adherence ($p< .05$) and
(b) poverty and viral load ($p< .01$).
Building on these findings and on the extant literature, we developed a set of Harm Reduction Principles for Healthcare settings to operationalize this HIV care approach. These include humanism, pragmatism, individualism, autonomy, incrementalism, and accountability without termination.
Conclusions: We are currently developing two complementary scales to test patients' and providers' perceptions of the degree to which harm reduction-informed HIV care is delivered incorporating the full set of harm reduction principles. Additional research is needed to assess the impact of harm reduction-informed care on clinical outcomes of vulnerable PLWH.

THPED402

The effect of differentiated care interventions on the workload of facilities providing ART in Onandjokwe district in Northern Namibia

S. Geza[1], P. Kalimugogo[2], J. Mdala[2], P. McQuide[2], A. Nepela[3], R. Shipena[3], S. Omukongo[3], P. Kandume[4], F. Velishavo[2], A. Zegeye[5], N. Hamunime[3], G. Mazibuko[6], S. Mwinga[6], E. Sagwa[6]
[1]USAID HIV Clinical Services Technical Assistance Project, Windhoek, Namibia, [2]IntraHealth International, Windhoek, Namibia, [3]Ministry of Health and Social Services, Windhoek, Namibia, [4]IntraHealth Namibia, Windhoek, Namibia, [5]USAID, Windhoek, Namibia, [6]Management Sciences for Health, Windhoek, Namibia

Background: The Namibia Ministry of Health and Social Services (MOHSS) 2016 ART guidelines recommend implementing differentiated care models (DCM) for eligible stable clients. Stable clients required at least four clinical reviews per year, resulting in high workload and long waiting times at health facilities. In January 2018, IntraHealth International, with USAID funding, analyzed program data to ascertain the effects of implementing DCM on workload for district ART services.
Description: Onandjokwe district in northern Namibia has one hospital and 10 primary health care (PHC) facilities providing ART to over 11,000 clients. In June 2017 all facilities began planning for, or implementing, at least one of two DCM for eligible stable clients: fast-track ARV refills at facilities and community ARV refill groups (CARGs) that are linked to the nearest facility. In both models, clients receive ARV refills every three months and are seen semiannually. Data from January-December 2017 were sourced from facilities' electronic patient monitoring systems, electronic dispensing tools and facility reports and quantitatively analyzed in Excel.
Lessons learned: Seven of ten PHC facilities are providing ART to 4,605 clients of which 357 (7.8%) are in CARGs; two of these facilities are also providing fast-track ARV refills to 81 clients, which translates to 876 fewer visits per year. Onandjokwe hospital has 60 out of 6,107 clients (1%) in CARGs and 732 (12%) on fast-track ARV refills, together amounting to 1,584 fewer visits per year. A comparison of client visits in February and November 2017 revealed that six of the seven PHC facilities and the hospital saw 33% and 68% fewer clients, respectively, in November.
Conclusions/Next steps: Within six months of implementing DCM, Onandjokwe district is experiencing a reduction in ART-related workload. The hospital is experiencing faster decline because clients are also transferring to PHC facilities. The rate of CARGs enrollment and fast-track ARV refills is expected to intensify in 2018, resulting in significant further reductions in facilities' workloads. National HIV programs should continuously monitor and evaluate such interventions and use the findings to advocate for scale-up. Findings can be used to conduct workload analyses to support equitable distribution of scarce human resources.

HIV services in community settings

THPED403

Community-based HIV care and treatment: Differential care among stable key population positives in Ghana

S. Benefour[1], P. Tapsoba[1], T. Waimar[2], E. Adiibokah[1], A. Kodua Nyanor[3], E. Bruce[4], H. Nagai[3]
[1]Population Council, Accra, Ghana, [2]Population Council, New York, United States, [3]John Snow Inc., Accra, Ghana, [4]John Snoe Inc., Accra, Ghana

Background: ART delivery has essentially been concentrated in health care facilities in Ghana. The Ghana national ART guidelines, which is in line with the Treat All policy makes provision for all people living with HIV regardless of clinical and immunological status to initiate treatment. This shift calls for meeting diverse patient needs. Addressing the diverse needs of HIV positive key populations (KP) such as men who have sex with men (MSM) and female sex workers (FSWs) in care require proper segmentation to provide for the unique needs of KPs receiving ART for at least 1 year with no adverse drug reactions requiring regular monitoring, no current illnesses or pregnancy, a good understanding of lifelong adherence, and evidence of treatment success.
Description: The USAID Strengthening the Care Continuum project, implemented by JSI, aims to improve the Government of Ghana's capacity to provide quality and comprehensive HIV services for KPs and people living with HIV by improving their access to and use of HIV services while reducing stigma and discrimination in health settings. The project trained 61 Case Managers (CM) comprising 3.2% healthcare workers and 96.8% peer educators. CMs follow up on HIV positive persons who consent to be followed up. Feedback from peer review meetings and field visits reveal that stable patients prefer to do their refill at designated community spaces and CMs they trust instead of the clinic. At one Polyclinic in Accra, there are 48 HIV-positive MSM enrolled in care, 38 initiated on ART out of whom 30.0% collect their refill at home and designated community spaces.
Lessons learned:
- From the focus group discussions with HIV positive MSM and FSWs, 25% wanted their refill from CMs, 5% by family members, 50% by health care workers while 20% preferred clinicians.
- Stable patients doing their refill at designated community spaces help to decongest the clinics and allow providers to give more attention to patients with more complex conditions.

Conclusions/Next steps:
- Community-based distribution for stable patients can reduce clinic visits and improve adherence.
- HIV positive KPs facilitate the access of their stable peers to ART at homes and agreed upon community spaces.

THPED404

Outsiders, Insiders and Intermediaries: Village Health Teams' negotiation of roles to provide high quality HIV care in Nakaseke, Uganda

S. Perry[1], C. Fair[1], S. Burrowes[2], S.J. Holcombe[3], R. Kalyesubula[4]
[1]Elon University, Elon, United States, [2]Touro University, Vallejo, United States, [3]University of California, Berkeley, United States, [4]Makerere University School of Medicine, Kampala, Uganda

Background: In 2001, Uganda's Ministry of Health instituted Village Health Teams (VHTs) using community health workers, as a formal part of the health system to increase access to community-based care, including HIV prevention/treatment services. Tensions may emerge as VHTs navigate dual roles as community members and care providers, posing challenges for quality of care and VHT retention. This study explores the benefits and challenges experienced as VHTs' utilize dual roles to provide high-quality HIV care.
Methods: Twenty-five semi-structured interviews were conducted with one-third of the VHTs affiliated with a rural clinic in Nakaseke, Uganda in 2017. Interview questions focused on challenges VHTs face in providing services, and strategies for improving quality care. After translation from Luganda, the local language, and transcription, interviews were analyzed using grounded theory to identify emergent themes.
Results: The majority of VHTs were female (n=16), with a mean age of 45.5 years, and 11.1 mean years of VHT work. Three themes emerged around VHTs' perceptions of their roles: community insiders, professional outsiders, and intermediaries. All VHTs capitalized upon the duality of their position, shifting roles depending upon the challenges presented. A caregiver insider role facilitated their ability to build rapport and discuss sensitive issues such as HIV with clients. As community members, VHTs leveraged existing community structures to educate clients in familiar settings such as "drinking places", where they felt comfortable. However, this intimate role posed challenges as some clients hid their status, fearful that the VHT would break confidentiality. Occupying a professional outsider role offered some VHTs more respect. Their specialized knowledge allowed them to follow-up with patients - accompanying reluctant clients to testing, explaining medication, and ensuring ARV adherence. Some VHTs faced opposition, as patients were suspicious of their motives as government representatives. In balancing these two roles, the VHTs adopted a third as intermediaries, connecting the community to resources and services in the formalized health care system.
Conclusions: As countries continue to scale up HIV services in rural community settings using VHTs, supervision and training are critical so VHTs are prepared for the challenges of assuming multiple roles within their community. Ethical dilemma training is advised.

THPED405

Bridging the gap: Reaching men for HIV testing through religious congregations in rural South Africa

R.P.H. Peters[1,2,3], S. Khoza[1], R. Mbeng[4], G. Kerongo[4], N. Befula[4], N. Mbambazela[1], J. Railton[1], H.E. Struthers[1,5], P. Mabizela[4], J.A. McIntyre[1,6]
[1]Anova Health Institute, Johannesburg, South Africa, [2]University of Pretoria, Department of Medical Microbiology, Pretoria, South Africa, [3]Maastricht University Medical Centre, Department of Medical Microbiology, Maastricht, Netherlands, [4]International Network of Religious Leaders Living with or Personally Affected by HIV&AIDS (INERELA+), Johannesburg, South Africa, [5]University of Cape Town, Department of Medicine, Cape Town, South Africa, [6]University of Cape Town, School of Public Health & Family Medicine, Cape Town, South Africa

Background: Men are underrepresented in the HIV programmes in sub-Saharan Africa. In this region, religious congregations play an important role in daily life. Bridging the religious and health sectors could provide an opportunity to reach men who normally do not engage with health-care. We aim to determine the potential of reaching men for HIV testing through religious congregations.
Methods: We implemented an innovative model of building capacity in religious congregations to increase engagement with the HIV programme. Following training of religious leaders, a family-centred mobilisation approach was implemented with provision of general information about HIV during Church services and including specific male-focused messages. Following this mobilisation period, the programme was concluded on a designated Sunday when HIV testing services (HTS) were provided at the Church. In this cross-sectional study we collected gender/age-disaggregated operational data on uptake of HTS services among church attendants.
Results: To conclude the capacity building programme, we provided HTS at 27 religious congregations with an estimated attendant population of 5250 individuals over a 15-months period in rural Mopani District, South Africa. A total of 1971 individuals attended the Church service on designated HTS days; 1416 (72%) of the attendants were female and 555 (28%) were male, with a median age of 32 years. HTS uptake by men (52%) was significantly higher than by women (40%; $p < 0.001$). A large proportion of men (35%) reported testing for HIV for the first time; this was significantly higher than reported by women (18%; $p < 0.001$). HIV test positivity rate was in a similar range for men and women (2.1% vs. 3.7%; $p=0.21$). Men testing HIV-positive at the Church were all >40 years old (median 50 years; range 41-64 years).
Conclusions: This innovative approach was successful in reaching a relatively large group of (older) men with unknown HIV status that has not engaged with HIV testing services before. Male uptake of HIV test-

ing was good with an HIV positivity rate in similar range to that of other community-based testing activities in this region. We have demonstrated promise of connecting religious and health sectors to improve male engagement with the HIV programme in rural African settings.

THPED406

Using m-counseling to increase linkage into care among HIV positive men who self test. A TASO Masindi experience

M. Nanfuka[1], A. Choko[2], A. Kisembo[1], J. Birungi[1], S. Helleringer[3]
[1]The AIDS Support Organisation, Kampala, Uganda, [2]Liverpool Wellcome Trust Clinical Research Programme, Blantyre, Malawi, [3]Bloomberg School of Public Health, John Hopkins University, Baltimore, United States

Background: HIV self testing is a strategy that has been employed to increase the number of people who know their HIV status. However linkage of people who test positive following self testing still remains a big challenge towards the attainment of the second and the third UNAIDS 90s.
We used the peer to peer distribution of HIV self test kits among fishermen and m-counseling to improve on the linkage into care for those who tested HIV positive.
Methods: Through the TASO expert clients, we identified fishermen who were in care and those who had never for HIV in the last one year.
These men were trained on the usage of the kit, given basic HIV counseling skills and information. Each fisherman received 5 kits, instruction leaflet and a number for a counselor for distribution to their fellow fishermen. Participants who received the kits were encouraged to call the counselor in case they needed more information and counseling . On calling, the counselor provided online counseling and encouraged the participants to return the used kits to the health facility.
Results: 19 fishermen of whom 10 were HIV positive and in care and 9 hadn't tested in the last one year approached 115 fishermen and 95 accepted to self -test . 4 out of 95 men were HIV positive, of whom 3 first called the counselor immediately after testing and shared their results. All the three were counseled on phone and encouraged to go to the health facility for confirmatory testing and were all linked into care. 1 out of the 4 who tested positive already knew his HIV status and was already on ART and this information was provided to the counselor on phone who confirmed that he was already linked into care.
Conclusions: Through m-counseling HIV positive men were influenced to go to a nearby facility for confirmation of results and linkage into care. Therefore in self-testing programs m-counseling replaces the convention counseling and contributes to linkage of HIV positive persons into care.

THPED407

Index partner testing in the community key to identifying new people living with HIV (PLHIV)

C. Pheko, B. Mantu, G. Morineau, B. Segwabanyane, J.M. Irige, O. Sokwe, C. Lesedi
FHI 360 Botswana, Advancing Partners and Communities (APC), Gaborone, Botswana

Background: According to UNAIDS (2017), 85% of people living with HIV (PLHIV) in Botswana know their HIV status. The Advancing Partners and Communities (APC) project in Botswana, funded by PEPFAR through USAID, is implementing targeted HIV testing services (HTS) to identify the remaining PLHIV who are unaware of their status, placing emphasis on index partner testing to offer HIV testing to sexual contacts of PLHIV.
Description: HTS training was provided to lay HTS counsellors in collaboration with the Ministry of Health and Wellness. APC developed standard operating procedures on targeted HIV testing to guide HTS counselors on strategies to obtain contact information of sexual partners from PLHIV newly identified through community testing. HTS counsellors were provided mobile phones, data bundles and local transport fare to facilitate reaching index partners of newly identified PLHIV and PLHIV who were new on antiretroviral treatment for testing.
Lessons learned: All targeted testing modalities have potential to identify new PLHIV, however, HIV prevalence among those tested through index partner testing was substantially higher than among those tested through other strategies. From October 2016 to September 2017, the APC project tested 32,382 people for HIV and identified 2,012 PLHIV (6.2%). 3,365 people were tested through index partner testing,17% of whom tested HIV positive. Out of 17,574 clients tested through targeted in-home testing, 6% tested HIV positive. Three percent of people tested through targeted mobile and community based VCT tested positive among the 10,481 and 962 people tested, respectively. Index partner testing was resource-intensive and time-consuming; repeated visits are often required to obtain partners' information from newly identified PLHIV.
Conclusions/Next steps: Index partner testing is an effective strategy to identify new PLHIV. Index partner testing should be incorporated into the national strategy to identify undiagnosed PLHIV, link them to HIV care and treatment, and prevent further new HIV infections in Botswana. Advocacy at national level for resources allocation towards index partner testing will enable scaling-up index partner testing through the set-up of a partnership between community and health facility service providers.

THPED408

Food security and nutrition vulnerability assessment among people living with HIV in South Sudan

J. Mukisa[1], D. Nabiwemba-Bushara[2], R. Smith[3], D. Aburmishan[3], L.L. Lole[4], E. Letio[5]
[1]World Food Programme, Nutrition, Juba, South Sudan, [2]UNICEF, Nairobi, South Sudan, [3]World Food Programme, Juba, South Sudan, [4]South Sudan Network of People Living with HIV and AIDS, Juba, South Sudan, [5]Network of Positive Women United, Juba, South Sudan

Background: South Sudan ranks among top 30 countries in the world which account for 89% of new HIV infections. Households of People living with HIV (PLHIV) are among those most affected by the persistent conflict, displacements, poverty, food insecurity and malnutrition in the country. The United Nations World Food Programme (WFP) supports a nationwide institutional feeding programme (IFP) for PLHIV but there was no reliable information on their food security and nutrition situation. The vulnerability assessment was conducted to provide reliable national data on food security and nutrition among households affected by HIV in order to inform appropriate responses.
Methods: Qualitative and quantitative data was collected from 933 households of PLHIV (aged 15 years and above) in 7 of the 10 former states of South Sudan, using a two stage cluster sampling method. The Consolidated Approach to Reporting Indicators for food security (CARI) was used to measure the degree of food insecurity. The nutrition status of 942 PLHIV was assessed using Body Mass Index (BMI) and Mid Upper Arm Circumference (MUAC).
Results: Majority of the household heads (77.2%) were PLHIV, 45% were headed by women and 41% households were food insecure. A significant proportion of households (60%) relied on unsustainable sources of food including remittances, begging and the sale of natural resources and alcoholic beverages. One in three PLHIV households consumed less than the recommended four food groups. The factors affecting food security included: nutrition and health status of PLHIV, ability to engage in agriculture, stigma and discrimination. The prevalence of acute malnutrition among PLHIV based on BMI was 26.2% and 19.7% based on MUAC. The risk of malnutrition was significantly higher among female headed households, those hosting an orphan or with a lower wealth index.
Conclusions: The food security and nutrition situation of PLHIV in South Sudan is alarming. PLHIV headed households had an increased risk of food insecurity. Special consideration should be made to provide food and nutrition support for PLHIV on ART and those with limited workability. The findings triggered a revision of the WFP HIV/AIDS nutrition strategy which is now aligned with national and global policies.

THPED409

Improving referrals from health facilities to community based structures: Strategies used to improve referrals in the Rwenzori Region in Uganda

S. Amodot, A. Kekitiinwa, R. Kizito, A. Lutaaya
Baylor College of Medicine Children's Foundation-Uganda, Health, Kampala, Uganda

Background: Achieving the UNAIDS 90-90-90 targets calls for the adoption of innovative and efficient strategies for delivering HIV and prevention, care, and treatment services. Baylor-Uganda developed a referral and linkage strategy to improve access to comprehensive HIV/AIDS/TB services as well as other wrap around services. The strategy focuses on strengthening bi-directional referrals. While referrals from the community to the facility were high, the referrals from the health facilities remained low in the Rwenzori Region. Strategies were implemented with the aim of increasing the number of referrals from the health facilities to the communities.

Methods: We convened a District based re-orientation meeting to review jointly the strategy. The meeting was also an opportunity to discuss and understand why fewer referrals from the health facilities. Causes were identified and joint action plans developed jointly by community structures and health facilities mapped out in their catchment areas. Notable causes included health workers not aware of services to refer, poor documentation of referrals and lack of knowledge on the model. Strategies developed included pinning up referral services in the health facilities, CMEs, on-site mentorship, coaching, monthly review meetings, health facility focal persons to create demand and timely updating of the linkage and referral register.

Results: Referrals in October, 2016 were 851 with a completion rate of 67% and with the strategies there has been gradual improvement to 5,233 (92% completion) in December, 2017.

Community referrals have contributed to improved Retention rates of 91% for ART clients for eMTCT and reduced Loss to follow up from 6% to 4% attributed to functionality of the community health facility linkage and referral process.

Conclusions: Strengthening the referral and Linkage model is critical in attaining the 90:90:90 goal as well as increase demand and utilization of HIV services at community level.

THPED410

Improving linkages and retention for TB clients through community health workers: A case study of Rwenzori, Uganda

S. Amodot, A. Kekitiinwa, A. Mukuye, A. Lutaaya
Baylor College of Medicine Children's Foundation Uganda, Health, Kampala, Uganda

Background: Over all Tuber culosis (TB) prevalence is 253/100,000 approximately 87,000 new cases occurring every year (Uganda National Tuberculosis Prevalence survey, 2015). Despite the high prevalence, there is minimal integration of interventions delivered by community structures into the existing formal health system. Community health workers (CHWs) have been considered as a key pillar in attainment of the UNAIDS 90-90-90 targets as well as the STOP-TB strategy. Uganda has embraced the use of CHWs in improving health care service delivery. Baylor-Uganda within its community framework model has used CHWs to assess their role towards timely linkages and TB retention rates in health facilities with Rwenzori region, Uganda.

Description: In 2016, Baylor-Uganda initiated a community framework model in reaching the 90:90:90 target. 289 CHWs were selected in the community through the District Health office and trained in Comprehensive HIV Care for 6 days using a tailored curriculum. A follow on onsite mentorship was conducted.

Outcomes of interest include retention of clients undergoing the TB treatment for a period of 12 months and timely Linkage for referrals made from the community to the facility for presumptive TB cases.

The TB program within Baylor-uganda in Rwenzori, embraced and utilized the community framework model to improve referral, linkage and retention. Data collected was collected over a period of 12 months from October, 2016 to October, 2017 and data was descriptively analyzed using excel.

Lessons learned: Linkage of TB clients to Community health workers and emphasis on monthly reporting greatly led to improvement of TB loss to follow up. There was a notable drop in Loss To Follow Up Kyenjojo dropped from 21% to 3%; Kamwenge from 6% to 2% and Kabarole from 13% to 2% for the period December 2016 and September, 2017.

Conclusions/Next steps: Community health workers when fully engaged improve identification, linkage to health facility for TB diagnosis and retention in care for those tested positive.

THPED411

Pathway to improved health outcomes and graduation of orphans and vulnerable children in the context of a generalized HIV/AIDS epidemic. Experience from Swaziland Umliba Loya Embili project

D. Kisyombe[1], N. Miller[2], J. Volle[3], E. Kuhlik[3], B. Ginindza[1], L. Huang[4]
[1]Pact Inc., Monitoring and Evaluation, Mbabane, Swaziland, [2]Pact Inc, Program Delivery, Mbabane, Swaziland, [3]Pact Inc, Program Advancement, Washington DC, United States, [4]Georgetown University, Washington DC, United States

Background: Pact's USAID-funded REACH III (2015-2018) project is designed to respond to the HIV prevention and impact mitigation needs of vulnerable populations in Swaziland. In 2015, Pact conducted a vulnerability assessment of adolescents (10-19 years) to determine enrollment eligibility and service needs of orphans and vulnerable children (OVC). Based on the results of the vulnerability assessment REACH III tailors services to OVC in the areas of HIV/health, education, household economic strengthening, child protection, and psychological support. The assessment also acts as a mechanism for monitoring the level of OVC vulnerability and determining the appropriate time for graduation from the program.

Methods: The baseline and follow-up vulnerability assessments were conducted with a cohort of OVC (n=18,042) and their caregivers in 2016 and 2017. The assessment scores and ranks vulnerability into three categories: most vulnerable (qualified for OVC and HIV prevention and/or care and treatment services); at risk of becoming OVC (qualified for HIV prevention services); and good wellbeing. Descriptive analyses and the Stuart-Maxwell test were conducted in Stata to determine statistically significant differences between enrollment and reassessment. Cohen's kappa analyzed inter-rater reliability.

Results: The Stuart-Maxwell test yielded statistically significant (p=0.00) change in the OVC vulnerability, with 10.2% of OVC shifting from the "most vulnerable" category at enrollment up to "at risk" at follow-up. Fifty-five percent of OVC who did not disclose their HIV status at enrollment reported being HIV-negative at reassessment, and 15.7% of OVC remained HIV-negative at reassessment. Self-reported VMMC rates climbed 9.1% at reassessment.

The cohort also saw statistically significant improvements in OVC school enrollment, attendance, and progression, and household economic security at follow-up over baseline.

Conclusions: The results demonstrate that providing a tailored package of services to OVC based on a vulnerability assessment is associated with decreased vulnerabilities and improved social and health outcomes for OVC, which leads to OVC graduation from support programs. The results also suggest that OVC support services and demand creation services at the household level over time may lead to HIV status disclosure, as well as increased uptake of health and HIV services, including VMMC, HIV testing services and linkages to care and treatment services.

THPED412

Achieving viral load suppression for men who sell sex to men (MSM/MSW) in Nairobi: A community led and centered approach

P. Irungu[1], E. Ndunda[2], J. Mathenge[2], P. Angote[3]
[1]Health Options for Young Men on HIV/AIDS/STIs, Monitoring, Evaluation, Research, Advocacy and Learning, Nairobi, Kenya, [2]Health Options for Young Men on HIV/AIDS/STIs, Program Management, Nairobi, Kenya, [3]Health Options for Young Men on HIV/AIDS/STIs, Clinical Services Lead, Nairobi, Kenya

Background: HOYMAS is registered as a CBO in Nairobi which has contributed remarkably towards progressive improvements in the number of MSM/MSW accessing HIV and STI prevention services, treatment and care services through networking with government led clinics and the community led comprehensive services clinic to provide services to 4500MSM/MSW.
Description: Since 2015, HOYMAS runs the community led clinic where HIV/AIDS prevention, treatment, and care services are offered. Peer educators conduct outreach and community mobilization activities to bring HTC services closer to clients as well as refer others to the clinic.
In addition, the HOYMAS community drop in centre continues to attract positive MSM for services including:
Support groups and Encounter groups where positive MSM supported each other and developed messaging to reach out other positive peers who are not yet in care, share experiences with ARV medication, side effects, disclosure and sex work.
Other innovations that have ensured that MSM are retained on care include utilizing Social media, including WhatsApp and Facebook to keep engaging the positive MSM who join support groups, continuous Peer and sex education that is offered through IEC materials, daily health education forums in the drop in centre, continuous Phone reminders by the clinician and improving relationships with strategic partners who provide a referral point for viral load testing for our patients.
As a result these activities and establishment of the HOYMAS community led clinic, 84 MSM/MSW received VL testing with 79 achieving VL suppression in the year 2017 and an improvement in turnaround time in VL results (from 6months to 2 weeks) through working with strategic partners.
Lessons learned: Social media engagement is key in ensuring people understand the importance of adherence, building strategic partnerships is key for grass root organizations who cannot provide all services across the 90-90-90 continuum of care, letting the HIV+ KP design and lead their own support groups and sharing forums is instrumental in reaching and maintaining the 3rd 90%.
Conclusions/Next steps: Continue utilizing social media for complementing the physical support and encounter groups, enhance peer education through continuous community outreaches and create more strategic and referral partners with donors and government.

THPED413

Virtual outreach finds hard-to-reach HIV+ MSM in Cambodia

P. Sophat[1], L. vanSeng[2], T. Samnang[3], S. Sokhin[4], N. Bora[5], K. Sothy[6], K. Vichet[7], S. Sopheap[8], R. Sopha[9]
[1]FHI360, Prevention Innovation in MSM and TG, Phnom Penh, Cambodia, [2]National Center for HIV/AIDS, Dermatology and STD, HIV/AID Prevention, Phnom Penh, Cambodia, [3]NCHADS, Behavioral Communication Change, Phnom Penh, Cambodia, [4]MHSS, Prevention Innovation in MSM and TG, Phnom Penh, Cambodia, [5]National Center for HIV/AIDS, Dermatology and STD, Care and Treatment, Phnom Penh, Cambodia, [6]Men's Health Social Service, Virtual Outreach Online for HIV Testing, Phnom Penh, Cambodia, [7]Men's Health Cambodia, Virtual Outreach Online for HIV Testing, Phnom Penh, Cambodia, [8]FHI360, LINKAGES, Phnom Penh, Cambodia, [9]KHANA, Flagship, Phnom Penh, Cambodia

Background: HIV prevalence among men who have sex with men (MSM) in Cambodia is estimated at 2.3%, but this low prevalence belies substantial risk and potentially high HIV incidence in this population. Despite numerous and diverse peer outreach and web-based interventions, a majority of MSM report low intervention exposure and HIV testing rates. Finding high-risk MSM in conventional outreach has proven challenging. Of 5,610 MSM reached by conventional outreach in 2015, 3,674 agreed to testing but only 27 were found HIV positive (0.73%).
Description: To find men actively seeking sexual partners online and presumed to be at higher risk, LINKAGES recruited communicators among local MSM NGOs to conduct virtual outreach online. Communicators broadcast messages to potential MSM clients online in chat rooms and on MSM dating sites. Messages include HIV prevention themes, including consistent condom use, HIV/STI risk reduction, and the importance of early testing and treatment. MSM who had not been previously tested were encouraged to come to an NGO drop-in center (DIC) to meet a peer counselor who would do a finger-prick combined HIV and syphilis test. If reactive for HIV and/or syphilis, the counselor accompanied them for confirmatory testing at the local Chouk Sar KP friendly clinic.
Lessons learned: Between November 2016-December 2017, 1,750 MSM were reached by virtual outreach, of which 354 (20.2%) accepted screening at the DIC. Of these 354, 26 (7.35%) were found HIV reactive, 10 times the yield via conventional outreach. Of these 354, 20 (5.7%) were syphilis reactive. All who were HIV reactive were successfully referred for confirmatory HIV testing, and all were enrolled in pre-ART. Those who had positive syphilis serology or STI symptoms were successfully referred to treatment.
Conclusions/Next steps: This intervention showed a 10-fold increase in yield compared to conventional outreach, demonstrating that virtual outreach for MSM can be used to reach high-risk and hard-to-reach MSM not reached or tested by traditional outreach. Further strengthening of the online outreach counseling to increase the proportion of clients willing to participate in facility-based screening or self-testing should be pursued.

THPED414

What are socio-demographic characteristics associated with uncollected HIV test results among caregivers of orphaned and vulnerable children in Tanzania?

A. Exavery[1], A. Barankena[2], J. Charles[1]
[1]Pact/Tanzania, MERL, Dar es Salaam, Tanzania, United Republic of, [2]Pact/Tanzania, Programs, Dar es Salaam, Tanzania, United Republic of

Background: Realization of the ambitious 90-90-90 target to end the HIV epidemic depends hugely on the success of the first 90 that targets to have 90% of all people living with HIV knowing their HIV status by 2020. This analysis assesses the magnitude and characteristics of caregivers of orphaned and vulnerable children (OVC) who tested for HIV but never showed up to received their test results in Tanzania.
Methods: Data originate from a community-based, USAID-funded *Kizazi Kipya* Project that seeks to increase uptake of HIV/AIDS services by OVC and their caregivers in Tanzania. Caregivers who were served by the project during January-March 2017 in 18 regions of Tanzania with complete information on their HIV status, household socioeconomic status and socio-demographic characteristics were analyzed. HIV status was self-reported. Multilevel mixed-effects logistic regression was performed, with those that tested for HIV but did not receive test results forming the outcome.
Results: The analysis included 59,683 caregivers of OVC, 71.2% of whom were females and the rest males. Of this, 37.2% (n=22,186) reported that they tested for HIV but never waited to receive test results. The rest received their test results, whereby 44.6% and 18.2% were HIV negative and positive respectively. Multivariate analysis showed that fleeing HIV test results was significantly higher among males than females (OR=1.21, 95% CI 1.15-1.27), singles (OR=1.13, 95% CI 1.04-1.24) and widows/widowers (OR=1.12, 95% CI 1.07-1.18) than married, those without health insurance (OR=1.38, 95% CI 1.30-1.47) and age 61+ than 18-30 (OR=1.72, 95% CI 1.58-1.88). Better education and wealth status were protective factors ($P < 0.001$).
Conclusions: An outstanding number of caregivers who test for HIV flee test results, suggesting lack of confidence in unpleasant results, thus a missed opportunity for timely care and treatment services for those that may be infected. While better education, economic strengthening

and expanding health insurance coverage appear imperative aspects to improve uptake of HIV test results, an attention is needed for men, the unmarried and the elderly.

Sero-adaptive behaviours: preference, practice, and impact

THPED415

HIV serostatus disclosure to sexual partners and HIV sexual risk behavior among people living with HIV in Botswana: Population-based household survey

K.P.C. Manyake[1], K.E. Wirth[2], M. Pretorius Holme[2], E. Kadima[1], T. Sekoto[1], J. Leinder[3], K. Powis[1,2], K. Bennett[4], M. Mmalane[1], R. Lebelonyane[5], T. Gaolathe[1], J. Makhema[1,2], M. Essex[1,2], S. Lockman[1,2,6,7], S. Moyo[1,2]
[1]Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana, [2]Harvard T.H. Chan School of Public Health, Boston, United States, [3]Goodtables Data Consulting, LLC, Norman, United States, [4]Bennett Statistical Consulting, Ballston Lake, United States, [5]Ministry of Health and Wellness, Gaborone, Botswana, [6]Harvard Medical School, Boston, United States, [7]Brigham and Women's Hospital, Department of Medicine, Division of Infectious Diseases, Boston, United States

Background: Disclosure of positive HIV status to sexual partners is essential for optimizing prevention, and has been associated with greater engagement in HIV care and treatment. We investigated the association between non-disclosure of HIV positive status and sexual risk behavior among sexually active participants in an ongoing HIV prevention study, the Botswana Combination Prevention Project (BCPP).

Methods: In BCPP, we enrolled a random, population-based sample of adults aged 16-64 years in 30 rural and peri-urban communities in a prospective study. At enrollment participants were administered structured questionnaires, including questions about HIV sero-status disclosure to sexual partners over the prior 12 months and sexual risk behavior [inconsistent condom use, alcohol use, multiple concurrent partnerships (MCP)].

We analyzed responses from participants who knew their positive HIV serostatus at the time of the initial survey, and who reported being sexually active during the prior 12 months. HIV sero-status non-disclosure was defined as non-disclosure to at least one sexual partner. We estimated prevalence ratios (PRs) and 95% confidence intervals (CIs) for demographic, HIV sexual risk, and clinical (ART use and viral suppression) factors associated with non-disclosure, adjusting for community clustering, age and gender.

Results: Among 2270 participants who reported being sexually active in the past 12 months and who already knew their positive HIV status, 2192 (96.6%) had available data on HIV disclosure to their sexual partner. The proportion of participants who reported not disclosing was 7.9% (95.0%CI:6.8-9.1). Individuals who reported non-disclosure were significantly younger, more likely to be single / never married (PR=5.4;95%CI:3.0-9.5) or divorced / widowed (PR=5.3;95%CI:2.7-10.5) and with tertiary education (PR=2.1; 95% CI:1.21-3.5).

Non-disclosure was associated with MCPs (PR=2.6;95%CI:1.9-3.5). Not yet initiating ART was associated with non-disclosure (PR=0.50; 95%CI:0.35-0.74). A long-term relationship was associated with lower rate of non-disclosure (PR=0.38;0.29-0.50).

Conclusions: Individuals who did not disclose their positive HIV status were younger, had higher education and non-long-term partners. Those at high risk of forward HIV transmission, including those engaging in MCPs and those not on ART were significantly less likely to disclose their HIV status to a sexual partner, highlighting the importance of programming that successfully results in behavior change in high-risk populations.

Patient Characteristics	Total	HIV sero-status non-disclosure		Prevalence Ratio	
		No n(%)	Yes n(%)	(95% CI)	P-value
Age (years)		N=2019	N= 173		
16 - 24	95(4)	82(4)	13 (8)	1 (ref)	
25 - 34	568(26)	514(25)	54(31)	0.68 (0.40 – 1.14)	0.12
35 - 44	890(41)	825(41)	65(38)	0.51 (0.30 - 0.87)	0.01
45 - 54	461(21)	431(21)	30(17)	0.44 (0.21 - 0.90)	0.01
55 - 64	178(8)	167(8)	11(6)	0.41 (0.17 - 0.97)	0.004
Gender, male		N=2019	N=173		
Male	593(27)	545(20)	48(4)	1.18(0.83 - 1.67)	0.38
Marital status		N=2018	N=172		
Married	409(19)	403(20)	6(4)	1 (ref)	
Divorced/Widowed/Separated	99(5)	88(4)	11(6)	5.27 (2.66 – 10.47)	<0.0001
Single/Never married	1682(77)	1527(76)	155(90)	5.35 (3.02 – 9.49)	<0.0001
Employment		N=2018	N=172		
Employed	746(34)	678(34)	68(40)	1 (ref)	
Unemployed, looking for work	1134(52)	1058(52)	76(44)	0.70 (0.49 - 0.99)	0.04
Unemployed, not looking for work	310(14)	282(14)	28(16)	1.13 (0.80 - 1.59)	0.52
Education		N=2006	N=172		
Non-formal	276(13)	258(13)	18(11)	1 (ref)	
Primary	658(30)	617(31)	41(24)	0.89 (0.54 - 1.45)	0.62
Junior Secondary	914(42)	838(42)	76(44)	1.02 (0.63 - 1.67)	0.91
Senior Secondary	183(8)	170(8)	13(8)	0.82 (0.43 - 1.58)	0.53
Tertiary	147(7)	123(6)	24(14)	2.06 (1.21 - 3.50)	0.04
		N=543	N=48		
Circumcised	119(20)	106(20)	13(27)	1.54 (0.85 - 2.76)	0.2164
Alcohol use during last sexual encounter		N=2018	N=171		
Both of Us	63(3)	54(3)	9(5)	1.80 (0.84 - 3.88)	0.25
My partner	156(7)	146(7)	10(6)	0.87 (0.42 - 1.77)	0.67
Myself	48(2)	44(2)	4(2)	1.03 (0.40 - 2.64)	0.95
Neither Of Us	1922(88)	1774(88)	148(87)	1 (ref)	
		N=2019	N=173		
Inconsistent condom use	941(43)	862(43)	79(46)	1.11 (0.85 - 1.45)	0.44
		N=466	N=87		
Multiple Concurrent partnership, past 12 months	536	457(85.26)	79(14.74)	2.59 (1.89 - 3.54)	<0.0001
		N=2019	N=173		
Currently on ART with prior knowledge of positive HIV status (UNAIDS Second 90)	1904(87)	1773(88)	131(7)	0.50 (0.34 - 0.73)	0.01
		N=1767	N=130		
Currently on ART and virally suppressed (UNAIDS Third 90)	1828(96)	1707(97)	121(93)	0.54 (0.24 - 1.20)	0.24
		N=2018	N=172		
Participant has long term partner	580(27)	495(24)	85(49)	0.38 0.29 - 0.50)	<0.0001

[Participant characteristics and HIV sero-disclosure]

Voluntary medical male circumcision

THPED416

Tetanus toxoid vaccination-PrePex active surveillance cascade in Zambia

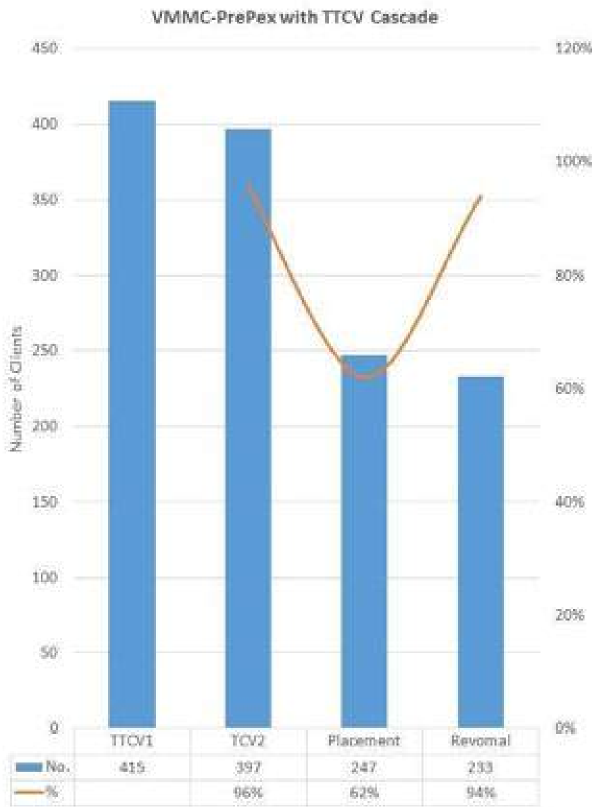
M. Namukoko[1], N. Nyirongo[1], O. Chituwo[2], H. Sichinga[1], J. Siachobe[1], J. Zulu[3], K. Asiedu[1], L. Aladesanmi[1], J. Banda[1], N. Zulu[1]
[1]Jhpiego, Lusaka, Zambia, [2]Centre for Disease Control, Lusaka, Zambia, [3]Ministry of Health Zambia, Lusaka, Zambia

Background: WHO prequalified the PrePex circumcision device in May 2013 for males 13 years and above. After a pilot in Zambia in 2014, active adverse event (AE) surveillance to further evaluate the device commenced in June 2016. However, it was halted in July based on WHO's recommendation of completed tetanus toxoid containing vaccine (TTCV) vaccination, at least 2 weeks prior to device placement. Active surveillance was restarted with TTCV in May 2017 by the Government of Zambia.

Description: Since April 2015, Jhpiego has been implementing a 5-year PEPFAR/CDC funded project that aims to increase male circumcision (MC) coverage to 80% in supported districts. In addition to MC provided by conventional surgical methods. Jhpiego is also supporting the Ministry of Health (MoH) to implement PrePex active AE surveillance.

Lessons learned:
Surveillance records from May 2017 to September 2017 were reviewed. 415 clients received the 1st TTCV vaccination, 397/415 (96%) received the 2nd dose, 247/397 (62%) had the device placed, 233/247 (94%) had the device successfully removed. The major point where clients discontinued was after the 2nd TTCV vaccination. Among reasons cited for deciding to forego PrePex circumcision after completing TTCV vaccination included testing HIV-positive as part of device placement screening or no longer wishing to wait for circumcision by the PrePex device method. In this cohort of clients there were no AEs.

Conclusions/Next steps: The completion rate observed is 56% (233/415) from first TTCV vaccination to device removal, with most clients lost to follow-up after the second TTCV dose. Demand generation activities are also being tailored with more TTCV specific communication to address these potential challenges, the project is also implementing additional follow up calls and visits after the second TTCV dose. In addition, the program has implemented a dual HIV testing process at first TTCV and just before placement.



[VMMC-PrePex with TTCV Cascade]

THPED417

The remaining 37%: How male circumcision (MC) in Zambia is contributing to the first 90

L. Aladesanmi[1], J. Banda[1], J. Zulu[2], O. Chituwo[3], K. Asiedu[1], M. Nyambe[1], C. Chiziba[1], H. Malombo[1], H. Shasulwe[1]
[1]Jhpiego, Lusaka, Zambia, [2]Ministry of Health, Lusaka, Zambia, [3]Centres for Disease Control, Lusaka, Zambia

Background: The 2016 Zambia Population-based HIV Impact Assessment (ZAMPHIA) revealed that 62.8% of men know their HIV status, whereas 70% of women know their status. Historically, care-seeking behavior among men is remarkably poorer than women. Men often await pregnancy related HIV test results from their partners before attempting to get tested. The MC service package provides HIV Testing Services (HTS) prior to circumcision and has been touted as a unique opportunity to reach men thus contributing towards the UNAIDS 90-90-90 goals.
Methods: Jhpiego is implementing a 5-year, CDC funded project under PEPFAR; providing MC services in Lusaka, Southern, Central, Copper belt and Western Provinces, from January 2016 to date 151 health facilities have been supported, clients in these sites also received HIV tests with positive clients referred to care and treatment subsequently. Jhpiego supports health facilities by providing equipment and medical-surgical supplies, building capacity of providers and deployment of multiple demand generation approaches.
Results: A retrospective analysis of routine data from January 2016 to October 2017 revealed that over 90% (N=99,929) of MC clients get an HIV test in Jhpiego supported sites (except in Lusaka Province where it was 83%)the yield here is quite low (0.4%) and linkage to care rates are sub-optimal (33%). Further analysis of facility-wide data from these provinces shows that 28% of HIV tests for men in health facilities are done at MC; with up to 37% in central province.
Conclusions: MC is still a unique opportunity to provide HTS for men, with over 90% of MC clients receiving HTS and a third of all tests for males done in MC service delivery points. The expectation however is to ensure positive clients receive treatment; with the low linkage rates seen here, the translation from the first to the second 90 is hindered. The project is implementing new strategies to improve linkage to care; building a client follow up continuum from demand creation through treatment initiation.

Provinces	# VMMC Clients	#Tested for HIV (%)	# HIV Positive (%)	% of Facility-Based Testing done in VMMC VMMC
Central	10,983	10,061 (91.6%)	88 (0.8%)	37.5%
Copperbelt	41,604	40,674 (98%)	190 (0.4%)	31.35
Lusaka	24,120	20,092 (83.3%)	42 (0.2%)	26.4%
Southern	20,532	19,219 (93.6%)	106 (0.5%)	23.8%
Western	2,690	2,683 (99.8%)	6 (0.2%)	20.7%
Total	99,929	92,729 (92.8%)	432 (0.4%)	28.3%

[MC Contribution to Facility Based HTS January 2016 to October 2017]

THPED418

A public-private partnership approach to expand VMMC uptake in Khomas Region, Namibia

D.D. Pereko[1], L. Kahindi[1], A. Muganza[1], O. Mosisaotsile[2], C. Vejorerako[2], D. Mali[3], C. Thompson[4]
[1]Abt Associates, Inc., Windhoek, Namibia, [2]Ministry of Health and Social Services, Khomas Regional Team, Windhoek, Namibia, [3]United States Agency for International Development, Windoek, Namibia, [4]Abt Associates, Inc., International Development Division, Rockville, United States

Background: Namibia's Ministry of Health and Social Services (MOHSS) prioritizes voluntary medical male circumcision (VMMC) as a core intervention to avert new HIV infections. To achieve this goal, the country set out to conduct 330,218 procedures among men by 2021. Khomas Region, where the capital Windhoek is situated, has a population of 386,000 and a set VMMC target of 47,000. However, the region has only one public VMMC site. Uptake of VMMC services was therefore low, and innovative approaches to reach targets, including partnership with the private sector, were required.
The USAID-funded Strengthening High Impact for an AIDS-free Generation (AIDSFree) Project provides assistance to private for-profit health providers and stakeholders to increase access to and affordability and quality of HIV services, with an emphasis on VMMC.
Description: AIDSFree had a network of 32 private health facilities in Windhoek. These facilities were providing VMMC services only to clients with health insurance or those who could afford to pay out of pocket. To increase VMMC coverage in Windhoek, AIDSFree partnered with the Khomas VMMC regional team to pilot and introduce free VMMC services for uninsured males at private health facilities. The free services were introduced in October 2016 and are funded by USAID.
A service-level agreement was reached to reimburse facilities for the provision of the VMMC service package. Additionally, the facilities were supported with disposable kits, recordkeeping, and reporting. Finally, the Khomas regional VMMC team and AIDSFree undertook joint demand creation activities to encourage clients to access services.
Between October 2016 and September 2017, Khomas Region conducted 8,846 circumcisions; of these, 81% (7,172) were in private sector facilities.
Lessons learned:
· Private clinics reported providing more VMMCs to clients on the free program than to clients with insurance.
· The free VMMC program currently meets the needs of uninsured males.
· Engaging the private sector through a free VMMC program accelerates the achievement of national targets.
Conclusions/Next steps: Namibia has a well-developed, robust private health sector whose potential is not fully utilized. Private facilities are well-positioned to partner with the government to provide VMMC services beyond their regular health insurance clients.

THPED419

The factors that affect the low uptake of Voluntary Medical Male Circumcision amoung adult malea (20-39 years of age) in Gauteng Province, South Africa

E. Palmer
University of Fort Hare, Faculty of Health Sciences, East London, South Africa

Background: The South African government has been scaling-up VMMC services since 2010. However, South Africa has continued to miss its VMMC targets, indicating that more is needed in terms of understanding the slow uptake of VMMC services. The objective of this study is to determine the factors that contribute to low VMMC uptake with the aim of proposing strategies to improve VMMC demand creation for older adult males (20-39 years).
Methods: By employing a qualitative research methodology, the study explores the factors and barriers that contribute to the low VMMC uptake of adult males. A purposive sampling method was used to select 4 Program Managers from the National and Gauteng Provincial Department of Health. In addition, 20 uncircumcised males between the ages of 20 and 39 in Gauteng province were interviewed via focus group discussions.
Results: The main findings show that there are various contextual, individual and community factors contributing to the low VMMC uptake. Interviews with Program Managers revealed that:
1) there was no clear demand generation strategy in place,
2) no clear relationship between VMMC demand creation and actual uptake,
3) lack of human capital,
4) poor integration between VMMC and other prevention programs,
5) a lack of VMMC program leadership, and
6) a lack of resources.
Focus group discussions with uncircumcised males found several key deterrents to VMMC uptake, including:
1) fear of pain and adverse events,
2) a lack of confidence in the public health system,
3) the requirement of abstinence for 40 days after circumcision,
4) potential loss of income,
5) cultural and religious concerns,
6) HIV testing requirements,
7) peer pressure and
8) circumcision-related stigma.
Conclusions: There is a need to understand the lack of VMMC uptake both from the provider and the consumer perspectives. In many cases, the barriers to uptake identified by Program Managers were not identified as important by uncircumcised males, and vice versa. Among the uncircumcised males, barriers included a combination of real concerns, interspersed with myths, fears and false beliefs.

Antiretroviral therapy, including treatment as prevention

THPED420

Drug resistance mutations in patients enrolled in Rapid Start: Experiences from a New York City community health center

A. Radix, P. Carneiro, M. Egarr, R. Vail, S. Weiss, P. Meacher, L. Comstock, U. Belkind
Callen Lorde Community Health Center, New York, United States

Background: Same day HIV treatment initiation „rapid start" is feasible, well tolerated, acceptable to patients, reduces time to virologic suppression, lowers potential for HIV transmission and may improve 12-month retention and mortality compared with treatment as usual. Previous pilots have not documented ART modifications due to virologic failure or drug resistance mutations (DRMs). Callen-Lorde, a Community Health Center in New York City, implemented a multidisciplinary (medicine, nursing, case-management) Rapid Start program in August 2016. Preferred regimens were predominantly Integrase Strand Transfer Inhibitors (INSTI) based. We investigated regimen choice and switches due to tolerability or resistance.
Methods: A retrospective chart review was conducted of patients newly-diagnosed with HIV who accepted same-day ART initiation that investigated demographics, clinical data, treatment choice, switches, time to suppression and 6-month retention.
Results: Over 12 months 47 of 79 (59%) newly diagnosed patients opted to enroll in the Rapid Start program. Demographics: Patients opting in were predominantly MSM (92% MSM, 8% transgender women); ethnically diverse (23% Black, 23% Hispanic); 13% < 25 years; Many were uninsured at time of diagnosis (53%). After initiating ART 58% achieved viral suppression (< 200 copies/ml) within 30 days. Baseline results: mean eGFR 109 (76-148) mL/min, mean CD4 487 (12-947) cells/µL, all were HLA-B5701 negative. Initial regimens offered were INSTI or PI-based. Initially the majority (87%) of patients started elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide after being presented with protocol ART options. Clinically significant resistance mutations occurred in 17%, including NNRTI (20%), NRTI (2.4%), Integrase (2.4%). 3 switches were due to DRMs but none for tolerability. The preferred INSTI regimen was changed from elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide to dolutegravir plus emtricitabine/tenofovir alafenamide in 5/2017 due to one patient with a major primary resistance mutation (N155H) and 2 patients with major accessory resistance mutations (S230R, T97A).
Conclusions: Rapid start programs have evident individual and population level benefits however program scale-up requires close attention to baseline resistance testing and flexibility to change regimens. Prevalent DRMs should determine initial treatment regimens, and if possible, baseline INSTI resistance testing should be considered when these agents are used.

THPED421

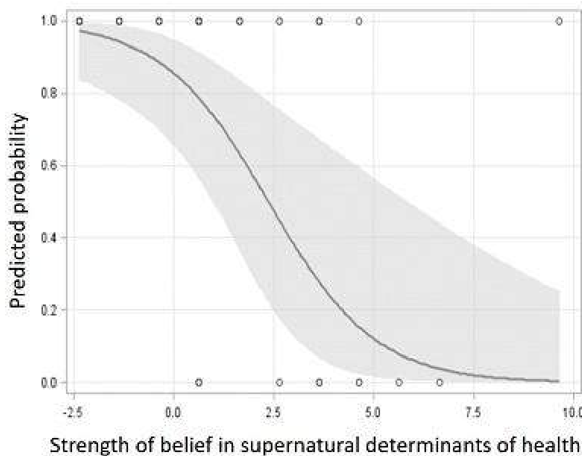
HIV testing and antiretroviral therapy usage are negatively associated with belief in supernatural determinants of health: A nationwide survey from China

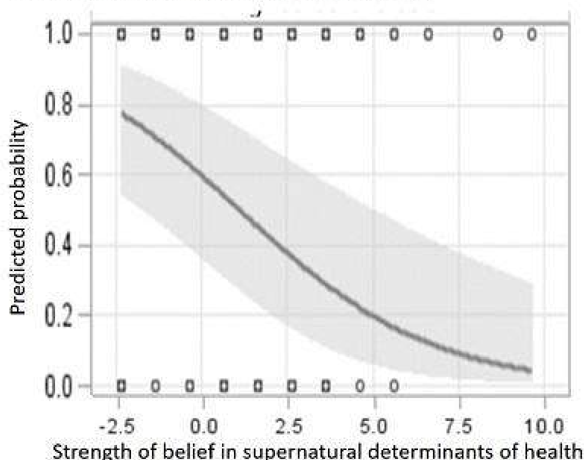
S.W. Pan[1,2,3], J.J. Ong[3,4], H. Fu[5], W. Tang[2,3,6], M.K. Smith[2,6], W. Huang[2,3], D. Wu[2,3], B. Cao[7], Z. Luo[8], J.D. Tucker[2,3,6]
[1]Xi'an Jiaotong-Liverpool University, Department of Public Health, Suzhou, China, [2]UNC Project China, Guangzhou, China, [3]Social Entrepreneurship to Spur Health, Guangzhou, China, [4]London School of Hygiene and Tropical Medicine, London, United Kingdom, [5]Eastern Virginia Medical School, Norfolk, United States, [6]University of North Carolina at Chapel Hill, Institute for Global Health and Infectious Diseases, Chapel Hill, United States, [7]Shenzhen University, School of Media and Communication, Shenzhen, China, [8]Shenzhen Nanshan Chronic Disease Hospital, Shenzhen, China

Background: Spiritual and religious beliefs in China are rapidly growing and may have profound impact on health behaviors related to the HIV cascade of care. We examined belief in supernatural determinants of health (degree of conviction that health is influenced by supernatural forces) and correlates with HIV-testing and antiretroviral therapy (ART) use among young men who have sex with men (MSM) in China, a key population with suboptimal testing and viral suppression.
Methods: Data were collected online in May 2017 by anonymous, self-administered, structured questionnaires. Participants were recruited via gay social networking platforms throughout China. Eligibility criteria: born male, ever had anal or oral sex with another man, seen a doctor in the past two years, and between 16 and 30 years old. Belief in supernatural determinants of health was assessed by a validated three-item continuous scale (range: 3-15 points; higher score = stronger belief). Adjusted measures of association (controlling for sociodemographics, religious affiliation, and sexual behavior) were estimated using logistic regression.
Results: 503 men participated in the survey and 72 (14.3%) had ever HIV tested. 14.5% reported ever testing positive for HIV (73/503), among whom 83.6% reported currently using ART (61/73). Overall, 37% (185/503) of participants expressed some belief in supernatural determinants of

health, and the mean score for beliefs in supernatural determinants of health was 5.37 (standard deviation = 2.47). Stronger belief in supernatural determinants of health was associated with lower odds of ever testing for HIV (adjusted odds ratio [AOR]: 0.84, 95% CI: 0.74-0.95) and currently using ART among participants living with HIV (AOR: 0.47; 95% CI: 0.29-0.77). Interaction analysis indicated that an inverse association between supernatural belief and HIV testing was only present among individuals with less than college education (p< 0.05) (Figure).

Conclusions: Many young online MSM in China appear to believe in supernatural determinants of health. Such beliefs may be inhibiting greater uptake of ART and HIV testing, particularly among men with lower educational attainment. Measuring patients' supernatural beliefs may help identify individuals at higher risk of stopping ART. Additional research on belief in supernatural determinants of health and use of HIV services is warranted.





[Figure: Predicted probabilities and 95% confidence intervals of HIV testing and antiretroviral therapy usage, by strength of supernatural beliefs]

THPED422

'Treat All Policy' in Ghana: Unique approaches for HIV positivity and ART initiation among key population in fast tracking the 90/90/90 targets

I. Bonnah[1], S. Benefour[2], A. Kodua Nyanor[3], T. Waimar[4], P. Tapsoba[2], E. Bruce[3], H. Nagai[3]
[1]John Snow Inc, Accra, Ghana, [2]Population Council, Accra, Ghana, [3]John Snow Inc., Accra, Ghana, [4]Population Council, New York, United States

Background: Ghana's adoption of the WHO 'Treat All' Policy recommendation will see to the testing and treating of at least 90 percent of people living with HIV by 2020. Previously, Ghana adopted the WHO guidelines where only persons living with HIV with a CD4 count of 500 or lower were put on treatment. However, with the 'Treat All' Policy, every person who tests HIV positive will be put on treatment. However, ART prescribers require basic laboratory tests results including liver and kidney function tests and insists on adherence counselling. There are also issues related to costs of drugs, health insurance, stigma and discrimination and reliance on herbal medicines as cure for HIV.

Description: The USAID Strengthening the Care Continuum project, implemented by JSI, improves the Government of Ghana's capacity to provide quality and comprehensive HIV services for key populations and people living with HIV by improving access to and use of HIV services while reducing stigma and discrimination in health settings for key populations and people living with HIV. The project has trained 193 healthcare workers, strengthened capacity of community service organizations (CSOs) working with KPs to segment KPs into typologies with targeted HIV testing using innovative social media, social network testing and PLHIV partner testing from October 2016 to September 2017.

Lessons learned: HIV Positivity and Initiation) October 2016 to September 2017).

Quarters	Q1	Q2	Q3	Q4
Number of Positives	106	298	523	534
Number Initiated on Art	148	202	396	545

These numbers increased over the quarters because the project conducted increased supervision and hands on support to CSOs by adopting targeted testing using social media, social network testing, index case testing and partner notification. In some quarters, the numbers initiated were higher than positives identified because some positives from the previous quarters were still going through adherence counseling and looking for money to complete their lab tests.

Conclusions/Next steps:
- The decision to fast track treatment is based on the service providers' own assessments of the clients' conditions.
- Clients should be considered for ART initiation while the laboratory investigations go on.

THPED423

Mobile application for PLHIV

D. Kim
Public Fund, Program, Almaty, Kazakhstan

Background: There are estimated 26,000 people living with HIV in Kazakhstan. About 4,000 new HIV cases identified in 2017. Local AIDS centers cannot cope with such burden. Due to that, clients do not receive quality and timely services, necessary information, referral to other AIDS service organizations. Only 48% of PLHIV are adhered to ART. Old tools like tablets with timer and brochures are obsolete and irrelevant for the majority of PLHIV.

AFEW KZ within the HIV React Project funded by USAID has developed a mobile application named POZ.INFO, which combines necessary tools and intended to help people affected by HIV: increase awareness, adherence to treatment, improve quality of services for PLHIV.

Description: POZ.INFO is a free mobile application that helps PLHIV in taking ART, available for Android and iOS, does not require registration and does not collectstore personal data. It can be used onoffline.

POZ.INFO includes necessary information about HIV, medicine and per-

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sonalized treatment regimen; reminder alarm clock; contacts and information of organizations that help PLHIV; question-and-answer forum and notes.
POZ.INFO allows entering: a personal regimen of ART independently or through immunoblot number previously entered by doctor; set up convenient time for taking medications; customize text of reminder to keep anonymity; get general information about HIV; find the nearest AIDS service organization; communicate with other PLHIV or specialists, make notes, such as test results or medical appointments.
POZ.INFO developed on data collected during focus groups with PLHIV and partners in Almaty, Ust-Kamenogorsk and Pavlodar. It was presented to international and local partners and supported by Republican AIDS Center - main governmental organization responsible for HIV prevention and treatment in Kazakhstan.
Lessons learned: Apply integrated approach to promote and disseminate application among PLHIV: through initiative groups, community-based NGOs and local AIDS Centers.
The application should be simple, user friendly, functional, available on/offline, anonymous, suitable for most smartphone models on most popular platforms in the region, information should be continuously updated.
Conclusions/Next steps: Further improvement of application based on clients' suggestions and comments.
Adoption of application on national level.
Provide application to partners for adaptation in other countries of the region.

THPED424

Reasons for true loss to follow ups in patients on anti retro viral treatment in Maharashtra State, India

P. Murugesan[1], S. Seema[2], M. Ghate[2], M.B. Madane[3], B.D. Rajani[4], B. Shilpa[2], S.S. Sane[5], R. Gangakhedkar[6], T. Beena[1], N. Karikalan[1], C. Veeramani[1], P. Manoj[7], G. Archana[8], U. Medhe[9], D. Jathav[10], B. Bhalekar[11]
[1]National Institute for Research in Tuberculosis, Chennai, India, [2]National AIDS Research Institute, Pune, India, [3]National AIDS Research Institute-ICMR, Social and Behavioral Research, Pune, India, [4]National AIDS Research Institute, Social and Behavioral Research, Pune, India, [5]National AIDS Research Institute-ICMR, Epidemiology & Biostatistics, Pune, India, [6]National AIDS Research Institute, Clinical Sciences, Pune, India, [7]Network of Maharashtra by People Living with HIV/AIDS (NMP+), Pune, India, [8]Maharashtra State AIDS Control Society, Pune, India, [9]Yashwantrao Chavan Memorial Hospital, Pune, India, [10]Swamy Ramanand Teeth Rural Govt. Medical College, Ambajogai, India, [11]Sasson Hospital & BJ Government Medical College, Pune, India

Background: Adherence to Anti Retroviral treatment (ART) is influenced by multiple patient level and health system level factors .We interviewed True Loss to Follow Up (TLFU) patients onART to understand the reasons for ART discontinuation.
Methods: Between 2014 to 2017, 60 TLFU patients on ART (defined as those who were not keeping ART refill appointment for 90 days or longer, and being found alive but not on ART from any other source; or not being traceable to allow confirmation such as "dead or transferred-out") were traced back using phone calls and/or house visits by study investigators. Quantitative interviews were conducted among willing TLFU patients. The study was approved by the Institutional Ethics Committee of the National AIDS Research Institute and BJMC & Sasoon Hospital, Pune.
Results: Of the 34 TLFU patients interviewed, 52.9%(18) were male, 38.2%(13) were illiterate, 61.8%(21) were married and median age was 45. Only 64.7 %(22) of the TLFU patients were reportedly contacted over phone by ART staff during discontinuation period. Personally, side effects of drug and lack of money to visit ART center were major reasons for discontinuation said by 52.9%(18) and 26.5%(9) of TLFUs respectively. Lack of support from family, lack of care takers and stigma were cited as reasons for discontinuation by 5.9%(2) of TLFUs. Work related pressure was cited by 14.7%(5) of TLFUs. Long waiting time and long distance of ART center were program related reasons said by 20.6% (7) and 23.5%(8) of TLFUs. General financial assistance and specific for transport was needed by 90%(27) and 84.6%(22) of TLFUs. Drug collection on 2-3 month basis were expected by 81%(17) of TLFUs.
Conclusions: The findings highlight that side effect management, timely appointments and flexible drug dispensation schedules for patients at ART centers could help address facility level barriers for adherence. Financial assistance and counselling support for patients and their families could help address patient level barriers for adherence.

THPED425

Responding to ART non-adherence by strengthening youth resiliency in an under-resourced setting using TI_CTBTe youth leader model

C. Ingabire[1], M. Fabri[2], E. Remera[3], S. Nsanzimana[3], G. Donenberg[4], M. Cohen[5,6], KIP Study Group
[1]WE-ACTx For Hope, Research Department, Kigali, Rwanda, [2]WE-ACTx, Mental Health Department, Chinle, United States, [3]Rwanda Bio-Medical Center, HIV Division, Kigali, Rwanda, [4]University of Illinois at Chicago, School of Public Health, Chicago, United States, [5]Cook County Health & Hospitals System, Department of Medicine, Chicago, United States, [6]Rush University, Department of Medicine, Chicago, United States

Background: Rwanda, as a developing and recovering country from war and genocide consequences, is experiencing mental health human resource scarcity to respond to problems caused by war, genocide, and HIV. However, cost-effective initiatives to achieve multiple effect regardless the huge needs and little financial resources are possible. This abstract describes a Trauma Informed Cognitive Behavioural (TI-CBTe) Youth Leader Model and its effect on Youth Leader (YL) wellbeing and improvement in health outcome.
Methods: 14 YLs aged 21 to 24 were enrolled in the Kigali Imbereheza Project (KIP) in Rwanda which utilized cognitive behavioral strategies to improve mental health and adherence to antiretroviral therapy (ART) for youth. They were trained and delivered 9 6-session interventions over four years to groups of 10 14-21 year-old youth. YLs provided demographics and information on their behaviors, and treatment.
Data was collected using audio computer assisted technology at baseline, 6-months study visits. Using SPSS, we performed descriptive statistics to determine the mean and total score mean of different variables.
Results: The average age of Youth Leaders was 22.9 years, 57.1% male, only 7% [1] had both parents alive, 64% did not have any parents, they were all unmarried, and did not have any other source of income than KIP. At baseline, the mean viral load was 9420 copies/ml and was 171 copies/ml around 18-months after baseline. CD4 was 379 at baseline and 533 around 18-months post baseline. The Wilson Adherence total score was 84 at baseline and increased slightly to 86 at 6-month follow up. The Self Esteem total score also increased slightly from 22 at baseline to 24.7 at 6-month follow up. The cases of STIs were 0 during the first 6 months of intervention.
Conclusions: TI-CBTe led by YLs has promised decreasing viral load and increasing CD4, self esteem, and healthy behaviours.

THPED426

Factors associated with late presentation of paediatrics on anti-retro-viral therapy in Mashonaland East province, Zimbabwe

E. Muzulu[1], W. Dube Dr[2], G. Machacha[3], T. Magure Dr[4], E. Mugariri[1], A. Mpofu[5]
[1]National AIDS Council, Monitoring and Evaluation, Marondera, Zimbabwe, [2]National AIDS Council, Programmes, Marondera, Zimbabwe, [3]Ministry of Health and Child Care, Health Promotions, Marondera, Zimbabwe, [4]National AIDS Council, Chief Executive Officer, Harare, Zimbabwe, [5]National AIDS Council, Monitoring and Evaluation, Harare, Zimbabwe

Background: The provincial average of paediatric patients presenting late for ART rose from 23.33% in 2014 to 31.9% in 2016. Despite numerous interventions to improve early paediatric diagnosis and treatment of children below 14 years, they still present late for ART. Factors for such a trend needed to be identified to improve early diagnosis and initiation of paediatric patients on ART.

Methods: The study used an unmatched 1:1 case-control study design. Cases were defined as a paediatric patients who presented for ART initiation in WHO Clinical stage 3 or 4, and controls were defined as a paediatric patients who presented for ART initiation in WHO Clinical stage 1 or 2. Data was entered into Epi Info version 3.5.2. for analysis.Means, frequencies, proportions, odds ratios (OR), and their 95% confidence intervals (CI), were generated. Odds ratio (OR) that did not include the value 1 in the 95% confidence interval were considered statistically significant. Step wise multivariate analysis was carried out to estimate the measures of association while at the same time controlling for a number of confounding variables. All the variables that were significant at P-value< 0.025 in the Bivariate analysis were included in the logistic regression model. Variables that were not significant were eliminated until all the variables that were significant at 0.05 levels (95% CI) were added to the model.

Results: The results showed that children´s age on initiation on ART [AOR 4.18 (95% CI: 2.29, 7.63) p=0.0000] and travelling less than 5 kms to reach the clinic [AOR 0.496 (95% CI: 0.30, 0.82) p=0.0064] were independent factors associated with the likelihood of presenting late for paediatric ART. Children above the age of 5 years at time of ART initiation were 4 times more likely to present late for ART. Living within 5 km radius of a health facility was protective as the paediatric was 0.5 times less likely to present late for ART.

Conclusions: Children above the age of five years are most likely to present late for ART initiation. Living within five kilometres radius of health facilities is protective to the paediatrics as they are less likely to present late for ART.

THPED427

Why young African American MSM (YAAMSM) ages 18-29 who are living with HIV in the Southern region of the United States do or do not take HIV treatment regularly

S. Kegeles[1], G. Rebchook[1], L. Pollack[1], D. Huebner[2], S. Tebbetts[1], W. Vincent[1], J. Tan[1], B. Zovod[1], R. Williams[1], A. Leonard[3], J. Peterson[4]
[1]University of California, Center for AIDS Prevention Studies, San Francisco, United States, [2]George Washington University, School of Public Health, Washington, DC, United States, [3]Legacy Community Health, Houston, United States, [4]Georgia State University, Department of Psychology, Atlanta, United States

Background: YAAMSM are disproportionately impacted by HIV, especially in the U.S. South. It has been estimated that 60% of AAMSM will be living with HIV by age 40. Adhering to HIV treatment so that men will become virally suppressed will not only reduce morbidity among this group, but will also reduce the transmission of HIV to others.

Methods: Long-chain peer recruitment was used to enroll YAAMSM in two large Texas cities. All men were tested for HIV, and HIV+ men were recruited into this study's cohort (N=333). Surveys were self-administered on iPads at project sites. Here we compare men currently taking ART who reported their 3-month medication adherence (N=189): missing doses once/week or more in the prior three months (35.4%) versus men who never or very rarely missed doses (64.5%).

Results: Cohort mean age was 24.5; 45% had high school degrees or less, and the other half had some college; few were college-graduates (6%). Bivariate analyses indicated that social issues were associated with adherence, including perceived social norms about adherence, support received about living with HIV, protecting sex partners, and friends talking with them about the importance of treatment. Experiencing greater societal oppression (through experiencing more homophobia, racism, and HIV stigma), internalizing the oppression (internalized heterosexism, HIV stigma) and depressive symptomology were also related to adherence. Medical mistrust and uncertainty about providers were marginally associated with medication adherence. There were no statistically significant differences in adherence by education, employment, income, poverty, incarceration history, conspiracy beliefs, or pride in being gay.

Conclusions: Increasing treatment adherence among YAAMSM living with HIV requires more than reminders. While some issues can be targeted at clinics (e.g., increasing HIV treatment literacy), other issues might be best met through efforts positioned in and focused on the YAAMSM community (e.g., changing social norms to support adherence; increasing supportive conversations from friends; decreasing internalized oppression). Multipronged approaches are needed to increase adherence to HIV treatment among YAAMSM that targets depression and important cultural issues, such as externally and internally experienced oppression, medical mistrust, resilience to adversity, agency about one's own health, and a desire to protect sex partners by becoming virally suppressed.

Item or Scale	Missed once/week or more	Missed less than once/week	p-value	Item or Scale	Missed once/week or more	Missed less than once/week	p-value
Experienced HIV stigma recently	38.81	34.35	.016	Supportive conversations from friends about treatment adherence	19.50	25.21	.001
Experienced HIV-related discrimination recently	36.81	31.02	.008	Feels responsible to protect sex partners	16.75	17.75	.053
Internalized HIV stigma	15.44	13.42	.044	Internalized heterosexism	7.25	5.94	.009
Mistrust of medical system	13.34	11.85	.061	Experienced homophobia recently	16.84	14.07	.008
Trust in provider competency	28.27	30.55	.069	Experienced racism recently	26.72	22.33	.025
HIV treatment literacy	28.67	31.85	≤.001	Exchanged sex for money	33%	23%	.023
Self-efficacy for treatment adherence	42.58	48.86	≤.001	Resilience in dealing with challenges	67.83	75.16	.002
Social norms for engaging in care	21.19	23.14	.016	Has sex in challenging interpersonal or situational contexts	23.30	18.92	.005
Social support for being HIV+	14.30	17.02	.012	Depressive symptomatology	8.46	6.57	.004

*All scales use t-tests to compare means. Categorical variables are compared using chi-square statistics.

[Comparisons of YAAMSM Living with HIV By Medication Adherence in Last 3 months (means and proportion presented)]*

THPED428

Poor rates of linkage to HIV care and treatment uptake after home-based HIV testing among 15-49 year-old men and women in a high HIV prevalence setting in South Africa

B. Maughan-Brown[1], S. Beckett[2], A.B.M. Kharsany[3], C. Cawood[4], D. Khanyile[4], L. Lewis[3], A. Venkataramani[5], G. George[2]
[1]Southern Africa Labour and Development Research Unit, University of Cape Town, Cape Town, South Africa, [2]Health Economics and HIV and AIDS Research Division, University of KwaZulu-Natal, Durban, South Africa, [3]Centre for the AIDS Programme of Research in South Africa, University of KwaZulu-Natal, Durban, South Africa, [4]Epicentre AIDS Risk Management (Pty) Limited, Paarl, South Africa, [5]University of Pennsylvania, Department of Medical Ethics and Health Policy, Perelman School of Medicine, Philadelphia, United States

Background: Early antiretroviral therapy (ART) initiation is essential to obtain the full therapeutic and prevention benefits from ART, but linkage to care following community-based testing services is often poor, and inadequately understood. This study examined demographic, socioeconomic and psychosocial factors influencing linkage to care following home-based HIV-testing services (HBHTS) in a hyper-endemic epidemic setting in South Africa.

Methods: HBHTS was offered to all participants (N=10,236) in the 2015-2016 cross-sectional survey of the HIV Incidence Provincial Surveillance System, KwaZulu-Natal, South Africa. Fieldworkers collected venous blood samples for health screening, including CD4 counts. Follow-up telephone surveys (N=194) collected data on clinic visits and ART initiation among individuals diagnosed HIV-positive through HBHTS. Factors associated with linkage to care (defined as a clinic visit within 12 weeks of receiving an HIV-positive diagnosis) were assessed using multivariable logistic regression models.

Results: Fifty-four percent of men and women linked to care, and 21% of ART-eligible participants started treatment within 12 weeks (men:25%, women:19%). The median CD4 count was 416 cells/µL (IQR:268-608) and 418 (IQR:254-612) among those that did, and did not, link to care respectively. Few men (11%) or women (13%) linked to care within 4 weeks. Linkage to care was less likely among participants who had doubted their HIV-diagnosis (aOR:0.54,95%CI:0.27-1.06, p=0.072), and who reported being unafraid of contracting HIV due to the effectiveness of ART (aOR:0.53,95%CI:0.28-1.01, p=0.054). Linkage to care was

more likely among participants who had disclosed their HIV status (aOR:2.28,95%CI:1.07-4.86, p=0.033), and who had recently engaged in an HIV-related activity (aOR:1.91,95%CI:0.93-3.94, p=0.079). Self-reported reasons for not linking to care included no time (men:75%, women:57%); only wanting to start treatment when sick (men:58%, women:39%); being afraid of side-effects (men:29%, women:35%); and not believing the HIV-diagnosis (men:4%, women:22%).

Conclusions: HBHTS needs to be paired with targeted interventions to facilitate early linkage to care. Interventions are required to counter denial of HIV status, and encourage early ART initiation among individuals inclined to delay treatment until falling ill. Further research is needed to better understand the interplay between perceptions of ART and HIV, and how perceptions of HIV affect the uptake of HIV care and treatment services.

THPED429

Changes in disclosure, adherence and patient experiences of communication following the 'Early access to ART for all' intervention in Swaziland

M. Molemans[1,2], E. Vernooij[3,4], N. Dlamini[3], F.S. Shabalala[3,5], S. Khan[6], F. van Leth[1,2], G.G. Gomez[2,7], R. Reis[3,8,9], MaxART Study Group
[1]University of Amsterdam, Department of Global Health, Academic Medical Center, Amsterdam, Netherlands, [2]Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, [3]Amsterdam Institute for Social Science Research, University of Amsterdam, Amsterdam, Netherlands, [4]University of Edinburgh, Social Anthropology, School of Social and Political Science, Edinburgh, United Kingdom, [5]University of Swaziland, Department of Community Health Nursing Sciences, Faculty of Health Sciences, Mbabane, Swaziland, [6]Clinton Health Access Initiative (CHAI), Mbabane, Swaziland, [7]London School of Hygiene and Tropical Medicine, London, United Kingdom, [8]Leiden University Medical Centre, Department of Public Health and Primary Care, Leiden, Netherlands, [9]University of Cape Town, Children's Institute, School of Child and Adolescent Health, Cape Town, South Africa

Background: The WHO advises initiation of antiretroviral therapy (ART) on positive HIV diagnosis, regardless of CD4 count or WHO clinical stage. There are concerns whether immediate ART initiation affects HIV status disclosure and ART adherence. We assess changes in disclosure, adherence, patient experiences of HIV testing, ART initiation, and communication with healthcare workers following the introduction of 'Early access to ART for all' (EAAA), an immediate ART intervention in Swaziland.

Methods: We recruited two samples of participants between 2014 and 2017 from the MaxART study, which used a stepped-wedge design, where facilities transitioned from control (standard of care) to intervention (EAAA). One group was interviewed before the intervention was implemented (control); the second group was interviewed after the implementation of the intervention and six months thereafter (intervention). We present bivariable analyses comparing responses in the control and intervention groups, and comparing responses at start of intervention and six months later.

Results: All respondents reported high levels of disclosure to their partner (94% for control and intervention group) and family (controls: 78%, intervention: 79%), and high levels of adherence (15% missed a dose among the controls, and 16% in the intervention group). More respondents were worried about unintended disclosure during the intervention, compared with before (controls: 9%, intervention: 16%). Fewer respondents felt ill when they went for testing in the intervention group (controls: 36%, intervention: 28%). There were no changes in patient experiences of ART initiation (10% among the controls and 11% in the intervention group felt pressured). Overall, communication with healthcare workers improved following the intervention with more people having explained by healthcare workers that it was their choice to start ART (controls: 88%, intervention: 93%), being explained (controls: 15%, intervention: 49%) and receiving test results (controls: 13%, intervention: 46%).

Conclusions: Our results suggest that both reported adherence and disclosure levels continue to be high following the introduction of immediate ART in Swaziland. While we observe an improvement in the interactions with healthcare services, this might be due to the extensive training available at participating facilities and will be an important element for a successful roll-out of immediate ART.

THPED430

Factors affecting linkage to HIV care and ART initiation following referral for ART by a mobile health clinic in South Africa: Evidence from a mixed-methods study

B. Maughan-Brown[1], A. Harrison[2], O. Galárraga[3], C. Kuo[2], P. Smith[4], L.-G. Bekker[4], M. Lurie[5]
[1]Southern Africa Labour and Development Research Unit, University of Cape Town, Cape Town, South Africa, [2]Brown University School of Public Health, Department of Behavioral and Social Sciences, Providence, United States, [3]Brown University School of Public Health, Department of Health Services, Policy & Practice, Providence, United States, [4]The Desmond Tutu HIV Centre, Cape Town, South Africa, [5]Brown University School of Public Health, Department of Epidemiology, Cape Town, South Africa

Background: Community-based HIV-testing is effective at diagnosing asymptomatic people living with HIV, but subsequent linkage to care is often poor and inadequately understood. This mixed-methods study assessed factors that both improved and hindered linkage to care and antiretroviral therapy (ART) uptake following ART-referral by a mobile health clinic in Cape Town, South Africa.

Methods: From April 2015 to August 2016, longitudinal data were collected among individuals (N=86) referred for ART by a mobile health clinic: face-to-face survey data were collected immediately after ART referral, and data on subsequent clinic visits and ART initiation were obtained from clinic records. Multiple logistic regression analyses were used to assess factors associated with visiting a clinic within three months, and with ART-initiation within three months. Follow-up in-depth interviews (N=41) were conducted to examine challenges to, and factors motivating ART initiation.

Results: Among people living with HIV (N=86), 67% linked to care and 42% initiated ART within three months. Linkage to care was more likely among individuals expressing intentions to disclose their HIV-status (aOR: 2.99, 95%CI: 1.13-7.91), and among those who were classified as treatment ready (aOR: 2.97, 95%CI: 1.05-8.34); and less likely among individuals in good health (aOR: 0.35, 95%CI: 0.13-0.99), those who drank alcohol at least once weekly (aOR: 0.35, 95%CI: 0.12-0.98), and those reporting internalised stigma (aOR: 0.32, 95%CI: 0.11-0.91). ART initiation was more likely among individuals reporting greater treatment readiness (aOR: 3.20, 95%CI: 1.09- 9.39); and less likely among individuals who drank alcohol at least once weekly (aOR: 0.24, 95%CI: 0.08-0.73); who reported internalised stigma (aOR: 0.44, 95%CI: 0.17-1.12); and who reported any perceived stigma (aOR: 0.38, 95%CI: 0.14-1.02). In-depth interviews elucidated fears about ART side-effects, HIV-status denial, and lack of money for food as barriers to ART initiation. Factors motivating treatment uptake included awareness of a positive ART-effect, follow-up telephone counselling, familial ties and responsibilities, and maintaining health to avoid involuntary disclosure.

Conclusions: Results provide evidence that an array of interventions are required to encourage rapid ART initiation among individuals diagnosed HIV-positive by mobile health clinic HIV-testing services. This is especially the case among healthier populations.

THPED431

HIV-positive women's attitudes towards and willingness to use long-acting injectable antiretroviral therapy (ART): A qualitative study in San Francisco, New York and Chicago

M. Philbin[1], E. Kinnard[1], C. Parish[2], D. Feaster[3], M. Cohen[4], O. Sosanya[5], A. Adimora[6], J. Cocohoba[7], L. Goparaju[8], E. Golub[9], M. Fischl[2], L. Metsch[1]
[1]Columbia University Mailman School of Public Health, Sociomedical Sciences, New York, United States, [2]University of Miami, School of Medicine, Miami, United States, [3]University of Miami, Miami, United States, [4]Cook County Health and Hospitals System, Chicago, United States, [5]Montefiore Medical Center, Medicine, Bronx, United States, [6]University of North Carolina Chapel Hill, School of Medicine, Chapel Hill, United States, [7]University of California, Clinical Pharmacy, San Francisco, United States, [8]Georgetown University Medical Center, Medicine, Washington, United States, [9]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States

Background: Adherence to antiretroviral therapy (ART) is imperative for viral suppression and reducing further HIV transmission. Many HIV-positive individuals report difficultly sustaining long-term adherence and long-acting injectable (LAI) ART has the potential to transform HIV treatment and prevention. However, little LAI ART-related research has occurred among women.
Methods: We conducted 30 in-depth interviews with HIV-positive women at three sites (New York, Chicago, San Francisco) of the Women's Interagency HIV Study (WIHS), a national ongoing cohort study of HIV-positive and HIV-negative women. The majority were women of color (93%), not currently working (67%), and earned < $12,000/year (70%); median age was 53. Interviews were recorded, transcribed, and analyzed using thematic content analysis.
Results: The majority of women enthusiastically endorsed monthly ART injections and would prefer it over pills. Four primary reasons emerged for this preference: 1) convenience over daily pills ["*I'm tired of taking pills for years*"]; 2) increased privacy since there would be no pills to hide ["*everybody has nosey friends, people see things they don't need to see*"]; 3) not having daily reminders about being HIV-positive; and 4) believing that shots are more effective than pills ["*it goes right to the bloodstream*"]. Participants felt that LAI ART could be beneficial to all HIV-positive individuals, particularly those who are young, newly diagnosed, and female. Challenges remain, however, as some women expressed wariness about safety and effectiveness before they would try LAI ART: "*because there's not enough evidence of certainty.*" Women often took many daily pills (for HIV and other conditions), and differed on whether they would wait to switch until injectable ART could replace their entire HIV regimen. Some said any pill reduction was helpful and that they would want LAI ART ("*that's like six pills gone*"), while others expressed that "*If I'm taking one pill, I might as well take them all.*"
Conclusions: The majority of women would prefer monthly LAI ART over daily pills given its benefits for convenience, privacy, and perceived effectiveness. Future research should incorporate more women into LAI ART trials in order to better understand and align its development with user concerns and preferences in order to enhance uptake.

Pre-exposure prophylaxis

THPED432

Women's attitudes and perceived barriers towards long-acting injectable pre-exposure prophylaxis (PrEP) versus long-acting injectable antiretroviral therapy (ART): Results from a mixed-methods study in Chicago, New York and San Francisco

M. Philbin[1], E. Kinnard[1], C. Parish[2], M. Cohen[3], O. Sosanya[4], A. Adimora[5], J. Cocohoba[6], L. Goparaju[7], E. Golub[8], M. Fischl[2], L. Metsch[1]
[1]Columbia University Mailman School of Public Health, Sociomedical Sciences, New York, United States, [2]University of Miami, School of Medicine, Miami, United States, [3]Cook County Health and Hospitals System, Chicago, United States, [4]Montefiore Medical Center, Medicine, Bronx, United States, [5]University of North Carolina Chapel Hill, School of Medicine, Chapel Hill, United States, [6]University of California, Clinical Pharmacy, San Francisco, United States, [7]Georgetown University Medical Center, Medicine, Washington, United States, [8]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States

Background: Current HIV medication—for treatment and prevention—exists almost exclusively in oral formulations that require daily adherence. Long-acting injectable (LAI) antiretroviral therapy (ART) and LAI pre-exposure prophylaxis (PrEP) are therefore being developed to address such barriers.
Methods: We conducted 45 in-depth interviews with HIV-positive (n=30) and HIV-negative (n=15) women at three sites (New York, Chicago, San Francisco) of the Women's Interagency HIV Study (WIHS), a national ongoing cohort study of HIV-positive and HIV-negative women. The majority was women of color (93%), unemployed (64%), and earned < $12,000/year (71%); median age was 54. Interviews were recorded, transcribed, and analyzed using the constant comparative method.
Results: Half of the HIV-negative women had heard of PrEP and, once informed, the majority did not see it as useful for them regardless of formulation ["*I don't want to take another pill for another thing that...won't happen to me*") or viewed it as potentially harmful ["*I'm scared that if I take it I might get HIV*"). If asked to choose between formulations, 11/15(73%) would take bi-monthly shots over pills. HIV-positive women responded enthusiastically to monthly LAI ART ("*yes, lord, yes!*" and "*well shoot me up!*") and preferred monthly shots over pills (20/30;67%). While most HIV-negative women were somewhat/very concerned about potential pain at the injection site (8/15;53%), HIV-positive women were not (6/30;20%). LAI are currently administered in the buttocks; one-third of HIV-positive women and one-quarter of HIV-negative women said this would cause them to choose pills but *"if it's someplace else, I would do the shot."* All women were equally concerned about potential side-effects (12/15;80% and 21/30;70%) and expressed a desire to wait and talk to friends who use LAI ART and PrEP in order to ensure its safety and efficacy. Nearly all women (90%) said it would be somewhat/very easy to get to the clinic for injections.
Conclusions: While the majority of HIV-positive women expressed excitement about LAI ART, HIV-negative women were relatively indifferent toward PrEP for their own use, regardless of its formulation. Future research needs to address medical-related anxiety and injection site for ART and PrEP, with specific attention toward targeting women for whom PrEP is relevant.

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THPED433

Predictors of non-use of PrEP among gay and bisexual men

M.A. Hammoud[1], L. Maher[1], F. Jin[1], A. Bourne[2], S. Vaccher[1], L. Degenhardt[3], G. Prestage[1]
[1]The Kirby Institute, UNSW Australia, Medicine, Sydney, Australia, [2]Australian Research Centre in Sex, Health & Society, La Trobe University, Melbourne, Australia, [3]The National Drug and Alcohol Research Centre, UNSW, Sydney, Australia

Background: Australian eligibility criteria for being prescribed HIV pre-exposure prophylaxis (PrEP) among gay and bisexual men (GBM) include: having an HIV-positive partner with detectable viral load; receptive condomless anal intercourse with casual partners (CLAIC); methamphetamine use; or a recent rectal sexually transmissible infection. Although many GBM meet these eligibility criteria, most have not yet accessed PrEP since its approval.

Methods: By Dec 2017, 1258 Australian GBM who were not HIV-positive and were recruited through non-clinic settings completed 24 months follow-up in the FLUX online cohort study. We identified factors associated with not commencing PrEP among PrEP-eligible men.

Results: Of the 580 men (46.1%) who met the eligibility criteria, 52.8% were eligible at baseline and 49.7% at 24 months, with 26% eligible at both time points. About half those who were eligible at each survey round did not meet the eligibility criteria dusing the following round. By 24 months follow-up, 228 men had commenced PrEP.

Among PrEP-eligible men at each follow-up, ~45% of those not using PrEP reported five or fewer partners in the previous six months, compared to ~10% of those using PrEP (p< 0.001).

Men not commencing PrEP use were less likely to have been socially engaged with other gay men during prior survey rounds (aHR:0.94;95%CI:0.88-0.99), and less likely to have engaged in CLAIC during prior rounds (aHR:0.25;95%CI:0.06-0.99).

Conclusions: Although all PrEP-eligible men had engaged in high risk behaviours, those who did not initiate PrEP use were less sexually active and less 'risky' than those who did initiate PrEP. Some men met PrEP eligibility criteria at some survey rounds but not others. For men who did not initiate PrEP, they may assess their risk as insufficient relative to others to warrant using PrEP because they did not continue to engage in 'risky' behaviours, or did so less often.

Men not using PrEP were also less socially connected to gay community, which may have restricted access to information about PrEP, but men who are more or less socially engaged with gay community may also hold differing perceptions of social norms about or perceived acceptability of PrEP.

THPED434

Considering bias in the provision of PrEP: Reflections from early-adopting prescribers

S.K. Calabrese[1], M. Tekeste[1], K.H. Mayer[2,3], M. Magnus[4], A.I. Eldahan[5], D.S. Krakower[2,3], L.A. Gaston-Hawkins[6], K. Underhill[7], N.B. Hansen[8], T.S. Kershaw[9], J.R. Betancourt[3], J.F. Dovidio[9,10]
[1]George Washington University, Department of Psychology, Washington, United States, [2]The Fenway Institute, Fenway Health, Boston, United States, [3]Harvard Medical School, Boston, United States, [4]Milken Institute School of Public Health, George Washington University, Washington, United States, [5]Columbia School of Nursing, New York, United States, [6]University of Michigan Medical School, Ann Arbor, United States, [7]Columbia Law School, New York, United States, [8]College of Public Health, University of Georgia, Athens, United States, [9]Yale School of Public Health, New Haven, United States, [10]Yale University, Department of Psychology, New Haven, United States

Background: US retail pharmacy records suggest that HIV pre-exposure prophylaxis (PrEP) use is lower among Black Americans than White Americans despite their disproportionately high HIV risk. Efforts to identify and address factors contributing to social inequities in PrEP access are urgently needed. This qualitative study investigated early-adopting PrEP prescribers' beliefs about how bias may contribute to disparities in PrEP access and explored potential intervention strategies within the context of PrEP service delivery.

Methods: US-based PrEP prescribers were recruited via professional networks and referral by other participants (2014-2015). One-on-one, 90-minute interviews were conducted by phone or in person, transcribed, and thematically analyzed.

Results: Participants (n = 18) were primarily male (72%); White (39%) or Asian (33%); and heterosexual (56%). Most practiced in the Northeastern (67%) or Southern (22%) US; were physicians (94%); and specialized in HIV/infectious disease (89%). Participants described how structural and social biases may impede PrEP access at multiple levels within the healthcare system. The requirement that PrEP be accessed through a medical provider was recognized as a structural deterrent to PrEP uptake for Black Americans and other key populations for whom medical mistrust or low health literacy could deter engagement in medical services. Participants also acknowledged that policies and norms within medical practices, such as discussing PrEP only in response to patient requests, could favor privileged groups. In general, participants regarded themselves as having a high level of cultural competence compared to other healthcare providers. When probed about personal endorsement of social biases that may impact PrEP prescription, age-related stereotypes were the most readily acknowledged, including assumptions about older adults being sexually inactive and older adults being uncomfortable discussing sex. Participants criticized providers who chose not to prescribe PrEP within their clinical practice, particularly those whose decision reflected their personal values related to condomless sex or discomfort discussing sex with their patients. Suggested solutions to PrEP-related biases included standardizing PrEP service delivery and increasing provider cultural competence training.

Conclusions: Early-adopting PrEP prescribers perceived multiple structural and social biases operating within the healthcare system that could compromise PrEP access for key populations and illuminated practice standards and training as important points of intervention.

THPED435

Factors associated with condomless sex without PrEP among men who have sex with men enrolled in the ANRS-IPERGAY OLE

M. Di Ciaccio[1,2], L. Fressard[1], L. Sagaon-Teyssier[1], M. Suzan[1], L. Meyer[3], D. Rojas Castro[1,4,5], L. Cotte[6], E. Cua[7], M. Préau[1,2], B. Spire[1], J.-M. Molina[8], ANRS-IPERGAY Study Group
[1]Aix Marseille Univ, INSERM, IRD, SESSTIM, Sciences Economiques & Sociales de la Santé & Traitement de l'Information Médicale, Marseille, France, [2]Groupe de Recherche en Psychologie Sociale (GRePS), Université Lyon 2, Lyon, France, [3]INSERM SC 10 US 19, Villejuif, France, [4]AIDES (Mission Innovation Recherche Expérimentation), Pantin, France, [5]Coalition Internationale Sida, Pantin, France, [6]Hospital Croix Rousse, INSERM U 1052, Department of Infectious Diseases, Lyon, France, [7]Hospital Archet 1, Department of Infectious Diseases, University Hospital, Nice, France, [8]Hospital Saint-Louis, Department of Infectious Diseases, Assistance Publique Hôpitaux de Paris, University of Paris Diderot Paris 7, INSERM U 941, Paris, France

Background: The ANRS-IPERGAY trial showed the efficacy of on-demand PrEP whereby pills are taken before and after each sexual encounter. We investigated the proportion of sexual encounters without PrEP and associated factors among men who have sex with men (MSM) participating in the trial.

Methods: MSM were recruited in the open-label extension (OLE) study of ANRS-IPERGAY. During the OLE, participants were followed every two months (M0 to M18). They provided information on sexual behaviours, condom use and PrEP use through online questionnaires. Focusing on participants' most recent episode of anal intercourse, three specific behavioural groups were defined:

a) Anal sex with PrEP (behaviour A)
b) Anal sex with condoms without PrEP (behaviour B)
c) Condomless anal sex without PrEP (behaviour C)

Multinomial mixed logit models were performed to estimate the factors associated with these behaviours.

Results: A total of 296 participants (of the 361 included in the OLE study) were included in the present analysis, corresponding to 986 episodes of anal intercourse. Of these episodes, 76% were categorized as behaviour A, 5% behaviour B, and 19% behaviour C. Participants with behaviour C were more likely to have sexual encounters with HIV-negative partners

(aOR[95%CI]: 10,79[4.70,24.80]), with their main partner (3,41[1.91,6.10]), and with circumcised partners (2,11[1.06,4.22]) than participants with behaviour A. However, the probability of having behaviour C decreased with the number of sexual partners during the previous 2 months (0,98/ additional partner [0.96,0.99]).
MSM who met sexual partners in venues other than the internet (4,89[1.12,21.29]) were more likely to report behaviour B than participants with behaviour A.
Conclusions: MSM enrolled in the ANRS-IPERGAY trial reported a significant proportion of condomless sex without PrEP. Such sexual encounters were more likely to be with sexual partners who had a lower risk of HIV infection. The use of the combined prevention strategies - sex with circumcised partner, anal intercourse with HIV-negative partner, and sex with a main partner- suggest that MSM manage risk in a very reasoned fashion. PrEP uptake seems to be used for high-risk sexual intercourse encounters. Furthermore, the internet might facilitate anal sex with PrEP given that individuals can disclose online that they use PrEP.

THPED436

Experiences of pill-taking and attitudinal covariates of PrEP adherence among men who have sex with men - findings from the VicPrEP implementation project, Melbourne

J. de Wit[1,2], D. Murphy[2,3], L. Lal[4,5,6], J. Audsley[5,7], C.K. Fairley[8,9], M. Stoove[4,10], N. Roth[11], R. Moore[12], B.K. Tee[13], N. Puratmaja[6], R.M. Grant[14,15,16], E. Wright[4,5,6], The VicPrEP Study Team
[1]*Utrecht University, Department of Interdisciplinary Social Science, Utrecht, Netherlands, [2]UNSW Sydney, Centre for Social Research in Health, Sydney, Australia, [3]University of Sydney, Department of Gender and Cultural Studies, Sydney, Australia, [4]The Burnet Institute, Melbourne, Australia, [5]The Alfred Hospital, Department of Infectious Diseases, Melbourne, Australia, [6]Monash University, Department of Infectious Diseases, Melbourne, Australia, [7]University of Melbourne, The Peter Doherty Institute for Infection and Immunity, Melbourne, Australia, [8]Melbourne Sexual Health Centre, Melbourne, Australia, [9]Monash University, Central Clinical School, Melbourne, Australia, [10]Monash University, School of Population Health and Preventive Medicine, Melbourne, Australia, [11]Prahran Market Clinic, Melbourne, Australia, [12]Northside Clinic, Melbourne, Australia, [13]The Centre Clinic, Melbourne, Australia, [14]Gladstone Institutes, San Francisco, United States, [15]University of California-San Francisco, School of Medicine, San Francisco, United States, [16]San Francisco AIDS Foundation, San Francisco, United States*

Background: Oral pre-exposure prophylaxis (PrEP) has proven highly effective in preventing HIV infection, provided sufficient dosing levels are achieved. Insufficient adherence is an important explanation for differing outcomes of PrEP efficacy trials and a major concern regarding the implementation of PrEP in community settings. We previously reported continued high adherence over the first year of follow-up among participants in the VicPrEP community implementation project. Here we report an in-depth analysis of experiences of pill-taking and attitudes regarding HIV, PrEP and condoms which may contribute to informing adherence support.
Methods: Initiated in 2014, VicPrEP was a first PrEP demonstration project globally with no site in the US, undertaken through one sexual health clinic and three general practice clinics in Melbourne, Australia. A total of 115 participants were enrolled over one year, with daily dosing oral PrEP available for up to 30 months. Participants were provided baseline and 3-monthly self-report questionnaires during the first year of participation. Five-point rating scales were used to assess attitudes regarding HIV, PrEP and condoms (1 = low, 5 = high). Prospective data analysis was undertaking using Generalized Estimating Equations.
Results: At three months follow-up, nearly all participants (95.4%) indicated pill-taking around the same time each day, mostly early mornings (50.6%) or at night (22.2%). In the past 7, 30 and 90 days, 87.4%, 63.2% and 48.3%, respectively, reported missing no doses. Self-reported full adherence did not change significantly over 12 months follow-up, assessed for the past 7 days (Wald Chi^2 (df=4) = 1.741, p = 0.628), 30 days (Wald Chi^2 (df=4) = 5.272, p = 0.153) or 90 days (Wald Chi^2 (df=4) = 5.543, p = 0.136). Multivariable analysis found, controlling for socio-demographic characteristics, baseline motivation to take PrEP predicted 7, 30 and 90-day adherence over follow-up; no other attitudinal variables were significant.
Conclusions: Contrary concerns regarding PrEP adherence in community settings, findings from the VicPrEP study show high self-reported adherence, indicative of adequate protection. Self-reported adherence in this study was previously found to correspond well with objective indicators. Importantly, solely motivation to take PrEP predicted adherence over various intervals, underscoring the importance of appropriate motivational support for PrEP use.

THPED437

PrEP acceptability and preferences among a respondent-driven sample of MSM at high-risk in India: A discrete choice experiment

P.A. Newman[1], V. Chakrapani[2], M. Shunmugam[3], M. Cameron[4], S. Roungprakhon[5], S. Rawat[6], R. Nelson[3], R. Scarpa[4,7]
[1]*University of Toronto, Faculty of Social Work, Toronto, Canada, [2]Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India, [3]Centre for Sexuality and Health Research and Policy (C-SHaRP), Chennai, India, [4]University of Waikato, Hamilton, New Zealand, [5]Rajamangala University of Technology Phra Nakhon, Science and Technology, Bangkok, Thailand, [6]The Humsafar Trust, Mumbai, India, [7]Durham University, Durham, United Kingdom*

Background: HIV prevalence among men who have sex with men (MSM) in India is 20-fold higher than general population prevalence. PrEP was recently approved in India after years of off-label ARV use among MSM who could afford it. To inform emerging government policy on PrEP implementation, we assessed PrEP acceptability and preferences among MSM.
Methods: From January-April 2017, we recruited HIV-negative MSM using respondent-driven sampling initiated in cruising areas and community-based organizations in Chennai and Mumbai. We programmed a tablet-administered survey interview (TASI), in Tamil and Hindi, including a discrete choice experiment (DCE) to assess PrEP preferences. Survey items assessed demographics, sexual risk behaviors and PrEP acceptability. The DCE used pictorial cards and a drag-and-drop technique on the tablet screen. Participants were presented with 8 double-rounds of best-worst choice sets of PrEP-scenario cards, each composed of 5 dichotomous attributes. To support DCE design, we obtained empirically-informed priors for model coefficients from a formative qualitative study and pilot DCE survey. We used logistic regression to identify demographic and behavioral correlates of acceptability. We modeled marginal willingness-to-pay (mWTP) for attributes of PrEP derived from a conditional logit model using the Krinsky-Robb procedure with 5,000 replications.
Results: Participants (n=200) (mean age=26.6y [SD=6.6]; 19.5% ≤high-school education; monthly income, mean=12,280 rupees [~US$192]; 19.5% heterosexually married), reported multiple (mean=6.0, SD=4.3) partners and 63.6% inconsistent condom use (past month). 77.0% would use PrEP immediately upon availability. PrEP acceptability was positively associated with perceived HIV-risk (AOR = 3.41, 95% CI: 1.07-10.84, p=.03), inconsistent condom use (AOR = 3.16, 95% CI: 1.03-9.70, p=.04), and inversely with being married (AOR = .25, 95% CI: .07-.80, p=.02). mWTP indicated highest estimates for (high) efficacy, no (vs. minor) side-effects, intermittent (vs. daily) dosing, with no preferences for government- vs. private-hospital access. 62.0% endorsed "PrEP would avoid the hassle of using condoms," associated with acceptability (^{2}=15.9, p< .001).
Conclusions: High PrEP acceptability among MSM in India indicates substantial opportunities to support combination prevention. Tailored interventions for heterosexually-married MSM, intermittent dosing options, and low-cost PrEP through government hospitals may support uptake. Possible reductions in condom use indicate the need for interventions addressing STI risks and supporting PrEP adherence.

THPED438

Bypassing policy inertia: How a collaborative, multi-channel advocacy campaign secured PrEP funding in New Zealand

J.G. Rich[1], S. Azariah[2], J. Myers[1], K. Macpherson[1], P. Saxton[3]
[1]New Zealand AIDS Foundation, Auckland, New Zealand, [2]Auckland District Health Board, Auckland, New Zealand, [3]University of Auckland, Auckland, New Zealand

Background: In 2016 New Zealand recorded the fifth consecutive annual increase in HIV diagnoses among gay, bisexual and other men who have sex with men (GBM) and expanded HIV prevention options are urgently needed. International guidelines have recommended HIV pre-exposure prophylaxis (PrEP) since 2015 but there is still no official policy in New Zealand. Increasing concern about the lack of Government strategy and action on PrEP, and HIV in general, prompted the New Zealand AIDS Foundation (NZAF), a non-government organisation, to collaborate with community, clinical and research stakeholders to advocate for publicly funded access.
Methods: We used a range of strategies to build the case for public funding of PrEP:
- A demonstration project, enrolling 150 GBM, was conducted in Auckland to ascertain the acceptability of PrEP among this most-at-risk group and how it can be delivered in local sexual health clinics;
- A national consensus statement on comprehensive HIV prevention was developed and signed by over 100 clinicians, community organisations and researchers calling for change (https://hivconsensus.org.nz/);
- An online learning course was developed for clinicians to support prescribing of PrEP for patients to import from overseas, resulting in 25 providers having sound experience in delivering PrEP and building health sector support;
- The presence of the Prime Minister and Leader of the Opposition at gay pride events was leveraged to secure high-level commitments to publicly fund PrEP;
- When pharmaceutical companies held off applying to New Zealand's medicines purchasing agency PHARMAC for PrEP funding, NZAF lodged its own community application;
- A petition was launched calling for an expedited decision on PrEP funding, receiving 2,289 signatures.

Results: When government and health departments fail to show leadership on HIV, collaborative and multi-channel non-government advocacy can raise awareness, build coalitions and articulate a credible case for change.
These efforts have successfully resulted in PHARMAC proposing to publicly fund PrEP in New Zealand for individuals at high risk of HIV acquisition, including GBM, from 1 March 2018.
Conclusions: Funded access to PrEP is an important milestone however there is no updated national HIV action plan to support implementation. Urgent actions include physician and community education and surveillance to monitor PrEP uptake.

THPED439

Preparing for PrEP: Community-level challenges on PrEP uptake and use among *Hijras* and transgender women in Mumbai, India

D. Baruah[1], S. Rawat[1], M. Shunmugam[2], V. Chakrapani[2], P.A. Newman[3], V.R. Anand[1]
[1]The Humsafar Trust, Research, Mumbai, India, [2]Center for Sexuality and Health Research and Policy (C-SHaRP), Research, Chennai, India, [3]Factor-Inwentash Faculty of Social Work, University of Toronto, Social Work, Toronto, Canada

Background: Pre-exposure Prophylaxis (PrEP) is recommended for HIV prevention for most-at-risk groups. Recent investigations have provided some understanding around PrEP acceptability among MSM; however, very little is known for *hijra* and other transgender communities. This qualitative study aimed at understanding PrEP acceptability and challenges for *hijra* and other transgender communities in Mumbai, India.
Methods: From March to June 2016, we conducted three focus group discussions (FGDs) with *hijras* and transgender women (n = 19) and four key informant interviews, including two with community leaders. Focus groups and interviews were transcribed, translated into English, and analyzed thematically.
Results: FGD Participants' mean age was 22.2 years and mean monthly income was INR 16000; 52% reported primary education. 32% participants reported inconsistent condom use, 90% reported no water-based lubricants use, and 63% reported sex work. Only one participant had heard of PrEP before and 47% reported PrEP as being their first choice new-prevention technique if made available. While added protection was seen as an advantage, the following were reported as challenges around PrEP use:
1) daily adherence;
2) perception by family as drug users;
3) long-term impact of PrEP use on appearance;
4) being perceived as HIV positive; and
5) risk compensation.
While adherence was perceived as a challenge, participants expressed that shorter PrEP regimens could improve adherence. Participants and community leaders alike highlighted the possibility of PrEP being used to compromise on condom use particularly among *hijra*/transgender women in sex work. They further anticipated consistent PrEP use to be a greater challenge among *hijra*/transgender women living with families due to lack of privacy. While participants were informed of potential side effects, misconceptions around PrEP having long terms effect on physical appearance (sunken cheek) was perceived as a challenge to PrEP uptake.
Conclusions: Despite the established effectiveness of PrEP among marginalized populations, PrEP-related knowledge among Indian transgender women is limited. Challenges identified in our study could be addressed with demonstration projects, education, and sensitization at the transgender community level. Operational research should be undertaken to understand effective ways to improve PrEP-related knowledge and assist *hijra*/transgender communities in making informed decisions in using PrEP.

THPED440

Is willingness enough? Exploring physician perspectives on pre-exposure prophylaxis for HIV prevention and discriminatory attitudes towards key affected populations in Ukraine

B. Gibson[1], R. Marcus[2], O. Zeziulin[3], I. Pykalo[3], M. Filippovych[3], A. Taroyants[3], T. Kiriazova[3], K. Dumchev[3], S. Dvoriak[3], F. Altice[2,4,5]
[1]Quinnipiac University, Frank H. Netter MD School of Medicine, North Haven, United States, [2]Yale School of Medicine, Department of Internal Medicine, Section of Infectious Diseases, AIDS Program, New Haven, United States, [3]Ukrainian Institute for Public Health Policy, Kyiv, Ukraine, [4]Yale School of Public Health, Epidemiology of Infectious Diseases, New Haven, United States, [5]University of Malaya, Center of Excellence for Research in AIDS, Kuala Lumpur, Malaysia

Background: Ukraine has one of the highest HIV prevalence rates in Europe, with a concerning rise in new infections among men who have sex with men (MSM). Pre-exposure prophylaxis (PrEP) is an emerging intervention using HIV medications in HIV-negative individuals to prevent infection. PrEP has been shown to greatly reduce the risk of HIV infection but requires prescription and careful monitoring by physicians. Research has shown that despite familiarity with PrEP, physicians present a major barrier to PrEP access when they are unwilling to prescribe it. Access to PrEP is further complicated by stigma in healthcare settings that prevents key affected populations (KAP) from seeking and adhering to prophylaxis.
Methods: We recruited 209 physicians from across Ukraine to participate in an online survey, disseminated by email, assessing knowledge of PrEP, willingness to prescribe PrEP, and stigma-related constructs towards people living with HIV/AIDS (PLWHA), MSM, and people who inject drugs (PWID).
Results: Fifty-five percent of participants had previously heard of PrEP and 7 participants had prescribed PrEP. Nearly 74% of physicians reported their willingness of prescribing PrEP as ³8 on a scale of 1-10 and

most would prescribe PrEP to high-risk patients, including persons with an HIV-positive sexual partner (95.7%), a patient who exchanges sex for money (95.7%), a man who has sex with multiple male sexual partners (94.2%), and a patient who injects drugs and is not on opioid agonist therapy (91.4%). Using a "feelings thermometer," physicians reported significantly more negative attitudes towards people living with HIV (p< 0.001), PWID (p< 0.001), and MSM (p< 0.001) compared to general patients. Infectious disease specialists had significantly more positive attitudes towards KAP than other providers from other specialties (p< 0.001). Bivariate analysis showed a positive correlation between reporting a high likelihood to prescribe PrEP (³8/10) and currently caring for HIV patients (p=0.035) and prescribing antiretrovirals in the last 12 months (p=0.044).
Conclusions: While nearly all physicians expressed willingness to prescribe PrEP, particularly for high-risk patients, discrimination towards KAP was high, especially in non-specialized settings. Lack of familiarity with HIV care and discriminatory attitudes may present a barrier to accessing PrEP and other services.

THPED441

Community preparedness for HIV Pre-Exposure Prophylaxis (PrEP) among transgender women (TGW) in India: A cross sectional survey

V. Arumugam[1], A. Aher[1], S. Shaikh[1], S. Kandaswamy[1], V. Chakrapani[2], U. Chawla[1], S. Mehta[1]
[1]India HIV/AIDS Alliance, Delhi, India, [2]Centre for Sexuality and Health Research and Policy (C-SHaRP), Chennai, India

Background: High levels of HIV prevalence(7.5%) and inconsistent condom use (about 45%) among transgender wome(TGW) as per the National AIDS Control Organisation(NACO) annual report 2016 points out the need for additional HIV prevention methods in India. With PrEP emerging as a key addition to the combination HIV prevention approaches, India needs to fast track prevention. India HIV/AIDS Alliance conducted a study to examine PrEP awareness and willingness to use PrEP amongst TGW, including those in sex work, in 6 different states of India under Prayas project with the support of ViiV Health Care.
Methods: A concurrent triangulation mixed methods study design was used. The study conducted focus group discussions (FGD) with 57 TGs in 6 sites, and 7 key informant interviews(KII) were conducted among health care providers (physicians), TGW leaders and government officials. A structured questionnaire was provided to 355 TGs who were recruited through CBOs at the study sites. It assessed PrEP knowledge, condom use, attitudes towards PrEP (after a brief information on PrEP was provided to all), preferences in relation to PrEP regimens and access venues, and other factors influencing PrEP uptake.
Results: PrEP awareness among TGW was low at 17%,but after provision of brief information on PrEP,81% were willing to use PrEP. 96% agreed that PrEP could prevent HIV and 86% sensed PrEP could prevent HIV resulting from forced sex. TGW in sex work and those who had high scores on perceived benefits were significantly more likely to report that they would use PrEP(p< 0.05). Those who had reported discrimination experiences from health care providers and family members were significantly less likely to report that they would use PrEP, as others might then suspect them to be sexually promiscuous or HIV positive(p< 0.05).
Conclusions: Findings suggest that PrEP is urgently needed to reduce the disproportionate HIV burden among trans women in India. However, there is a bigger need of ensuring complete and correct education about PrEP. Given the high levels of HIV prevalence and inconsistent condom use among TGW in India, PrEP should be introduced as part of combination HIV prevention approaches, in addition to condom promotion and distribution.

THPED442

Limited PrEP awareness and use among young men who have sex with men and transgender women in Metro Detroit

D. Chittamuru[1], R. Weingarten[2], D. Connochie[1], R. Stephenson[3], J. Bauermeister[1]
[1]University of Pennsylvania, School of Nursing, Philadelphia, United States, [2]University of Pennsylvania, School of Social Policy and Practice, Philadelphia, United States, [3]University of Michigan, School of Nursing, Ann Arbor, United States

Background: Young men who have sex with men and transgender women (YMTW) are at a disproportionately higher risk for HIV infection. Pre-Exposure Prophylaxis (PrEP) can greatly reduce the risk of HIV infection, yet awareness and uptake has remained low in these key populations. We examined PrEP awareness and likelihood of use among a sample of YMTW in Metro Detroit participating in a pilot mHealth intervention (iCON 1.0).
Methods: We enrolled a sample of YMTW (N=158; 8.8% transgender) between the ages of 15 and 29 (Mean=23.5 years old) from Metro Detroit. Approximately 43% of participants identified as a racial or ethnic minority. Most (93.7%) had completed high school. Almost two-thirds had ever tested for HIV, with 6.3% identifying as HIV-positive. Focusing on the HIV-negative and HIV-unknown subsample (N=148), we explored the association between PrEP awareness—as well as likelihood of future use—and participants' sociodemographic characteristics (e.g., age, income, race and ethnicity, sexual identity), self-reported HIV risk behaviors (e.g., transactional sex, multiple sexual partners, HIV-testing), and recent alcohol and substance use.
Results: Two-thirds of participants (67%) had heard of PrEP, yet only 8.3% had ever used PrEP and even fewer (6.2%) were currently using PrEP. PrEP awareness was more likely among YMTW who were older (Odds Ratio=1.18, CI= [1.04, 1.34]) and had higher incomes (Odds Ratio=1.17, CI= [1.01, 1.36]). PrEP awareness was not associated with any additional sociodemographic characteristics, HIV risk behaviors, or alcohol and substance use behaviors. Two-thirds (66.7%) of YMTW who had not heard of PrEP expressed interest in PrEP after its efficacy was explained to them, with PrEP interest being greater among gay men (Odds Ratio=11.9, CI= [1.82, 77.88]) as compared to non-gay identified YMTW. No other association was observed between PrEP interest and participants' sociodemographic characteristics, HIV risk behaviors, and recent alcohol and drug use.
Conclusions: Disparities in PrEP knowledge and intention persist among YMTW. Five years after Truvada was approved in the United States, awareness and uptake of PrEP among YMTW remains limited. Interventions and policies focused on addressing age and income-related barriers to PrEP awareness and uptake are needed among YMTW communities.

THPED443

Community-led assessment of awareness and willingness to use HIV pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM) in the Philippines

J.D. Rosadiño[1], R. Pagtakhan[1], K. Jonas[2], G.-M. Santos[3]
[1]LoveYourself, Inc., Mandaluyong, Philippines, [2]University of Maastricht, Maastricht, Netherlands, [3]University of California, San Francisco (UCSF), San Francisco, CA, United States

Background: Recent studies have demonstrated safety and efficacy of dual antiretroviral oral pre-exposure prophylaxis (PrEP) in preventing sexual and parenteral transmission of HIV infection. Philippines, a lower-middle income country, has a rapidly emerging HIV epidemic, especially amongst men who have sex with men (MSM). While HIV preventive behavior, including HIV testing, among Philippine MSM is being brought to scale, formative research and pilot studies evaluating the PrEP concept for wider implementation among Philippine MSM should begin. However, a better understanding for potential demand for PrEP needs to be assessed. This study assessed PrEP knowledge and willingness to inform future PrEP programs in the Philippines.

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Methods: An online survey was conducted by LoveYourself (a community-based organization based in Manila, Philippines) among MSM and TGW in the Philippines, aged 18 years old and above. A total of 1,706 respondents answered the survey: 1,268 HIV-negative and 193 HIV-positive. A separate survey was conducted among 245 volunteers of LoveYourself.

Results: Out of 1,706 total respondents, 51.23% are aware of what PrEP is. 72.50% (1,023 out of 1,411) HIV-negative individuals are "probably" and "definitely" interested in using PrEP, while 75.99% (1,070 out of 1,408) are "probably" and "definitely" intending to use it when it becomes available in the Philippines.

Conclusions: This survey has determined that majority of HIV-negative individuals are interested to take PrEP should it become available in the Philippines. Further analysis of data, including their attitudes, and linking it to their sexual and drug taking behaviours should be conducted. Multi-stakeholder forums and focused group discussions should also be conducted to better understand client concerns, and provide qualitative data. Market analysis connecting PrEP use and demand can also be considered. Results of further studies and analyses could help future implementation of PrEP use in the Philippines.

THPED444

Acceptability of PrEP-based HIV prevention options among men who have sex with men in China

C. Wei[1], L.-E. Shi[2], J. Li[2], H. Yan[2], H.F. Raymond[3]

[1]Rutgers Univesity, Social & Behavioral Health Sciences, Piscataway, United States, [2]Jiangsu Provincial Centers for Disease Control and Prevention, Nanjing, China, [3]Rutgers University, Epidemiology, Piscataway, United States

Background: The HIV epidemic among Chinese men who have sex with men (MSM) continues to expand rapidly. Efficacious or potentially efficacious biomedical prevention strategies may reduce new HIV infections among this population. We assessed willingness to use PrEP-based prevention options (oral pill, lubricant, enema) among MSM in Jiangsu Province, China.

Methods: Participants in a longitudinal cohort study completed an online follow-up survey in January 2015. They were recruited through venue- and online-based sampling methods. Data on sociodemographics, sexual risk behaviors, practices of douching, and willingness to take PrEP pills and use PrEP-based lubricant or enema were collected. Multivariable logistic regression was conducted to identify independent correlates of acceptability.

Results: Participants were diverse in terms of sociodemographic characteristics. Of 316 participants who responded to questions on PrEP-based prevention options, 20.3% were willing to take 1 pill a day whenever exposure was possible, 59.8% would use lubricant every time for any anal sex, 6.3% would use enema, while 13.6% would not adopt any of these options. In a multivariable model, being employed fulltime or a student (AOR = 3.89, 95%CI: 1.43, 10.6) and having had condomless anal sex (AOR = 1.71, 95% CI: 1.03, 2.82) were significantly associated with willingness to use PrEP-based lubricant. Douching practice, number of casual male partners, and lifetime HIV testing were not significantly associated.

Conclusions: Acceptability of PrEP-based lubricant is relatively high among Chinese MSM. If proven efficacious, appropriate marketing strategies are needed to advertise it to the target audiences. Furthermore, in order to encourage uptake of oral PrEP, sociocultural concerns need to be taken into consideration including addressing drug toxicity and adverse effects.

THPED445

A missing perspective: Injectable pre-exposure prophylaxis (PrEP) for people who inject drugs

K. Biello[1,2,3], A. Edeza[4], P. Salhaney[2,4], D. Biancarelli[5], M. Mimiaga[1,2,3], M.-L. Drainoni[5,6,7], A. Bazzi[8]

[1]Brown University School of Public Health, Behavioral & Social Sciences and Epidemiology, Providence, United States, [2]Brown University, Center for Health Equity Research, Providence, United States, [3]Fenway Health, The Fenway Institute, Boston, United States, [4]Brown University School of Public Health, Behavioral & Social Sciences, Providence, United States, [5]Boston University School of Public Health, Department of Health Law, Policy & Management, Boston, United States, [6]Boston University School of Medicine, Section of Infectious Diseases, Department of Medicine, Boston, United States, [7]Boston University School of Public Health, Evans Center for Implementation and Improvement Sciences, Boston, United States, [8]Boston University School of Public Health, Department of Community Health Sciences, Boston, United States

Background: Large-scale clinical trials are now underway to test the efficacy of long-acting injectable Cabotegravir for HIV pre-exposure prophylaxis (PrEP) (LAIP) among at-risk cisgender men and transgender women who have sex with men, and at-risk cisgender women. However, these studies do not include people who inject drugs (PWID), a group experiencing overlapping sexual and injection-related HIV risk that could likely benefit from long-acting forms of PrEP.

Methods: We recruited HIV-uninfected PWID through community-based organizations (CBOs) in the U.S. Northeast where injection drug use is prevalent and an increasing public health concern. Qualitative interviews explored perspectives on HIV risk and PrEP. Thematic analysis identified key themes regarding LAIP acceptability, including perceived advantages and disadvantages of this modality.

Results: Among 33 PWID, 20 injected at least daily. Common drugs injected were heroin (n=31), cocaine (n=24), crack (n=13), and methamphetamine (n=11). Two-thirds reported recent sexual risk for HIV (i.e., condomless sex) (see additional sample characteristics in Table 1).

	n (%)
Age in years; median (interquartile range; IQR)	36 (31.5-48)
Race	
American Indian or Alaska Native	3 (9%)
Black or African American	7 (21%)
White	22 (67%)
Other	5 (15%)
Ethnicity: Hispanic/Latino	8 (24%)
Gender	
Male	18 (55%)
Female	13 (39%)
Transgender or Genderqueer	2 (6%)
Education Attainment	
Less than High School	9 (27%)
High School or GED	13 (39%)
Some College	11 (33%)
College Degree or more	0 (0%)
Sexual Orientation	
Heterosexual or "Straight"	21 (64%)
Bisexual	8 (24%)
Homosexual or Gay	4 (12%)
Has Ever Been Diagnosed with Hepatitis C	26 (79%)
Condom Use with Vaginal or Anal Sex, Past 3 Months	
Never	11 (33%)
Rarely	1 (3%)
Sometimes	7 (21%)
Usually	3 (9%)
Always	5 (15%)
No vaginal or anal sex	6 (18%)
Injection Use, Past 3 Months	
Once a Week or Less	5 (15%)
2 to 6 Days a Week	8 (24%)
Once a Day Everyday	3 (9%)
2 to 3 Times a Day Everyday	12 (36%)
4 or More Times a Day Everyday	5 (15%)
Number of People Received Needle from After Using It, Past Month	
0	14 (42%)
1-2	13 (39%)
3+	6 (18%)
Had Heard of PrEP Prior to Study	12 (36%)

[Table 1. Sample Characteristics (n = 33)]

Most participants were enthusiastic about LAIP, and expressed greater interest in this modality than in daily oral PrEP. Participants perceived that appointments every 2 months would be more feasible and easier to remember than taking a daily pill, especially during drug "binges" or periods of frequent use when daily adherence would be challenging. Additionally, for many homeless and marginally-housed PWID, participants discussed the benefits of not needing to carry or store medications. Female participants compared the benefits of LAIP to injectable and im-

plantable contraceptives. A minority of participants expressed concerns regarding LAIP, including general mistrust of medical providers and the possibilities that injections could "affect their high" or be "triggering" for those entering recovery.

Conclusions: Overall, LAIP was highly acceptable in our sample of community-recruited PWID, with many participants perceiving adherence and logistical advantages over daily oral PrEP medications. These perspectives from PWID highlight the relevance of, need for and the moral obligation for representation of this marginalized, at-risk population in clinical trials of LAIP. Without this, a major opportunity will be missed.

THPED446

Comparative acceptability and preferences for oral, injectable, and ring-based PrEP: A project Shikamana mixed-methods study among Tanzanian female sex workers

S. Beckham[1], C. Shembilu[2], N. Galai[3,4], A. Mwampashi[2], S. Likindikoki[2], J. Mbwambo[2], D. Kerrigan[1,5]

[1]Johns Hopkins Bloomberg School of Public Health, Health, Behavior and Society, Baltimore, United States, [2]Muhimbili University of Health and Allied Sciences, Psychiatry, Dar es Salaam, Tanzania, United Republic of, [3]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [4]University of Haifa, Tel Aviv, Israel, [5]American University, Sociology, Washington, DC, United States

Background: Pre-exposure prophylaxis (PrEP) is an efficacious though neglected tool for HIV prevention for female sex workers (FSW). PrEP options such as oral tablets, long-acting injectables, and cervical rings may differentially overcome issues with stigma and poor adherence. This research explored FSW's needs and preferences in order to inform strategies to improve uptake and adherence.

Methods: This was a sequential, explanatory, mixed-methods, secondary study of the Shikamana FSW cohort in Iringa, Tanzania. The quantitative phase involved a regression analysis of baseline survey participants who self-reported being HIV-negative (n=428) and thus asked PrEP-related questions. The qualitative phase involved in-depth interviews (n=10) and two focus group discussions (total n=20). Participants were selected purposively to represent a range of perspectives. Topics included perceptions, preferences, and dis/advantages of oral, injectable, and ring PrEP.

Results: Among participants, 59% (253/428) thought PrEP was acceptable ("personally worth taking"), and 82% (339/414) preferred injectable over oral PrEP. Factors associated with acceptability included age >30 (aOR 2.54 [95%CI:1.45-4.44]), recent self-reported sexually-transmitted infection (aOR 2.49 [95%CI:1.53-4.07]), and alcohol use during sex exchange (aOR 1.89 [95%CI1.25-2.86]). Predictors of preferring injectable vs. oral PrEP included younger age (aOR 1.88 [95%CI:1.10-3.20]) and non-local ethnicity (aOR 1.90 [95%CI:1.12-3.20]). In-depth interviews indicated positive perceptions of PrEP. The injectable was preferred because of the convenience of an injection bimonthly, especially given the mobility and spontaneity of their work. Women also highlighted the ability to hide use from others and its similarity to injectable contraception. Participants were willing to take the oral form, but feared people would assume it is HIV treatment, and may thus put them at risk of HIV stigma and violence from clients. They recommended different packaging to reduce resemblance to other antiretrovirals. Ring PrEP was the least preferred; women feared it may fall out, be discovered by clients, cause infertility, or be "pushed up into the body." Participants felt that any PrEP use would not reduce condom use, but rather protect them from HIV with clients who refused condoms anyway.

Conclusions: PrEP utilization may be optimized through providing multiple options, which will be enhanced by soliciting FSW's preferences and adapting roll-out to be sensitive to their needs.

THPED447

PrEP uptake among female sex workers in Kenya: Issues and challenges

M. Akolo[1], J. Kimani[2], L. Gelmon[2]

[1]Kenya Aids Control Project, Clinic, Nairobi, Kenya, [2]University of Manitoba, Nairobi, Kenya

Background: Sex workers outreach program of Kenya (SWOP-Kenya) is based in Nairobi and offers HIV treatment and prevention services to approximately 16,000 female sex workers (FSW). A PrEP uptake pilot study among FSW was done in one of the SWOP clinics; 75% of the target was reached/ screened of which 98% were eligible but only 58.5% enrolled .Among those enrolled 38.4 % remained active -the rest were either discontinued or lost to follow up. These results prompted the SWOP team to find out why the low uptake.

Methods: A qualitative crossectional study was carried out among the community members. Ten PrEP ambassadors were chosen purposively and recruited as research assistants (Those who were able to read, write, communicate and active on PrEP). They carried out one focused group discussion (FGD) each in their community hotspot units on challenges of taking PrEP; each group had 6-10 FSWs. The information was taped-transcribed and thematic analysis was done. Trained research assistants administered Key Informant interviews to 12 peer leaders (PE), five outreach workers (OW) and six staff who participated in implementation of the Pilot study. The ambassadors later addressed the issue raised.

Results: The FGDs showed 92% of population had low knowledge level on PrEP and reported many fears; 23% reported fear of liver maceration by the drugs that in-turn cause non-stop diarrhea, 92% reported loss of "marketing apparatus" (lipodistrophy of the breasts and the buttocks), close to 50% reported fear of infertility / reduced libido. The ones who had enrolled reported gender based violence from sex partners who accused them of wanting to infect them knowingly; others lost their drugs while running away from the police officers at night. Some had been stigmatized by fellow sex workers as being HIV positive on treatment-this caused them to loose clients. 98% of legible clients reported willingness to take PrEP after ambassadors' intervention.

Conclusions: Community involvement in all stages of PrEP implementation is very vital in Kenya, the significant barriers described by participants may need to be addressed through education to increase PrEP uptake.

THPED448

What would it be for? The potential impact of HIV prevention technologies on young people's sexual lives in environments of inhibited hope

S. Paparini[1], S. Bernays[2], N. Ngwenya[3], V. Dlamini[3], E. Tumwesigye[4], A. Asiimwe[4], J. Seeley[3,4,5]

[1]Graduate Institute of International and Development Studies, Anthropology and Sociology of Development, Geneve, Switzerland, [2]University of Sydney, School of Public Health, Sydney, Australia, [3]Africa Health Research Institute, Somkhele, South Africa, [4]MRC/UVRI Uganda Research Unit on AIDS, Social Science Programme, Entebbe, Uganda, [5]London School of Hygiene and Tropical Medicine, Global Health and Development, London, United Kingdom

Background: Proclamations about eliminating HIV are tantalising in their appeal, but the challenges in addressing the HIV incidence among youth as a key population in Sub-Saharan Africa are formidable and puncture the plausibility of such statements. The current epoch of HIV prevention is increasingly polarised between those contexts in which HIV prevention technologies hold unprecedented potential for reducing transmission amongst some populations, and those where complex structural drivers of HIV risk overwhelming narrow technological solutions. What can we learn from current qualitative work with young people about the possibilities for biomedical prevention interventions?

Methods: We draw on a series of multi-method, qualitative longitudinal studies with (160) young people affected by HIV (aged 12-24 years) in high prevalence settings in rural communities in Uganda and South Africa and, in light of thematic findings, reflect on global treatment as prevention (TasP) priorities of test-and-treat and pre-exposure prophylaxis (PrEP).

Results: Young people's social practices are moulded by community discussions which frame sexual risks as ubiquitous and where the consequences of acquiring HIV have been comparatively neutered by antiretroviral therapy. For young people, TasP remains not well understood and their engagement in test-and-treat is already fragile and undermined by multiple factors that would also impact on the feasibility of PrEP. The economic realities that young people are facing impede aspiration, encourage substance use and further disrupt the incentives to adhere to safe and protective behaviour. The future from where many of these young people are standing looks bleak.
Conclusions: TasP technologies need to be adapted and honed to interact with an array of broader prevention interventions that engage with the social (and highly gendered) realities of young people. Understanding the contexts, structures and economies which inhibit the hope necessary for young people to invest in sexual health is an urgent necessity in the era of TasP. In the enthusiastic pursuit of biomedical prevention technologies there is a risk that any limit to, or problems with, their effectiveness is interpreted as a failure of young people's behaviour, rather than as a reflection of their limited capacity to engage with the complexity of the contexts in which they intervene.

Risk compensation: conceptualisation, assessment, and mitigation

THPED449

Reality vs. perception: Differences in self-reported behavioral risk compensation between PrEP users and non-users in a large sample of American MSM

K. Biello[1,2,3], M. Mimiaga[1,2,3], K. Mayer[3,4,5]
[1]Brown University School of Public Health, Behavioral & Social Sciences and Epidemiology, Providence, United States, [2]Brown University School of Public Health, Center for Health Equity Research, Providence, United States, [3]Fenway Health, The Fenway Institute, Boston, United States, [4]Harvard Medical School/Beth Israel Deaconess Medical Center, Division of Infectious Disease, Boston, United States, [5]Harvard T. H. Chan School of Public Health, Global Health and Population, Boston, United States

Background: Pre-exposure prophylaxis (PrEP) is highly effective at preventing HIV acquisition among men who have sex with men (MSM). Some evidence suggests that PrEP use may increase rates of condomless anal sex (CAS) (i.e., risk compensation), thus increasing risk of STD transmission and HIV acquisition if adherence is suboptimal. This study aimed to examine risk factors for actual and perceived risk compensation when taking PrEP among high-risk HIV-uninfected MSM recruited via a large, national online sample.
Methods: Push notifications were sent daily to all active U.S. users of 2 MSM sexual networking mobile apps during March 2016 inviting them to participate in a brief, mobile-optimized survey. Multivariable logistic regressions were used to examine risk factors for perceived and actual risk compensation among PrEP non-users and PrEP users, respectively.
Results: Of the 4,638 respondents, 15% reported PrEP use. Of the 85% who never used PrEP, 30% reported that they thought they would increase their rate of CAS if they take PrEP in the future. Among those who had used PrEP, 43% reported that they had increased the rate of CAS when on PrEP. Among never users, being Black (OR=0.38, $p<0.0001$) and Latino (OR=0.65, $p=0.009$) (vs. White) was associated with lower odds of perceived risk compensation. Conversely, being older (OR=1.01, $p=0.005$) and having private insurance (OR=1.36, $p=0.05$) (vs. no insurance) and 2+ CAS acts (vs. no CAS) in the past 3 months (OR=2.9, $p<0.0001$) was associated with higher odds of perceived risk compensation. Among PrEP users, being Black (OR=0.52, $p=0.02$) was associated with lower odds, while reporting 2+ CAS acts in the past 3 months (OR=11.76, $p<0.0001$) was associated with higher odds, of reporting actual risk compensation.
Conclusions: Among this sample of risky MSM recruited online, PrEP users were more likely to report actual risk compensation when taking PrEP compared to perceived likelihood of risk compensation among never users, and risk factors differed between PrEP users and non-users. Differences in actual and perceived risk compensation should be considered in studies aiming to understand and reduce risk compensation in the future.

Combination HIV prevention

THPED450

Vaginal health and HIV prevention: Improving HIV programming for adolescent girls and young women by addressing vaginal practices

S. Leclerc-Madlala[1], N. Mazibuko-Ngidi[2]
[1]USAID, Office of HIV and AIDS, Washington, DC, United States, [2]Sol Plaatje University, Department of Anthropology, Kimberley, South Africa

Background: Social scientists have long suggested a possible association between vaginal practices and African women's risk of HIV acquisition. Research over several decades has explored behavioural motives and socio-cultural meanings, documented and classified particular substances and usage patterns, and estimated the prevalence of vaginal practices among various groups in HIV affected locales. Research in the context of microbicide development for HIV prevention has prompted a closer examination of practices in relation to their impact on vaginal ecology. More recently biomedical scientists have identified microbial factors that predict genital inflammation and suggest an association between inflammation and increased HIV susceptibility. We assess social and biomedical knowledge to date of vaginal practices in southern Africa and argue that there is a need to integrate vaginal health as a key protective issue for improving HIV prevention outcomes for adolescent girls and young women (AGYW) in high-burden countries.
Methods: This paper draws upon on-going ethnographic research commenced in June 2016 with women using *snuff* for sexual enhancement purposes in South Africa. We reviewed social science and biomedical studies of vaginal practices and vaginal ecology in southern Africa and situate our findings within this growing body of evidence.
Results: Vaginal practices are used for a range of purposes and hold various meanings for the women who use them. Most usage falls within three categories; for hygiene, health and wellness, and sexual enhancement purposes. Emerging evidence suggests some potentially harmful practices are increasing as women attempt to assert greater agency in sexual relationships with men and adopt behaviours associated with a more empowered femininity.
Conclusions: While still limited in terms of the precise biological mechanisms and pathways that might link particular vaginal practices to enhanced HIV susceptibility, we believe knowledge to date is sufficient to justify the immediate integration of education for vaginal health into HIV prevention for AGYW in high-burden countries. We identify some key lessons to inform the design of activities and the related pressures and cultural scripts that increase AGYW risk currently and likely in the future.

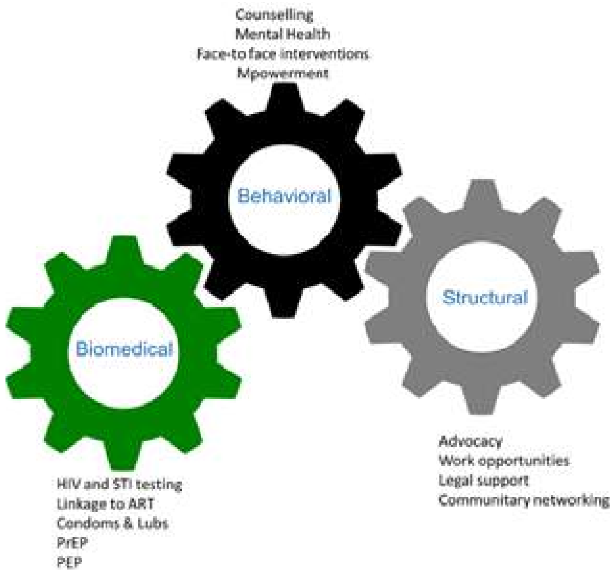
THPED451

Community based response to stop HIV in Guatemala: Combined prevention for and from the gay community in Guatemala city

R. Mendizabal-Burastero, C. Galindo-Arandi
Colectivo Amigos contra el Sida, Guatemala, Guatemala

Background: In Guatemala, MSM report the highest burden of HIV among key populations. Less than half had an HIV test done in the last 12 months and the coverage of prevention programs are less than 10% for them. Through different strategies based on the community, Colectivo Amigos contra el Sida (CAS) has implemented since July 2014, that including HIV and STI testing modalities, PrEP and PEP have reached nearly 50% of the MSM in Guatemala's department.

Description: First, we started a Saturday clinic opened, with an increase in coverage of three times with other similar services. Community testing was implemented since January 2015. To improve prevention, in October 2015 PrEP service was offered. In February 2016 we started a Monday-Friday night clinic, to improve access. In July 2016 we started PEP in case of sexual risk. We also implemented HIV testing with a mobile unit in 2016. We integrated mental health and legal services for MSM in 2017. We based our outreach in volunteer networks, but some of them were offered a job in our institution, part of a constant renovation process. Since 2016, we are also part of Ministry of Health (MoH) STI sentinel surveillance.



[CAS Combined Prevention Concept]

Lessons learned: Nearly 10,800 MSM accessed to HIV and STI services. 1 of every 3 MSM served had an STI, and a total of 642 HIV cases were diagnosed and linked 97% of them to HIV treatment services. 31 persons have been on PrEP and 30 on PEP, none HIV infection in both groups. We are currently an innovative service in Central America, as we are the only service to offer PrEP and PEP in the region, the first MSM-oriented mental health program and the biggest HIV testing service in Central America for MSM.
Conclusions/Next steps: Real combined prevention services by the gay community in a developing country are feasible, and our model can be easily replicated in other countries in Central America. Sustainability with the support of the MoH is a step needed, to ensure provision of prevention services for MSM. Integration of efforts between MoH and community is urgently needed to stop HIV in the region.

School-based sexual education, life skills and gender equality education

THPED452

How to develop effective comprehensive sex education? The 'Long Live Love' program - an example from the Netherlands

L. Schutte, S. Meijer
Sti Aids Netherlands, Youth, Amsterdam, Netherlands

Background: The Netherlands is often presented as an exemplary case for its pragmatic dealings with youth and sexuality. This is reflected in the lower numbers of teenage pregnancies, sti's and sexual coercion. Comprehensive sex education in the school-based setting contributes significantly to the positive sexual health of the Dutch youth. 'Long Live Love' (LLL) is by far the most successful , effective, evidence-based program in the field of sex education in the Netherlands. It has existed for over 27 years with the current program being the fourth generation. The systematic development of this program using the Intervention Mapping protocol is highlighted as an example for producing effective sex education programs. How can program developers optimize their current approach to a more systematic one? What are the benefits of systematic intervention development? How does this relate to the effectiveness of interventions? An example is provided with Long Live Love.
Description: Long Live Love is a school-based sex education program for secondary school students aged 13-15. It aims to assist youngsters in the healthy development of their emerging sexuality. It not only addresses knowledge but is also aimed at attitudes, skills and behavioural change. LLL is a teaching pack that consists of a student magazine, a DVD or online films, digital lessons and a teacher manual. LLL compromises six lessons , using a positive approach towards sexuality with attention for cultural-, gender- and sexual diversity . It targets unwanted teen pregnancy, sti's, assertiveness, communication, respecting and accepting boundaries, HIV/sti testing, managing relationships and dealing with sex on the internet. It was developed in close collaboration with students, teachers and Municipal health Service professionals using the Intervention Mapping protocol as a planning tool.
Lessons learned: The systematic and planned development of LLL has resulted in a proven effective program as shown in a national effect study. Over 550 schools have already ordered the program, with over 140,000 student magazines having been distributed.
Conclusions/Next steps: This systematic approach to intervention development serves as framework for sexual health promotion initiatives in other countries, with the highest potential for effectiveness.

[Long Live Love program]

THPED453

Footprints of school based sexuality education in Uganda: Straight talk foundation's experience

R. Imakit[1], G. Walakira[2], I. Kato[2], D.O. Namukuza[2], S. Ajok[2]
[1]Straight Talk Foundation, Reserch and Evaluation, Kampala, Uganda,
[2]Straight Talk Foundation, Kampala, Uganda

Background: Sexual and Reproductive Health and Rights (SRHR) Alliance in Uganda is a consortium of 8 partner organizations (Straight Talk Foundation (STF) inclusive) implementing Get Up Speak Out (GUSO) for Young Rights program (GUSO 2016-2020). The program is funded by Dutch Ministry of Foreign Affairs and aimed at empowering young people to realize their SRHR in restrictive societies. The program is implemented in 2 Ugandan districts namely: Iganga and Bugiri. The two districts are chosen based on high teenage pregnancy rates standing at 30.1%.
Description: The GUSO program focuses on Sexuality Education by serving as mechanism to voice young people's rights among health, social policy and legal actors. STF uses a whole school approach (WSA)

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in implementation which is based on the following principles: Ownership by the school; Involvement of all actors at schools; Participation and equity of all; a healthy, safe school environment; cooperation between the education sector and the health sector; Contextualization and embedding. To date; 60 schools are implementing sexuality education programs based on WSA in Bugiri and Iganga districts. Over 60,000 young people, 12,000 parents and 600 teachers have been reached utilizing this approach. Target schools have reported reduced risky sexual activity among young people, lower rates of child marriages and early unwanted pregnancy, lower rates of STIs including HIV/AIDS.

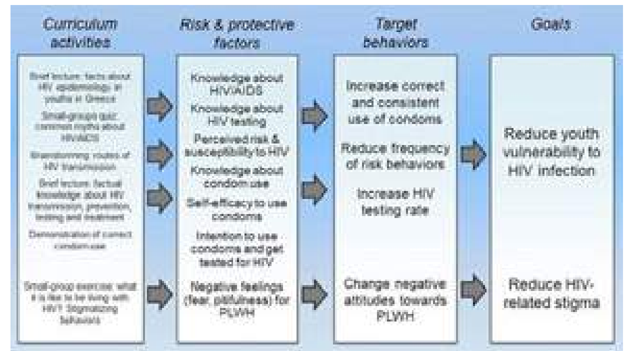
Lessons learned:
· There is improved school to school relationships and likelihood of more schools implementing sexuality education.
· Use of WSA ensures creation of safe, enabling environment to empower students, teachers and parents.
· Engagement of all stakeholders helped to curb the aggression of the community
· Having standard and uniform SRHR teaching materials led to improvement in accuracy and quality of sexuality education.
· Having well established youth corners in schools helps in managing menstruation, referrals and SRHR related problems and improved on retention of girl - child at school.
· Participation of School Management Committees and Parents Teachers Associations have created school ownership of the program.
· Integrating Income generating activities into SRHR intervention ensures self sustenance of the intervention in schools.
Conclusions/Next steps: Whole School Approach helps schools to implement sexuality education in a sustainable and scalable way.

THPED454

High school students' knowledge and attitudes towards HIV/AIDS: Baseline measures and the effectiveness of a nationwide, school-based program for HIV prevention and stigma reduction in Greece

A. Peltekis[1], P. Paranou - Lioliou[1], E. Pappa[2], K. Chatzimorakis[2], A. Kavouri[2]
[1]*Centre for Life, Thessaloniki, Greece,* [2]*Centre for Life, Athens, Greece*

Background: HIV prevalence is relatively high among youths in Greece with roughly 25% of new diagnoses concerning people aged 15-29 years (HCDCP, 2017). However, data on youths' knowledge of HIV/AIDS and attitudes towards PLWHA are lacking and no respective educational/prevention programs have been consistently implemented in Greece, nor tested for their effectiveness.
On September 2017, the NGO Centre for Life commenced the first nationwide, school-based HIV education program, authorized by the Greek Ministry of Education and scientifically edited by the National School of Public Health, aiming at raising high-school students' awareness of HIV/AIDS, promoting safe sexual behavior and reducing HIV-related stigma. 36,486 students have benefited until January 2018 (70,000 expected by May 2018 / 40% of the total population). The program applies a theory-driven logic model outlying its target variables and key interventions (Graph 1).
Methods: Adaptations of the HIV Knowledge Questionnaire (Carey & Schroder, 2002) and the HIV Stigma Scale (Visser et al., 2008) are used to assess baseline knowledge of HIV/AIDS and attitudes towards PLWHA in a stratified national sample of approximately 3,500 students, as well as the post-intervention effect on these variables in a subgroup of 1,200 students. Descriptive statistics and variance analysis are the main procedures used for data analysis. This is an ongoing study, the full dataset being expected by May 2018.
Results: Peers (73.8%) and the internet (56.1%) are the most common sources of students' information on sexuality issues, unlike school (17.7%), while 71.3% of students are unsatisfied from previous sexual education received by school. Results suggest a moderate baseline level of students' knowledge about HIV/AIDS (M=4.93/10, SD=2.54) and no significant gender difference, as well as relatively positive attitudes towards PLWH (M=7.29/10, SD=1.45) (n_1=1,246 [49.3% females]), with male students being more negatively biased towards PLWHA (r=.29). The intervention had significant (ps< .001) and large effects on both knowledge (r=.92) and attitudes (r=.83) (n_2= 548 [58.2% females], again with a significant gender x attitudes interaction (p=.003, r=.16).
Conclusions: Our findings clearly show the need for systematically applying sexual education programs within the school setting and that even brief interventions can induce large positive changes if certain conditions are met.



[Graph 1. Logic model developed for the HIV prevention and stigma reduction program]

THPED455

The evidence on out of school Comprehensive Sexuality Education (CSE)

A. Irvin[1], I. Zhukov[2], M. Bakaroudis[3], M. Yamai[4]
[1]*Consultant, Bangkok, Thailand,* [2]*UNFPA, SRH Branch, New York, United States,* [3]*UNFPA, ESA Regional Office, Johanesbourg, South Africa,* [4]*UNFPA, New York, United States*

Background: UNFPA and its partners agreed to develop a guidance specifically on CSE delivered out of school. The literature review was conducted tosought evidence on the effectiveness and implementation of out of school CSE programs since 2008.
Methods: The initial search focused heavily on finding systematic reviews and randomized controlled trials using electronic databases. Systematic reviews were prioritized because they are based on extensive searches and synthesize the evidence from multiple randomized controlled trials and other types of studies, thereby providing time-efficient access to summarized findings. Randomized controlled studies were also searched for because they provide the highest quality evidence for the effectiveness of interventions, are the best way to assess the extent to which a program has its intended effect, and can provide specific examples of effective programs.
Results: Out of school CSE should preferably be embedded in multi-component, multi-level interventions. Emerging evidence indicates that CSE-related programs that directly address gender and power may have more impact on sexual and reproductive health and violence outcomes than those that do not. Clinic-based programs appear to be more effective in achieving their intended outcomes than other settings. Among the variety of delivery modalities of out of school CSE, parent-focused interventions and those that include parents appear to be more effective than family-based programs and programs delivered only to youth. Technology-based programs are still evolving and have yet to be tested in the "real world," but hold a lot of promise for reaching large numbers of young people cost-effectively. Peer education can increase knowledge and change attitudes but has not been found to consistently change behavior. However, programs that involve peers in outreach and education appear to be more effective in reaching hidden and stigmatized young people, such as young drug users and LGBTQ+ youth and are strongly preferred by Indigenous young people. Young key populations, LGBTQ+ people, people with disabilities, people in humanitarian crises, Indigenous people are neglected by current CSE programs.
Conclusions: Programs should involve young people from the group from the start, distinguish and address diversity within each group, treat them with respect and dignity.

THPED456

Finding them where they are: The potential of online social networking service for adolescent sexual health promotion

A. Nattembo[1], R. Imakit[2], S. Ajok[3]
[1]Straight Talk Foundation, Mass Media, Kampala, Uganda, [2]Straight Talk Foundation, Research and Evaluation, Kampala, Uganda, [3]Straight Talk Foundation, Management, Kampala, Uganda

Background: Population in Sub-Saharan African countries including Uganda is currently experiencing the increasing access to the Internet with the rapid prevalence of mobile phone ownership. Based on this background, sexual health promotions using Information and Communication Technology are taking place widely in those developing countries. However, sexual health interventions typified by text message services have not achieved long-term behavioral changes of adolescents who are at a great risk of sexually transmitted infections (STI) including HIV. Therefore, Social Networking Service (SNS) is drawing attention as an innovative alternative tool to impact on adolescent sexual health considering its increasing popularity.

Methods: A research study was conducted to explore the potential of online SNS for adolescent sexual health improvement in urban settings. The research adopted a mixed method consisting of questionnaire surveys and semi-structured interviews. The research participants received information regarding STI and HIV prevention on a Facebook group and their knowledge and attitude change was observed by a measurement tool. After the intervention, qualitative data on the participants' experiences were collected to specify what factors caused motivational change which could lead to sexual behavior change. 24 participants completed the whole research process.

Results: The results showed that the intervention had a certain degree of positive influence over sexual health knowledge and attitudes. The participants dominantly preferred education on SNS to other educational methods including text message services. The unique features to SNS such as the interaction with others, multimedia functions, compatibility and accessibility were discovered to make it easier for motivational changes towards target behaviors to happen.

On the other hand, it was revealed that behaviours related to cultural norms were difficult to change even by conducting sexual health promotion on SNS. The most interesting finding was that the participants found it easier to express their sexual values via online spaces than other occasions.

Conclusions: SNS could possibly be not only an instrumental sexual health promotion tool, but also a new educational opportunity. There is need to increase awareness of the available social media platforms so that more young people can access STI and HIV prevention information thus increasing their access to sexual reproductive health services.

THPED457

Access to comprehensive sexuality education and information by young people in schools and linkages to HIV/STI services

O. Corazon Ayoma, G. Ochieng
Family Health Options Kenya, Programs, Nairobi, Kenya

Background: Young people below the age of 25 constitute 66% of the total population in Kenya. Adolescents on the other hand make up 24% of the country's total population.

Young people (10-24) suffer from some of the worst SRHR outcomes . The causes of these poor outcomes include lack of correct and comprehensive information on SRHR issues including HIV and AIDS, barriers in accessing SRH services such as distance to health care centers, lack of access to youth friendly services and lack of knowledge on where to access SRHR services.

GUSO project is a four year project that sorts to empower all young people especially girls and women to realize their sexual reproductive health and rights in societies that are positive towards young people's sexuality. The program has three focus areas which include Advocacy, comprehensive sexuality education and integrated SRH/HIV services.

Description: The project is implemented in 4 counties in kenya. A needs assessment to map out schools with poor SRHR outcomes was conducted. A total of twelve schools primary and secondary were identified. As part of sustainability, the project identified young people in the selected schools and trained them as Trainer of trainers on provision of CSE.CSE in school is implemented in a structured way by the trained peer educators using FHOK CSE curriculum which has seven components. The components include sexuality Gender, SRHR and HIV, Sexual rights and sexual citizenship, Pleasure, Violence, Diversity and Relationships. Young people in schools are linked to nearby identified health centers for SRH/HIV services by trained peer providers.

Lessons learned: Training young people in school as peer educators to deliver CSE is a sustainability measure to ensure continuity and ownership even after project close out.

Lack of institutionalization of CSE curriculum in schools is a barrier to provision of CSE in school.

Results: 45844 (24755 F; 24755 M) young people were reached with CSE information and Education. Among these 6805(4682F;2123M) young people were reached with integrated HIV/SRHR services

Conclusions/Next steps: Conclusions/Next steps:

Advocate for inclusion of CSE in school curriculum

Continue to empower young people to exercise their SRHR rights

Involve parents in sex and sexuality dialogue

[Figure. Peer Educator facilitating on HIV/STI during Guidance and Counselling day]

THPED458

The whole school approach for sexuality education: A model for improving the implementation of school-based sexuality education?

I. Flink[1], A. Page[1], A. Schaapveld[1], T. Kruitbosch[1], V. Nyamongo[2], G. Walakira[3]
[1]Rutgers, Utrecht, Netherlands, [2]Center for the Study of Adolescence, Nairobi, Kenya, [3]Straight Talk Foundation, Training and Development, Kampala, Uganda

Background: Access to high-quality SRHR information and education is a key pillar to empowering young people to make safe and informed decisions regarding their SRHR. Governments around the world recognize this and are increasingly investing in school-based Sexuality Education (SE) programmes, also in Low and Middle Income Countries. Unfortunately, implementation challenges limit the sustainability, reach and effectiveness of such programmes. To address these challenges more systematically, Rutgers, the Centre for the Study of Adolescence in Kenya and the Straight Talk Foundation in Uganda are piloting a Whole School Approach for Sexuality Education (WSA for SE).

Description: The WSA for SE builds on the WHO health promoting schools framework and moves beyond classroom teaching of SE to address the whole school environment, including supportive school policies and school facilities, links with parents and the community and collaboration with health services. To follow the WSA implementation

closely, a pilot study which included an action research component was conducted between 2013 and 2015 among four schools in Western Kenya and eight schools in Eastern Uganda.
Lessons learned: The pilot demonstrated that by 2015, SE was more often timetabled and progress was made in reaching more students with SE (e.g. 48% increase in Uganda). By 2015, students reported more SRHR information sources within schools (e.g. through newly established links with SRH service providers). A focus on improving the school environment allowed schools to review their Codes of Conduct together with students and make changes to the physical environment (e.g. adding locks to toilets). Consequently, students reported feeling safer and absentee and dropout rates decreased. The pilot also demonstrated that by involving parents, the school management and government officials, more support is created for SE which, on the long run, is likely to lead to more sustainability and scalability of SE.
Conclusions/Next steps: This pilot shows that the WSA for SE has potential to reduce SE implementation challenges and improve ownership, sustainability and scalability of school-based SE. Given the short timeframe of the pilot study, it is necessary to follow schools for a longer period of time so that sustainability and scalability of the WSA for SE can be studied better.

Community-based approaches, including empowerment, outreach, and service delivery

THPED459

Supporting HIV treatment retention and adherence through community mobilization

M. Carrasco[1], E. Holman[2], R. Said[2], P. Poppe[2], M.E. Figueroa[2]
[1]USAID, Office of HIV/AIDS, Washington, United States, [2]Johns Hopkins Center for Communication Programs, Baltimore, United States

Background: Evidence points to the merits of community mobilization (CM) approaches for health promotion and HIV trials have examined impacts of community- and facility-based Antiretroviral Therapy (ART) care on adherence and retention. However, an in-depth analysis of the interplay of community factors promoted through CM approaches to support pro-ART attitudes and behaviors remains under-explored. This study analyzes these factors using end-line data from PACTO, a CM program implemented in Mozambique (2010-2016) to increase utilization of HIV services, strengthen the continuum of care, and promote HIV-supportive and gender-equitable social norms.
Methods: We used a qualitative subset of 22 interviews and 17 focus group discussions from the following PACTO participants: people living with HIV (PLHIV), community members, NGO staff, focal points linking communities with health facilities, and HIV health care providers. Thematic narrative analysis, using the collaborative web-based software Dedoose, identified community-level factors conditioning individual ART engagement behaviors and explored the role of CM in promoting these factors.
Results: With PACTO support, a critical mass of players with pro-ART attitudes was strengthened, providing an enabling environment for ART engagement. PACTO helped make cumulative acts of ART adherence and retention more valued and more visible, supporting ART use as normative. This was done through the formation of various community support groups, dissemination of information, community capacity building, and supporting community volunteers. In spite of increasingly supportive norms, internalized individual HIV stigma was still strong among many PLHIV, triggering a reluctance to seek care and risk public exposure. In those cases, a PACTO-supported multilayer net of community players including PLHIV, focal points, and NGO and health care staff brought patients back to ART through creative personalized approaches. This was made possible in an environment of community cohesion around the value of ART for broader community health. Results indicate that a supportive multilayer network, enabling social norms, community cohesion around health, and community agency to act were key community factors supporting ART access, retention, and adherence.
Conclusions: The results suggest that a CM program can precipitate community pro-ART attitudes and supportive behaviors that create an enabling environment to support ART access, retention, and adherence and make them sustainable.

THPED460

Developing the Y+ South Africa Network

T. Ngoato[1], H. Stevenson[2,3], T. Marshall[4], S. Jantjies[5], S. Brown[6], K. Moagi[7], T. Benge[8], T. Khuzwayo[9], S. Msomi[9], M. Dabaza[10], L. Nolusindiso[10], E. Dudula[8], N. Nelisiwe[11], V.R. Molapo[12], M.M. Modiba[12], M. Mokhothu[13]
[1]Y+ South Africa, Johannesburg, South Africa, [2]Y+ South Africa, Kimberly, South Africa, [3]Southern Africa AIDS Trust, Johannesburg, South Africa, [4]Y+ South Africa, Bloemfontein, South Africa, [5]Y+ South Africa, Bethel, South Africa, [6]Y+ South Africa, Mafikeng, South Africa, [7]Y+ South Africa, Rustenburg, South Africa, [8]Y+ South Africa, Cape Town, South Africa, [9]Y+ South Africa, Durban, South Africa, [10]Y+ South Africa, Port Elizabeth, South Africa, [11]Y+ South Africa, Malene, South Africa, [12]Y+ South Africa, Polokwane, South Africa, [13]Y+ South Africa, Blomfontein, South Africa

Background: Increasing evidence indicates that young people living with HIV (YPLHIV) are underserved by HIV services. Actively engaging YPLHIV is imperative to ensure that services are responsive and provide sustainable, appropriate solutions. Networks YPLHIV provide structured platforms for engagement, and for members to connect and advocate for change. Currently no formal networks exist in South Africa (SA) for YPLHIV. To develop a Y+ network in SA a youth-led community consultation was conducted.
We aimed to ensure that YPLHIV are meaningfully involved from the outset of developing the network and gain insights to inform the identity and strategy of the network.
Methods: Sixteen workshops, based on participatory learning and action approaches, were conducted in all nine provinces of SA. YPLHIV aged between 15 -24 years were invited through posters in clinics and social media posts. Conducted by 16 trained YPLHIV, the workshops followed standardised guides and reporting tools. The outcomes were analyzed using qualitative content analysis and the key themes identified were presented at a national network development meeting.
Results: In total 419 YPLHIV participated; 49% were 15-18 years old, 54% were female, 58% lived in rural or township areas, 32% had not disclosed their status and 68% were sexually active. Participants highlighted internal and external stigma, fear of rejections and judgement with many not wanting to disclose. Emotional distress including suicidal ideations were prominent especially when newly diagnosed. Accepting their status took time and was made possible with support especially from others YPLHIV. Poor access to and quality of services were noted with lack of information as a major barrier. Participants requested that the network be youth-led. That it provides information, builds skills, raises awareness and empowers them to live positively. They want a support systems, a safe space to be heard and listened too and a platform that connects them. Ultimately, they want a network that raises their voice, advocates on their behalf and fights for their rights.
Conclusions: A consultation process was imperative to ensure that Y+ SA is responsive to the needs and desires of YPLHIV in SA. The network's identity and work plan have been developed based on these outcomes.

THPED461

Capacity development for improved performance of organizations serving key populations with HIV services

E. Kuhlik, B. White, L. Stenberg, S. Ko
Pact, Washington, United States

Background: Pact's capacity development (CD) theory of change posits that organizational CD interventions improve internal systems, policies, processes, procedures, and networks, leading to increased organizational performance, translating into improved programmatic impact. Under LINKAGES—a USAID/PEPFAR-supported, FHI 360-led global mechanism that aims to reduce HIV transmission among key populations (KPs) and improve their enrollment and retention in care—Pact

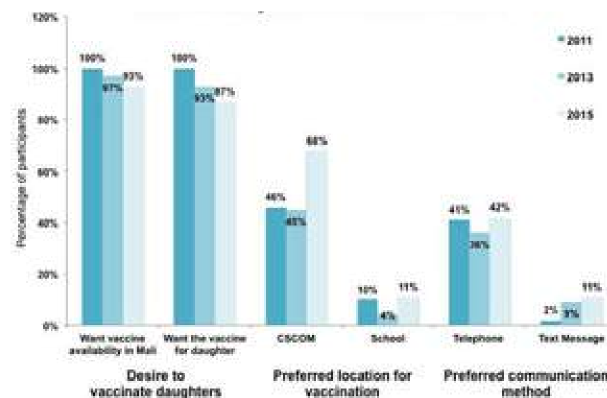
strengthens civil society organizations' (CSOs) performance to help close leaks in the HIV cascade. Increased organizational performance is measured using an organizational performance index (OPI) tool.
The OPI measures the outcomes of CD efforts and helps adapt CD programming to tailor support to the needs of CSOs to allow for greater impact on organizational performance.
Methods: Between November 2014 and September 2017, OPI scoring was completed with 65 CSOs across 12 countries, with 28 completing follow-up scoring beyond baseline. OPI scores were analyzed in Excel using quantitative descriptive analyses, and t-tests.
Results: The average baseline OPI score was 2.13 out of 4.0 with no significant regional difference between Caribbean (2.18; n=4) and African (2.15, n=7) scores.
For CSOs with two rounds of OPI scores, the average second-round score (2.79) is 31% higher ($p< 0.05$) than the average baseline score (2.13). The average score by OPI domain increased significantly ($p< 0.05$) by the second round for all domains (efficiency, effectiveness, relevance, sustainability) and eight subdomains.
As additional OPIs are conducted, updated data can be presented at the conference.
Conclusions: OPI scores measure organizational performance of CSOs, which is critical to HIV service delivery to KP. Baseline OPI results are consistently low across LINKAGES regions (average of 2.13 out of 4), which suggests that CD support continues to be necessary to improve CSO performance for HIV service delivery.
During the time that CSOs received tailored CD support under LINKAGES, the OPI scores of those with two rounds of scores increased significantly. These results suggest that CD support plays a role in improving capacity and organizational performance of KP-serving organizations.
Following LINKAGES CD support, KP-serving CSOs are likely better placed to more effectively deliver HIV services to KPs than they would have been without Pact's support.

THPED462

Barriers to vaccine delivery: Polling mothers to determine best practice for vaccine trials and vaccination campaigns in Bamako, Mali

L.Y. Diarra[1], K. Tounkara[1], I. Teguété[2], S. Coulibaly[3], A. Bagayoko[4], P. Fané[4], Y. Sylla[3], Y. Kone[1], F. Tembely[1], K. Sangare[5], S. Beseme[6], E. Squibb[6], O.A. Koita[5,7], A.S. De Groot[6,8]
[1]GAIA Vaccine Foundation, Bamako, Mali, [2]Gabriel Touré Teaching Hospital, Bamako, Mali, [3]Health Reference Center of Commune 1, Bamako, Mali, [4]Regional Health Department (Direction Régionale de la Santé), Bamako, Mali, [5]Laboratory of Applied Molecular Biology (Laboratoire de Biologie Moleculaire Apliquée), Bamako, Mali, [6]GAIA Vaccine Foundation, Providence, United States, [7]University of Science, Techniques, and Technologies of Bamako (USTTB), Bamako, Mali, [8]Institute for Immunology and Informatics (iCubed), University of Rhode Island, Providence, United States

Background: Logistics and parental preferences are an important factor in vaccination campaign design. Resistance to vaccination, often caused by lack of information, is becoming a global issue. GAIA Vaccine Foundation has focused a body of research on the HPV vaccine, because existing vaccines are safe and increasingly accessible. GAIA's research on Knowledge, Attitudes and Practices (KAP) related to HPV and cervical cancer (CC) and Willingness to Participate (WTP) in Bamako, Mali can provide a model for future campaigns.
Description: GAIA's HPV research has included: 2011 KAP/WTP study among 25 women, 2013 KAP/WTP study with 301 subjects, including 75 women, and 2013 KAP study among 236 women with CC. In 2015, GAIA developed an education campaign and KAP study to address a lack of information about HPV. The 6-month campaign promoted free CC screening at 5 Community Clinics (CSCOMs). Healthcare personnel mediated public educational events, and 500 women seeking CC screening were surveyed for KAP/WTP.
Lessons learned: All KAP/WTP surveys demonstrated that knowledge of HPV was low (13%, 2015) while knowledge of CC was high (75%, 2015). Desire for the HPV vaccine in Mali remained high over the years, and the majority of women wanted vaccination for their daughters. For vaccine delivery logistics, CSCOMs were preferred locations for vaccination, over school-based campaigns. Participants preferred phone call reminders, rather than text messages. 45% of women would provide consent for a child's vaccination, but 52% said they would contact their husbands for consent.



[Desire for HPV Vaccine Availability in Mali and Preferences for Vaccine Delivery and Communication Methods]

Conclusions/Next steps: HPV vaccination is strongly desired by participants in GAIA's KAP/WTP studies in Mali. Leveraging cervical cancer awareness, which is greater than HPV awareness, will improve the uptake of HPV vaccination in future campaigns. Since mothers have a degree of autonomy related to decision-making for their daughters in Mali, CC prevention (HPV vaccination) campaigns may be improved by linking CC screening of women to HPV vaccination of girls at the same site. Yet, as is true in other areas of West Africa, it will be important to engage men, and to gain the approval of key opinion leaders such as religious leaders, prior to the introduction of the vaccine.

THPED463

Better together? A systematic review examining the effectiveness of HIV prevention interventions that involve building or strengthening social ties in low- and middle-income countries

V. Fonner[1], C. Kennedy[2], K. O'Reilly[1], P. Yeh[2], M. Sweat[1]
[1]Medical University of South Carolina, Psychiatry and Behavioral Sciences, Charleston, United States, [2]Johns Hopkins Bloomberg School of Public Health, International Health, Baltimore, United States

Background: Forging community bonds and grass-roots organizing have been essential to the HIV response. Interventions have also deliberately sought to create and strengthen such bonds as a means of facilitating HIV prevention, through changing both upstream risk factors (e.g., gender norms) and individual risk behavior. Terms such as "social capital" and "community mobilization" permeate the lexicon of HIV prevention; however, results from interventions aiming to increase social ties have not been synthesized, particularly in low-and middle-income countries. We systematically reviewed available evidence to understand how interventions created social ties, how ties were measured, and their effectiveness in preventing HIV.
Methods: We searched five electronic databases from January 1990-August 2016 to identify articles. Results were screened for eligibility by two independent reviewers. Studies had to be conducted in a low- or middle-income country, explicitly focus on building/strengthening social ties, and present pre/post or multi-arm results related to HIV prevention. We abstracted data into standardized forms in duplicate and synthesized results qualitatively.
Results: Of 4,801 unique citations screened, 25 articles evaluating 19 interventions met the inclusion criteria. We identified five intervention categories:
(1) Strengthening ties in general communities through social mobilization (n=2);
(2) Forming ties for collective action/group empowerment among at-risk populations (n=9);
(3) Forming peer groups for support and skills building (n=3);
(4) Expanding personal networks (n=2); and

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(5) Forming ties between non-peers (e.g., between nurses and people living with HIV) (n=3).
Only 5 studies measured effects on some aspect of social relationships, including social cohesion, collectivization, social participation, peer interaction, and perceived community support. The vast majority of interventions demonstrated significant change in at least one HIV-related behavior, such as condom use. Several studies reported community-level change, such as decreases in social acceptance of intimate partner violence. One study measured the intervention's impact on community-level HIV incidence but found no effect. The rigor of study designs varied significantly.
Conclusions: Interventions were generally effective in facilitating individual-level behavior change, regardless of the intervention modality through which ties were strengthened. However, most studies seeking to alter social relationships did not directly measure such changes, limiting our understanding of the mechanisms through which these interventions prevent HIV.

[Intervention categories to increase social ties]

THPED464

MSM and TG/Hijra CBOs contribution to achieve SDGs: Promising practices and community system strengthening

U. Zarif
Bandhu Social Welfare Society, Policy, Advocacy & Communication, Dhaka, Bangladesh

Background: In Bangladesh, HIV prevalence is less than 1% and to reduce the impact of HIV amongst key population, different strategies have been taken by the GO, NGOs, Civil Society Organizations. As a part of commitment, a total of 30 TG/Hijra and MSM CBOs have been formed between 2011-2017 to strengthen the Community Systems and organized capacity building trainings and provided other technical assistance under Multi Country South Asia Global Fund Regional Grant. The objective of the support was to reduce the impact of HIV amongst MSM and TG/Hijra through developing local level network with local influential, practicing Good Governance, implement sustainable business plan.
Methods: Selection process was completed through organizational need assessment survey; developed Capacity Develop Plan, ensured support to all selective CBOs at 8 divisions in Bangladesh. Regular monitoring, support for organizational registration, arrangement of capacity building trainings to build the capacity of CBOs and staffs, developed different policies/strategies/guidelines of CBOs, introduced sustainable business plan for their self driven initiatives for future, established local level referral mechanism especially for HTC, and other support for HIV, STIs.
Results: More than 150 Hijra are in mainstream employment, 160 Hijra received NID cards as Third Gender, 14 CBOs got registration from Govt. authorities, Hijra are acknowledged as 3rd Gender by the Govt. of Bangladesh in 2013, 3rd box introduced in National Election Commission form, 10 CBOs introduced business plans and changed their livelihood, Hijra Manab Polli established where 90 Hijra are staying together, Anti discriminatory law drafted, inclusion of UPR, supplementary reading materials developed under direct supervision of National Curriculum and Textbook Board.156 positive articles produced as media campaign, Ministry of women and children affairs announced "Joyeeta Award" to Hijra for their social contribution.
Conclusions: These exemplary practices of CBOs in Bangladesh can contribute in achieving the targets of 90-90-90 by 2020, thus ultimately helping to attain SDGs. These practices of 30 CBOs may be documented, replicated and disseminated as pragmatic and do-able activities to reduce HIV in South Asia.

THPED465

Strengthening the identification and diagnosis of disability among children and adolescents living with HIV - a peer-led response

M. Mawodzeke[1], R. Makuvaza[2], T. Makamure[2], N. Willis[3], K. Madzeke[2], C. Nleya[4], V. Dzimba[5]
[1]Africaid-Zvandiri, Programmes, Harare, Zimbabwe, [2]Africaid-Zvandiri, Harare, Zimbabwe, [3]Africaid, Zvandiri, Zimbabwe, [4]Ministry of Health and Child Care, Harare, Zimbabwe, [5]Community Blind Mission, Harare, Zimbabwe

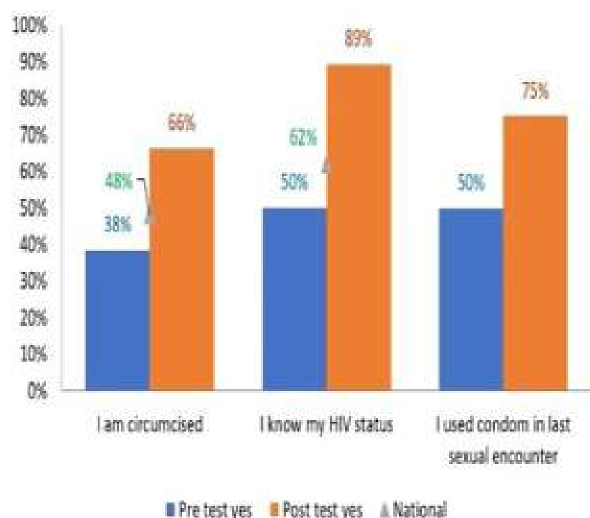
Background: Children with HIV worldwide are increasingly accessing HIV treatment, resulting in improved survival rates, although there is mounting concern regarding HIV-related disabilities amongst children growing up with HIV. The extent or nature of their disabilities is currently unrecognized, poorly understood and inadequately addressed. Africaid through the **'HIV & Disability Impact Mitigation'** project aims to improve the quality of life for children with HIV-related disabilities living in Harare (Zimbabwe), through increased understanding about HIV and disability by strengthening their access to appropriate quality health, rehabilitation and educational services.
Description: Since 2016 Africaid has been implementing the HIV and Disability Impact mitigation project where Community Adolescent Treatment Supporters (CATS) were trained on identification of disabilities/impairments among children and adolescents in the Zvandiri cohort aged 6 to 16 in Harare. The CATS utilise a simplified disability identification questionnaire which was developed in collaboration with Ministry of Health and Child Care Rehabilitation Department. The CATS work closely with the clinics and rehabilitation programme for referrals of cases identified at community level. The CATS continuously offer support to the children & adolescents with disability through adherence support done through home visits, sms reminders and support groups.
Lessons learned: 1502 children, adolescents living with HIV (CALHIV) in the Zvandiri care were screened for disabilities. The identification questionnaire was administered by CATS to all the children and adolescents identified at community level. Those at risk of disability were all referred for further screening for impairments by specialist health care providers. 808 of the 1502 (54%) children who were assessed were confirmed to be having significant physical and or intellectual disabilities that are interfering with their occupational and social functioning. The predominant impairments among those assessed were Visual (384), Hearing (323), Mobility (323), Cognition (476), Epilepsy (15). It is important to note that 328 CALHIV had multiple impairments.
Conclusions/Next steps: The prevalence of disability among this population of adolescents in Harare suggests that disability and impairments are a critical neglected concern. Further research is necessary to understand the prevalence and nature of disabilities among this group of young people so that disability can be integrated within HIV service delivery.

THPED466

Using an engendered, integrated community-based approach to HIV prevention among adolescent boys in peri-urban Swaziland

T. Churchyard[1], L. Kamugisha[2]
[1]Kwakha Indvodza, Mbabane, Swaziland, [2]UNICEF, Mbabane, Swaziland

Background: With an HIV incidence of 1.4% and prevalence of 27%, Swaziland has a severe HIV epidemic. Adolescents, especially girls, are increasingly at-risk. However, young Swazi men demonstrate low(er) uptake of HIV testing (48%), lower viral suppression (62.7%), poor transmission knowledge (66%), inconsistent condom use and low VMMC uptake (48%). This, coupled with the prevalence of patriarchal gender norms, GBV, and poor economic opportunities creates high HIV vulnerability among young men, and as a result, young women.
In 2017, Kwakha Indvodza (KI) and UNICEF provided a comprehensive package of adolescent behaviour change sensitizations and health services aimed at:
1) increasing uptake and referrals of quality HIV prevention service and products by 30%, and;
2) reducing violence against women and children by 15%.
Description: 235 boys and young men (15-25 years old, in and out-of-school), from three underserved peri-urban communities underwent an intensive curriculum of HIV prevention knowledge and services, gender sensitivity, GBV and economic empowerment. KI established male-focused youth centres which provided opportunity for service delivery, follow up and complementary services, such as psycho-social support, career guidance, parenting workshops and study support. The 5-month pilot programme integrated HIV prevention into other sensitizations and services to encourage uptake of HIV prevention services by combining referrals to existing health facilities and community-based youth-friendly HIV prevention services.
Lessons learned: Significantly increased participant status knowledge (89%), self-reported VMMC (66.3%) and self-reported condom usage at last sex (75%) among pivot-age course graduates. Substantial increase in gender-equitable norms and practices, including GBV awareness (38%) with 24% increase in GBV reporting at local police stations.
As a result of the study support, participants had improved parent-adolescent communication and better academic pass rate (15%-25%) at national exams than the average boys at their school.
Conclusions/Next steps: Integrated HIV prevention packages targeting young men should be implemented as an HIV prevention approach for young men *and* women.
Engaging adolescent males in HIV prevention requires more integrated approaches (combining medical, bio-medical, SBCC, skills development). Enhancing parent-adolescent HIV communication as HIV prevention approach needs further research. KI and partners hope to write a Facilitator's Manual and scale this pilot implementation model across Swaziland throughout 2018.



[Figure 1: Increase in HIV status knowledge and uptake HIV prevention products and services over the 5 months. 208 participants interviewed.]

THPED467

Center for friendly testing - network of people with HIV / AIDS Mar del Plata accessibility to HIV prevention, diagnosis and care in HsH, trans, sex workers

F.M. Parodi[1], R.E. Carrizo[2]
[1]Red de Personas con VIH/Sida Mar del Plata, Mar del Plata, Argentina, [2]Red de Personas Viviendo con VIH/Sida Mar del Plata, Mar del Plata, Argentina

Background: According to statistics from the National AIDS Directorate, the trans population has a prevalence of hiv of 34%, an average life of 40 years, the vast majority of which have sex work as a means of survival; men who have sex with men a prevalence of 12%; what makes it indispensable to address strategies to bring this population to the health centers to improve their quality of life and tend to decrease the transmission of HIV and meet 90-90-90.
Description: Creation of a rapid testing center generated, promoted and managed by key populations at the Headquarters of the Network of Persons with HIV / AIDS Mar del Plata in strategic association with civil society organizations related to sexual diversity and sex work, Secretary of Health, Secretary of Culture and Human Rights Directorate. Identify issues to generate interventions that bring the testing closer to the most excluded populations.
Lessons learned: Training of 10 people from the key populations to perform the test, counseling pre and post test accompaniment for access to the health system. 1 prevention campaign in the main bowling hall of sexual diversity Agreement with the Ministry of Labor to train 18 trans girls as multipliers in HIV / AIDS. Distribution of 15,000 monthly condoms to sex workers provided by the AIDS directorate. 1st Month 112 tests (F 40 - M 41 (29 HsH -12 Heteros) -Trans 31. Of the one hundred and twelve (112), eighty (80) corresponded to sex workers. 3 positives corresponding to After Migrants.
Conclusions/Next steps: Strengthen the training, education and empowerment of Trans girls, especially migrants, where we are detecting new cases of HIV and more difficulties we have to get closer to health centers. Intensify strategies with the Ministry of Health, Interior and Labor to facilitate the inclusions to the sanitary service of these population, work on Hormonization and implants of silicones.

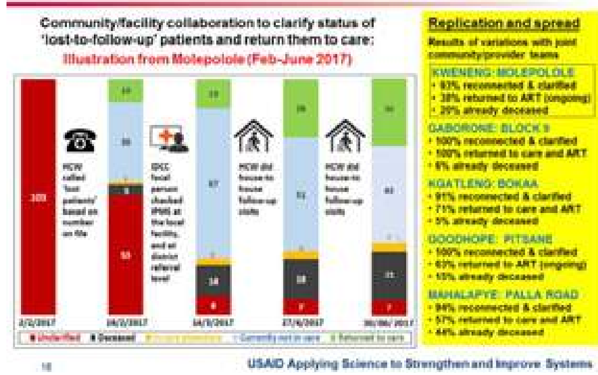
THPED468

Communities in the lead: The Botswana experience with community-led health improvement to achieve epidemic HIV control

K. Dikgole[1,2], C. Haverkamp[1,3]
[1]Human Resources for Health in 2030 Program, Gaborone, Botswana, [2]University Research Co., LLC, Gaborone, Botswana, [3]Chemonics International, Gaborone, Botswana

Background: Botswana has been hit hard by HIV/AIDS, and while largely successful, its national response has been costly, characterized by intensely vertical disease control efforts. Botswana's health system - once renowned for its proud embrace of Alma Ata and primary health care - was transformed through this emergency approach. Today, as the country is determined to think beyond HIV and re-balance its health system, focus is on the role of communities.
With more than one in five Batswana living with the virus, there is a strong call for an integrated community perspective that characterized Botswana before HIV.
Description: Under PEPFAR Botswana, the USAID-funded Applying Science to Strengthen and Improve Systems (ASSIST) project followed a community health system approach that applied quality improvement methodologies across seven districts in Botswana. Alongside local NGOs scaling HIV services under USAID's community platform, ASSIST reactivated existing but dormant community structures and reconnected them with district health systems.
Community teams under the mandate of traditional leaders received dedicated coaching to drive local efforts to improve HIV care. Tangible improvements in testing, retention and adherence were possible once

community and providers coordinated their activities around community preferences, and 're-wired' local accountability loops. These efforts achieved the return of unclarified (or 'lost') patients to ART at rates between 38% and 100%.



[Spreading 'what works': Addressing acute gaps in community ART retention across 5 districts]

Lessons learned: During dedicated 'Learning Sessions', community teams presented their results to national and district officials, ranging from community-led HIV testing to retention and adherence strategies. This demonstrated their willingness and capacity to contribute to common health goals, and the power of innovation that came from partnering with local providers to improve community health. In Botswana's unique context, traditional structures hold the promise of successfully revitalizing primary health care without undermining HIV control. In fact, they directly help in sustaining epidemic control- provided Botswana dedicates the necessary support to institutionalize new community partnerships.
Conclusions/Next steps: We continue to advise government on community-led service delivery strategies that differentiate care around community preferences and patient needs to improve integration and client orientation. The HRH2030 program will support the re-alignment and operationalization of health workforce frameworks to innovative models of care to 'deliver differently' in Botswana.

THPED469

Community entry experiences in implementing a model to prevent and respond to Gender Based Violence (GBV) and HIV in a highly prevalent GBV Community in Wakiso, Uganda

S. Mugamba[1], D. Kiwanuka[2], F. Nalugoda[3], G. Kigozi[4]
[1]Africa Medical and Behavioral Sciences organization, Kamplala, Uganda, [2]American Refugee Committee, Nairobi, Kenya, [3]Africa Medical and Behavioral Sciences, Kampala, Uganda, [4]Rakai Health Sciences Program, Grants, Science and Training, Kalisizo, Uganda

Background: .Previous studies have shown a link between Gender Based Violence (GBV) and increased HIV infections, and sexually transmitted infections. A significant reduction in GBV cases has been documented to be a promising strategy in reducing HIV incidence especially among high GBV prevalent communities. To ensure success of community based GBV interventions, systematic community entry and ownership of the programme by the community members remains a paramount factor. We describe experiences of implementing a community initiated model towards prevention and response to Gender Based Violence in this highly prevalent GBV Community.
Description: A combination of community entry packages were used including the following:
1) Strategic intervention mapping workshops to facilitate the community stakeholders own the intervention mapping,
2) Community driven selection of intervention activists that the community blesses and also believes in,
3) Early capacity building workshops for Community activists as a way of empowering the local communities to lead the implementation of the intervention, and;
4) Community participatory sessions to design GBV communication materials that are appealing and also resonate with the target audiences.
Community ownership and understanding of the intervention concepts are fundamental components in all community engagement activities.
Lessons learned: Sensitivity of GBV issues in the community, especially surrounding cultural backgrounds, beliefs and values require the use of strategies for community involvement to ensure ownership, continuity and sustainability. A well laid out community entry approach is key to successful implementation of community interventions. Involving community members to contribute to designing of GBV Communication materials guarantees suitability of appropriateness materials to the targeted audiences. Building capacity of community members to lead GBV programming significantly reduces the implementation budget and gives a variety of platforms to address the intervention messages.
Conclusions/Next steps: Early inclusion community members as lead persons in the implementation of GBV activities is as important as the interventions themselves. This significantly reduces cost of implementation and ensures a successful and quick roll-out plan that can be achieved through community ownership.

THPED470

Engaging MSM of color leaders in guiding HIV prevention, outreach and service delivery

E.T. Doctor[1], M. Shankle[2]
[1]HealthHIV, Capacity Building Manager, Washington, United States, [2]HealthHIV, Capacity Building Director, Washington, United States

Background: According to a Center for Disease Control and Prevention "Lifetime Risk of HIV Diagnosis" release, 1 in 2 black men who have sex with men (MSM) will become HIV positive in their lifetime if the current HIV diagnoses rates persist. Syndemic and proximity are directly related to the increase of HIV rates in MSM. Further, the social determinants of health (SDOH) and limited engagement in prevention research and public health strategies imply that HIV prevention efforts must be innovative. These approaches must engage MSM of color where service delivery structures have failed in empowerment and outreach.
Description: HealthHIV conceptualized and created the MSM of color Leadership Team (MLT) to provide valuable insight, constructive feedback, and creative recommendations for education and capacity building activities to be culturally informed and affirming to MSM of color. The MLT was formed to guide HealthHIV's national programs. The MLT are stakeholders that provide input to discern the intersections of engagement, mobilization, recruitment, and retention of MSM of color in HIV prevention and care. These 20 leaders were identified from geographic areas with higher prevalence of HIV in MSM of color. The MLT, diverse in age, education, socio-economic status, employment, and access to health care, advocates for the greater MSM of color community through an intimate understanding of High-Impact Prevention and HIV Treatment as Prevention.
Lessons learned: A critical lesson learned is that engagement of gay and bisexual men in public health strategies positively impacts service delivery and healthy outcomes of other MSM of color. The MLT brings a voice not previously heard in guiding service delivery and development of systems educational programs. The MLT has provided relevant and impactful perspective in curricula development, including modules on: Cultural Competency, Racism and Stigma, Peer and PrEP Navigation, and Motivational Interviewing.
Conclusions/Next steps: The MLT has informed national programs and activities in becoming more culturally competent. The MLT will continue to guide education and training activities. The MLT will continue to develop leadership capacity in HIV Prevention, leading toward more MSM of color guiding service delivery.

THPED471

Effect of duration of association with community-led organization on female sex workers' self-efficacy and self-confidence: Evidence from five Indian states

M. Walia[1], B. Mahapatra[1], M. Battala[1], S. Patel[1], S. Mukherjee[1], Y. Atmavilas[2]
[1]Population Council, HIV and AIDS, Delhi, India, [2]Bill and Melinda Gates Foundation, Delhi, India

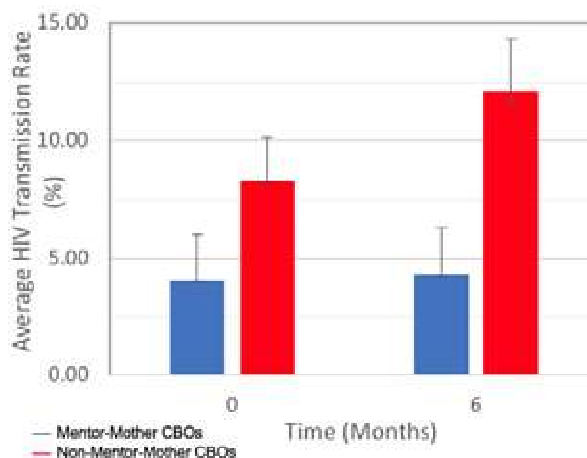
Background: Community-led programs have been leveraged and widely promoted in the recent years to reduce HIV prevention, social and financial vulnerability among the female sex workers (FSWs). One of the cornerstones of such programs is to improve the self-efficacy of individuals so that the collective efficacy of the community enhances. In this study, we examine the association between duration of association with community-led organizations (COs) and individual self-efficacy and self-confidence of FSWs in India.
Methods: The article uses data from a study conducted during in 2017 and involves a sample of 3,589 FSWs aged 18 years or older from four southern and one western Indian states. Self-efficacy was measured as FSW's ability to insist on using a condom with each client and partner under various circumstances, and their ability to get the reproductive health services from government or other clinics. Self-confidence was assessed based on their capacity to raise the voice to demand different services. Data were analyzed using bivariate analysis and multiple logistic regression models.
Results: Nearly three-quarter (72%) of FSWs had been members with the COs for more than 4 years. Compared to FSWs with less than four years of CO membership, those having longer association were more confidently speaking their opinion in the training or CO meeting (76% vs 67%, adjusted OR 1.33, 95% CI 1.12-1.58), and in giving advice to a fellow sex worker in accessing HIV services (71% vs 63%, adjusted OR 1.37, 95% CI 1.15-1.60). Similarly, duration of association with COs had positive association with FSWs' ability to insist on using a condom with the regular partners when he got angry with her (43% vs 34%, adjusted OR 1.56, 95% CI 1.32 to 1.84), and when FSW was offered more money by the client for sex without a condom (43% vs 34%, adjusted OR 1.39, 95% CI 1.18 to 1.63).
Conclusions: Community mobilization is the key to reduce vulnerability among FSWs. The findings from this study substantiate that sex workers who have been part of these community-led organizations for longer duration reported higher self-efficacy and self-confidence.

THPED472

The effectiveness of mentor mother programmes as a community intervention strategy to reduce vertical transmission of human immunodeficiency virus (HIV)

E. Moffatt
ViiV Healthcare, Positive Action, London, United Kingdom

Background: Following the UNAIDS Global Plan in 2011, vertical transmission of HIV was identified as a major contributor to the epidemic worldwide, with a particular focus in Sub-Saharan Africa. Mentor mother programmes employ HIV positive (HIV+) women to provide counselling, psychological support, and guidance to HIV+ pregnant women who are going through the prevention of mother-to-child transmission (PMTCT) care cycle. Comparing the health outcome indicators from Community Based Organisations (CBOs), the aim of this investigation is to assess and quantify how effective mentor mother models are at PMTCT of HIV.
Methods: The data used for this comparison was sourced from ViiV Healthcare's Positive Action for Children Fund (PACF) CBO partners, which was collected on an ongoing basis between January and July 2017 using a two stage sampling method; criterion sampling followed by simple random sampling. The health outcome data of 12 CBOs using a mentor mother model is directly compared to data from 12 CBOs that did not. The comparison aimed to show the critical impact of mentor mothers in communities in Sub-Saharan Africa in reducing the number of HIV+ children infected through the perinatal transmission of the virus.
Results: The results show that projects implementing a mentor mother model have significantly lower overall HIV transmission rate at 4.30%, compared to those that do not at 12.09%. Importantly, the mentor mother CBOs are having a significant impact on reducing HIV transmission rate between 0 and 6 months with an increase of only 0.23% from birth compared to 3.81% in non-mentor mother CBOs, a difference with p-value < 0.05.
Conclusions: Chi squared analysis demonstrates that the HIV transmission rate after 6 months is significantly lower in mentor mother CBOs compared to non-mentor mother CBOs, even when taking into account the errors of RDT. Most importantly the results show that the mentor mother model is particularly significant at reducing vertical transmission of HIV between the period of birth and 6 months whilst a mother is breastfeeding.



[Comparison of HIV transmission rates, at birth and at 6 months, between CBOs implementing a mentor mother model and those that are not.]

THPED473

Building HIV-positive and HIV-negative pregnant adolescent and young mother's knowledge, skills, resilience and problem solving abilities through a home visiting program (HVP) using a novel case management approach

H. Cornman[1], M. Levy[2], J. Odoyance Akuno[3], A. Berhan[4]
[1]JSI Research & Training Institute, Inc., Brattleboro, United States, [2]JSI Research & Training Institute, Inc., New York City, United States, [3]AIDSFree, Elizabeth Glaser Pediatric AIDS Foundation, Nairobi, Kenya, [4]AIDSFree, Elizabeth Glaser Pediatric AIDS Foundation, Washington, United States

Background: Globally almost 60 percent of new HIV infections among 15-24 year olds are in adolescent girls/young women (AGYW), who face parallel risks of pregnancy and HIV. Data suggests mothers who received structured support from trained, supervised mentors were more likely to remain in care at 6-months postpartum compared with women receiving standard of care.
Description: The AIDSFree Program (June 2017-December 2019) aims to improve HIV and other health/social outcomes for both HIV-positive and HIV-negative pregnant adolescents (10-19), young mothers and their children. The program uses a case management approach comprised of a Home Visiting Team (HVT): peer-led mentoring for the pregnant AGYW/mother, support for parents/caregivers to address structural barriers to care, decrease stigma, and mobilize support (with male/female teams to reach men); and supervisory support for ongoing quality assurance. Through home-visits, HVTs support access to and retention in ante-natal care, including prevention of mother-to-child transmission (PMTCT) services and post-partum services for the mother-baby pair. Building resilience and problem-solving ability are key components as well as ensuring a strong bi-directional referral network to health/social services. Training for mentors and supervision of the HVT are important to overall success of the program.

Lessons learned: The project is implemented through two community-based organizations in Kisumu and Homa Bay counties, and will expand to Nairobi in 2018. The AIDSFree project completed a literature review in November 2017 and developed a comprehensive training curriculum specific to AGYW. Training covers topics including antiretroviral adherence and viral suppression; pre-exposure prophylaxis; partner disclosure; screening/referring for post-partum depression; and addressing gender-based violence. Training materials include standard operating procedures, job aids, and monitoring/evaluation tools. In January 2018, AIDSFree trained 24 HVT cadres (Mentors, Household Facilitators and Supervisors, total of 80 participants) on the 10-day training package including supplemental supervisor training. Community engagement sessions facilitate the commitment and support of community leaders. The project aims to reach 192 adolescents and their children.
Conclusions/Next steps: To reduce the gap of lack of services and programs designed for pregnant adolescents, young mothers and their children in Kenya and globally, program results will be shared with county and national governments and PEPFAR to assist with policy formulation and design.

THPED474

Good clinical treatment outcomes: A comprehensive community peer led model by reach out Mbuya Parish HIV/AIDS Initiative

J.S. Mambi
Reach Out Mbuya Parish HIV/AIDS Initiative, Community Support Department, Kampala, Uganda

Background: Reach out Mbuya Parish HIV/AIDS Initiative is a community, Faith Based Non-Government Organization which has been in existence for the last 17 years ROM delivers comprehensive HIV Care services using a unique holistic model of care to the urban poor and rural communities in Uganda.
Over the years, ROM has established Community peer models of HIV Patients in care, which relies heavily on community-based approaches that emphasize community ownership ensuring sustained impact in HIV epidemic control in Uganda. Using the different models, the community-facility linkages and referral systems,, client empowerment thus good community supported treatment outcomes.
Description: Through ROM's unique models of care, Community Health Workers are identified first as expert clients who have shown that good adherence to treatment and are willing to share their life experiences in regard to their treatment. The CATTS for example have been trained in basic counseling skills, facilitation in Health education sessions as a means to equip them with knowledge and skills to support clinical activities as well as Home Based Care activities like home visits, client follow ups, village meetings and Community Drug Distributions.
Lessons learned: In the first and fourth quarters of 2016, ROM realized client retention at 96.7 percent and 99 percent and adherence between 80.1 percent to 89 percent respectively. Most importantly, ROM has successfully maintained a zero percent transmission of HIV from mother to child since 2010.Effective Facility-Community linkages and feedbacks with regular communication to clients. At every village meeting, CHWs and clients use the fora to discuss critical service delivery to obtain feedback to Management.
Conclusions/Next steps: Treatment outcomes through the use of community peer models has proven to be an effective strategy for improving adherence to ART and leads to positive treatment outcomes. Teenage and adolescent supporters are key in supporting the transition process. M2M Community Based approach has helped strengthen the PMTCT strategies, including early Infant diagnosis and health facility based births.
Importantly, the utilization of CHWs ensures effective use of basic care packages and tracing missed appointments and Lost to follow-ups.

THPED475

Getting young people on board: How a community-based peer-led approach can improve SRH including HIV service uptake in rural Zambia

I. Phiri
Bwafwano Integrated Services Organization (BISO), Programs, Lusaka, Zambia

Background: Around 74% of Zambia's population is under 30. Zambian youths like others in developing countries face challenges such as high unemployment, poor educational opportunities, high rates of HIV, teen-pregnancy and early marriage. In Mkushi, young people face these same challenges, compounded by economic barriers, limited health infrastructure / personnel, / commodities, contributing to low uptake/retention to services - only 7% of 15-24 year olds had youth-friendly SRH service access in 2015.
The district has since set a target to increase this to 20% by 2019. Against this backdrop, national NGO BISO, began piloting the ADHERE project in 5 rural communities of Mkushi in 2017.
Description: The project facilitates access to youth-friendly SRH services focused on behavioural change interventions anchored on a strong peer-led approach building linkages between the community and health facilities. It addresses risk-reduction by targeting young people with high impact age-appropriate (10-15 and 20-24) HIV interventions empowering them with information/skills in HIV prevention and increasing access to/and uptake of HIV services. It closely works with community structures, leaders, schools, health facilities and parents/guardians. Interventions include establishment of school/community-based safe spaces, sports, referrals, screening for HIV/STIs/teen pregnancy/HIV testing and linkages to treatment.
Lessons learned: Peer-led approaches have increased access to and uptake of SRH services in Mkushi. In the first nine months of the project:
- Much improved engagement with health facilities, which previously struggled to reach this demographic
- 3,029 adolescents and young people tested for HIV
- 25.8% tested positive and referred for treatment - much higher than national prevalence of 12.9%.
- 6281 people engaged in safe spaces to talk openly about SRH
- 983 young people were tested for STIs and 1,174 for pregnancy with 36% and 20% testing positive respectively
Conclusions/Next steps: Empowering young people to mobilise their peers has been an effective approach to increasing SRH service uptake in this rural Zambian context. As the project develops, the need to provide greater support to adolescents/young people testing positive is emerging, as is the need for more engagement of parents to get their buy-in and challenging damaging norms, such as child marriage and abuse.

THPED476

"It's never too late" - building confidence of vulnerable adolescent girls to prevent HIV infection through sista2sista girls only clubs

T. Magure[1], R. Yekeye[2], A. Mpofu[3], S. Mpofu[4]
[1]National AIDS Council (NAC), CEO, Harare, Zimbabwe, [2]National AIDS Council (NAC), Operations, Harare, Zimbabwe, [3]National AIDS Council (NAC), M&E, Harare, Zimbabwe, [4]National AIDS Council (NAC), Harare, Zimbabwe

Background: The Programme was initiated in 2016 in 20 Hot Spot districts after a realisation that "Adolescent girls and young women (AGYW) in particular experience dramatically disproportionate burden and risk factors. Young women (20-24) have HIV prevalence 2.78 times greater than their male peers. 17.1% of women aged 15-19 who had sex in the last year did so with a partner that was ten or more years older (up from 15.2% in 2010 and 7.5% in 2005).
Further, 41% of girls report sexual debut before 18 years as unwanted and rates of transactional sex are high, and increasing." (Extended ZNASP III, 2015-2020).

The programme aims at:
Enhancing the self-efficacy of Adolescent girls to access and utilise integrated HIV prevention, SRH and GBV services, delaying sexual debut, standing up against child marriages, and reduction in teen pregnancies, reporting of sexual abuses.
Description: Vulnerable Girls are recruited into clubs by a sister mentor and taken through 40 week sessions covering five themes: Creating a Club Culture, Building Social Awareness, Increased Social Aptitude, Improving Sexual Knowledge and Financial Knowledge.
Lessons learned: A total of *10,367* girls were recruited into the club in 2017 and 6 609 were referred for HTS while 4,760 have accessed HTS and other services:

- The sista2siata club has proved to be a game changer for vulnerable girls who come out empowered to prevent HIV infection and other vulnerabilities as seen by the number of girls from the clubs who have accessed services.
- The sista2sista club has empowered the girls to start livelihoods projects which enables them to generate income.
- The club has assisted the girls to open up on GBV cases and some have gone to school.

Conclusions/Next steps: The sista2sista programme has greatly improved the health outcomes of vulnerable girls by improving knowledge level, addressing GBV and increased access to HIV services and need to be scaled up to national level.

[Sista2Sista Themes]

HIV Couple Testing	1013	
STI Screening and Testing	326	
GBV counseling and Services	515	
ARV /Support Group	293	
PMTCT	143	
Cervical Cancer Screening	544	
Family Planning	2150	
Youth Friendly Services	572	
Psycho-social Support	720	
School Formal Training	131	Total - 2087

[Sissta2Sista Referrals for Services]

THPED477

Galvanizing the voice and action of religious and cultural leaders as champions and advocates for widows and orphans affected by HIV/AIDS in Kenya

W. Sila, J. Ng'ang'a
International Network of Religious Leaders Living with or Personally Affected by HIV (INERELA+) Kenya, Nairobi, Kenya

Background: In some Kenyan communities, widows and orphans are disinherited of their property immediately the father dies. The situation is worse for HIV-positive widows and OVC who, on the event of spousal or parental death, are disinherited by kinsmen and victimized through forceful eviction from ancestral land, resulting in displacement, poor quality of health, emotional and psychological trauma, and loss of livelihood.
Description: INERELA+ Kenya facilitated consultative forums to document experiences of disinheritance and displacement by HIV-positive widows and orphans. These experiences were shared with key opinion leaders, religious leaders, women leaders, Laikipia County leadership and the local administrative unit (Chief and sub-chief). Through support, training and mentoring, an Alternative Dispute Resolution Committee (ADRC) was formed. The committee has the capacity and commitment to address rights abuses against widows and OVC. As a result, 12 widows have been resettled in their matrimonial property and over 20 women have received necessary support towards settlement. Several OVC have access to family property. ADRC harmonized contradictions between modern and traditional culture and is intervening in disputes to promote women's and OVC land and property rights.
INERELA+ Kenya's technical assistance enabled the ADRC to implement advocacy programs through community '*Baraza's*' (forums) and congregational level responses to curb violations, administer and ensure referrals. There is now active representation by ADRC member in land boards that arbitrate inheritance disputes.
Lessons learned: Working with and mobilizing key religious, community, traditional and opinion leaders as advocates and champions for women and OVCs, especially in a highly patriarchal society, is a very effective method to promote access to land and property ownership.
Conclusions/Next steps: There is need to further build the capacity of the ADRCs on legal matters to enable them to advocate more effectively for the rights of HIV-positive widows and orphans.

THPED478

Empowering sub-Saharan immigrants in sexual health in Paris greater area: Results from the Makasi pilot study

A. Gosselin[1,2], C. Taeron[3], R. Mbiribindi[4], N. Derche[3], A. Desgrées du Loû[1,2]
[1]*CEPED (Université Paris Descartes, IRD, Inserm), Paris, France,* [2]*Institut de Recherche pour le Développement, Marseille, France,* [3]*Arcat, Paris, France,* [4]*Afrique Avenir, Paris, France*

Background: . In Europe, immigrants represented 37% of new HIV diagnoses in 2015 and immigrants from Sub-Saharan Africa are particularly affected (ECDC 2016). Between a third and half of HIV-positive immigrants in Europe acquired HIV post migration (Desgrées du Loû et al. 2016; Alvarez-Del Arco et al. 2017). Hence there is a strong need for efficient interventions to reduce immigrants' social and sanitary vulnerability. The aim of this study is to evaluate a community-based intervention for Sub-Saharan immigrants' empowerment in sexual health in Paris area.
Methods: Two community-based organizations (Arcat and Afrique Avenir) and three research teams conducted the pilot research. The formative phase was based upon participant observation in the two organization and strong peers' involvement. The resulting Makasi project is a two-component intervention: i) a mobile team of mediators identifying immigrant' needs through outreach thanks to a specifically designed tool and ii) two peer-health mediators delivering social support based on persons' expressed needs, orientation and navigation to health and social services with an empowerment approach. The pilot phase is taking place in February and March 2018. A randomized two-arm trial is led to compare the outcomes of the group receiving the intervention to a control group. Indicators of individual empowerment and intentions of behavioral changes are measured at baseline at three-month follow-up.
Results: Preliminary results show that a community-based multicomponent intervention is feasible and could reduce Sub-Saharan immigrants' vulnerability. A general-health-need approach, peers' involvement and the use of positive messages were identified as key elements of success.
Conclusions: A package of interventions designed to reduce social and sanitary vulnerability in order to reduce sexual health is feasible among Sub-Saharan immigrants' in Paris area.

THPED479

The role of ethnic identity and psychological empowerment in HIV and drug use prevention for Black and Hispanic female adolescents in the United States

I. Opara[1,2], R.J. Reid[1], P. Garcia-Reid[1]
[1]Montclair State University, Department of Family Science and Human Development, Montclair, United States, [2]New York University, Behavioral Sciences Training in Drug Abuse Program, National Institute on Drug Abuse, New York, United States

Background: Substance abuse and HIV/AIDS prevention research tends to overlook the resiliency skills that adolescents of color may possess. In addition, adolescent females of color, particular Black and Hispanic adolescents, are often viewed as a homogenous group with adolescent boys of color, thus ignoring unique gender-racial specific risk and protective factors to drug use and HIV/AIDS that may be present. Such an absence can lead to flawed outcomes in HIV and substance abuse prevention work that may continue to marginalize these groups. Using a strength based approach, this study aims to explore the role of psychological empowerment and ethnic identity on drug use and sexual and HIV risk behavior in Black and Hispanic adolescent females that reside in an impoverished and under resourced community located in Northeastern New Jersey, United States.
Methods: A sample of (N = 999) ethnic minority females' adolescents that were enrolled in a federally funded HIV/AIDS and Substance Abuse prevention program were used. Participants were between the ages of 10-17 years of age and identified as mostly African American/Black or Hispanic. Multiple regression models were conducted in order to show the associations of latent constructs that have an impact on sexual/HIV risk behavior and drug use in adolescent girls of color. Confirmatory factor analysis was conducted to reduce scale variables to create latent variables used in regression models.
Results: Multiple linear regression was used to develop a model for predicting drug use and HIV risk behavior in Black and Hispanic female adolescents. Preliminary findings revealed that ethnic identity and psychological empowerment significantly predicted drug use and sexual and HIV risk behavior in Black and Hispanic female adolescents ($p < 0.001$).
Conclusions: The findings suggest that adolescent girls of color in this community whom have strong ethnic identity and high psychological empowerment were less likely to engage in behaviors that place them at risk of contracting HIV. Implications from the study can inform preventive efforts by creating interventions and programming that seek to empower adolescent females of color and highlight ethnic identity as a method to HIV and drug use prevention.

THPED480

Exploring the role of social asset building in reducing risk of HIV infection among adolescent girls and young women in Mutare District, Manicaland, Zimbabwe

B.D.C. Mukome[1], G. Shumba[2]
[1]Family AIDS Caring Trust, OVC and Livelihoods, Mutare, Zimbabwe, [2]Family AIDS Caring Trust, Mutare, Zimbabwe

Background: AGYW aged 15-24 years account for 60% of new HIV infections globally. In Zimbabwe estimated number of new HIV infections per week among young women aged 15-24 years is 287. The DREAMS Initiative seeks to provide a comprehensive package of evidence-based strategies that go beyond the health sector, addressing the structural drivers that fuel AGYW's HIV risk, including poverty, gender inequality, sexual violence, social isolation, and limited schooling.
Description: Family AIDS Caring Trust (FACT) through the PEPFAR-funded DREAMS Initiative is implementing Social Asset building among AGYW in Mutare District. This is aimed at addressing social isolation and link to relevant services. 434 AGYW were drawn from ultra-poor households receiving Social Cash transfer grants, GBV Survivors, AG from early marriages, YWSS, Teenage mothers, and AGYW in high HIV burden communities. Community cadres and health professionals identified the AGYW together with trained mentors. They went through seven weeks sessions facilitated by a trained mentor aimed to delay sexual debut and marriage, prevent HIV infection and reduce tolerance of GBV in a fun and safe meeting space. Upon completion of the sessions the AGYW had a clear direction of what they want to achieve in life and the route to take, including staying HIV free.
Lessons learned: Out of 434 AGYW who graduated 75% went for an HIV test and received their results, 55 went for community apprenticeship programme, 78 for vocational skills training, 20 for non-formal education while 271 joined income and savings groups. Social asset building thus provides a good platform to access other critical services. Community based approaches using "safe spaces" are effective in the identification of at most risk girls and connecting them to the appropriate services that they need. Comprehensive programming for HIV risk reduction for AGYW requires significant investment to ensure services are accessed and utilized consistently.
Conclusions/Next steps: Social asset building presents as an emerging mechanism for addressing HIV risk factors among AGYW but its potential can be limited if services that can sustain their learning are inaccessible. There is need to consider targeting the community and family members who influence AGYW decisions

THPED481

Healthy Entrepreneurs: Using a business model to build sustainable community health systems, improving access to health products and HIV knowledge for adolescent girls and young women in rural Uganda

T. Beentjes[1], A. Lubega[1], H. Nakyeyune[1], F.C. Akello[1], C. Mwebaza[1], B. Facy[2], E. Nambozo[3], R. van der Oever[4], M. Weve[4], S. Nanziri[5]
[1]Healthy Entrepreneurs Uganda, Kampala, Uganda, [2]ICW-EA, Kampala, Uganda, [3]NAFOPHANU, Kampala, Uganda, [4]Aidsfonds, Amsterdam, Netherlands, [5]Sawa World, Kampala, Uganda

Background: In rural Uganda, access to accurate HIV-knowledge and sexual and reproductive health (SRH) products, such as condoms, is limited. The Sparked Women project, funded through PEPFAR's DREAMS Innovation Challenge, aims to reduce new HIV infections among Adolescent Girls and Young Women (AGYW), by strengthening local community health delivery systems through the social-enterprise: Healthy Entrepreneurs.
Description: In less than one year, Sparked Women, implemented by Aidsfonds, ICW-EA, NAFOPHANU, and Healthy Entrepreneurs, trained 907 female community health volunteers to become Community Health Entrepreneurs (CHEs); small business owners who collectively reach all parishes in six rural Ugandan districts. CHEs reach out specifically to AGYW, and to other community members with quality SRH-HIV messages, referrals, and health education videos on their electronic tablets, at the same time selling hard-to-come-by SRH products and over-the-counter medicine, critical in protecting AGYW against HIV acquisition. The small profit margin on the products is the Entrepreneur's income and covers the operational costs, thus maintaining a sustainable supply chain.
Lessons learned: The Healthy Entrepreneurs model improved community health delivery in less than one year (April-December 2017). CHEs spend more time on community health work than when working voluntarily and have increased self-esteem. CHEs each reach 1750 people on average per year, about 50% AGYW, with counselling sessions improving their SRH-HIV knowledge. In total 34,820 SRH-HIV education videos were watched by community members, who also benefit from locally available and reliable health products, reducing out-of-pocket expenses. The 907 CHEs provided 75,580 condoms, supported by Ugandan government, and sold 159,667 medicine and health products. The CHEs monthly income increased by 8.96USD, directly benefitting their families.
Conclusions/Next steps: The Aidsfonds' Sparked Women project proves Healthy Entrepreneurs is a cost-effective and feasible business model to increase SRH-HIV knowledge and strengthen community health systems. In a one-year period, with a one-time investment, a sustainable sales network is created guaranteeing continuation of the CHEs working in the communities when funding ends in September 2018.

Healthy Entrepreneurs is being scaled-up in Uganda to achieve national coverage of this sustainable community health delivery system improving communities' and AGYW's access to SRH-HIV knowledge and health commodities.

THPED482

Low-literate women leading the prevention of mother-to-child transmission of HIV in hard-to-reach areas of Cameroon

N.B. Lundi Anne Omam[1], E. Omam[2], G. Tabi[2], K. Azah[2]
[1]Reach Out Cameroon, Health/HIV, Buea, Cameroon, [2]Reach Out Cameroon, Buea, Cameroon

Background: Acess to antennal and Preventing mother-to-child transmission (PMTCT) services is very low in many hard-to-reach communities in Cameroon. In Bakassi, about 85% of pregnant women (PW) do not attend clinics (ANC) with almost 95% giving birth at home with Traditional birth attendants (TBAs). These low uptake of ANC services increases the risk of MTCT of HIV as prevalence of HIV amongst PW is above 15%. Furthermore, cultural beliefs, coupled to the insecurity and low literacy levels makes PMTCT/ANC service uptake to be very low (15%). We sought to pilot a project which capacitated low-literate women and TBAs to raise awareness on the importance of ANC, link pregnant women to clinics and follow up lost PW who were tested HIV positive.
Description: This project was piloted in 02 health areas in the Bakassi Health District. To inform communities about the project goals, advocacy meeting were held with community leaders. Forty TBAs and low-literate women were trained on community strategies to increase ANC uptake, effective linkage strategies for positive PW. This was followed by community awareness campaigns and follow up. The project was implemented from April 2015-March 2016.
Lessons learned: Representatives from 25 villages attended 02 advocacy meetings. Forty TBAs and community women were capacitated to lead community activities to increase ANC/PMTCT Uptake. A total of 6230 women, 5051 men and 504 PW received education on PMTCT and the importance of ANC. From the PW who were educated and referred, 120 were received at ANC1 with 11 tested HIV positive. A total of 306 people were tested during 03 VCP campaigns organised by the low-literate women. From the 306 tested, 161 were men and 145 were women. Forty persons tested HIV positive (07 men and 33 women). Strengthening community systems and TBAs offers opportunities to reach many PW and eliminate transmission of paediatric HIV.
Conclusions/Next steps: Ways of task shifting in post-conflict communities should be encouraged to reach vulnerable populations and increase HIV service uptake. Interventions that aim at empowering community members to conduct rapid HIV testing and community dispensation of ARVs in post-conflict areas will be exploited in the next phase of our projects.

THPED483

Optimism and acceptance of longitudinal community response to a HIV combination prevention package in Zambia, the HPTN071 (PopART) study

R. Ndubani[1], M. Simuyaba[1], B. Chiti[1], F. Ngwenya[1], D. Ziba[1], M. Gondwe[1], M. Simwinga[1], H. Ayles[1,2], V. Bond[1,3]
[1]ZAMBART, Lusaka, Zambia, [2]London School of Hygiene and Tropical Medicine, Department of Clinical Research, London, United Kingdom, [3]London School of Hygiene and Tropical Medicine, Department of Global Health and Development, Faculty of Public Health and Policy, London, United Kingdom

Background: Community HIV care providers (CHiPs) delivering a combination HIV prevention package directly to households is part of the intervention being tested in the HPTN071 (PopART) trial in Zambia and South Africa. Using qualitative research methods, we evaluated community responses over time in 4 Zambian intervention communities.
Methods: Longitudinal qualitative data (2014-17) from 4 Zambian urban communities receiving the full intervention package included: eight Focus Group Discussions, eight household drop-in discussions, three in-depth interviews with traditional healers, 128 observations of door-to-door delivery, 20 community observations and over 400 researchers reflections on community responses. Group discussions and interviews were transcribed while observations and reflections were captured in structured report forms. Thematic and inductive analysis was conducted.
Results: The intervention initially met with some resistance emanating from fears of HIV disclosure within households and mistrust of staff, study motives and conduct. However, communities also hoped that the intervention might reduce HIV transmission and stigma and encourage HIV testing in men. Community concerns about men and traders missing out on the door-to-door delivery were confirmed by observations showing lower intervention uptake from men, which resulted in amending working hours. As the intervention progressed, community reported appreciation for: detailed HIV information, relatively private and confidential services, enabling less contact with the local clinic(s) (thereby reducing congestion), affording disabled people better access to services, linkage to other HIV services and a perceived reduction in mortality. However, stigma, acceptance of HIV-positive results and linkage to care remained challenging. Despite this, CHiPs, identified by uniforms and staff cards, became well known and rapport with and trust in them was evident. Indeed, cases of community members seeking out and requesting certain services from CHiPs increased over time. Familiarity and optimism nurtured during intervention years was accompanied by concerns about what would happen when the trial ended.
Conclusions: Community confidence in home delivery of HIV services took time to build. Once established, better community management of HIV played out into optimism and appreciation of home delivered services and increasing reliance on CHiPs. This represents a much supported novel direction for policy to achieve universal ART coverage.

THPED484

Engaging males who have sex with males (MSM) in community-based HIV prevention programs in South Africa: Examining positionality as subjects and objects of scientific enquiry

N.R. Hassan, Z. Kafaar, A. Kagee, A. Lesch, A. De Wet, L. Swartz
Stellenbosch University, Psychology, Cape Town, South Africa

Background: It is critically important to engage key-affected populations in HIV preventive and treatment programs, especially in Africa. Among South African MSM, HIV prevalence ranges between 9.9% and 49.5%; and unprotected anal sex is estimated to be 16-times more likely to transmit HIV, compared to unprotected vaginal sex. MSM community engagement, however, is hindered due to heteronormative healthcare spaces, which reinforces MSM as hidden, hard-to-reach and vulnerable for HIV infection. To overcome barriers to engaging MSM communities in HIV prevention efforts, researchers initially identify queer MSM who are socially visible and recruit them as outreach workers in research teams, thereby gaining access to their affiliated MSM social networks (e.g. respondent-driven sampling). There has, however, been limited attention paid to MSM´ positionality, as objects (insiders within the targeted population) and subjects (outsiders within a research team) of scientific enquiry, in relation to MSM' roles and experiences in clinical HIV prevention programs.
Methods: To examine MSM' experiences during engagement in clinical HIV prevention programs, qualitative interviews were conducted between November 2015 and January 2017. Three participant-cohorts were recruited from and in collaboration with a leading South African clinical HIV prevention research centre: (1) community-based MSM (n=10; M_{age}= 28.4y) from five Cape Town peri-urban areas; (2) MSM research participants (n=10; M_{age}= 25.1y) who have previously been enrolled in clinical HIV prevention studies; and (3) staff members (n= 10; M_{age}= 31.3y) tasked with MSM community engagement. All interviews were audio-recorded, transcribed verbatim, verified and analysed thematically using grounded theory.
Results: As objects of scientific enquiry, MSM compete together for queer visibility within heteronormative environments, in order to promote community-based HIV prevention efforts. However, MSM queer visibilities influences MSM' sense of safety and impedes community engage-

ment and development, especially among gender-conforming MSM. As subjects of scientific enquiry, MSM reported experiencing exploitation and limited transparent communication, related to differences in mutual understanding between MSM communities and research teams.
Conclusions: Without monitoring and evaluating MSM' queer visibilities and safety as part of the research process, through reflexive and supportive participatory practices, we may be inadvertently reinforcing HIV-vulnerability among the most hidden (e.g.: heterosexual-identified MSM), within the broader population.

THPED485

Key population-led health services are increasing access to HIV services among transgender women sex workers in Pattaya, Thailand

P. Potasin[1], T. Nakpor[1], N. Pravepray[1], S. Pengpum[1], S. Simla[1], A. Arunmanakul[2], S. Charoenying[2], C. Jeansuwannagorn[2], S. Mills[2], R. Janamnuaysook[3], R. Vannakit[4], P. Phanuphak[3], N. Phanuphak[3]
[1]Sisters Foundation, Pattaya, Thailand, [2]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [3]Thai Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand, [4]United States Agency for International Development, Office of Public Health, Bangkok, Thailand

Background: Transgender women sex workers (TGSWs) experience multi-layer stigma and discrimination due to their gender, sexuality, and illegal work, which makes them highly vulnerable to HIV infection. Sisters Foundation, established in 2004 as the first transgender-led organization in Thailand, provides appropriate health and social services for TGSWs in Pattaya. Sisters also works directly with key stakeholders, including police officers and health care workers, to reverse negative stereotypes of TGSW through partnership-building activities, workshops, and research.
Description: Sisters integrated the key population-led health services (KPLHS) model into its drop-in Center (DIC) in 2015 through the implementation research. Well-trained transgender health workers provided health services they designed based on their understanding of TGSWs' needs. These included rapid HIV and syphilis testing, PrEP and PEP dispensing, counseling on use of gender affirmative hormone treatment (GAHT), and monitoring of hormone levels. Regular quality assessment/quality improvement visits were conducted by public health sectors to ensure high-quality services. KPLHS were provided to TGSWs at Sisters' DIC and through mobile clinics at cabaret venues, bars, and other hot spots. We evaluated data on KPLHS and community empowerment activities conducted by Sisters October 2016-September 2017.
Lessons learned: Sisters performed HIV testing for 604 TGSWs (43% DIC; 57% mobile clinics). Of those, 52 (8.6%) tested HIV positive, of whom 52% were successfully linked to antiretroviral treatment. Among HIV-negative TGSWs at high risk, 45 (6%) received PrEP. Sisters conducted 12 knowledge-sharing sessions on HIV, other sexually transmitted infections, and GAHT literacy to empower and increase knowledge and awareness among TGSW communities. GAHT counseling and hormone level monitoring were received by 285 TGSWs. Of 678 TGSWs tested for syphilis, 17 (2.5%) were syphilis reactive. Sisters provided legal assistance and referrals to 57 TGSWs who were victims of arbitrary arrest, gender-based violence, and discrimination regarding their transgender identity.
Conclusions/Next steps: Sisters successfully delivered KPLHS, building on their comprehensive social and legal services, to TGSWs at high risk for HIV in Pattaya. Hormone services integrated into HIV programming responds to high-priority health care needs of TGSWs and should be considered as part of a minimum standard of health care package tailored for TGSWs.

THPED486

Addressing high burden of tuberculosis in First Nations communities through the high incidence strategy: An evaluation project in northern Saskatchewan, Canada

S. Mahmoodi[1], S. Hourigan[1], I. Khan[2], N. Ndubuka[1]
[1]Northern Inter-Tribal Health Authority, Prince Albert, Canada, [2]First Nations and Inuit Health Branch, Department of Indigenous Services, Regina, Canada

Background: In Saskatchewan, the burden of tuberculosis (TB) disproportionately affects First Nations living on-reserve. There are 70 First Nations in Saskatchewan with a population of 75,165 people in 2016. To address TB burden, the TB High Incidence Strategy (TBHIS) was developed in collaboration with community leadership. The purpose of this evaluation was to assess the effectiveness of the TBHIS implemented from 2013 to 2016 to lower the rates of TB.
Description: TBHIS is a multi-faceted, community-specific strategy developed in 2013 to reduce incidence of TB through:
a) community engagement,
b) increasing public education,
c) early case detection,
d) active case finding, and
e) addressing social determinants.
The strategy was piloted in three communities in northern Saskatchewan.
We utilized a mix-methods approach to assess the success of the strategy. We examined the rates of TB and number of latent TB infections (LTBI) treated; performed 20 patients' chart audits; surveyed 511 community members on their TB knowledge; interviewed patients and health care providers about their experience with TB services; and reviewed operational capacity of TB services.
Lessons learned: This is the first formal evaluation of the strategy in First Nations. Our results showed that through the TBHIS, rate of newly diagnosed or reactivation TB in all communities decreased. More LTBI cases were offered treatment and active cases were identified earlier; communities were knowledgeable about active TB but there are gaps in understanding LTBI and taking preventive medications; clients had higher attendance rate to TB appointments if clinics were held in their communities; past negative experiences with TB treatment and impact of Indian residential schools influenced individuals' health seeking behaviour; and poor housing conditions contributed to the burden of TB. Our findings empowered community level programming and inspired other communities to implement similar strategies.
Conclusions/Next steps: Based of evaluation results, we recommendations as follows: 1) reform health care delivery of TB by engaging primary care providers and adopting trauma informed practices, 2) engage communities by addressing their past negative TB experiences, 3) provide ongoing advocacy to address the social determinants of indigenous health especially housing, 4) provide continuous education about TB and LTBI across all sectors of the communities.

THPED487

GET TEST: Use of entertaining social networks for attracting hard-to reach MSM to HIV testing and linkage to treatment

A. Radetskyi, A. Chernyshev
PO 'Alliance.Global', Kyiv, Ukraine

Background: GET TEST is an innovative project for Ukraine. It was active between January 2016 and September 2017. The main objectives of the project were to reach hard to reach MSM, who still wasn't reached by earlier prevention programs, involving them to rapid diagnosis for HIV/STIs/hepatitis; detection the new cases of HIV/STIs/HBV/HCV; linkage to care and support; assistance in obtaining of ARVs.
Methods: The involvement of MSM for testing took place in three cities (Kyiv, Odessa, Dnipro) in two ways:1) clients registered on testing at the www.gettest.com.ua, about which they learned through advertising, which we place on dating sites for MSM, mobile smartphone applications and social networks; 2) a social worker chosen web resources

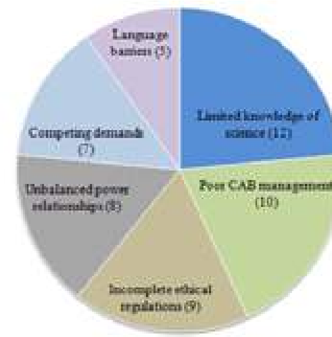
where they communicated singly with MSM, invited them to pass the rapid diagnosis and provided consultation „peer-to-peer". The social worker acted as a case manager and accompanied the client during take on the dispensary registration and motivated them to use ARVs.
Results: For the period from January 2016 to September 2017 3536 MSM have passed rapid testing for HIV, of which 214 persons received a positive HIV test result (6,1%). 161 MSM (76% of detected) were put at the dispensary registration in the AIDS centers, 126 persons (78% of those who were took on register) began to receive ARV therapy. Also, for the period from August 2016 to September 2017, 449 sexual partners of MSM who previously have been tested in the GET TEST were reached by the project, of which HIV-positive status was detected in 41 MSM (9.3%).
Conclusions: GET TEST showed itself as an effective model to attract hard to reach MSM category among Internet users. Advertising campaingn GET TEST helped us to get the target group's attention and get their trust on a different special commercial dating services where many hard-to-reach MSM searching sexual partners or selling sex. We`re focused on target group needs, reestablishment of the service provider' image, and new and more attractive conditions of the service. We developed peer-to-peer case management which decreases stress and improves trust of MSM who never received services in our NGO.

THPED488

HIV community advisory boards for clinical trials in low- and middle-income countries: A scoping review of challenges

Y. Zhao[1], J. Tucker[1,2], B. Huang[3], S. Day[4], L. Li[5], W. Cai[5], F. Hu[5]
[1]University of North Carolina - Project China, Guangzhou, China, [2]University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, United States, [3]South China Normal University, School of Public Administration, Guangzhou, China, [4]University of North Carolina at Chapel Hill, Institute for Global Health and Infectious Diseases, Chapel Hill, United States, [5]Guangzhou Medical University, Guangzhou Eighth People's Hospital, Guangzhou, China

Background: Community advisory boards (CABs) for HIV trials have expanded substantially beyond high-income countries (HICs), now playing a role in low- and middle-income countries (LMICs). Much research has examined HIV CABs in HICs, but fewer studies have examined CABs in LMICs. The purpose of this scoping review is to summarize the challenges of CABs for clinical HIV research studies in LMICs.
Methods: We searched five databases (PubMed, Embase, Global Health, Scopus and Google Scholar), examining CABs in HIV research studies in LMICs. Two researchers independently reviewed articles for inclusion. Data were extracted regarding country, membership, activities, funding sources, research foci and challenges. Thematic analysis was used to identify the challenges of implementing CABs for HIV research in LMICs.
Results: Our search identified 853 citations, of which 38 were selected for further analysis. Most studies (29) were published from 2008 to 2017. The five countries with the greatest number of studies included South Africa (12), China (9), Zimbabwe (4), Thailand (4) and India (4). The U.S. National Institutes of Health was the main source of support for CABs. CAB activities included reviewing clinical trial protocols, providing community literacy activities, and facilitating qualitative research related to clinical trials. Key challenges of implementing CABs for HIV research in LMICs included:
(a) limited knowledge of science among community members, which contributed to poor communication between researchers and communities;
(b) poor CAB management, e.g. lack of formal structure for participation and absence of CAB leadership;
(c) incomplete ethical regulations that led to exploitation;
(d) unbalanced power relationships between HIV researchers making decisions and local communities participating in studies;
(e) competing demands for time that limited participation in CAB activities; and
(f) language barriers between research staff and community members.
Conclusions: HIV research studies frequently use CABs to review clinical trials. Our results suggest several challenges with implementing CABs as part of HIV clinical trials in LMICs. These findings can help inform training and related activities to enhance HIV CABs in LMICs.



[Figure 1. The number of manuscripts describing each of the 6 identified challenges with CABs in LMICs, created by Yang Zhao.]

THPED489

A 2nd CHANCE (Creating a Healthy And Nurturing Community Environment): Linkage and retention for women living with HIV

C. Carey-Grant
WORLD (Women Organized to Respond to Life-threatening Disease), Oakland, United States

Background: In the U.S., African American/Black women represent the fourth largest population segment of new HIV diagnoses. Further, only 70% of women living with HIV in the U.S. are linked to care, with a mere 26% achieving viral suppression. Indeed, women living with HIV/AIDS often experience significant barriers to quality care, including poverty, substance use, violence, and social and cultural factors. Oakland, CA, where WORLD is located contains the highest percentage of diagnosed AIDS cases among women of any major metropolitan area in the western United States.
Description: 2nd CHANCE is an innovative linkage and retention initiative targeting women living with HIV/AIDS who are tenuously in care or who have fallen out of care. Enrollment began in 2014 for women of color aged 18 years or older with a confirmed HIV diagnosis and who were not in care for their HIV infection. Clients were assigned at random to either the intervention or control group. The intervention group received intensive case management services, through weekly contact with an Outreach & Linkage Specialist and Peer Advocate. In comparison, women randomized to the control group received the standard of service that WORLD would typically have capacity to provide, which consisted of monthly contact and less intensive interactions.
Lessons learned: Findings from the 2nd CHANCE evaluation show that WORLD was able to reach and enroll participants facing many barriers to accessing and engaging in HIV care. Despite the challenges facing many clients, WORLD staff was highly effective with engaging and retaining clients over the course of the study period. Of the 84 clients enrolled in 2nd CHANCE, WORLD achieved a 94% follow up rate and improved HIV-related indicators at 6 months.
Conclusions/Next steps: WORLD's Peer Advocacy model, in tandem with our innovative linkage to care strategy, have made a significant impact on the lives of hundreds women living with HIV in our area. Frequent contact with clients and removing barriers is key to retention.

THPED490

Community led Drop-in-Center (DIC) - an initiative towards sustainability

S. Sultana[1], K. Tarique[2], Z. Shams[3], L. Rahman[3], R. Begum[2]
[1]Save the Children, HIV/AIDS Program, Dhaka, Bangladesh, [2]Light House, Dhaka, Bangladesh, [3]Save the Children, Dhaka, Bangladesh

Background: Female Sex Workers (FSWs) are most at risk related to both sexual and reproductive health (SRH) problems which include unwanted pregnancies, unsafe abortion, maternal health problems, sexually transmitted infections (STIs) including HIV/AIDs. Bangladesh has

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estimated 102,260 female sex workers. According to UNAIDS investment case (2016), 65% FSW should be covered by comprehensive HIV services to generate impact.
Description: Under the Global Fund grant, Save the Children and its partner organizations provide HIV prevention services for 18,500 FSWs (28% of the country target according to the NSP) through 29 Drop in center (DICs) at central & sub-national level. A significant portion left uncovered who are street based and more vulnerable in the society. Considering this factor, SCI-HIV program patronized the sex workers to establish their voice with the slogan of *'No sex worker on the street'.* Service delivery points namely DICs are considered as safe place for FSWs where they get counselling, condom, STI case management, HIV testing and psychological support including space for rest, bathing and recreation.
In Bangladesh, a representative from sex worker community replicated the DIC model in Dhaka, central part of the country in December 2016. Self-financed and managed DIC offer few services, at contributory price such as food, and make some clothes, make-up, and jewelry available for FSWs. This community led structure support peer education and selling condom to integrate with HIV prevention program. Furthermore, this DIC works as referral point and facilitating advocacy with multiple service providers to ensure health, legal and psychosocial needs of sex workers.
Lessons learned: During April-November, 2017, the Community DIC earned 2,220 USD. Whereas the initial investment was only 80USD for rent and utility cost. Such a cost-effectiveness measure became a major issue of well-being of the FSWs. Such economic empowerment initiatives with high community ownership are highly effective in reducing the HIV vulnerability of KPs.
Conclusions/Next steps: Community led initiatives can have positive impact on the lives of sex workers in low socio-economic settings. It has also been proven effective towards sustainability and to contribute SDG goal of health and well-being.

THPED491

Combining social science methods with mechanisms for community empowerment for the codesign of effective digital health interventions in HIV: Lessons learnt from the H2020 EmERGE project

M. Darking[1], B. West[2], K. Block[2], F. Henwood[3], B. Marent[3], J. Whetham[4]
[1]University of Brighton, School of Applied Social Science, Brighton, United Kingdom, [2]European Aids Treatment Group, Brussels, Belgium, [3]University of Brighton, Brighton, United Kingdom, [4]Brighton and Sussex University Hospitals Trust, Lawson Unit, Brighton, United Kingdom

Background: The European Commission's H2020 programme has funded a consortium of 13 organisations including a European-wide civil society organisation, local community partners, clinicians, academics and technology developers to codevelop, implement and commercialise a digital health platform for HIV care in 5 countries. The platform enables HIV-specific, patient data on results, appointments and medications held in the clinical database to be sent via a clinician-led, 'virtual clinic' to an application on the patient mobile phone through an ongoing process of inclusive codesign.
Description: The European Aids Treatment Group is a project partner and dissemination Workpackage Leader whose activist, capacity-building membership includes community partners in most European countries. In Phase 1 of the programme they mobilised a network of community partners to participate in codesigning the smartphone application. Codesign workshops brought together 97 PLWH and 65 clinicians in: Belgium, Croatia, Portugal, Spain and UK interested in sharing: ideas for app functionalities, concerns and views on the proposal that the app could support a reduction in visits to clinic for people whose HIV is stable. The University of Brighton coproduced this process with EATG ensuring findings were systematically analysed and embedded in the app design process.
Lessons learned: Community-generated ideas are fundamental to producing interventions that work and have a purpose that is clear and relevant to intended users. The methods used enabled ideas from PLWH to be embedded in the platform design, or else recorded within a schedule for ongoing platform development. Data security and ensuring shared decision making at local clinic-community level were significant concerns. Community education resources on understanding data security were co-produced and a guide to 'opportunities for local codesign' has supported community-clinic dialogue on digital health. Recognising patient access to data as an information right was identified as a key mechanism of empowerment.
Conclusions/Next steps: Community empowerment in digital health is not only individual self-management but inclusion in design processes and in ongoing decision-making on product development, commercialisation and sustainability. Balancing expectations against realisable technical goals is achievable through sustained dialogue. Research designs can generate and reinforce relationships and access to decision-making spaces and enable health policy making to be both empowering and inclusive.

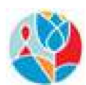
Social, political, and legal advocacy

THPED492

Two steps forward, one step back? Critiquing the repeal of a mandatory disclosure law in NSW, Australia

P. Kidd[1], N. Holas[2]
[1]HIV Legal Working Group, Melbourne, Australia, [2]Institute of Many, Melbourne, Australia

Background: Mandating pre-sexual HIV disclosure is a relatively common legislative response to HIV that has been extensively criticised as counterproductive to HIV prevention efforts as well as an unreasonable intrusion into the right to privacy of people living with HIV (PLHIV). In the Australian state of New South Wales (NSW), a mandatory disclosure law first passed in 1985 has been the target of community advocacy over many years. In 2016, the NSW government agreed to repeal the law but ultimately chose to refashion it into a new provision criminalising risky sex. Despite community concern, the new law was passed in 2017.
Methods: We examined the proposition that the change in the law has improved the legal landscape for PLHIV in NSW. Drawing on doctrinal legal analysis and statutory interpretation methods as well as discourses from HIV activism and social research, we compared the pre- and post-reform legal landscape for PLHIV.
Results: While the repeal of the mandatory disclosure law is welcome, this law has only rarely been applied to PLHIV and has in recent years been qualified by a complete defence based on reasonable use of risk-reduction practices. Under the new law, safe sex itself is mandated but disclosure is not required. The law requires PLHIV to use ´reasonable precautions´ to prevent transmission but does not define what these are, leading to uncertainty around the legal requirements imposed on PLHIV. The absence of a defence of informed consent means the new law potentially criminalises all sex that carries a risk of transmission, even where both parties are informed of and agree to accept that risk, a new intrusion on the sexual autonomy of PLHIV who do choose to disclose their status.
Conclusions: Opportunities for substantial legislative reform are rare. Despite extensive criticism and sustained advocacy, the NSW mandatory disclosure law remained on the statute book for more than thirty years. While the new law removes the requirement for pre-sexual disclosure, it has created a new incursion into the sexual lives of PLHIV by requiring that all sex, even with disclosure, meet an undefined standard of ´reasonable precautions´.



THPED493

Compromise and action: The engagement of 30 cities in Brazil to Fast Track their response and reach 90-90-90 by 2020

G. Braga-Orillard[1], C. Euzébio[2]
[1]UNAIDS, Brazil Country Office, Brasilia, Brazil, [2]UNAIDS, Brasilia, Brazil

Background:
(i) Over 50% of the world's population live in cities. In Latin America, the proportion is even larger: over 80%. Projections demonstrate that by 2020, 9 out of 10 Brazilians will live in urban areas;
(ii) The federative governance structure of Brazil empowers States and municipalities with independent budgets and framework for implementation;
(iii) compromise at Federal-level has not been enough to halt the epidemic: despite its efforts, Brazil has about 40,000 new HIV infections/year and about 12,000 deaths;
(iv) competing challenges are presented to cities, i.e. violence (over 60,000 people were assassinated in 2017), corruption, epidemics (such as zika and yellow fever).
Description: UNAIDS used the movement of Fast Track cities to gather support of Governors, Mayors and local level administrations to accelerate the response. Over 30 priority cities and the National Front of Mayors signed the declaration. The population in these cities is of 40 million people combined. This way, a network was formed at country-level and lessons can be shared.

[FastTrackCities]

Lessons learned: The Fast Track cities initiative is an excellent advocacy tool:
(i) for civil society to demand action at local level;
(ii) for the Federal structures to engage more with local level;
(iii) internally within the administrations, the Paris Declaration has become an instrument for health workers to ensure that HIV is in the agenda;
(iv) UNAIDS and the Joint Team on HIV/AIDS have used the declaration both a political tool to initiate dialogue and also to provide support at local level. As a result several innovative initiatives have been implemented, including:
i) expanding access to HIV testing, including self testing, with focus on gay men and other MSM
ii) PrEP demonstrative implementation projects;
iii) comprehensive health service dedicated for transgender women and men;
iv) decentralization of HIV care to primary services; among others.
Conclusions/Next steps: The Sustainable Development Goals Objectives aim to leave no one behind. To be able to reach these goals, action needs to be taken at local level. Further engagement will be promoted with the cities via the National Front of Mayors.

THPED494

Who's on deck? Building the leadership bench of women living with HIV in the federal policy advocacy arena

A. Rogers[1], E. Turk[2], T. Sullivan[1], K. Laffrey[3], R. Wang[4]
[1]Positive Women's Network - USA, Oakland, United States, [2]Positive Women's Network - USA, Organizing, Oakland, United States, [3]Sero Project, Milford, United States, [4]Positive Women's Network - USA, Policy, Oakland, United States

Background: Though women living with HIV (WLHIV), inclusive of women of transgender experience, face unique advocacy concerns at the intersection of HIV, gender and sexual and reproductive health and rights, spaces of influence within the federal policy environment have remained largely inaccessible, leaving the most pressing advocacy concerns of WLHIV under resourced and often ignored.
In response, Positive Women's Network - USA, launched the PWN-USA Policy Fellowship, a yearlong training and leadership development program in federal policy advocacy. The goal of the fellowship is to increase participant's ability to engage effectively in federal policy and advocacy and to support a growing pipeline of WLHIV, who are shaping policy, fighting stigma and discrimination, and generating a new discourse that calls for upholding full rights and dignity for all people living with and vulnerable to HIV.
Description: Participation in the fellowship was open to all women living with HIV inclusive of women of transgender experience living in the U.S.The 14 fellows of the inaugural cohort represented 9 different states and the District of Columbia. 12 fellows identified as women of color (Black or Latinx), and three fellows identified as being women of transgender experience.
Fellows participated in a series of interactive web-based and in-person policy skills building training sessions, collaborated on policy issue-based teams and received coaching from seasoned advocates. At the completion of their substantive training fellows embarked on a 3-month policy practicum to apply their knowledge and skills.
Lessons learned: Each fellow completed a pre-fellowship assessment evaluating their understanding of the branches and functions of the federal government, the legislative process, policy research and analysis and frameworks for advocacy interventions. Fellows also completed evaluations after each training session for ongoing programmatic feedback and completed a 6-month assessment designed to evaluate their knowledge, skills and shifts in positional power in advocacy spaces.
Conclusions/Next steps: Fellows who prior to participating expressed some to little understanding of policy advocacy not only have increased knowledge and skills, but also have demonstrated heightened engagement in the policy advocacy environment.

THPED495

Mobilizing civil society for the HIV treatment cascade: Measures of democracy and its impact on diagnosis rates among PLHIV

R.K.J. Tan[1], N. Kaur[2], C.S. Wong[2]
[1]National University of Singapore, Saw Swee Hock School of Public Health, Singapore, Singapore, [2]Tan Tock Seng Hospital, Institute of Infectious Diseases and Epidemiology, Singapore, Singapore

Background: Civil society organizations (CSOs) play an essential role in the global HIV/AIDS response. Past studies have described the beneficial role of CSOs in meeting the UNAIDS 90-90-90 target, but have not explored how political conditions, which influence the ability of CSOs to organize, have an impact on the cascade. This study explores the relationship between measures of democracy and its association with diagnosis rates among people living with HIV (PLHIV).

Methods: This study analyses data derived from the Economist Intelligence Unit's Democracy Index (EIUDI), UNAIDS country estimates for PLHIV and PLHIV who know their status, World Bank's data on nominal gross domestic product (GDP) per capita and country population, and country estimates for PLHIV and PLHIV who know their status from other independent sources. An estimated HIV prevalence variable was constructed by dividing the estimated PLHIV population with the total population of a country. The analytic sample comprised countries where data on the estimated number of PLHIV and PLHIV who know their status was available (n=111).

Results: Of the 111 countries in the analytic sample, the mean democracy index score was 5.93 (out of 10), median estimated HIV prevalence was 0.20% (IQR 0.10-0.65), median GDP per capita (in thousands, US dollar) was 4.88 (IQR 2.11-13.79), and mean PLHIV who know their status is 67.1%. Preliminary analysis on the five component measures of the EIUDI (i.e. electoral process and pluralism, functioning of government, political participation, democratic political culture, and civil liberties) revealed multicollinearity, and thus the composite democracy index score was used as the measure for democracy. Multivariate analysis by linear regression revealed that democracy index scores (=2.15, SE=1.01, 95% CI 0.15-4.16), estimated HIV prevalence (=1.25, SE=0.55, 95% CI 0.16-2.34), and GDP per capita (in thousands; =0.36. SE=0.11, 95% CI 0.15-0.57) were positively associated with diagnosis rates among PLHIV.

Conclusions: Though an indirect means of measuring the impact of civil society on HIV diagnosis rates, the results suggest that democratic political cultures favouring civil society mobilization are associated with higher rates of diagnosis among PLHIV. Further research on the impact of political cultures on the ability of CSOs to organize is warranted.

THPED496

Social media utilization among HIV/AIDS organizations: A survey of the online community created by groups improving HIV health

R. Puttagunta[1], R. Puttagunta[2]
[1]Geisinger Health, Danville, United States, [2]University of Texas - Rio Grande Valley, Mcallen, United States

Background: Organizations improving the health of individuals with HIV have to balance individual care, community development, scientific advancement, and advocacy. Social media has been a cost-effective mechanism to help accomplish these objectives. Current social media advisory groups recommend groups focus on frequent content, direct consumer relevant material, and the incorporation of personal content into social media feeds. Social media has proven to be a powerful tool to recruit members, spread messaging, and enact positive change. Thus, we aim to evaluate how HIV/AIDS organizations utilize this space, with the goal to provide groups with cost-effective priorities when utilizing social media platforms to improve the organization's image, member recruitment, and community engagement.

Methods: We evaluated organizations committed to HIV health based on lists from the World Health Organization, International AIDS Society and other umbrella HIV societies. In January 2018, utilizing a blinded browser, we reviewed the top 100 search results of the formal institutions name on both Google and Bing to determine the placement of social media content regarding the institution. Then we studied the institutional Facebook, Twitter, and YouTube accounts for both quantity and content posted from January 2016 to December 2017. We categorized content into institutional announcements/promotion, health education, community/individual stories, research, and forwarded posts (e.g. retweets). Posts could be allocated to more than one category. A qualitative analysis compared institutions to determine both unique aspects and opportunity gaps.

Results: 103 institutions were evaluated with subgroup analysis by region and primary organizational mission. Over 6,000 Twitter and Facebook postings were categorized. We found that all large international organizations utilized multiple social media platforms on a regular basis (more than once a week). Across the institutions, content generally focused on advocacy, and organizational/program promotion. Based on the mission of the organizations, there was a wide variety of the messaging associated with individual posts, including incorporation of hashtags and usernames.

Conclusions: Based on these findings we would recommend organizations prioritize the following items:
1) Increase patient stories and images,
2) Forward/Repost relevant content from similar organizations, and
3) Utilize more novel communication modalities like videos.

THPED497

Civic engagement to end AIDS: Identifying predictors of voting and advocacy participation among community-based HIV service organization clients and staff

T. Ghose[1], M. Stanton[2], S. Ali[3], V. Shubert[4], P. Andrews[2]
[1]University of Pennsylvania, School of Social Policy and Practice, Philadelphia, United States, [2]Housing Works, Brooklyn, United States, [3]University of Houston, Houston, United States, [4]Housing Works, Research and Public Policy, Brooklyn, United States

Background: Internationally, civic engagement of HIV service users and providers has promoted a rights-based approach to combating structural HIV risk. However, scant research has examined HIV advocacy engagement or civic engagement within community-based HIV service organizations (CBHSO). This study examines advocacy participation and voting behavior among clients and staff of a large CBSHO in a major U.S. city.

Methods: CBHSO staff (N= 454) and clients (N=244) completed an anonymous survey about advocacy participation and voting following the 2016 U.S. Presidential election. Descriptive statistics captured rates of voting and advocacy activities. An ordered logistic regression model identified predictors of advocacy engagement. Logistic regression identified predictors of voting behavior.

Results: Among clients (70%) and staff (84%) who reported they were eligible and registered to vote, 87% of clients and 93% of staff voted in the 2016 U.S. presidential election compared to the 67% voting rate for all registered voters in New York State. Voting was positively associated with advocacy engagement (odds ratio 7.2), being lesbian, gay or bisexual (OR 2.5) and cis-female (OR 2.4) among clients, and with advocacy engagement (OR 2.9) and being cis-female (OR 3.9) and negatively associated with homelessness (OR 0.60) among staff.
64% of clients and 87% of staff participated in advocacy around health policy. For clients, advocacy was positively associated with being non-cisgender (OR 5.7), and older (OR 3.3). For staff, advocacy was positively associated with being employed (vs. volunteer) (OR 6.8), and lesbian, gay, or bisexual (OR 1.60), and negatively associated with being cis-female (OR 0.64), and younger (OR 0.46).

Conclusions: Voting was mediated by involvement in advocacy, especially for marginalized clients and staff members. Successful structural HIV interventions in agencies need to target civic engagement by involving clients and staff in advocacy around HIV policy issues.

Community mobilization and demand creation

THPED498

Social cohesion events: Suriname Men United's experience with an innovative outreach approach to reach new men who have sex with men and transgender people in Suriname

F.S. Cerson-Khodabaks[1], D.E. Sanrawi[1], K.I. van Emden[1], J.T. Moestadjap[2], R.L.C. Eersel[2]
[1]Foundation Suriname Men United, Paramaribo, Suriname, [2]FHI 360/ LINKAGES Project, Paramaribo, Suriname

Background: Men who have sex with men (MSM) and transgender people (TG) in Suriname experience stigmatization and marginalization that affect their uptake of HIV services. As part of the FHI 360 LINKAGES project, which is funded by USAID and PEPFAR, foundation Suriname Men United (SMU) has sought to address this issue through innovative outreach approaches. One approach is a one-day social cohesion event held specifically for MSM and TG.
Description: The purpose of social cohesion events is to strengthen MSM and TG's self-empowerment and increase their awareness of sexual health in a safe, informal setting, with the aim of increasing uptake of HIV services. The events have a central theme chosen in consultation with MSM and TG. They are conducted as workshops or entertainment events. Social cohesion events have specific structures: attendees are registered, guided to an information booth where they receive one-on-one information about sexual health, commodities and referral to HIV testing and other services, and participate in the planned activity. Lastly, attendees are approached one-on-one with information on HIV testing which are available on-site. After the event, the attendees are proactively contacted and encouraged to get tested or to make use of other services.
Lessons learned: Key population engagement in choosing the central themes for social cohesion events ensures active participation. Compared to other outreach methods, social cohesion events had the highest contribution (43 percent) to SMU's newly recruited MSM and TG in fiscal year 2017. Some of these newly recruited persons belong to networks not explored before. Social cohesion events provide the opportunity to build trust with the attendees, which is the first step needed to have further discussion on the importance of knowing one's HIV status. Twenty-four percent of the newly recruited MSM and transgender people were linked to testing services afterwards. Prior to the social cohesion events, the testing uptake was 15 percent in 2016.
Conclusions/Next steps: Social cohesion events contribute not only to uptake of HIV services, but also to gaining access to new networks. These social cohesion events should not only consist of small group interventions, but also include a one-on-one approach for successful uptake of services.

THPED499

Health services and LGBT population in Rio de Janeiro, Brazil: Talking about „be different, be you!"

L. Montenegro[1], M. Malta[1], L. de Andrade Ferreira[2], J.L. Monard Pereira[2], R. Rodrigues Alves Campitelli[2]
[1]Oswaldo Cruz Foundation, National School of Public Health, Rio de Janeiro, Brazil, [2]Prefeitura do Rio de Janeiro, Rio de Janeiro, Brazil

Background: Brazil has the unfortunate reputation of being one of the deadliest places in the world in terms of recorded anti-LGBTQI violence (LGBTQI: Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, and Intersex). About one LGBTQI Brazilian is killed in a hate-motivated crime each day, but the police are often reluctant to register anti-LGBTQI crimes as hate attacks. The extreme social exclusion faced by Brazilian LGBTQI translates into increased vulnerability to HIV: transwomen face prevalences above 25% and men who have sex with men above 15%, while the prevalence among the general population is below 1%.
Description: Stigma and discrimination harm the wellbeing and increases the HIV-risk among the LGBTQI community in Brazil. Aiming at decreasing the experiences and feeling of stigmaa/discrimination within health facilities, we implemented the intervention „Be Different, Be You!". The group was planned and developed in close partnership with the LGBTQI community living in a large slum complex from Rio de Janeiro, Brazil. The intervention included permanent education targeting health professionals, community leaders and the LGBTQI community at large, and aimed at increasing the access and demand for free local health services, including HIV-testing, Prep, PEP and HIV-treatment.
Lessons learned: The including of a human rights approach and development of a low-threshold, user friendly health service increased the access of LGBTQI community. Health professionals promoted the "LGBTQI Visibility Day", promoted several strategies to mobilize and improve the dialogue between health professionals and the LGBTQI community living in this specific slum from Rio de Janeiro. Recreational and educational activities were implemented, as well as HIV-testing and treatment promoted.
Conclusions/Next steps: The strategy was very successful and overall well-being of the LGBTQI community increased over time. However Brazil is facing a political crisis and the conservative agenda of the new government might influence key decisions in the human rights and public health arena in Brazil. Most vulnerable groups such as the LGBTQ community might be severely affected and funds to replicate and/or improve this successful initiative might be not available anymore.

THPED500

Impact of HIV on infant- and young child-feeding practices and modelling the impact of resultant stunted growth on child mortality in Buhweju district, Southwest Uganda

J. Mukisa
Makerere University, School of Food Technology, Nutrition and Bio-engineering, Kampala, Uganda

Background: The HIV pandemic in Uganda amidst worsening severe food insecurity has increased the risk of stunting and child mortality particularly among households of people living with HIV. This study aimed to assess whether there were differences in infant- and young child-feeding (IYCF) practices among HIV-positive mothers and those of unknown HIV status. The study also modelled the impact of stunting on child mortality in the southwest region of Uganda.
Methods: Seventy-eight HIV-positive mothers of children aged 0-23 months were recruited at health centers that provide prevention of mother-to-child transmission (PMTCT) services. These mothers were matched (based on their child's age and area of residence) to 78 mothers of unknown HIV status from the general population. The Infant and Child Feeding Index (ICFI) was used to estimate the proportion of children receiving the recommended standard of IYCF. The Lives Saved Tool (LiST) was used to estimate the impact of stunting on child mortality and cases of stunting averted.
Results: Half of the mothers (50%) used pre-lacteals, 34% of the children were exclusively breastfed, and only 26% of the mothers practiced appropriate introduction of complementary foods. Compared to the mothers of unknown HIV status, the HIV-positive mothers were significantly more likely to introduce complementary foods before their children reached the recommended age of 6 months ($p < 0.05$). A majority of the children (88%) did not receive the recommended standard of IYCF, and feeding practices were significantly less likely to be in line with the recommended IYCF practices among HIV-positive mothers compared to those of unknown HIV status ($p < 0.05$). The high impact LiST model estimated that 1,297 children under 5 years would be saved and 24,850 cases of stunting averted in the study district.
Conclusions: There are large disparities in IYCF practices between HIV-positive mothers and those of unknown HIV status in rural areas of Uganda. These can be attributed to lack of knowledge about the recommended IYCF practices among health workers and mothers, breastfeeding discouragement, fear of mother-to-child HIV transmission, and missed opportunities to educate and counsel mothers on optimal IYCF practices.

THPED501

A behaviour-centred design approach to creating demand for oral PrEP among young women in Masiphumelele, South Africa

L. Myers[1], L.-G. Bekker[1], R. Aunger[2], K. Gill[1], A. van der Straten[3], J. Morton[4], M. McConnell[5], G. Breen[4], V. Curtis[2], C. Celum[4]
[1]Desmond Tutu HIV Centre, University of Cape Town, Cape Town, South Africa, [2]London School of Hygiene and Tropical Medicine, London, United Kingdom, [3]RTI International, San Francisco, United States, [4]University of Washington, Seattle, United States, [5]Harvard University, Cambridge, United States

Background: Worldwide, South Africa has the highest HIV incidence among adolescents. There is a critical need to address young women's vulnerability to HIV through HIV prevention, including pre-exposure prophylaxis (PrEP), which women can control. We identified a need to generate awareness and demand for PrEP among this population.
Methods: The 3Ps for Prevention Study seeks to understand young women's choices whether to use PrEP and how those decisions are made. Formative research using the behaviour-centred design framework was conducted in 53 households in Masiphumelele to inform a behaviour change communication strategy for PrEP, which included a 90-second video, inviting youth to *'be part of the generation to end HIV'* (https://goo.gl/HDZ34D). Posters and brochures were also distributed. Impressions of the video were surveyed among 320 women (aged 16-25) and through 20 in-depth interviews of women enrolled in the 3P open label PrEP study.
Results: We uncovered several challenges that may hinder young women's demand for PrEP and which guided message development, including: low concern about HIV, low sense of personal HIV risk, cultural norms that are unaccustomed to preventative pill-taking, concerns about side effects, and socio-economic stressors that limit personal agency and future-oriented thinking. The video was well-received: 71% (n=227) of women reported liking or really liking it and 68% (n=217) reported they were *'definitely interested'* in learning more about PrEP after viewing it. Qualitative participants reported appreciating the invitation to join *'the generation to end HIV'*, found the video's characters relatable, liked the focus on peer support and the positive angle on PrEP (e.g. ease of pill-taking and low burden). Printed materials were said to legitimise PrEP for some interviewees' partners and family members, who were initially skeptical of a pill that prevents HIV.
Conclusions: Our initial research found healthy young women had low motivation to take a daily pill (with possible side effects) to prevent HIV, for which they didn't necessarily feel at risk. However, young women liked a video and printed materials that leveraged an empowerment theme. Effective future PrEP demand creation strategies will require multiple communications with powerfully motivating messages, community awareness events, and engagement by healthcare providers and community workers.

THPED502

Teenergizer.org — unique, youth-led on-line resource for teenagers from EECA

V. Fomina[1], A. Sardarian[2]
[1]Eurasian Union of Adolescents and Youth «Teenergizer», Kiev, Ukraine, [2]Teenergizer, Kyiv, Ukraine

Background: According to UNAIDS, number of new HIV cases among young people 15-24 years in 2016 in EECA — about 25,000. Over 400,000 people 15-30 years are living with HIV in Russia, over 5500 — in Ukraine, and 123 500 adolescents are at risk of getting HIV. To mobilize HIV-positive young people a unique web-platform was created. We found this step very rational, because a financial input to the development and maintenance of the site is not too large, but it is a good chance to involve large numbers of people including HIV-negative to strengthen the voice of adolescents in the EECA region and form tolerant attitude towards HIV+ people.
Description: Our unique resource developed by adolescence who defined the manner of representation of information for their peers. The team of authors leads the section «Living with HIV», which highlights key points of the life of HIV-positive teenagers, gives accurate and youth-friendly information about importance of ART, and describes that life of adolescents with HIV is not very different. In connection with the preparation to the conference was created the section «AIDS2018», where all the key moments were announced in a youth-friendly manner. There is also a section «Consultations» on teenergizer.org, that provides adolescents with peer counseling (delivered by peers) or with professional psychologists counseling.
Lessons learned: Through personal stories of activists, we encourage teenagers to take care of their health, form a tolerant attitude towards HIV-positive young people in society, and give the opportunity for HIV-negative adolescents to get to know reliable information about ways of transmission of the virus and necessity of regular HIV testing. All teenagers can get psychological support and express themselves by joining the team of authors. As of today web-site is visited by about 9000 unique users per month, who view 19 000 pages.
Conclusions/Next steps: This direction is crucial for young people; the Russian-language platform could attract and cover young people living with HIV and key populations from all over EECA region. In the future it is important to ensure the development of on-line counseling, to popularize this opportunity among adolescents and to increase the staff of equal consultants.

THPED503

Female sex workers (fsws) as game-changers, take up the challenge to organize towards ending HIV in Nigeria

C. Anonyuo[1], A. Anonyuo[1], C. Anidiobi[2], L. Amadi[3], S. Haruna[4]
[1]Renewed Initiative against Diseases and Poverty (RENAGAIDS), Abuja, Nigeria, [2]Advocates for Women's Health and Rights Initiative, Abuja, Nigeria, [3]Mind Renewal Women's Initiative, Lagos, Nigeria, [4]Society for Women Development, Abuja, Nigeria

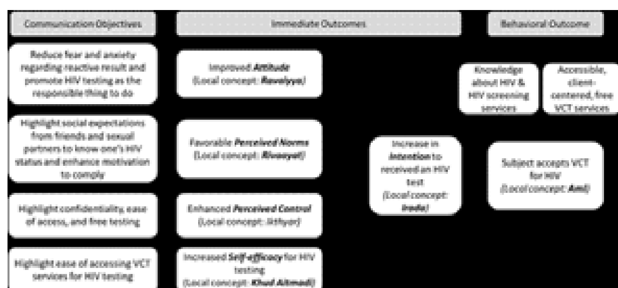
Background: HIV prevention interventions in the past targeting FSWs in Nigeria had been implemented by non-community members organizations for the community with little attention paid to addressing structural interventions that can create the needed support for HIV response for the Community. FSWs realized the need to change the current paradigm of HIV prevention and treatment management for them and therefore took decisive actions to make the much needed changes.
Methods: FSWs in Nigeria in 2015 grabbed the opportunity as presented by the Global Fund New Funding Model initiative to organize the inauguration of FSWs network in Nigeria. Discussions at the inaugural meeting included the need to self-organize to increase access of FSWs to HIV prevention services and STI management through demand for One-Stop-Shops (OSS) and how to improve the structural intervention needs of FSWs by directing national efforts to reducing violence, human rights abuses and harassments by law enforcement agents and clients/patrons. Additionally, strategies to institute safe guard measures for preventing HIV transmission were also highlighted. As take-off, representatives of FSWs were charged with the responsibility of organizing Focal Group Discussions (FGDs) at the state and community levels.
Results: 42 FGDs involving 1350 sex workers were held nationwide to step down the outcome of the inaugural meeting. The number of participants at each FGD ranged from 15 to 35. They requested that national stakeholders establishes OSS. These demands have resulted in the setting up of 24 OSS in Nigeria. Finally, FSWs have officially been an integral part of the Nigeria Response on HIV and have actively participated in both local and international activities, meetings and conferences. Highlighting and reinforcing the need to respect the human rights of FSWs, a national advocacy group led by FSWs and stakeholders have been inaugurated in 2017.
Conclusions: FSWs can mobilize and self-organize if and when given the opportunity and support. The FSW community in Nigeria would facilitate/implement tailored intervention for the community and make a difference for the national HIV response in Nigeria.

THPED504

Participatory empowerment education to increase effectiveness of peer-led health promotion for HIV testing among men who have sex with men (MSM) and transgender (TG) populations: Evidence from Pakistan

A. Asghar[1], X. Gul[2]
[1]Parwaz Male Health Society, Karachi, Pakistan, [2]Milken Institute School of Public Health, George Washington University, Washington D.C., United States

Background: Between 2005 and 2015 Pakistan saw an average increase of 17.6% in the number of new HIV infections. The low uptake of VCT services by MSM and TG populations continues to pose a serious challenge to HIV prevention in Pakistan. In the absence of evidence, there exists a policy vacuum around best practices for providing peer-led counseling for HIV prevention and treatment services.
Methods: A behavior change framework was developed to inform a training curriculum aimed at improving skills of MSM and TG field workers in promoting uptake of VCT services for HIV. Rooted in early Islamic scholarship, the curriculum applied the Integrated Behaviour Model, translated into culturally congruent concepts, to identify behavioural antecedents amenable to persuasive communication (Figure1).
The training curriculum used participatory approaches and was piloted with 15 TG and 29 MSM (n=44) outreach field workers from 6 CBOs across Pakistan. Participants were trained in using Participatory Reflection and Analysis (PRA) tools (timeline/daily routine, body mapping, and network diagram) for increasing critical consciousness regarding HIV testing among target audience. Participants' were assessed for knowledge about HIV transmission, self-efficacy for communicating effectively about HIV, and self-efficacy for using PRA tools before and after the training. Knowledge was assessed using 17 items with binary (1=True; 0=False) endpoints. Self-efficacy was assessed using three items each for communication and PRA use, (scale: 1-Strongly disagree-5-Strongly agree). Knowledge scores were summated, and mean scores were obtained for self-efficacy. All scores were converted to percentages and differences between the average pre and post scores were assessed using T-test.
Results: Participants' average score for knowledge of HIV transmission increased by 11.36 percentage points, while scores for self-efficacy for communicating about HIV and using PRA tools increased by 36.36 percentage points and 52.87 percentage points, respectively between pre-test and post-test. All differences between average pre and post-test scores were statistically significant (p< .001).
Conclusions: Participatory empowerment approaches are potentially well suited to Pakistan's low-literacy context. Resource allocation for further research is needed to evaluate whether theory-driven, peer-led participatory health education for HIV prevention can yield greater uptake of HIV testing among MSM and TG populations in hostile outreach settings.



[Figure 1: Theoretical Framework for the Curriculum: Application of the Integrated Behavior Model to the local cultural context]

THPED505

Community-based services for expanding HIV testing access, coverage and linkage to care from the perspective of combined prevention. A Ecuadorian experience

O. Montoya-Herrera[1,2], L. Orozco[3], M.E. Acosta[4], C. Acosta[5], C. Bonifaz[6], L. Riegel[7], R. Delabre[2], D. Rojas Castro[7], A. Herdoiza[8]
[1]Corporación Kimirina, Educación Comunitaria, Guayaquil, Ecuador, [2]Coalition PLUS, Community-Based Research Laboratory, Paris, France, [3]Corporación Kimirina, Research, Quito, Ecuador, [4]Corporacion Kimirina, Research, Quito, Ecuador, [5]Corporacion Kimirina, HIV Program Coordinator, Quito, Ecuador, [6]Corporación Kimirina, Evaluation and Monitoring, Quito, Ecuador, [7]Coaliton PLUS, Community-Based Research Laboratory, Paris, France, [8]Corporación Kimirina, Executive Direction, Quito, Ecuador

Background: Although a concentrated HIV epidemic in Ecuador among MSM and Trans women (TW) (11% and 32% prevalence respectively-ENS-MSP, 2012), both populations face severe limitations in accessing HIV testing services in the Public Health Network.
To strengthen collaboration between government and civil society, the National HIV Strategy and Kimirina Corporation designed, in 2015, the *Community-Based HIV Testing Services Program (CBHTSP)* in order to assess both the coordination mechanisms with the various levels of the Health Ministry and the HIV Strategy and its viability and acceptability. In 2016, the program was implemented in Quito and Guayaquil, where the highest number of HIV/AIDS cases are reported.
Description: Peer workers were trained in sexual health promotion, counseling and rapid HIV testing. HIV promotion and prevention activities were conducted in priority areas ("hot spots") identified through a Programmatic Mapping by peer workers and supported through Community Centers and Public Health Minister referral units. Two main objectives were identified: 1) increase early HIV diagnosis via „Community-based Testing for Key Populations"; 2) increase timely linkage to care to health units.
Lessons learned: Local HIV strategies were linked to program monitoring and evaluation, permitting service coordination and provision of HIV prevention and testing inputs for MSM and TW. MSM (n=11 118) and TW (n=1 258) participated in activities promoting/offering community-led peer HIV testing. A total of 4 084 rapid HIV tests were performed (3 645 among MSM and 438 among TW). Prevalence found was 1,83% (N=67) among MSM and 0,79% (N=10) among TW. All the people with an HIV-positive result was linked to the national health services.
Conclusions/Next steps: Peer community-led prevention and testing services close to key populations is acceptable, efficient, facilitates access to health services and may address barriers related to stigma and discrimination. The CBHTSP, which integrated combined prevention in the National HIV Plan, provided the opportunity to form alliances between the community and health providers to ensure coverage and improvement of care. This successful program may serve as a model for future community-led efforts to reach vulnerable populations.

THPED506

Strategies to engage men in HIV testing and care through community mobilization activities in rural Mpumalanga, South Africa

R. West[1], R. Mathebula[2], D. Rebombo[2], A. Julien[3], K. Kahn[4], D. Peacock[2], R. Twine[4], N. Haberland[5], J. Pulerwitz[5], S. Lippman[1,4], A. Pettifor[3,4]
[1]University of California San Francisco, Center for AIDS Prevention Studies, San Francisco, United States, [2]Sonke Gender Justice, Cape Town, South Africa, [3]University of North Carolina at Chapel Hill, Chapel Hill, United States, [4]MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, [5]Population Council, New York, United States

Background: While men are known to test for HIV and access ART at lower rates than women, there is strong evidence that community mobilization (CM) can improve engagement in health services. We describe

a CM intervention designed to address social barriers to HIV counselling and testing (HCT) and engagement in HIV care by implementing activities that engage communities in social change.
Description: CM activities were implemented by trained community mobilizers in 8 intervention villages in the Agincourt Health and Demographic Surveillance Site; a rural, high HIV prevalence setting in Mpumalanga, South Africa. Clinical monitoring data revealed that HCT rates were low for males 18-49. To address challenges with engaging men, stakeholder meetings were held with traditional leaders, ward councilors, church leadership, and community development forums to identify novel ways to engage men in CM activities and HCT.
Lessons learned: During years 1 and 2 of the intervention, 6,962 males aged 18-29 and 4,857 men aged 30-49 were identified as „new faces" at CM activities. Strategies for engaging men included holding pool tournaments, using bars as CM venues, and providing traditional food to participants while conducting workshops and activities around HIV testing and treatment as prevention (TasP). A male-only support group was formed in partnership with an HIV-positive community leader. Soccer tournaments were successful in reaching men by using soccer skills and teamwork to discuss themes of behavior change, HIV prevention, TasP, and community building. „Fun Days" including music, free car washes, and provision of HCT were held on weekends near main roads to encourage men to test for HIV. Community Mobilizers also recruited men from CM activities who wanted to test for HIV and coordinated with a local NGO, clinics, and the Bushbuckridge Department of Health to conduct HCT in the community.
Conclusions/Next steps: In rural South Africa, strategies to reach men outside of the clinic setting are critical to increase of HIV testing. Men ages 18-49 were accepting of HCT services when providers were males from outside villages. In addition, holding CM activities in on the weekends, in late afternoon/evening, and in male-friendly spaces was effective in engaging men to learn about HIV TasP.

THPED507

Use of mobile vehicle to scale up uptake of VMMC in rural Uganda: Experiences from use of The AIDS Support Organization-TASO Rukungiri mobile vehicle

N.R. Nuwamanya
The AIDS Support Organisation-TASO Uganda Ltd, Counselling, Kampala, Uganda

Background: TASO Uganda Limited-Rukungiri Center is supported by United States Agency for International Development-USAID to carry out VMMC in western Uganda. With the new target of 1,520 males to get VMMC by September 2018, it has increasingly became hard to get VMMC volunteers where VMMC camps are held. We identified the use of TASO Vehicle as a mobile van to take mobilization to communities. We examined the use of mobile van to mobilization of VMMC in January 2017 to December 2017.
Description: A branded TASO Designated Land cruiser with **"TASO HIV prevention and Care services"** was rolled out to help in the mobilization for VMMC volunteers. The land cruiser was mounted with a functioning public address system on top with SMC mobiliser and a Counsellor inside the vehicle to implement mobilization activities so as to get VMMC volunteers. The mobile vehicle is equipped with Information Education Communication-IEC Materials to distribute while in the communities. Those who get interested are carried to and from the VMMC sites form VMMC services.
Lessons learned: The mobile van benefits residents of the mapped areas where VMMC camps are planned as it has made access to information through IEC Material use much more available to residents in the catchment areas. 2,188 males have received VMMC services and followed up with (741Males 5-15years, 1440 of 15-49 and 7 males >49years. (TASO VVMC Annual report 2017). The mobile vehicle also serves as a mobile health education center in the community.
Conclusions/Next steps: The mobile vehicle is a feasible strategy for mobilizing VMMC Participants and recommended to Implementing Partners so as to cover wider areas and achieve VMMC Targets
Keywords: USAID-United States Agency for International Development, VMMC-Voluntary Male Medical Circumcision, TASO-The AIDS Support Organization, TT-Tetanus Toxoid.

THPED508

How to make an active community in indifferent society: Young people who use drugs response to the drug use criminalization in Lithuania

E. Kurcevic
Eurasian Harm Reduction Association, Vilnius, Lithuania

Background: In 2017 Lithuanian laws on drug use and possession were criminalized. Moreover, the latest data showed that in 2017, the increase in number of new HIV cases among PWID was as high as 64% in comparison with 2016. These changes triggered dissatisfaction among young people and as a response to this, the first community of young people who use drugs (PWUD) was mobilized. The group was supported with a small grant (SG) in the framework of the project "International Harm Reduction Consortium".
The purpose of the given SG was to strengthen civil society advocacy in response to the increasing HIV incidence rates due to the present repressive drug policy in Lithuania.
Description: The SG project was implemented in Lithuania from June to December 2017. Key population involved in the activities - young PWUD. Activities implemented: young PWUD community mobilization, preparation of the rally as a response to the repressive drug policy, participation in the study visits, development of the national harm reduction strategy and submission of the appeal to the Parliament to support drug decriminalization.
Lessons learned: Young people from different communities of PWUD were mobilized and established an organization "Young Wave" ("YW"). The SG project showed that young PWUD with different drug habits can be united for one goal - response to the „draconic" drug policy. Advises and expertise from international partners helped to build a capacity and empower young PWUD to become drug policy advocates. "YW" got a several dozen requests from outer organizations/institutions to organize trainings/seminars/discussions on harm reduction in different settings; as well about sexual and reproductive rights (including HIV and other STDs).
Conclusions/Next steps: In a short time, organization "YW" became the first young people NGO in Lithuania, working in the field of harm reduction, drug policy, human rights advocacy and education. And most importantly, "Young Wave" became a voice of young PWUD in Lithuania. Next steps, which are the continuation of the results of the SG project are as following: welfare and PsyCare activities during music festivals, trainings on harm reduction for party/festivals organizers, seminars for young people on sexual and reproductive rights at schools and during festivals.

Couples- or family-centred approaches

THPED509

Family dynamics and health-related quality of life of persons living with HIV/AIDS attending a comprehensive treatment and care center in Southwest Nigeria

O.B. Benson[1], A.M. Adebayo[2], A.O. Raji[2], G. Adeyemo[3,4]
[1]Lily Hospitals Limited, Warri, Nigeria, [2]University of Ibadan, Department of Community Medicine, Ibadan, Nigeria, [3]Students' for Microbicide (S4M), Abuja, Nigeria, [4]United Nations Population Funds (UNFPA), Abuja, Nigeria

Background: The advent of highly active antiretroviral therapy (HAART) has positive effects on the health related quality of life (HRQoL) of persons living with HIV/AIDS (PLWHA). However, the effect could be undermined if family correlates are not given due considerations. The support from the family is valuable to counter stigma as previous studies had shown positive relationship between social support and health outcomes. There is paucity of published literature on relationship between family dynamics and HRQoL of PLHWA in Nigeria where the burden of the disease is quite high.

This study was carried out to assess the association between family dynamics and perceived HRQoL of PLWHA attending a comprehensive HIV treatment and care center in South-West Nigeria.

Methods: This data was extracted from a descriptive longitudinal study conducted to test the effect of HAART of the HRQoL of 216 PLWHA who were yet to commence HAART. Family functionality was assessed using a 20-point family APGAR scale categorized into functional (≥15) or dysfunctional (≤14) families. Other family characteristics assessed were marital status, current employment status, occupational class,average monthly income using the Nigerian minimum wage of ₦18,000 ($60 @ ₦300/dollar) to categorize income into those that earn equal and above or below the minimum wage. The WHO QoL-HIV was used to assess HRQoL. Data were analyzed using descriptive statistics, Chi-square and linear logistic regression at p=0.05.

Results: The mean age of respondents was 38.4±8.5 years with M:F ratio of 1:2**.** About two-third (65.7%) of respondents were married, 86.1% were currently employed, 27.0% were in the high occupational class and 53.8% earned below the minimum wage. Over two-third (67.1%) came from functional families. Sixty-two percent perceived their HRQoL as being good and 72.2% were generally satisfied with life.Family life predictors of HRQoL were marital status, employment status, average monthly income and family functionality. Respondents from functional families were more likely to have good HRQoL than those from dysfunctional families (p< 0.001).

Conclusions: The study revealed positive relationship between family dynamics and HRQoL of PLWHA. Understanding the role of family dynamics and social support is important to combat stigma and discrimination and enhance unrestricted access to HAART.

THPED510

How will social norms about parenting influence parental support of adolescent girls and young women's (AGYW) use of PrEP? Perspectives from parents in Tanzania

N. Makyao[1], V. Saria[2], N. Jani[2], C. Kahabuka[3], L. Apicella[2], J. Pulerwitz[2], S. Mathur[2], N. Pilgrim[2]
[1]National AIDS Control Programme, Dar es Salaam, Tanzania, United Republic of, [2]Population Council, HIV & AIDS Program, Washington, United States, [3]CSK Research Solutions, Dar es Salaam, Tanzania, United Republic of

Background: Little is known about parents' perceptions towards oral pre-exposure prophylaxis (PrEP). Yet, parental consent is necessary for adolescents to access sexual and reproductive health services in many sub-Saharan African countries and parents can be a key influence in AGYW's access and use of health services. We explored how social norms and gendered parenting roles might influence parental support of AGYW's PrEP use in Tanzania.

Methods: We conducted 4 focus group discussion (FGDs) (n=28) with female parents and 4 FGDs (n=27) with male parents in Mbeya and Dar Es Salaam in May 2017. To acquaint parents with PrEP, a visual, standardized script of PrEP information and placebo pills was shared with participants prior to FGDs. Interviewers then explored PrEP perceptions and factors influencing parental support of PrEP use. Thematic content and constant comparative analyses were used.

Results: We found overwhelming support among parents for PrEP availability for AGYW. Further, parents noted strong support for AGYW's PrEP use, recognizing AGYW's high risk of HIV due to limited power to negotiate preventative behaviors and frequent violence in sexual relationships. However, social norms around adolescent sexuality influenced parental support. Parents were wary of being viewed as condoning pre-marital sexual activity, while they worried that AGYW could be stigmatized as promiscuous. Further, respondents noted differential parenting roles of mothers versus fathers, which would influence the type of support they would be able to provide to AGYW. Men, in particular, noted shame and embarrassment in communicating with their daughters about relationships and sex.

Despite these concerns, parents expressed a willingness to support AGYW access to PrEP and sought strategies for supporting their daughters. Female parents described creating a supportive environment for PrEP use (e.g., ensuring AGYW has good diet) while male parents described offering logistical and material support (e.g., providing transport to health centers).

Conclusions: Programmers may need to consider the role of parents when designing programs to support AGYW's PrEP use. Addressing social norms that hinder parental support of PrEP, and enhancing parents' ability to communicate effectively with AGYW about sexuality, HIV risk, and PrEP - may be avenues to engage and garner parental support.

THPED511

From serodiscordant to magnetic: The feasibility and acceptability of a pilot psychoeducational group intervention designed to improve relationship quality

A.D. Eaton[1,2], J.S. Cattaneo[3,4], J. Watchorn[1], C. Bilbao-Joseph[5], S. Bowler[6], M. Hazelton[7], J. Myslik[7], A. Ross[8], L.A. Chambers[9]
[1]ACT - AIDS Committee of Toronto, Support Services, Toronto, Canada, [2]University of Toronto, Factor-Inwentash Faculty of Social Work, Toronto, Canada, [3]ACT - AIDS Committee of Toronto, Monitoring and Evaluation, Toronto, Canada, [4]University of Toronto, Institute of Health Policy, Management, and Evaluation, Toronto, Canada, [5]Centre for Spanish Speaking Peoples, HIV/AIDS Program, Toronto, Canada, [6]Sinai Health System, Department of Psychiatry, Toronto, Canada, [7]Family Service Association of Toronto, David Kelley Services, Toronto, Canada, [8]Village Family Health Team, Toronto, Canada, [9]McMaster University, School of Social Work, Hamilton, Canada

Background: Serodiscordant or magnetic couples experience HIV-related issues that compound daily stressors. Psychoeducational couples group interventions can build coping skills and increase relationship satisfaction. However, most interventions for serodiscordant/magnetic couples are primarily aimed at reducing HIV transmission and most focus on heterosexual couples. Therefore, we used a community-based participatory approach guided by social action theory to engage gay male magnetic couples in the planning and piloting of a psychoeducational support group.

Methods: A quasi-experimental pretest/posttest design with no control group was used to enroll 12 gay men in same-sex magnetic relationships (i.e., six couples) to collaboratively design and participate in an 8-session psychoeducational support group. Participants attended two 3-hour planning sessions, followed by eight 3-hour group sessions, and two 3-hour evaluation sessions. Session evaluations were used to measure usefulness, interest, and quality of participation in the group. The Revised Dyadic Adjustment Scale (RDAS), where scores < 48/69 indicate clinically distressed relationships, was administered at three time points (pre-intervention, post-intervention, and 3-month follow-up).

Results: The intervention was feasible (i.e., recruitment was < 2 weeks, easy to coordinate) and acceptable (i.e., all sessions consistently rated 'very good' or 'outstanding'). Relationship quality improved significantly in all couples, regardless of whether couples agreed on how to manage HIV within their relationship. RDAS prescores (M=36.75, SE=2.68) were significantly different from postscores (M=46.75, SE=2.59) and follow-up (M=51.75, SE=1.78). Participant consensus was that 'magnetic' was a more strengths-based term than 'serodiscordant', highlighting that 'opposites can attract' in terms of HIV status.

Conclusions: This study provides proof-of-concept for preliminary feasibility and acceptability of a psychoeducational group intervention for gay male magnetic couples; the study's participatory approach may have contributed to these findings. It is useful to consider the degree to which changes in follow-up scores can be attributed to the group program and not time or other factors. A scale focused on relationship quality for gay men in magnetic relationships could have better captured this variable. This presentation will discuss how the participatory aspects created a foundation for a successful support group, alongside the group's key components, and a need for more holistic tools of measurement pertaining to serodiscordancy in gay men.

THPED512

Role of family dynamics in impacting HIV care in Tanzania: Implications for intervention development

V. Fonner[1], F. Chiwanga[2], E. Steven[3], J. Mbwambo[3], M. Sweat[1], S. Likindikoki[3]
[1]Medical University of South Carolina, Psychiatry and Behavioral Sciences, Charleston, United States, [2]Muhimbili National Hospital, Dar es Salaam, Tanzania, United Republic of, [3]Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania, United Republic of

Background: Having a chronic condition often involves burdensome medication schedules, clinic visits, and self-care activities. Such an illness can affect an entire family, and family plays a role in both shaping disease risk and providing support for care management. Despite the importance of family, research to understand how family affects HIV-care in sub-Saharan Africa is scarce.
The Familia Kwanza study is seeking to understand what role families play in supporting a family member living with HIV and to assess the burden of comorbid chronic conditions, including diabetes and hypertension, among this population.
Methods: From August-October 2017 we recruited a representative sample of 359 adults living with HIV from the HIV clinic at Muhimbili National Hospital in Dar es Salam by selecting every third patient for inclusion. Participants completed a structured survey related to family relationships, HIV, and lifestyle (e.g., diet and exercise). We assessed family functioning using an adapted version of the Brief Family Relationship Scale, including a sub-scale for family cohesion (Cronbach's alpha= 0.83). We used logistic regression to assess the association between family cohesion and engagement in care, disclosure, and diet, controlling for age, sex, marital status, and income.
Results: The sample comprised 77 males and 277 females with a mean age of 45.8 years (SD=9.8). The majority of participants reported having been enrolled in HIV-care for at least five years (n=258, 71.9%), and all reported being on antiretroviral therapy. High levels of family cohesion were associated with immediate vs. delayed entry into care following diagnosis (aOR= 1.65, 95% CI: 1.01-2.69), disclosure of ARV use to household members (aOR=2.19, 95% CI: 1.09-4.41), and high consumption of fruit and vegetables (aOR=1.78, 95% CI: 1.10-2.90). Eighty-eight percent of participants (n=316) reported receiving health-related familial support, including reminders to take medication (77.5%), financial support (71.8%), and preparing food during times of illness (60%).
Conclusions: The association between family dynamics and health-related outcomes suggest that family-centered interventions could potentially improve HIV-related care outcomes, and family-centered interventions are especially relevant for people living with HIV who have co-morbid chronic diseases, such as diabetes or hypertension, given the relationship between family and lifestyle.

THPED513

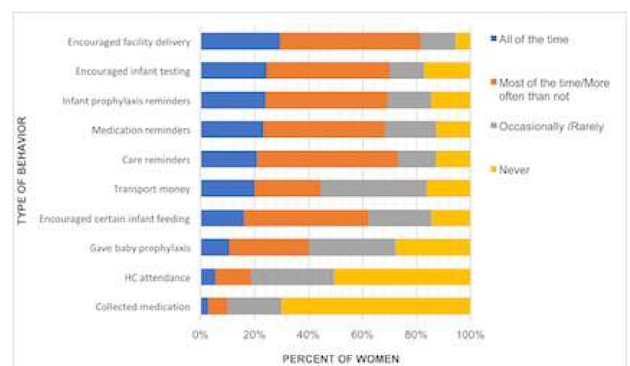
What really matters? Moving towards a greater understanding of male partner involvement in PMTCT

K.H. Hampanda[1], M. Njuguna[2], A. Helova[3], T. Odeny[2], M. Onono[4], E. Bukusi[2], J. Turan[3], L. Abuogi[5]
[1]University of Colorado, Community and Behavioral Health, Denver, United States, [2]KEMRI, Kisumu, Kenya, [3]University of Alabama, Birmingham, United States, [4]UCSF, San Fransisco, United States, [5]University of Colorado, Denver, United States

Background: Across sub-Saharan Africa, male partner involvement (MPI) is positively associated with women's retention and adherence to prevention of mother-to-child transmission (PMTCT). The conceptualization of MPI varies across studies and is often defined solely as men's attendance at healthcare visits. The objective of this study is to improve the understanding of MPI in PMTCT and conduct preliminary testing of a MPI scale.
Methods: In 2017, we conducted a convergent parallel mixed methods sub-study within the Mother-Infant Visit Adherence and Treatment Engagement (MOTIVATE!) study (R01HD0808477) in southwestern Kenya. We surveyed HIV-positive women enrolled in the parent study on ART at 12 months postpartum (N=200). Twenty male partners also completed a qualitative in-depth interview. Psychometric, descriptive, regression, and thematic analysis highlight the scale's internal validity and specific behaviors and characteristics relevant to MPI in PMTCT.
Results: Among 200 women surveyed, 90% reported a stable male partner, and 96% of those had disclosed their HIV status to this partner. Only 49% of male partners attended at least one healthcare visit in the past year. The most commonly reported forms of MPI were encouraging a facility delivery and infant testing, followed by reminders about medication and HIV care (see Figure 1). Ten specific behaviors were used to establish an MPI scale (internal validity of alpha=0.90). Relationship characteristics associated with a higher MPI scale score include: cohabitating with the male partner (r=5.1; p< 0.01); HIV status disclosure (r=15.0; p< 0.001); and couple's HIV testing (r=5.6; p< 0.001). In addition, higher relationship satisfaction and social support are consistently correlated with higher MPI scale scores (see Table 1). In the semi-structured interviews, men concurred that reminders about care and medication are important. Men also discussed the importance of emotionally supporting their wives and helping with household chores in order to reduce stress, and the role of open communication within the couple.
Conclusions: As reported by both women and men, male partner involvement in PMTCT is not exclusively focused on male attendance at healthcare visits, but also includes other forms of instrumental, emotional, and informational support. This work furthers the conceptualization of male partner involvement in PMTCT.

Variable	N	Descriptive Findings Percent (n) / Mean (SD)	Correlation with Male Partner Involvement Scale (N=178) Coef. (95% CI)	p-value
Cohabitating with male partner (yes): % (n)	179	82.7% (148)	5.1 (1.5 - 8.7)	0.006
Disclosed HIV status to male partner (yes): % (n)	179	95.5% (171)	15.0 (8.4 - 21.6)	0.000
Ever tested for HIV as a couple (yes): % (n)	179	51.4% (92)	5.6 (2.9 - 8.2)	0.000
I feel satisfied with our relationship (completely/ almost completely/ mostly): % (n)	180	58.9% (106)	9.3 (6.9 - 11.7)	0.000
My relationship makes me very happy (completely/ almost completely/ mostly): % (n)	180	52.2% (94)	11.2 (9.0 - 13.4)	0.000
How often can you depend on your partner? (all the time/most of the time/more often than not): % (n)	175	58.9% (103)	8.9 (6.4 - 11.4)	0.000
How often does your partner show you that he loves and accepts you? (all the time/most of the time/more often than not): % (n)	178	63.5% (113)	9.0 (6.5 - 11.5)	0.000
How often does your partner make you feel valued/important? (all the time/ most of the time/more often than not): % (n)	180	67.2% (121)	9.3 (6.7 - 11.9)	0.000
How often does your partner encourage you not to give up? (all the time/most of the time/more often than not): % (n)	178	66.9% (119)	7.6 (4.9 - 10.3)	0.000

[Correlations between male partner involvement and characteristics of HIV-positive postpartum female survey participants and their male partners]



[Frequency of male partner behavior in support of PMTCT as reported by HIV positive postpartum women]

THPED514

Uthando Lwethu "Our Love" intervention for South African heterosexual couples: Impact on couple communication, partner equality, and more equitable gender norms

L. Darbes[1,2], A. Conroy[2], T. Neilands[2], H. van Rooyen[3], K. Fritz[4], V. Hosegood[5,6], M. Johnson[2], T. Ngubane[7], N. McGrath[8,9]
[1]University of Michigan, Department of Health Behavior and Biological Sciences, Ann Arbor, United States, [2]University of California, San Francisco, Center for AIDS Prevention Studies, San Francisco, United States, [3]Human Sciences Research Council, Human and Social Development Program, Durban, South Africa, [4]International Center for Research on Women, Washington, United States, [5]University of Southampton, Department of Social Statistics and Demography, Southampton, United States, [6]Africa Health Research Institute, Durban, South Africa, [7]Human Sciences Research Council, Durban, South Africa, [8]University of Southampton, Department of Social, Human and Mathematical Sciences, Southampton, United Kingdom, [9]Southampton General Hospital, Faculty of Medicine, Southampton, United Kingdom

Background: Serostatus disclosure is critical to preventing HIV transmission in sexual partnerships. However, rates of disclosure remain low in South Africa, underscoring the importance of couples-based HIV testing and counseling (CHTC). Uthando Lwethu ("Our Love") was an efficacious couples-based intervention that aimed to improve uptake of CHTC—a process that facilitates mutual disclosure. Another goal of the intervention was to improve positive relationship dynamics. Facilitating couples' ability to communicate about HIV and fostering more equitable gender norms could confer additional benefits for couples, including potentially impacting intimate partner violence and health outcomes. In this analysis we identified whether the intervention improved relationship dynamics.

Methods: The intervention utilized two group (1 single-gender and 1 mixed-gender) and four couples counseling sessions delivered by lay counselors. Intervention content included communication skills, exercises to improve relationship quality and knowledge and awareness of gender dynamics. At 9-month follow-up, we collected data on relationship dynamics using validated scales, whether the couple received CHTC, and their HIV test results. For couples that engaged in CHTC, we fitted separate linear regression models for each relationship dynamic using couple-level sums. The key explanatory variable was randomization group. All models controlled for relationship length.

Results: Of the 332 couples randomized, 310 completed assessments at the 9-month visit. Among couples who participated in CHTC in both groups (N=99 couples), intervention couples reported significantly higher levels of equality (p = 0.029) and supportive communication (p = 0.028), more equitable gender norms (p = 0.002), and lower levels of demand-withdraw and blamed-based communication (p = 0.001) than control couples.

Conclusions: In addition to significantly increasing rates of CHTC, Uthando Lwethu significantly improved relationship dynamics for couples that opted for CHTC. Specifically the intervention appears to have improved couples' communication patterns to be more positive and constructive, and positively impacted gender norms such that couples endorsed more equitable power and decision-making. These findings suggest that couples-based interventions may not only positively impact health behaviors, such as CHTC, but may also facilitate changes in core relationship dynamics (e.g., communication). This demonstrates the influence that the relationship context can have on the psychological and physical welfare of couples.

THPED515

Transmission Information and support needs of the HIV-negative partner in HIV-serodiscordant relationships: Results from the Canadian national *Positive Plus One* study

S. Bullock[1], L. Calzavara[2], A. Daftary[3], J. Mendelsohn[4], B. Lebouche[3], B. Gladstone[2], L. Basaillon[5], D. Tan[6], A. Bourne[7], J.-P. Routy[3], M. Loutfy[8], T. Tompson[9], and the Positive Plus One Team
[1]University of Toronto, DLSPH, North York, Canada, [2]University of Toronto, Dalla Lana School of Public Health, Toronto, Canada, [3]McGill University, Montreal, Canada, [4]Pace University, New York, United States, [5]University of Toronto, Toronto, Canada, [6]St. Michael's Hospital, Toronto, Canada, [7]LaTrobe University, Melbourne, Australia, [8]Women's College Hospital, Toronto, Canada, [9]Western University, London, Canada

Background: An estimated 23% of the 71,000 people living with HIV in Canada are in serodiscordant (SD) relationships, yet there are few services tailored for the HIV-negative partner. In our study we hypothesized that HIV-negative partners would report more need for: HIV-transmission information, HIV-support counselling, and relationship counselling than their HIV-positive partners; and we sought to identify the specific needs of the former.

Methods: *Positive Plus One* is a mixed-methods study of SD couples. Participants (n=570), in ongoing (88%) or past (prior 2 years; 12%) SD relationships were recruited from clinics and organizations across Canada during 2016-17. Surveys were conducted in English (92%) and French (8%); on-line (89%) or by telephone (11%). Analyses employed descriptive and multiple regression; in-depth qualitative interviews with 44 individuals were thematically analyzed.

Results: Participants included HIV-positive (58%) and HIV-negative (42%) partners in SD relationships, of mean age 42 years (range 18-72). 45% of people identified as gay men, 23% as heterosexual women; 18% as heterosexual men, and 15% as otherwise. Participants were from all Canadian provinces.

Participants quantitatively expressed a need for HIV-transmission information (11%), support counselling (18%), and relationship counselling (21%). HIV-negative partners only reported a greater need than positive partners for HIV-support counselling (24% vs 14%, p< 0.0001). Adjusting for sociodemographic characteristics, the longer HIV-negative partners knew about their partners' HIV-status, the less they required support (ref=knew 0-1 years; 2-5 years: AOR=0.812 (0.348-1.897); 6-14 years: AOR=0.307 (0.103-0.914); 15+ years: AOR=0.268 (0.078-0.923)). HIV-support needs did not differ by gender or sexual orientation (p=0.1839). Qualitative results indicated that early needs included peer support groups/therapy to address: concerns of transmission; isolation and loneliness due to non-disclosure; family planning; and as a way to meet fellow SD couples.

Conclusions: Only a small proportion of study participants indicated a need for HIV information and support; however, support needs were higher among the HIV-negative partners. As relationships evolve, needs diminish. Funding for HIV-support programs typically targets positive individuals; as life expectancy rises, more experience SD relationships. We argue for a more targeted approach to increasing participation of negative partners in HIV-support programs.

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Prevention of vertical transmission

THPED516

Understanding the barriers and facilitators to retention in the prevention of mother-to-child transmission care: A qualitative study of HIV positive women in Kenya

C. Karutu[1], M. Onyango[1], L. Messersmith[1], E. Feinberg[1], R. Wamai[2], N. Fulton[3]
[1]Boston University School of Public Health, Global Health, Boston, United States, [2]North Eastern University, African American Studies, Boston, United States, [3]Options Consultancy Services Ltd, Maternal & Newborn Improvement (MANI) Project, Bungoma County, Kenya

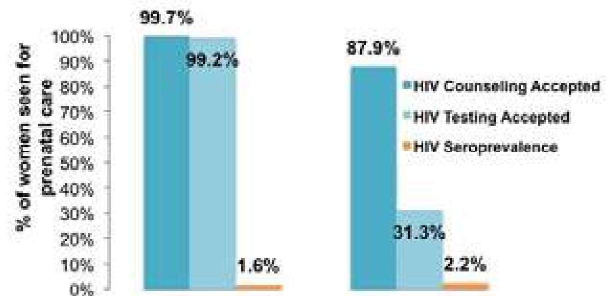
Background: To understand the experiences of HIV positive women who previously participated in prevention of mother-to-child transmission (PMTCT) services and their and male partners, and how these experiences influence their retention in PMTCT care.
Methods: This qualitative research was part of a mixed methods study that examined retention in PMTCT care among HIV positive women in three study sites in Central and Nairobi regions of Kenya. Forty women were selected for in-depth interviews from a sample of 548 HIV positive women identified in the larger retention analysis. In-depth interviews were also conducted with husbands of these women. A team-based approach was used to develop the codebook and content analysis was used to identify emergent themes. The Informational, Motivational, Behavioral (IMB) model was used to structure the interview guides, organize, analyze and explain the qualitative results.
Results: The facilitators of retention in PMTCT care included: supportive male partners; acceptance of one's HIV positive status; disclosure of HIV positive status to spouse, family, friends; desire to have an HIV negative baby; psychosocial support and peer counseling; and positive provider attitudes. The barriers to retention in PMTCT care were: unsupportive male partners; denial of one's HIV positive status; lack of disclosure to spouse, family, friends; internal stigma; financial pressures; negative provider attitudes; waiting and delays; negative perceptions regarding quality of care; stress; and a lack of PMTCT knowledge among participants.
Conclusions: This study demonstrates that the factors that enable or hinder retention in PMTCT care are complex and interconnected. As posited by the IMB model, possessing just one factor such as correct information of PMTCT, or having a supportive male partner, or receiving good quality care does not guarantee that an HIV positive woman will be retained in PMTCT care.

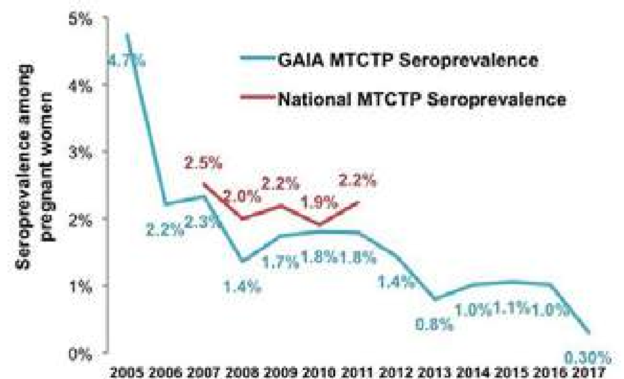
THPED517

Healthy moms and healthy infants: 12 years of successful mother to child HIV transmission prevention in a community health center in Bamako, Mali

L.Y. Diarra[1], K. Tounkara[1], Z. Koty[1], E. Squibb[2], S. Beseme[2], Y. Kone[1], F.S. Diallo[3], O.A. Koita[4,5], A.S. De Groot[2,6]
[1]GAIA Vaccine Foundation, Bamako, Mali, [2]GAIA Vaccine Foundation, Providence, United States, [3]Regional AIDS Prevention Sector (Centre Sectoriel de Lutte Contre le SIDA), Bamako, Mali, [4]Laboratory of Applied Molecular Biology (Laboratoire de Biologie Moleculaire Apliquée), Bamako, Mali, [5]University of Science, Techniques, and Technologies of Bamako (USTTB), Bamako, Mali, [6]Institute for Immunology and Informatics (iCubed), University of Rhode Island, Providence, United States

Background: Community clinics (CSCOMs) are the primary access point to healthcare in West Africa. While HIV testing is available in some CSCOMs, it is not consistently offered to all women seeking prenatal care. Even when offered, HIV test acceptance is extremely low (31%), often due to lack of supplies. GAIA Vaccine Foundation implemented a MTCTP program at a Bamako-based CSCOM in 2005. This study evaluates the program at the 12-year point.
Description: Starting in 2005, local clinic staff received formal training to encourage HIV testing and counseling. Staff systematically offered HIV tests to all women seeking prenatal care. Initially, HIV+ mothers were referred to a city hospital for treatment and GAIA covered transportation expenses, but in 2008, MTCTP treatment was provided directly at the CSCOM. All HIV+ women were provided with ARVs according to local protocols and encouraged to give birth at the clinic, where delivery costs were covered, and infants received ARVs immediately. Infant HIV testing was performed, initially by antibody testing at 18 months, followed by PCR/Viral load.
Lessons learned: Counseling and HIV tests were offered to 18309 pregnant women over the 12 years, and 99% of women accepted. HIV seroprevalence rates among pregnant women at the clinic reduced dramatically from 4.7% in 2005 to 0.3% in 2017. During 12 years, 100% of infants born to MTCTP-adherent mothers were HIV-seronegative. Cost was a significant barrier to effective prenatal care and childbirth for HIV+ mothers-to-be. By providing these services free of charge, GAIA was able to encourage increased participation in prevention services.





[HIV test acceptance and seroprevalence rates from 2005-2017 at GAIA's MTCTP Clinic in Bamako, Mali]

Conclusions/Next steps: This evaluation suggests that MTCTP interventions are feasible in low-resource settings as long as testing supplies are restocked consistently and staff receives adequate training. CSCOMs are the frontline of patient care across West Africa and should be equipped for HIV prevention.

THPED518

Systematic review of factors influencing access to HAART by pregnant woman living with HIV in Nigeria

Y. Adebisi[1], A. Ekpenyong[2], A. Bamisaiye[1], S. Adeyemi[3], N. Blaise[4], D. Oyedokun[1], D.Q. Olaoye[1], D.E. Lucero Priso III[5]
[1]Faculty of Pharmacy, University of Ibadan, Ibadan, Nigeria, [2]Faculty of Pharmacy, University of Uyo, Uyo, Nigeria, [3]Federal Medical Center, Pharmacy Department, Akure, Nigeria, [4]College of Health Sciences, Faculty of Medicine, University of Rwanda, Kigali, Rwanda, [5]Xi'an Jiaotong-Liverpool University, Department of Public Health, P.R, China

Background: Nigeria has the highest number of children acquiring HIV infection since 2009. Without urgent action, the global target, 90-90-90, is unlikely to be reached. The aim of our study was to systematically re-

view literatures to highlight the factors including the barriers and facilitators influencing access to Highly Active Antiretroviral Therapy (HAART) by Pregnant Women Living with HIV (PWLH).
Methods: Search for peer reviewed literatures was carried out in PubMed, Web of Science, Scopus and PsycINFO databases from 2006 through 2017. Studies eligible for inclusion in the review were those that were carried out in Nigeria, which addressed policy, neonatal HIV and socio-cultural issues influencing access to HAART by PWLH. 21 studies were selected: 15 qualitative, 3 quantitative and 3 mixed methods studies. Data was extracted and summarized to highlight the barriers and facilitators influencing accessibility of PWLH to HAART.
Results: At individual, community, interpersonal and service provision levels, the data revealed 10 barriers and 5 facilitators. Key barriers identified were: localization of antiretroviral centers in the urban areas; fear of stigmatization; poor enforcement of HIV/AIDS Antidiscrimination law; expensive antenatal care and government's failure to address stigmatization of PWLH. The two main facilitators identified included motivation of pregnant women to prevent their babies from having HIV and positive support from family members. Inaccessibility to HAART is mainly due to the fear of stigmatization from the public and only seven out of 36 states in the country enforce the HIV/AIDS Antidiscrimination Law. Economic recession, fertility rate, availability of antiretroviral medicines and numbers of patent medicine vendors are not prominent factors influencing access to HAART in PWLH.
Conclusions: Poor access to HAART by PWLH is the main issue causing increase in pediatric HIV prevalence in the country. The main limiting barrier is not only fear of stigmatization but defective government policy. Enforcement and awareness of the people about HIV/AIDS Antidiscrimination Law are not so solid in the country. We recommend mass sensitization of PWLH and the entire population on HIV/AIDS Antidiscrimination Act.

THPED519

Developing HIV consulting skills among gynecologists in Russia

E. Artemenko
FOCUS-MEDIA Foundation, Moscow, Russian Federation

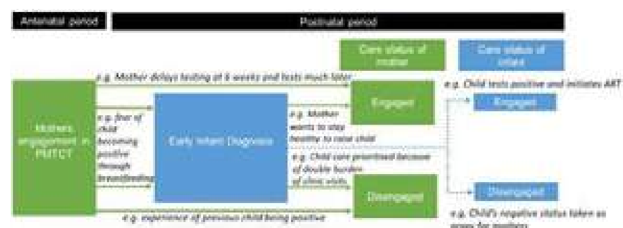
Background: Project implementation has shown that gynecologists in Russia's regions lack knowledge and skills to provide effective consultations for women on HIV issues. Often, gynecologists consider it their primary obligation to send a woman to an AIDS center for an HIV test, and to prescribe medication if necessary. Inadequate knowledge about HIV infection and poor consulting skills mean that they hold stigmatizing opinions about HIV-positive patients, which prevents them from providing effective care to patients.
Description: The Public Health and Social Development Foundation FOCUS-MEDIA has been implementing the project „Improving the skills of gynecologists in providing women with consultations on HIV" since 2014. The project's aim is to prevent sexual and perinatal HIV transmission by training gynecologists in counseling, helping to reducing stigma and discrimination against HIV-positive women among gynecologists, and mobilizing local communities of HIV-positive women.
19 training events were organized in many of Russia's regions, attended by more than 500 obstetrician-gynecologists, pediatricians, neonatologists, psychologists and other medical specialists.
The training module is based on the Manual for Obstetricians and Gynecologists - Counseling on HIV-Infection (E. Stepanova, 2014). The manual introduces specialists to the principles of pre- and post-test counseling for women. Each participant is given the Manual with ready-made consulting algorithms for further use.
Lessons learned: The results of the project show that stigma and discrimination against HIV-positive women are based on fear of infection while working with such patients. Lack of skills in counseling and cooperating with patients mean specialists fail to offer patients pre- and post-test counseling, leading to low adherence to ARV-based PMTCT (reducing the patient´s commitment to timely chemoprophylaxis aimed at reducing the risk of perinatal HIV transmission). Training in consulting skills improves their knowledge and stimulates partnership and patient-centered service delivery.
Conclusions/Next steps: To improve the project's effectiveness, a training course for gynecologists to improve their skills was developed and certified. The 144-hour course is included in the curriculum of the Medical Educational Institution for improving doctors' skills.
The FOCUS-MEDIA Foundation will continue the project to motivate at least 80% of trained gynecologists to provide quality counseling to women of reproductive age.

THPED520

Mothers' experiences of early infant diagnosis for HIV in Option B+ programmes and the implications for their engagement in care: Qualitative evidence from South Africa

D. Etoori[1], A. Wringe[1], G. Reniers[1], J. Renju[1], V. Ndhlovu[2], S.D. Ndubana[2], E. Sihlangu[2], F.G.-O. Casas[2]
[1]London School of Hygiene and Tropical Medicine, Population Health, London, United Kingdom, [2]University of Witswatersrand, MRC/Wits Rural Public Health and Health Transitions Research Unit, Agincourt, South Africa

Background: Infant retention through the latter stages of the prevention of mother-to-child transmission (PMTCT) cascade is critical for preventing new paediatric HIV infections and reducing mortality through antiretroviral therapy (ART) initiation for infants testing positive.
However, uptake of early infant diagnosis (EID) is low: only 43% of exposed infants enrolled in follow-up before 2 months in Malawi and national data from South Africa show, only 35% of mothers intended to access EID services.
Methods: We conducted in-depth interviews with 19 women who initiated ART for PMTCT under Option B+ in South Africa to understand their experiences with EID. Interviews were recorded, transcribed, and translated. Analysis followed a thematic approach: a coding framework was developed iteratively, and emerging themes were identified.
Results: Key themes included barriers and facilitating factors to undergoing EID, and consequences for care engagement. Most mothers followed counsellors' advice on testing their infants, with some undergoing EID multiple times, fearing transmission through breastfeeding.
Furthermore, although most mothers were scared by the prospect of testing their infants, they were motivated by the desire to know their infant's status and learn what to do if the child tested positive. Barriers to EID were previous positive results for infants from earlier pregnancies, and the mother's own acceptance of her status.
Mothers expressed relief from learning that their infant was negative. However, a negative result could also lead to disengagement from care where mothers took the result as proof that they themselves were in fact negative.
Positive results caused stress and anxiety, but mothers generally felt they should accept this result and get the infant on ART in order to keep them healthy. For some participants, a positive result for their infant led to their own disengagement from care, due to the double burden of their own treatment visits and their infants, with these mothers opting to attend their infant's visit over their own.
Conclusions: Women's experiences and expectations regarding EID influenced their own engagement in HIV care. Retention in care for Option B+ mothers may be improved with additional counselling around the time of EID, and joint ART clinic visits for positive mother-baby pairs.



[A conceptual framework of the relationship between early infant diagnosis and mother and infant engagement in care]

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Age	19-24 years	25-29 years	30-34 years	35-39 years	40+ years
	7	5	4	2	1
Parity					
1-2	5	3	3	2	0
3-4	0	1	1	0	0
Missing	2	1	0	0	1
Self-reported treatment status					
In care	3	3	3	1	0
Not in care	2	2	1	1	0
Missing	2	0	0	0	1

[Demographic and treatment characteristics of participants]

THPED521

Partner disclosure patterns are associated with ART uptake and outcomes in Malawi's PMTCT program: A mixed method study

M. van Lettow[1,2], F. Cataldo[1], M. Landes[1,2], F. Kasende[1], P. Nkhoma[1], J.J. van Oosterhout[1,3], E. Kim[4], T. Kalua[5], E. Schouten[6], B.A. Tippett-Barr[7]
[1]Dignitas International, Research, Zomba, Malawi, [2]University of Toronto, Toronto, Canada, [3]College of Medicine, Blantyre, Malawi, [4]Centers for Disease Control and Prevention, Lilongwe, Malawi, [5]Malawi Ministry of Health, Lilongwe, Malawi, [6]Management Sciences for Health, Lilongwe, Malawi, [7]Centers for Disease Control and Prevention, Harare, Zimbabwe

Background: Evidence suggests that disclosure of HIV status to one's partner may influence outcomes in the prevention of maternal-to-child transmission of HIV (PMTCT). We report on partner disclosure status in relation to PMTCT utilization, treatment adherence and infant transmission among HIV-positive Malawian women at 4-26 weeks postpartum.
Methods: A mixed method study was conducted as part of the national evaluation of Malawi's PMTCT program. Between October 2014 and May 2016, quantitative data were collected from HIV-positive mothers attending under-5 clinics with their 4-26 week old infants in 54 health facilities; infants received HIV-1 DNA testing. Data collected included socio-demographics, partner disclosure status, uptake of maternal antiretroviral treatment (ART) and treatment adherence. Binary logistic regression analyses accounted for the survey design and other confounding characteristics. Between July 2016 and September 2017, in-depth interviews and focus group discussions were conducted with a subgroup of mothers (n=53), their partners (n=19), adolescent mothers (n=13), lost-to-follow up (LTFU) mothers (n=23), community leaders (n=23) and healthcare workers (n=154).
Results: Of 3153 mothers included in this analysis, 2882 (91.4%) reported having a spouse or cohabiting partner, while 271 (8.6%) reported being single. Among couples, both partners disclosed in 2090/2882 (72.5%), one partner disclosed in 623/2882 (21.6%) and neither partner disclosed in 169/2882 (5.9%). Being in a relationship in which neither partner disclosed was associated with no maternal ART uptake (adjusted odds ratio (aOR) 6.6; 95% confidence intervals (CI) 3.6-12.0) and suboptimal treatment adherence (aOR 2.0; 95%CI 1.3-3.2), when adjusted for region, age, and parity; and associated with infant transmission (aOR 2.2; 95%CI 1.1-4.4), when adjusted for regional strata, age, parity, uptake of maternal ART and infant nevirapine prophylaxis. Women's fear of being blamed by their partner was central to decisions not to disclose within couples and when starting a new relationship. LTFU mothers struggled to accept and disclose their HIV status, which hindered treatment initiation; some were unable to hide ART and feared unwanted disclosure.
Conclusions: Partner disclosure played a major role in women's decisions to start, continue and adhere to ART and should be actively supported in national HIV programs to maximize the uptake and outcomes of PMTCT.

Financial incentives, micro-finance, and other economic approaches

THPED522

Financial education and improved financial management positively impacts transgender persons' livelihoods and reduces high-risk behaviours in Indonesia

G.M. Halim[1], Y. Setyawati[2], B. Zug-Castillo[3], S.M. Afsar[4]
[1]International Labour Organization, Jakarta, Indonesia, [2]Megawati Institute, Jakarta, Indonesia, [3]International Labour Organization, Geneva, Switzerland, [4]ILO, Geneva, Switzerland

Background: A needs-assessment for transgender organisations identified "over indebtedness" as the most common problem that transgender workers faced. To build the capacity of a group of 23 transgender participants (who had the potential to replicate the training to other beneficiaries) the ILO organized a training-of-trainers. The majority of participants, (20), were transwomen who actively engaged in sex work, full time or occasionally.
Description: The training relied on ILO's "financial education for families" modules. Information updates about HIV and AIDS in the world of work, and HIV-related labour policies and programmes complemented the training. The course also included practical training on how to replicate this training to others. Following the training, additional financial management assistance supported all participants.
Lessons learned: A short-term impact assessment three months after the training was answered by the majority of participants:
- pre-training: none of the participants had financial management skills, only 13% were aware of their total monthly expenses and 78% were heavily indebted.
- post-training: they felt empowered and capable of planning for short, medium and long-term financial goals. 78% reported they regularly manage their finances, have less debt and more savings. These newly acquired abilities also altered their behaviour at work. While selling sexual services, the improved handling of their personal financial situation increased their bargaining power to reject clients who refuse to use condoms. Five trainees started planning a job change, and one transgender included buying condoms in her budget plan. Six participants replicated the training further to reach their communities.

Conclusions/Next steps: The capacity to manage their finances has a positive impact on the lives and behaviour of transgender persons in Indonesia. It empowers them to refuse high-risk sexual relations, practise safe sex and enables them to apply knowledge on HIV prevention.

THPED523

Men's perspectives on the impact of female-directed cash transfers on gender relations: Findings from the HPTN 068 qualitative study

M.N. Khoza[1], S. Delany-Moretlwe[1], F. Scorgie[1], J. Hove[2], A. Selin[3], J. Imrie[1], R. Twine[2], K. Kahn[2], A. Pettifor[3,4], C. MacPhail[1,2,5]
[1]Wits Reproductive Health and HIV Institute (WITS RHI), University of the Witwatersrand, Faculty of Health Sciences, Johannesburg, South Africa, [2]MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), School of Public Health, Faculty of Health Sciences, Johannesburg, South Africa, [3]University of North Carolina, Department of Epidemiology, Gillings School of Global Public Health, Chapel Hill, United States, [4]University of North Carolina, Carolina Population Center, Chapel Hill, United States, [5]University of Wollongong, School of Health and Society, Wollongong, Australia

Background: HIV is an inherently gendered disease in eastern and southern Africa, not only because more women than men are infected, but also because socially constructed gender norms work to increase women's HIV-infection risk. The provision of cash transfers to young women alone in such a context adds another dimension to already existing complex social relations where patriarchal values are entrenched,

gender inequality is the norm, and violence against women and girls is pervasive. It raises concerns about complicating young women's relationships with their male partners or possibly even setting them up for more violence. In our attempt to understand how cash transfers influence social relations in the context of a trial among young women in South Africa, we used qualitative data collected during the trial to explore men's perceptions of the impact of cash transfers on male-female relationships, both intimate and platonic, peer relationships.

Methods: Between April 2012 and August 2015, we conducted focus group discussions (n=12) and interviews (n=20) with the male peers and intimate partners of young women aged 13-20 years, who were participating in a phase III randomised controlled trial of cash transfers for HIV prevention in Mpumalanga, South Africa. A thematic content analysis approach was used to analyse the data. The codebook was developed on the basis of the topic guides, with additional codes added inductively as they emerged from the data.

Results: Intimate partners were older (range 20-32 years) and more likely to be working. Both intimate partners and male peers were supportive of the cash transfer trial targeting young women; younger peers however expressed some concerns that the money might diminish their power and status in relationships. HIV testing requirements associated with the trial appeared to have improved communication about sex and HIV in intimate relationships, with some women even encouraging their partners to go for an HIV test.

Conclusions: Our findings reinforce evidence that cash transfers are not necessarily a source of tension or harm in male-female relationships. Linking cash transfer programmes to HIV testing and other prevention services should be explored in future cash transfer programming.

Safe housing, social protection and other care and support for people affected by HIV

THPED524

Homelessness and incarceration are associated with elevated mortality rate among people living with HIV in Ontario, Canada: Findings from the CIHR-funded positive spaces, healthy places study

S.B. Rourke[1], T. Bekele[2], J. Globerman[3], J. Watson[1], S.W. Hwang[1], K. Hambly[4], J. Koornstra[5], G. Walker[6], J. Bacon[2], Positive Spaces, Healthy Places Study Team

[1]St. Michael's Hospital, Centre for Urban Health Solutions, Toronto, Canada, [2]OHTN, Toronto, Canada, [3]Ontario Ministry of Health and Long Term Care, Toronto, Canada, [4]Fife House, Toronto, Canada, [5]Bruce House, Ottawa, Canada, [6]Positive Living Niagara, St. Catherines, Canada

Background: Social determinants of health (SDOH) are the economic and social environments that shape the health of individuals and communities. In people living with HIV, health outcomes including mortality are influenced by both individual and social-structural level factors. The objective of the current study was to examine SDOH with all-cause mortality among people living with HIV.

Methods: Study sample included 454 people living with HIV in Ontario, Canada who were enrolled in the Positive spaces, Healthy Places (PHSP) study, a longitudinal study examining housing and health outcomes. We verified mortality status of participants at 1-year, 3-year, and 5-year follow-up visits with information obtained from proxies (family members, partners, and friends), obituaries, and local AIDS memorial lists. We used logistic regression modelling to identify SDOH that were associated with all-cause mortality.

Results: Of these 454 people, 53 individuals (29 men who have sex with men [MSM], 10 women, and 14 heterosexual men) passed away during the follow-up period. Individuals who passed away were more likely to have low level of education, be unemployed or on disability, live outside of Greater Toronto Area, have suboptimal health, and report drug use, history of homelessness, and history of incarceration at baseline than those who were alive at 5-year follow-up. Results form time-updated multivariable logistic regression analyses showed that history of incarceration and homelessness (OR=2.1, 95% CI: 1:04 to 4.39) independently predicted high risk of mortality among MSM. MSM with suboptimal self-rated health at previous visit ("Good"; OR=2.7, 95% CI: 1.14 to 6.48; "Fair/Poor" (OR=5.1, 95% CI: 2.14 to 12.09) had higher odds of mortality than those who rated their health as "Excellent" or "Very good". Among women and heterosexual men, those who rated their health as "Good" (OR=4.1, 95% CI: 1.44 to 11.47) or "Fair/Poor" (OR=4.9, 95% CI: 1.75 to 13.55) had increased odds of mortality than those who rated their health as "Excellent" or "Very good.

Conclusions: Homelessness and incarceration may contribute to HIV disease progression and mortality. Intensive case management that increases retention in care and facilitates linkage to housing services may help to reduce excess deaths among people with HIV.

THPED525

Effect of family conferencing on psychological stress of caregivers: Single blinded randomized control trial on caregivers of infected children attending a HIV clinic in North Central Nigeria over 3 months

N. Ripiye[1], M. Akin[2], L. Shedul[3], N. Baamlong[3], A. Okechukwu[3], S. Haruna[1], B. Akor[3], R. Abdulkareem[3], J. Abu[1], O. Chira[1]

[1]University of Abuja Teaching Hospital, Family Medicine, Gwagwalada, Abuja, Nigeria, [2]National Hospital Abuja, Abuja, Nigeria, [3]University of Abuja Teaching Hospital, Gwagwalada, Abuja, Nigeria

Background: HIV infected children and their caregivers face both medical and psychosocial issues. The family plays an important role in any kind of treatment. Hence this study set out to explore the effect of family conferencing on the psychological stress of caregivers of HIV infected children with a view to improving clinical outcomes and family support.

Methods: The study was a single blinded randomized control trial of 114 caregivers. One group received family conferencing plus clinical care for the child and the other group received usual clinical care for the child only. An Interviewer administered questionnaire was used to obtain socio-demographic and clinical history of the caregivers. Their psychological stress was assessed using the Self Reporting Questionnaire-20 score(SRQ-20) at the beginning of the study and eight weeks after the family conferencing. Perceived Social Support (PSS -Fa) was used to assess family support while family function was assessed using family APGAR score (Adaptability, Partnership, Growth, Affection and Resolve).

Results: A total of 106 caregivers were analyzed with 50.9% of them having psychological stress. The mean SRQ -20 score at baseline was 5.02 (± 2.75) and 4.80(± 3.34) for the intervention and control groups respectively which reduced to 3.38 (±2.70) in the intervention arm after the family conferencing. The odds ratio for psychological stress among those receiving the family conferencing was 0.35, 95% CI: 0.13-.0.93 compared to caregivers who did not receive the intervention. Family size, function and support all had significant association with psychological stress. (p value = 0.045, p value 0.0071 and p value = 0.001 respectively)

Conclusions: Family conferencing was found to reduce the mean SRQ-20 scores which implies a reduction in psychological stress of caregivers of HIV infected children. Psychological well being of the caregiver may improve care of the child and subsequently improve clinical outcomes.

Development and poverty alleviation

THPED526

Postnatal depression in women with HIV in Zimbabwe

R. Chingono[1,2], H. Mebrahtu[2], V. Simms[3], A. Rehman[3], Z. Mupambireyi[4], P. Ndlovu[5], R. Malaba[5], F. Cowan[4,6], L. Sherr[2]
[1]*CeSHHAR Zimbabwe, Adolescents, Harare, Zimbabwe,* [2]*University College London, London, United Kingdom,* [3]*London School of Hygiene & Tropical Medicine, London, United Kingdom,* [4]*CeSHHAR Zimbabwe, Harare, Zimbabwe,* [5]*World Education Inc., Harare, Zimbabwe,* [6]*Liverpool School of Tropical Medicine, Liverpool, United Kingdom*

Background: Mental health is an important feature of both HIV infection and pregnancy. Depression influences maternal coping and adjustment as well as subsequent child outcomes. We investigated the relationship between poverty and depression, parenting stress and common mental disorders in Zimbabwe.
Methods: Biological mothers of 0-24 month old infants enrolled in the CHIDO cluster-randomised trial (n=562) were assessed using the Edinburgh Postnatal Depression Scale (EPND) for depression, Shona Symptom Questionnaire short form (SSQ8) for common mental disorders, and Parental Stress Index short form (PSI-SF). Household socioeconomic status (SES) was generated by principal component analysis of maternal education, employment, housing type, sanitation facilities, water source and household assets. We used logistic regression to model the association between SES and the three outcomes, adjusted for infant's sex and age (0 to < 3m, 3 to < 6m, 6 to < 12m, 12 to < 18m and 18 to 24m). Robust standard errors were used to account for clustering by clinic as the primary sampling unit.
Results: Compared to mothers of high SES (40%), 55% of the mothers with low SES scored above the cut off for postnatal depression (AOR=1.84). Mothers with low SES (44%), had a higher prevalence of common mental disorders compared to 33% in those of high SES (AOR=1.69). Similarly 40% of those with low SES had stress, compared to 24% of those with high SES (AOR=2.12). Lower SES was associated with postnatal depression (p< 0.01), common mental disorders (p=0.08) and parental stress (p=0.01).
Conclusions: Socio-economic status was significantly associated with all measures of mental health. Poverty reduction may be important for management for women in low resource settings, to assist with managing their HIV care, pregnancy related challenges and child caring needs.

THPED527

A novel approach to addressing structural drivers of HIV: Community Benefits Agreements

M.V. Dabbah[1,2], A. Bernal[3]
[1]*Kedren Community Health Center, Inc, Administration, Los Angeles, United States,* [2]*Urban Point Partners, Los Angeles, United States,* [3]*The Urban Point, Los Angeles, United States*

Background: A Community Benefits Agreement (CBA) is a contract signed by community groups and a real estate developer that requires the developer to provide specific benefits to the local community. More communities are negotiating agreements to ensure that new developments create healthy neighborhoods. As such CBAs represent a novel approach towards reaching health equity.
Description: Often CBAs attempt to address income inequality in poor neighborhoods; which is one key component to addressing HIV-related disparities. A common example include the negotiation of living wages. In our CBA, we sought to not only address income inequality but also the social, vocational and educational capital of foster youth so that they would not continue to be at high risk for HIV. In collaboration with the developer, we created the C.O.R.N.E.R. initiative whereby we worked with the foster youth of a local community high school to provide them with mentors, aprenticehsips, creative social media outlets, and with a system navigator to address their healthcare needs as well as their childhood adverse trauma which has been found to be related to high risk sexual behaviors. Students felt that the C.O.R.N.E.R. was their home and thus their sense of self-efficacy and esteem increased and their sense of social connectedness allowed them to be "rooted" in their community. They also noted that they sought more immediate healthcare for STIs and felt more comfortable talking with their primary care provider.
Lessons learned: Community benefits agreements have emerged as a new approach to broaden our collective vision in addressing health equity and structural drivers of health, including HIV. The development of broad coalitions is key to bringing developers to the table as key new partners to structurally meet the needs of those at high risk for or affected by HIV.
Conclusions/Next steps: As CBAs are further developed as a health-equity tool, there is a need to increase awareness of said possible agreements amongst community members at-large. We also need to build up the capacity of communities to negotiate agreements. Health departments, community coalitions, and HIV/AIDS-related organizations should integrate CBAs into their planning tools and strategic plans.

Interventions to reduce stigma and discrimination

THPED528

On air with positive living youth outreach: How HIV-positive youth in Lesotho are using radio and community outreach to empower their peers and combat stigma

H. Hengelbrok[1,2], T. Motseki[3], N. Khesa[3]
[1]*Alive Medical Services, Kampala, Uganda,* [2]*Global Health Corps, New York City, United States,* [3]*Baylor College of Medicine Children's Foundation - Lesotho, Maseru, Lesotho*

Background: With an HIV prevalence rate of 24%, no one in Lesotho is unaffected by the disease. Yet, stigma and misinformation abound, the two perpetuating one another in a deadly cycle. Both factors cause a fear of disclosure and contribute to further infections. In 2017, eight 22 to 24-year-old Basotho HIV advocates formed Positive Living Youth Outreach (PLYO), aiming to provide health education and share life stories on HIV/AIDS, sexual and reproductive health, and other issues, by speaking at community centres, schools, health clinics, and on media outlets. The goal of PLYO is to spread awareness, decrease stigma, and raise the confidence of HIV-positive youth in Lesotho.
Description: One of the core activities of PLYO is a weekly radio show, "Positive Living", supported by Baylor College of Medicine Children's Foundation - Lesotho, during which PLYO members select HIV-positive youth and healthcare professionals to talk about their experiences, provide education on HIV and general health, and more. Since January 2017, PLYO have also given monthly health talks at health facilities and schools. Participants encourage members of their youth networks to participate in PLYO activities; to date, over 30 youth have presented on the radio. PLYO members were also invited to present at Radio Days Africa 2017, the biggest radio conference on the continent, to share their experience starting a community-based radio show. PLYO members have been featured on national and international media.
Lessons learned: PLYO has proven transformative not only in the lives of its members, but also in the lives of their immediate peers and community. All of the eight core committee members are now employed as peer educators/ambassadors by non-governmental organizations dedicated to fighting HIV/AIDS. Members report feeling free and more confident after sharing their story on air. Listeners call in to ask questions they fear raising in other contexts.
Conclusions/Next steps: PLYO has formed and registered its own non-governmental organization and plans to continue various forms of advocacy and HIV education targeting young people. PLYO is an example of a youth-focused and youth-led initiative that is changing the narrative surrounding HIV-positive youth both for their audience and, crucially, for the youths themselves.

THPED529

Interventions for healthcare providers to improve treatment access and reduce stigma and discrimination towards MSM-TG

T. Chopade, M. Sivasubramanian, V. Anand
Humsafar Trust, Capacity Building, Mumbai, India

Background: In India, Men who have Sex with Men (MSM) and Transgender (TG) population continue to be criminalized and are highly vulnerable and marginalized. Stigma, high HIV prevalence, and violence are associated with their sexual identity. Studies at Humsafar Trust conducted in health care have indicated lack of knowledge and unjust outlook towards MSM-TG issues and sexual health needs of the community. Additionally, due to the fear of being stigmatized and discriminated, MSM and TG face hesitate to access health services, further adding their vulnerability to HIV.
Description: The Humsafar Trust, a community-based organization is Sub-Recipient for Global Fund Round-9 funded Project, MSA, which focuses on building capacities and improving policy environments for MSM community across 27 states of India. Over the period of two years 2016-2017, ten training programs were conducted with 238 healthcare providers (Doctors, counselors and paramedical staff) were trained across 10 Indian states using the standard module. The standardized module included discussion, interaction with community members, and group work emphasizing issues related to sexual health needs of MSM/TG community.
Lessons learned: The aim of the intervention was to increase knowledge related to sexual and reproductive health (SRH) issues and building an awareness of issues faced by MSM and TG community. Apart from sexual health concerns, community health concerns like challenges while accessing care and treatment, harassment, delay in providing health care, and other mental health concerns were also discussed. At the end of these training, health care providers reported a better understanding of sexual health and community issues faced by MSM and TG groups.
Conclusions/Next steps: Community-led training programs are key in creating and fostering rational attitudes toward MSM-TG as they focus on promoting health/human rights and overall well-being of marginalized communities. Enabling environments and a better understanding of community health issues (SRH) furthers empower the community to seek healthcare care services and other services thus reducing their vulnerabilities. Programmatic and policy implications must consider incorporation of these models into national programs. It is important to engage healthcare providers in policy development, advocacy initiatives, and to create an enabling environment for MSM and TG Communities.

THPED530

Developing a national strategy for addressing HIV stigma in Scotland: An effective tool in addressing HIV stigma

K. Smith[1], N. Sparling[1], J. Hirono[1], K. Smithson[2], C. Crawford[3], W. Dalgleish[3], N. Policek[4], F. Gilbertson[5], A. Hudson[6], E. Chahali[7], J. Zinger[8], K. Kasengele[8], N. Boydell[9], M. Gilbert-Straw[10], A. Ryan[11], L. McDaid[12], G. Valiotis[1]
[1]HIV Scotland, Edinburgh, United Kingdom, [2]National AIDS Trust, London, United Kingdom, [3]Lothian Patient Forum, Edinburgh, United Kingdom, [4]University of Cumbria, Carlisle, United Kingdom, [5]Recovering Justice, Durham, United Kingdom, [6]People Living with HIV Stigma Index, London, United Kingdom, [7]Hwupenyu Health and Wellbeing, Glasgow, United Kingdom, [8]NHS Greater Glasgow and Clyde, Glasgow, United Kingdom, [9]University of Edinburgh, Edinburgh, United Kingdom, [10]Positive Help, Edinburgh, United Kingdom, [11]Terrence Higgins Trust, Glasgow, United Kingdom, [12]University of Glasgow, Glasgow, United Kingdom

Background: Addressing stigma is identified as the most ambitious outcome of the Scottish Government's Sexual Health and Blood Borne Virus Framework, which dictates health policy and practice in this area. To date, progress towards eliminating stigma in Scotland has not been demonstrated. The absence of an operational definition and evaluation matrix, fragmented interventions, and the challenges of addressing facilitators and drivers of stigma were seen as priority areas requiring a nationally coordinated response.
Description: Desktop research was conducted to map key populations in Scotland, people working with them, and relevant decision-makers. UNAIDS and WHO guidance on stigma were linked with, and assessed against, Scottish national policies and data. To ensure a coordinated work-plan a diverse group, comprised of community members and experts from relevant organisations, was brought together to form the HIV Anti-Stigma Consortium (n=20). The Consortium developed a strategy to address HIV stigma in Scotland, co-published in two parts: a theory summation, the Road Map to Zero and an Action Plan. We worked to create a common agenda among key policy- and programme-makers. A dynamic social media campaign (reach of 6.5 million people) promoted key messages among community members and decision-makers.
Lessons learned: This community-led work required a highly coordinated approach; linking community members, clinicians, service-providers and academics, and mediating varied priorities held by stakeholders. The work received widespread support by addressing government policy, creating political leadership, challenging inequalities, presenting best practice, and prioritizing community involvement. The strategy received support from Members of Scottish Parliament, clinicians, NGOs and statutory services. The launch campaign was endorsed by the First Minister of Scotland and Scottish celebrities. By adapting global targets for the Scottish context we have informed evidence-based programmes that take into consideration local barriers related to geography, political will, and the diversity of the population.
Conclusions/Next steps: Establishing a national strategy to address HIV stigma mobilized community and other stakeholders, reinvigorating interest and resources to address stigma. By creating links between national strategies and agreed global targets, we have (re)focused how best to tackle stigma and placed the elimination of HIV stigma high on the agenda of policy-makers, stakeholders and service-providers.

THPED531

Intersectionality of stigmas in Senegal: Differences in stigma outcomes among people living with HIV, transgender women, and cisgender men who have sex with men

C. Lyons[1], O. Olawore[1], B. Liestman[2], D. Diouf[3], S. Ketende[1], K. Coly[2], F. Drame[3], G. Turpin-Nunez[1], D. Castor[4], A. Cheng[4], C. Ndour[5], S. Mboup[5], C. Toure-Kane[6], N. Leye Diouf[6], H. Diop[6], S. Baral[1]
[1]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Baltimore, United States, [2]Johns Hopkins Bloomberg School of Public Health, Epidemiology, Dakar, Senegal, [3]Enda Sante, Dakar, Senegal, [4]United States Agency for International Development, Crystal City, United States, [5]Ministry of Health, Division de La Lutte Contre Le Sida et Les IST, Dakar, Senegal, [6]CHU Aristide Le Dantec, Laboratoire de Bacteriologie-Virologie, Dakar, Senegal

Background: Stigma potentiates HIV risks through limiting engagement in HIV prevention, care, and treatment services. Stigma is prevalent among cisgender men who have sex with men (cis-MSM), transgender women, and has been associated with HIV infection and the limited uptake of services along the HIV treatment cascade across Sub-Saharan Africa. Stigma elimination remains one of the core pillars in achieving an AIDS-free generation, but there are limited data characterizing effective interventions or the role of gender or HIV-related intersectional stigmas.
Methods: People assigned the male sex at birth and reporting anal sex living with HIV were enrolled into a 24-month longitudinal cohort in Senegal and engaged in an integrated stigma mitigation intervention. Socio-behavioral questionnaires and biological HIV monitoring were administered approximately every 3 months. Longitudinal analyses were conducted using multivariable logistic regression for repeated measures with a focus on characterizing differences in stigma patterns among different populations.
Results: In total 191 participants were followed including 121 cis-MSM participants and 51 transgender women. At baseline, 40.3%(73/181) of participants were living with HIV. Fear of seeking health services reduced over 24 months of follow up($p< 0.001$). Participants living with HIV at baseline had a 3.4(95%CI: 1.6,7.2) increased odds of fear to seek health care services compared to those who tested negative for HIV at baseline. Avoidance of seeking health services reduced over 24 months ($p< 0.001$) and was associated with HIV status (adjusted odds ratio[aOR]3.2

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95%CI:1.2,5.8). Transgender women had an increased odds of avoiding seeking services(aOR:2.7;95%CI:1.4,7.3) as compared to cis-MSM. Feeling mistreated in the health center reduced over 24 months(p=0.086), and HIV status was associated with feeling mistreated over follow up(aOR:6.7;95%CI:1.6,27.5).

Conclusions: Overall, there were significant decreases in stigma observed but clear differences in stigma patterns with HIV status and gender identity among participants in Senegal. While intersectionality of stigma as determinants of HIV have been understudied in much of Sub-Saharan Africa, these data highlight the need to consider specific strategies to address multiple intersecting forms of stigma as a means of improving HIV-related outcomes among cis-MSM and transgender women Senegal.

	Fear of seeking health services		Avoided seeking health services		Mistreated in the health center	
	aOR	95%CI	aOR	95%CI	aOR	95%CI
Visit						
Visit 1	Ref	Ref	Ref	Ref	Ref	Ref
Visit 2	0.88	0.43, 1.76	0.98	0.44, 1.77	0.91	0.12, 2.11
Visit 3	0.54	0.22, 1.32	0.31	0.11, 0.83	0.81	0.14, 2.65
Visit 4	0.15	0.04, 0.61	0.21	0.05, 0.79	-	-
Visit 5	0.11	0.02, 0.67	0.09	0.01, 0.70	0.64	0.13, 3.20
Visit 6	0.05	0.01, 0.39	0.05	0.01, 0.40	0.17	0.02, 1.53
Living with HIV at baseline	3.35	1.56, 7.19	3.24	1.22, 5.83	6.71	1.63, 27.54
Gender						
Male	Ref	Ref	Ref	Ref	Ref	Ref
Woman	1.52	0.69, 3.31	2.67	1.43, 7.34	1.17	0.31, 4.40
Other	5.93	1.46, 24.07	3.54	0.64, 19.01	8.42	2.81, 26.47

*MSM model adjusted for age, education level, gender, HIV status at visit 1

[Table 1: Stigma among men who have sex men and transgender women by HIV status over 24 months]

THPED532

Reducing the negative impact of empty ARV bottles on environement by recycling them into Artifacts as communication tools, income generating household products and souvenirs for future generations

B. Kemigisa[1,2], R. Kikonyogo[3]
[1]Pill Power Uganda, Wakiso, Uganda, [2]Infectious Diseases Institute, Clinic, Kampala, Uganda, [3]Pill Power Uganda / Infectious Diseases Institute (IDI), Training / Prevention Care and treatment, Kampala, Uganda

Background: My daughter and I have been on ART since 2009. i would dump all our empty bottles in the toilet or use them to light our chacoal stove. In Uganda, this is the only stigma free disposal means for many adolecents and young adults living with HIV as the bottles are usually dumped in the late hours when no one is watching.

For the clients that dont usually carry their medicine in the bottles, the hospital is tasked to dispose the bottles off which has also been very expensive and not safe for the environment especially the fumes from the incinerators.

Methods: Through Pill Power Uganda, a partnership with different treatment and care centers was created to mobile adolescents and young adults struggling financially and with adherence challenges to create pill power units.

Pill Power Units are peer support groups of ten adolescents and young adults trained for five days in recycling empty ARV bottles to enable them deal with their stigma and are inspired to tell their HIV stories in their communities.

The centers sponsor the five days training and ensures that all clients return their empty ARV bottles so that they are available. Through outreaches and different display opportunities, together, we market the products made by these adolescents thus each one of them getting monthly allowances which improves their positive living.

Results: Three units were created thus 19 adolencents and 11 young people living with HIV are financially stable and adhering to their treatment well.

More than eight treatment and care centers have started telling their clients to return their empty ARV bottles and are mobilizing some reouces to facilitate the trainings.

There has been an increase in the general public to go for HIV testing and condom demand after getting tose and feel the reality of living with HIV with the number of bottles these adolescents display in their crafts especially when swallowed by one person.

Conclusions: Recycling empty ARV bottles has not only supported the key persons living with HIV but has prooved to be an all round approach and tool in the fight against HIV and AIDS.

THPED533

Police knowledge, attitudes and practices on key populations, HIV and health in South Africa

M. Katumba[1], A. Scheibe[2,3], B. Ndlovu[4], O. Tlhoaele[4], B. Langen[1], L. Artz[5], A. Müller[5]
[1]COC Netherlands, International Programmes, Amsterdam, Netherlands, [2]Independent Consultant, Cape Town, South Africa, [3]University of Cape Town, Desmond Tutu HIV Centre, Cape Town, South Africa, [4]South African Police Services, Employee Health & Wellness, Quality of Life, Pretoria, South Africa, [5]University of Cape Town, Gender, Health and Justice Research Unit, Division of Forensic Medicine, Cape Town, South Africa

Background: Key populations are vulnerable to HIV and poor health outcomes due to stigma, discrimination and rights violations. The South African constitution supports the right to health, diversity of sexual orientation and gender identity, but sex work and drug use are illegal. Worryingly, police actions that increase the risk of HIV infection (e.g. condoms confiscation and injecting equipment) and poor outcomes (e.g. antiretroviral therapy restricted access while in custody) among key populations have been reported in South Africa. We conducted a rapid qualitative assessment of police knowledge, attitudes and practices towards lesbian, gay, bisexual and transgender (LGBT) people, sex workers (SWs) and people who use drugs (PWUD) in three South African cities.

Methods: During September - October 2016, six commissioned police officers were interviewed and 32 non-commissioned police officers participated in four focus group discussions in Pretoria, Cape Town and Durban to understand police knowledge, attitudes and practices towards key populations concerning policing, rights and HIV. Police coordinated recruitment. An external researcher facilitated the sessions, audio-recorded, transcribed and analysed them using direct content analysis.

Results: Many police acknowledged limited understanding of sexual orientation and gender identity. Stigmatising attitudes towards LGBT people were hinted at, but discriminatory practices denied. Discussions revealed discordant understandings of the legislative framework around sex work. Police frequently linked SWs to crime. Police reported that arrests were made to reduce crime and several officers showed stigmatising attitudes towards SWs. No participants were aware of rights violations affecting SWs in their workplace. One officer reported distributing condoms to SWs. Knowledge of drug-related harms and treatment services were limited, but increasing drug use prevalence acknowledged. Excessive use of force when managing PWUD was reported. Public pressure and numeric policing performance measures were reported to influence the arrest of SWs and PWUD.

Conclusions: Police knowledge, attitudes and practices around key populations in South Africa is diverse. Efforts to build police knowledge around key populations' health and the benefits of non-stigmatising policing are needed. Mechanisms to monitor and address the unnecessary use of force and discriminatory practices by police towards key populations in South Africa are required for an effective HIV response.

THPED534

Unexpected benefits of a targeted web series on hiv and sexual health for "hidden" MSM populations in singapore

A. Tan[1], D. Le[1], R. Chan[2], S. Banerjee[3]
[1]Action for AIDS Singapore, Advocacy & Partnerships, Singapore, Singapore, [2]Action for AIDS Singapore, President, Singapore, Singapore, [3]Action for AIDS Singapore, General Manager, Singapore, Singapore

Background: Sexual health and HIV education programmes targeting MSM need to reach out to "hidden" subsets viz. youth, minority races and recreational drug users ("chem-sex"). These populations often test infrequently whilst continuing to have high-risk practices. There was an urgent need to address this issue in a manner that is effective yet respectful of prevailing socio-political sensitivities. We selected our platforms, mediums and themes carefully in order to meet our objectives.

Description: PLU (People Like Us) was conceived as a 6-episode web series, each episode lasting 5 minutes. Written to contain vital safer-sex information and skill-sets, presented in scenarios relevant and relatable to our targeted demographic. A pilot survey was conducted on 100

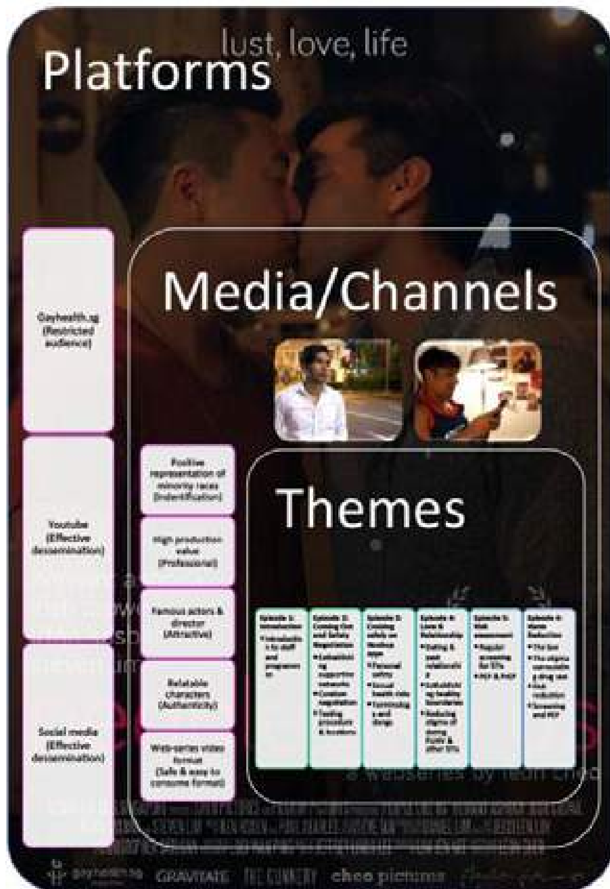
members of the MSM community to ensure that the scenes, topics and characters were recognisable and relatable, and that the platform, medium and themes were acceptable. Important sexual health messages were sent in a visually-attractive package, that would also circumvent traditional media channels and conservative media law in Singapore. Great care was taken to ensure authenticity of representation in terms of age, race, language, and socio-economic backgrounds of the actors, and also the appropriateness of venues and locations.

Lessons learned: Statistically PLU was an unqualified success in many ways:

- Singapore's first web series targeting gay and other MSM
- Nominated for 7 film festivals, winner of 3 awards
- Viewed approximately 400,000 times
- At only $0.13 per reach, it was a fraction of the cost of our previous online ($5/reach) and offline ($14/reach) campaigns.

More interestingly, we were able to determine that 30% of views came through pornographic sites that had unexpectedly tagged our web series. This taught us that greater thought and care during planning and design in ensuring relevance pays off in spades in terms of take up rates.

Conclusions/Next steps: Planning for Season 2 has started, where we would like to explore some of the themes more deeply, as well as some of the more novel channels for dissemination such as hook-up apps. Measuring information retention via surveys will allows us to fully measure the success of this programme.



[Carefully selected platform and themes]

THPED535

Anticipated HIV stigma and HIV testing among Chinese men who have sex with men: A longitudinal cohort analysis

C. Liu[1], Y. Zhang[2], S. Pan[3], J. Ong[2,4], H. Fu[5], H. Lu[6], W. Huang[2], C. Wei[7], J. Tucker[2,6], W. Tang[2,6]

[1]University of California, San Diego, Department of Sociology, La Jolla, United States, [2]University of North Carolina Project-China, Guangzhou, China, [3]Xi'an Jiaotong-Liverpool University, Suzhzou, China, [4]London School of Hygiene and Tropical Medicine, London, United Kingdom, [5]Eastern Virginia Medical University, Norfolk, United States, [6]University of North Carolina at Chapel Hill, Chapel Hill, United States, [7]Rutgers School of Public Health, Piscataway, United States

Background: Anticipated HIV stigma is associated with multiple negative health outcomes among men who have sex with men (MSM). Previous studies have not observed factors associated with changes in anticipated HIV stigma over time. This study examines the association between reductions in anticipated HIV stigma and behaviors with a focus on HIV testing.

Methods: In July 2016, MSM ≥16 years old who self-reported as HIV-negative or with unknown status were recruited into a prospective online cohort in China. Data on sociodemographic, sexual behaviors, HIV testing (facility-based testing and self-testing), level of engagement in community events, and anticipated HIV stigma (a 7-item Likert-scale ranging from one (low) to four (high)) were collected every three months for one year. Reduction in anticipated stigma was a dichotomous measure (yes/no) calculated by comparing the mean score from the 7 stigma items at the last follow-up to the baseline score. To examine the relationship between behaviors and reduced stigma, we conducted a series of bivariate and multivariable logistic regressions, controlling for age, education, income, marital status and baseline anticipated stigma score.

Results: Among 879 MSM completing all follow-ups, the mean age was 25.3±6.5. Most participants completed high school (65.3%, 574), were never married (87.6%, 770), and had an annual income less than 9200 USD (76.2%, 670). 51.6% (454) men had decreased anticipated stigma scores over the year. 66.7% (586) of participants have been tested for HIV, with approximately half receiving a facility-based test (45.4%, 399) and half receiving a self-test (52.8%, 464). Reductions in anticipated stigma were associated with having more than one HIV test in the past year (Adjusted odds ration [AOR]=1.60, 95% Confidence Interval (CI): 1.16-2.20), having taken HIV self-tested (AOR=1.45, CI: 1.06-1.97) or HIV test at a facility (AOR=1.47, CI: 1.05-2.05) in the past three months, and with increased engagement in community events in the past year (AOR=1.28, CI: 1.02-1.61).

Conclusions: Our result suggests that HIV testing, particularly regular HIV testing, could decrease anticipated HIV stigma among MSM. Encouraging LGBTQ community engagement activities would also be an effective method to lower the anticipated HIV stigma.

	OR (95%CI)	P	AOR (95%CI)	P
HIV testing frequency in the past year (ref: never-tested)				
Once	1.30 (0.91, 1.85)	0.150	1.30 (0.90, 1.87)	0.170
More than once	1.56 (1.15, 2.12)	0.005	1.60 (1.16, 2.20)	0.004
Ever HIV tested in the past three months	1.44 (1.09, 1.88)	0.009	1.53 (1.15, 2.03)	0.004
Ever HIV tested in the past year	1.46 (1.10, 1.93)	0.009	1.48 (1.11, 1.99)	0.009
Ever HIV self-tested in the past three months	1.43 (1.06, 1.92)	0.020	1.45 (1.06, 1.97)	0.020
Ever HIV facility-based tested in the past three months	1.37 (1.00, 1.89)	0.051	1.47 (1.05, 2.05)	0.023
Community engagement level increased in the past one year	1.42 (1.05, 1.92)	0.022	1.28 (1.02, 1.61)	0.032
Multivariable models controlled for baseline stigma score, age, education, income, and marital status				

[Bivariate and multivariable logistic regression of anticipated stigma changes and behaviors among MSM in China (N=879)]

THPED536

Stigma-reduction m-health programming and measurement: Evaluation study of most-at risk and most-in need populations in urban India

T. Khanna, L. Upal, R. Patel
MAMTA-Health Institute for Mother and Child, Delhi, India

Background: Adolescent and young key populations (A/YKPs) are disproportionally affected by HIV and have been largely excluded from national HIV response in India. Internalized stigma remains pervasive for adolescents and young MSM and TGs, impeding utilization of HIV testing and other health services. While many stigma interventions have been carried out worldwide, few have reached to the most unreached A/YKPs. An intervention study was undertaken to assess impact of integrated intervention (m-health app and telephonic counseling) in reducing self-stigma among A/YKPs in urban India.

Methods: A mix method pre-post study design was undertaken at baseline and endline at 12 month. A cohort of 117 was retained at end line out of 167 participants (15-24 years) in urban Delhi. Self-stigma was measured using validated stigma scale in Indian settings. The Cronbach's alpha showed good internal consistency (= 0.71). Further stigma scale was placed in three categories (using likert scoring) into low, medium and high. Bi-variate analysis was conducted using Chi-square test. Qualitative data was analysed using deductive content analysis approach.

Results: Majority of adolescent MSM and TGs reported high and moderate levels of self-stigma (74%) than their younger counterparts (58%) at baseline ($p < 0.001$). Study results showed intervention was successful in gradual decline of self-stigma more among adolescent than young key populations from high stigma to moderate ($p < 0.001$). Similarly, decline in internalize stigma was found more among MSM than TGs ($p < 0.01$). Overall, reduced self-stigma was significantly associated with telephone counseling and information through m-health app. More than 60 % of MSM and TGs who reported low stigma undertook telephonic counseling session ($p < 0.001$).

Conclusions: This technological intervention along with telephonic counseling has potential to be scaled up as a way of providing confidential and acceptable services to most at risk and most in need populations. Study demonstrated that combined use of m-health app along with telephone counselling was powerful in reducing self-stigma more among adolescent than young MSM/TGs. Therefore, reaching early adolescence provides window of opportunity for faster reductions in stigma since it is internalized, reinforced and sustained early. Also, stigma reduction for TGs requires more sustained and concentrated effort and action.

Harm reduction

THPED537

Low demand for harm reduction services and assistance for young people who use drugs in Makeyevka, Ukraine

H. Danylevych
NGO, Donetsk, Ukraine

Background: The level of involvement of young people who use drugs (PWUD) in the Harm Reduction Project (HRP), conducted in Makeyevka, in 2017, was significantly low (only 8%) in comparison with total number of HRP clients. NGO "Amicus Union" conducted a qualitative study to determine the reasons why young PWUD do not use services of HRP.

Description: The study was conducted from September to October, 2017. Study population was divided into two groups of HRP clients, according their age: 1) young PWUD (18-25 Y/O), 2) older PWUD (26-55 Y/O). In total 120 clients were interviewed based on a standard questionnaire: 21 persons of age 18-25 and 99 of age 26-55.

Lessons learned: The following reasons of why young PWUD do not use HRP services were determined:

- The services provided in the HRP do not meet their needs

Older PWUD mostly inject opiates and stimulants, while the young PWUD use synthetic drugs. HRP doesn't provide any specific services for the synthetic drug users and that's why young PWUD do not see the intent to use HRP services.

- Lack of knowledge/no knowledge about existing HRP services

The group of young PWUD is very closed and hard to reach for the outreach workers. The lack of trust creates a barrier to reach young people and involve them into HRP services.

- Counseling and advices from older PWUD are considered as unwanted and usually ignored

Young and older PWUD generations avoid contact with one another because of the different drug consumption habits. Indeed, contact is needed, because older PWUD have more experience and knowledge about drug use, overdoses, HIV and other STDs.

Conclusions/Next steps: Harm reduction services to young PWUD in Makeyevka are ineffective. To make it attractive and beneficial, the following steps should be taken:
- to provide harm reduction services, which meet young PWUD needs;
- to reach young PWUD online (Facebook, Telegram);
- to empower young PWUD, who are already in HRP services to become peer-to-peer educators and reach more young PWUD.

THPED538

Post-discharge peer telephone support program to help complex clients transition from hospital to community

A.D. Eaton[1,2], S.C. Carusone[3,4], S.L. Craig[2], E. Telegdi[3], G.F. Ginocchio[1], G.A. Wells[1,2], M. Montess[1], J.W. McCullagh[1], D. McClure[1], W. Wilson[1], K. Berney[1], A. Busch[1], N. Boyce[5], A. Stewart[6], C. Strike[7]
[1]ACT - AIDS Committee of Toronto, Support Services, Toronto, Canada, [2]University of Toronto, Factor-Inwentash Faculty of Social Work, Toronto, Canada, [3]Casey House, Toronto, Canada, [4]McMaster University, Department of Health Research Methods, Evidence, and Impact, Hamilton, Canada, [5]Ontario HIV and Substance Use Training Program, Toronto, Canada, [6]St. Michael's Hospital, Toronto, Canada, [7]University of Toronto, Dalla Lana School of Public Health, Toronto, Canada

Background: Through collaboration between a community-based organization and an HIV hospital, we designed and piloted a peer telephone support program for complex clients being discharged from hospital. Peer interventions may be a desirable and cost-effective means to support continuity of care in complex clients, such as those who are actively using substances. The objective of the program was to ease the transition from hospital to community for people living with HIV who use drugs.

Description: The pilot was implemented from early-2017 to early-2018 in an urban Canadian city. People living with HIV, in hospital, actively using substances, and struggling with antiretroviral medication adherence were invited to participate. Participants set discharge goals with a nurse concerning antiretroviral medication adherence, substance use, and a self-identified goal (e.g., housing, social connectedness). These discharge goals were then shared with a 'peer volunteer' (also living with HIV and lived experience of substance use). The participant and volunteer met once pre-discharge, then connected by phone for six weeks post-discharge. Five peer volunteers aged 28-60 (four gay Caucasian men and one heterosexual Caribbean woman) were trained and each completed 2-3 matches, a phone log for each call, and attended individual supervision per match. Two group supervisions were also held, to share successes, challenges, and strategies for peer support.

Lessons learned: Participants and volunteers agreed that shared identities engendered rapport. Volunteers maintained a scope of practice, keeping a realistic sense of their role and referring to other services as needed. Clients who appeared to be self-motivated (i.e., initiated contact) participated more actively in the program than more passive participants. Volunteers identified that discussing shared social interests alongside HIV and substance use concerns led to greater engagement, as would a collateral contact to follow-up with if the participant was non-respondent.

Conclusions/Next steps: This pilot peer support program has established a strong working relationship between a hospital and a community-based agency, to continue collaborating for care transition via peer

support. This presentation will discuss the program's approach to training and supervision while highlighting the experiences of participants and volunteers, for other clinical and community-based agencies to consider adaptation of this partnered peer support program.

THPED539

Dispelling the myths and fallacies fuelling deadly drug policies in Southeast Asia

G. Lai
International Drug Policy Consortium, Bangkok Office, Bangkok, Thailand

Background: Southeast Asian countries have amongst the highest rates of HIV prevalence amongst people who inject drugs in the Asia-Pacific, fuelled by the fact that they are also home to the most punitive drug policies in the world, which plunged to extreme depths with the widespread killing of people suspected of drug use and supply in the Philippines. A significant factor driving such policies, which block or hamper HIV prevention treatment and care interventions for people who use drugs, is lack of evidence-based understanding about drug use and harm reduction. The International Drug Policy Consortium (IDPC) introduced a training programme in 2017 to address this gap with a primary objective of supporting the implementation of harm reduction approaches and rights protection for people who use drugs.
Methods: IDPC developed a training module to provide evidence-based education about drugs and drug use to dispel myths and fallacies about the 'evil' nature of drugs, eg. people who use drugs suffer irreversible brain damage and commit violent crimes. The module was delivered at a workshop in Malaysia by members of the Asian Network of People who Use Drugs (ANPUD), for participants from civil society, health services, and legal services sectors in Southeast Asia. Other modules from the IDPC training toolkit, on harm reduction and decriminalisation of drug use, were delivered by both ANPUD and a lawyer from the Philippines.
Results: Evaluation feedback from the workshop reflected the importance of learning from trainers who are themselves people who use drugs and experienced in the provision of harm reduction and drug treatment services. In contexts where lawyers are able to defend the rights of people who use drugs, their willingness to assist is not assured therefore requires additional advocacy.
Conclusions: High levels of stigma and discrimination against people who use drugs requires both evidence-based education about drugs targeting policymakers, practitioners and those who are able to ensure the promotion and protection of those rights, as well as ongoing advocacy for an enabling policy and legal environment for the HIV prevention, treatment and care of people who use drugs.

Traditional and complementary health care approaches

THPED540

The association between medical pluralism and treatment adherence among patients initiated on antiretroviral treatment in rural South Africa: A prospective cohort study

M. Moshabela[1,2], E. Slaymaker[3], N. McGrath[2,4,5]
[1]University of KwaZulu-Natal, Department of Rural Health, Durban, South Africa, [2]Africa Health Research Institute, Kwa-Zulu Natal, South Africa, [3]London School of Hygiene and Tropical Medicine, Population Health, London, United Kingdom, [4]University of Southampton, Social Statistics and Demography, Southampton, United Kingdom, [5]University College London, Research Department of Epidemiology and Public Health, London, South Africa

Background: Medical pluralism, the use of multiple sources of healthcare, is common in contexts with high HIV prevalence, including sub-Saharan Africa. With expanding access to ART and the advent of universal 'test and treat' policies, there is urgent need to establish the effect of medical pluralism on intermediate healthcare outcomes among users of ART, particularly ART adherence. To date, robust study designs have not been used.
Methods: Secondary analysis was carried out using data from a prospective cohort study conducted in rural South Africa, (2009-2012), with participants enrolled at ART initiation and followed up six-monthly through 36 months. Medical pluralism and ART adherence were measured at each follow-up visit through time-varying self-reports of healthcare-seeking behavior and ART adherence, respectively. Survival-time analysis was conducted, with Kaplan-Meier and smoothed hazards plots. Maentel-Haenszel and Cox proportional hazards were used to estimate crude and adjusted effects.
Results: A total of 362 participants (64.6% female) were included, and 1237 observations contributed 7276 person-years of follow up and 144 adherence failure events, 41 with pluralism. The crude adherence failure rates among those exposed and unexposed to medical pluralism were 35.6/1000 person-years and 16.8/1000 person-years, respectively. In multivariate analysis, medical pluralism was associated with increased hazard of adherence failure than non-pluralism (Adjusted Hazard Ratio (aHR) 1.60, 95%CI 1.10 - 2.32, p=0.013). Partial compared to complete knowledge of ART, aHR 2.04, 95%CI (1.45-2.89, p< 0.001), and presence compared to absence of ART-related side effects (aHR 2.35, 95%CI 1.63 - 3.39, p< 0.001) more than doubled the hazards of adherence failure.
Conclusions: In this analysis of time from ART initiation to first adherence failure, there was a significant association observed between medical pluralism and adherence failure, after controlling for covariates. This study suggests that medical pluralism is a risk factor for adherence failure, and should be systematically measured in future studies of ART adherence, both observational and experimental. Fear of drug-drug interactions and the lack of systems coordination between ART and non-ART providers may be responsible for these effects. The success of ART utilisation in HIV prevention and 'test and treat' programs will continue to depend of high levels of adherence.

THPED541

Patterns of religious coping and anxiety among persons living with HIV/AIDS in Cape Coast, Ghana

F. Yirdong[1], F. Ocansey[2], A. Nkyi[2]
[1]University of Cape Coast, Department of Psychological Medicine and Mental Health, Cape Coast, Ghana, [2]University of Cape Coast, Department of Guidance and Counseling, Cape Coast, Ghana

Background: Sub-Saharan Africa has the highest prevalence of HIV/AIDS globally and mounting evidence shows that Persons Living with HIV/AIDS (PLWHIV) experience significant levels of anxiety which impairs their quality of life. Religious coping has been identified as the widely used resource to cope with psychological distress associated with HIV/AIDS. However, there is sparse literature on the use of religious coping and anxiety among PLWHIV in Ghana. This study examined the patterns of religious coping and its relationship to anxiety in PLWHIV in Cape Coast, Ghana.
Methods: A cross-sectional study conveniently sampled 138 PLWHIV seeking health care at the Cape Coast Teaching Hospital during a period of three months. The Brief RCOPE was used to measure the patterns of religious coping, whiles the anxiety questions on the Hospital Anxiety and Depression Scale (HADS-A) were used to screen for anxiety. Descriptive statistics were used to analyze all categorical data. Person Product-Moment Correlation coefficient was used examine the relationship between the patterns of religious coping and anxiety.
Results: Seventy-nine percent (109) of the respondents were female, males were 29 (21%), the mean (SD) age was 44.12 (11.30) years, the mean (SD) years since HIV diagnosis was 4.15 (3.36) years, 39.9 percent were married, and 45.7 percent identified themselves as Pentecostal/Charismatic Christians.
One hundred and twenty-five (90.6%) use positive religious coping, 84 (60.9%) experienced normal levels of anxiety and 28 (20.3%) PLWHIV reported abnormal levels of anxiety. A moderate positive relationship
(r = .330, n = 138, p< .0005) was found between negative religious coping and anxiety.

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Conclusions: The results suggest that HIV/AIDS related anxiety is generally low among PLWHIV but high among those without formal education. Predominant use of negative religious coping is associated with high levels of anxiety. This suggest that assessment of religious coping and anxiety should be integrated into the treatment plan of PLWHIV to enhance their overall quality of care. Psychotherapy for symptoms of anxiety and negative religious coping should be adopted for PLWHIV. Consistent HIV/AIDS education should be given to PLWHIV with no or less formal education. Additional findings, implications for clinical practice and further studies are discussed.

THPED542

Prevalence of traditional medicine use by pregnant HIV positive women in an urban setting in Zimbabwe: A cross sectional study

T. Mawoza
University of Zimbabwe, Harare, Zimbabwe

Background: Due to increased cultural beliefs, many HIV-positive pregnant women continue to use antiretroviral medicines whilst using traditional medicines (TM) during pregnancy. This might interfere with antiretroviral drugs used for prevention of mother-to-child transmission. Information regarding types of traditional medicines being used by HIV-positive pregnant women and the extent of use in Zimbabwe has not been documented. This study was thus aimed at determining the prevalence of TM use by HIV-positive pregnant women.

Methods: A cross sectional study was conducted using an interviewer administered questionnaire on 280 conveniently sampled, HIV-positive pregnant women who visited City of Harare clinics in Zimbabwe from October 2017-January 2018. They were English or Shona speakers in their second or third trimester, and between the ages of 18-49 years. Collected data was coded and captured using REDCap and Stata was used to analyse the data. Ethical approval was obtained from the University of Zimbabwe.

Results: Of the 280 women interviewed, 272 (97.2%) were using Tenolam-E (tenofovir, lamuvidine and efavirenz), while 8 (2.8%) used a combination of azatanavir and ritonavir. 210 (75%) women had been diagnosed as being HIV-positive in 2017 during antenatal care booking. 138 (49.3%) women however, admitted to using traditional medicines during pregnancy and at delivery, whilst 142 (50.7%) did not. The 21-30 age group had the highest number of users (n=56, p=0.03), while only 6 (4.5%) were between 41-49 years. Women used traditional medicines in the third trimester mainly to facilitate child birth (n=94, p=0.04), treat/prevent HIV-related illnesses (n=24, 17.4%), protect the baby (n=9, 6.5%), prevent vaginal tears (n=6, 4.3%), and speed up labour (n=5, 3.6%), to mention a few. The medicines used included *Bidens pilosa*, elephant dung, soil from a burrowing mole, holy water, and *Fadogia ancylantha*. All the women however, did not inform their healthcare workers that they were using traditional medicines.

Conclusions: This study showed that the prevalence of traditional medicine use by HIV-positive pregnant women is 49.3%, which is high. Concomitant medicine use could facilitate failure of PMTCT programs due to drug interactions. Determination of the exact effects that these medicines have on ARV drug levels is however still on-going.

Access to appropriate healthcare services, including for co-infections and co-morbidities

THPED543

Exploring the drivers of user costs as a barrier to accessing HIV testing from Rural Malawi

L. Sande[1], H. Maheswaran[2], C. Mangenah[3], L. Mwenge[4], P. Mkandawire[5], P. Indravudh[1], N. Ahmed[6], M. D'elbee[6], C. Johnson[7], K. Hatzold[8], E. Corbett[1,9], M. Neuman[10], F. Terris-Prestholt[6]
[1]Malawi-Liverpool-Wellcome Trust, HIV/AIDS Group, Blantyre, Malawi, [2]University of Liverpool, Institute of Psychology, Health and Society, Liverpool, United Kingdom, [3]Centre for Sexual Health and HIV AIDS Research (CeSHHAR), Harare, Zimbabwe, [4]Zambart, Lusaka, Zambia, [5]Population Services International, Lilongwe, Malawi, [6]London School of Hygiene & Tropical Medicine, Faculty of Public Health & Policy, London, United Kingdom, [7]World Health Organisation, Department of HIV/AIDS, Geneva, Switzerland, [8]Population Services International, Harare, Zimbabwe, [9]London School of Hygiene & Tropical Medicine, Faculty of Infectious and Tropical Diseases, London, United Kingdom, [10]London School of Hygiene & Tropical Medicine, Faculty of Epidemiology and Population Health, London, United Kingdom

Background: HIV testing is free in Malawi. However, HIV testers incur high direct non-medical and indirect costs likely to deter or delay access to testing. We examined drivers of user costs and explored potential solutions to increase testing uptake in rural Malawi.

Methods: We estimated a multivariable fixed effect Tobit regression model with a log-transformed dependent variable on baseline household survey data (n=749) collected in 2016. The data were for a cluster randomised controlled trial investigating the impact of HIV self-testing in four high HIV prevalence districts.

Results: On average, the mean cost was US$2.45 (95%CI US$2.11-US$2.70). Both supply-side (test location and efficiency of testing delivery) and individual-level (gender, age, wealth and education) factors affected user costs incurred for HIV testing (Table 1).
Older adults, men, and those with higher levels of education incurred significantly higher costs than youth, women, and less educated participants. Wealth quintile, however, had no consistent trend on expenditure. Participants who used community-based testing incurred 34% lower costs than those who used facility-based testing, especially when the visit was specifically for the purpose of HIV testing. For each additional hour spent travelling or waiting to be tested, participants' average costs increased by 4%.

Determinants		Coefficient	95% CI
District	Machinga	0.05	(-0.08 to 0.18)
	Mwanza	0.31**	(0.13 to 0.49)
	Neno	-0.01	(-0.14 to 0.12)
Gender	Female	-0.31***	(-0.43 to -0.20)
Wealth	2nd lowest	-0.02	(-0.18 to 0.13)
	Middle	0.17**	(0.01 to 0.33)
	2nd Highest	0.02	(-0.13 to 0.17)
	Highest	0.15*	(0.01 to 0.29)
Age (Years)	25-39	0.30***	(0.17 to 0.43)
	40-64	0.34***	(0.15 to 0.53)
	65+	0.00	(-0.26 to 0.26)
Education	Primary	-0.00	(-0.14 to 0.14)
	Incomplete Secondary	0.27**	(0.07 to 0.46)
	Complete Secondary	0.62***	(0.32 to 0.92)
	College/Higher	0.18	(0.39 to 0.75)
Children	Number of Children	0.03	(0.01 to 0.06)
Testing Location	Community	-0.34***	(-0.48 to -0.20)
	Other	-0.14	(-0.68 to 0.41)
Time Taken	Hours	0.04**	(0.01 to 0.06)
Reason for visiting testing centre	HIV Test	0.08	(-0.03 to 0.18)
	Constant	0.74***	(0.47 to 1.01)
Observations		746	

*** p<0.01, ** p<0.05, * p<0.1

[Table 1: Tobit Regression: Dependent variable: ln(user costs) in 2016 US dollars]

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Conclusions: This study identified a number of modifiable supply side factors: notably, long travel and waiting times contribute to high opportunity costs. Further decentralisation of the primary care network, providing testing within communities, and increasing patient throughput at HIV testing facilities by increasing investment in rooms and staff each have potential to increase uptake of testing services,. More flexible test-

ing options, such as community and facility based HIV self-testing, may further reduce the opportunity cost of seeking testing and has potential for expanding testing access, especially for men.

THPED544

Barriers to healthcare and prevention among MSM in the Middle East and North Africa

E. Ballan
M-Coalition, Beirut, Lebanon

Background: HIV new infections in the MENA region are still on the rise, and though prevalence is relatively low (0.1%) the prevalence among MSM is quite high (3-10%). With restrictive and criminalization laws bounding MSM and TG lifestyles, and a conservative society, HIV prevention, testing and condom use are still challenged. Stigma and discrimination make it harder to access health services.
Methods: An online survey of 40 minutes was carried out in 6 MENA countries to 128 MSM, to inquire about health behaviors, discrimination and access to prevention and medical services.
Results: The age range of the sample was 16 - 43, most of which have a higher education which would imply have access to HIV prevention tools, knowledge or are capable of affording medical care. 78% of participants have received discrimination from a health care provider and a not surprising 72% do not discuss their behaviors or sexuality with their physician. 40% of MSM do not seek health services as they trust are not private. Of the sample study 12% are living with HIV. Barriers to testing include not realizing the importance of the test, fear of stigma simply for asking for the test or for being outed as MSM. More than one third of the study sample has ever contracted an STI, 40% of whom did not seek medical care, which gives way to advanced infections and more transmission. 75% of the study group have ever been engaged in condomless sex and mostly did not have condoms available or the partner did not like to use condoms, which insinuates poor condom negotiation skills.
Conclusions: As a concentrated epidemic among MSM, the numbers only suggest the situation will worsen. HIV prevention programs should specifically target MSM and focus on their needs. Health care providers are to be oriented on the negative effects of discrimination. MSM programming around condom use and HIV testing and condom negotiation are vital to better control new infections and teach individuals the responsibility of their health and their community health, in other words to bridge the gap between the populations and healthcare and service providers.

THPED545

Transport challenges can hinder access to HIV care and treatment services in fishing communities around Lake Victoria in Uganda: A qualitative study

C. Tumwine[1], S. Bell[2], P. Aggleton[1]
[1]*UNSW Sydney, Centre for Social Research in Health, Sydney, Australia,* [2]*UNSW Sydney, Kirby Institute, Sydney, Australia*

Background: Fisherfolk have been identified as a key population in the Ugandan response to HIV but face challenges in accessing HIV care and treatment.
Methods: To examine the influence of transport-related challenges on access to HIV care and treatment in fishing communities, semi-structured in-depth interviews were conducted with 42 HIV positive fisherfolk and 15 health care providers from two HIV clinics (one on Bugala island in Lake Victoria and another on the lakeshore at Entebbe), in Uganda.
Results: Study findings suggest that many HIV positive fisherfolk often face significant transport challenges that hinder their full involvement in HIV care and treatment. In some instances, fisherfolk had to cover long distances across the lake to attend treatment centres, and many islands on the lake were reported as not having public transport boats connecting them to other islands and the mainland where some of the HIV clinics are located. In addition, travel across the lake was reported to sometimes get hampered by high transport fares and seasonal rough weather characterised by strong winds, waves and heavy rains which force HIV positive fisherfolk and sometimes health workers to cancel planned journeys to treatment centres. These challenges are exacerbated by a general lack of sea worthy vessels. Coping strategies reported to overcome challenges such as seasonal rough weather include some HIV positive fisherfolk relocating out of fishing communities for periods of time when the weather is bad, while others reported relying on God for protection when travelling between their homes and HIV clinics during such periods. And in order to overcome the problem of high transport fares, some fisherfolk reported jointly hiring boats to travel together in groups to HIV treatment centres.
Conclusions: Transport challenges are a major hindrance to fisherfolk's access to and use of HIV treatment and care. But some of the coping strategies and responses that are currently being adopted by HIV positive fisherfolk to deal with the transport challenges they encounter can be reinforced - with external support - to facilitate fisherfolk's engagement in HIV care and treatment.

THPED546

HIV care is fine, but what if I get the flu?

I.A. Fortin Morales[1], J. Wheeler[2], S. Lungo[3]
[1]*Population Services International / PASMO, Evidence, Guatemala, Guatemala,* [2]*Population Services International, Evidence, Washington D.C, United States,* [3]*Population Services International / PASMO, Programs, Guatemala, Guatemala*

Background: In Guatemala, a concentrated epidemic within a highly stigmatizing social context creates an environment fraught with challenges for reaching, testing, and linking vulnerable men who have sex with men (MSM) and transgender women (TW) with HIV testing and care. As part of USAID's Combination Prevention Program in Guatemala, the Pan American Social Marketing Organization commissioned an ethnographic study in 2016-2017 to understand the sexuality, identity construction, health care seeking behaviors, and MSM/TW-health provider relationships to design consumer-focused strategies to facilitate access to HIV services.
Methods: This ethnography was conducted in the two Guatemalan *Departments* with the highest HIV prevalence (Guatemala and Escuintla) among a sample of 24 MSM and 26 TW. The study included in-depth interviews that integrated complementary data collection instruments. Results were validated in a focus group with the target population.
Results: While there are criticisms of public health services and some organizations, the quality of HIV services available is generally considered satisfactory more so for MSM than TW, mostly because the last suffer from higher stigma and discrimination in the public sector. Organizations are friendlier because they were created to serve these populations. HIV services are considered available and accessible at least in the urban areas, but they are seen as highly specialized to HIV. In contrast, MSM/TW lack a place to go where they can receive appropriate, integrated and gender-friendly health care services, for general and daily health issues such as the "flu". This leaves them with little alternatives that results in a lack of service provided or self-medication. Additionally, participants emphasized the need for including mental health as part of the HIV services for a more holistic and human approach.
Conclusions: The MSM/TW populations recognized many advances in the provision of gender-friendly HIV services, but these are not reflected in the provision of integrated health care. Vulnerable populations are reliant on the specialized HIV services provided by NGOs or HIV clinics, but have no appropriate options for primary care and mental health, and so there is need for synergy and appropriateness of healthcare services for MSM/TW.

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THPED547

Factors associated with non-vaccination in people living with HIV (PLH) in Argentina

V. Zalazar, O. Sued, I. Aristegui, L. Cahn, D. Fiore, F. Cahn, P. Cahn, C. Vizzotti
Fundacion Huesped, Buenos Aires, Argentina

Background: Argentina health care system guarantees free access to vaccines for the general population, and particularly for people with inmuno-compromising conditions such as HIV infection. Despite prevalence of vaccination is high in this group, there are still PLH who do not receive the recommended vaccines. Thus, there is a need to identify factors that affect access to vaccination among PLH.

Methods: Data for the present study was drawn from an online survey conducted between December-2017 and January-2018, which examined sociodemographic, information received last year and attitudes towards vaccines. The survey included several vaccines, but for this study, we considered only those who self-reported receiving influenza and pneumococcal vaccines. Attitudes were examined through an ad-hoc designed 5-item Likert scale: "I prefer not to have all mandatory vaccine and choose to what diseases get vaccination for", "I'm concerned that vaccines are not safe or produce side effects", "vaccines are not effective", "vaccines are poison", "vaccines are a business". Using multivariable logistic regression, this study examined the prevalence of and factors associated with non-vaccination.

Results: A total of 1025 PLH completed the survey. Median age was 37 (IQR: 29-40), 71.2% were male. We found 17.9% (n=183) of influenza and pneumococcal non-vaccination. A bivariable logistic regression showed that factors associated with non-vaccination were: younger age (OR=0.96, 95% CI:0.94-0.97), being male (OR=0.59, 95% CI:0.39-0.87), being homosexual/bisexual (OR=0.68, 95% CI:0.48-0.97), living outside from Buenos Aires Metropolitan Area (OR=0.73, 95% CI:0.52-1.01), not receiving information about vaccines (OR=0.32, 95% CI:0.23-0.45) and having a negative attitude towards vaccines (OR=2.44, 95% CI:1.74-3.42). In multivariate analysis, older age and receiving information were associated with more probability of being vaccinated, and having a negative attitude remained highly associated to non-vaccination.

Variable	Adjusted Odds Ratio (AOR)	95% Confidence Interval (CI)	p - value
Age	0.966	(0.94- 0.98)	0.000
Gender			
(Female vs. Male)	0.718	(0.38- 1.32)	0.284
Sexual orientation			
(Homosexual/bisexual vs. Heterosexual)	0.780	(0.45 – 1.35)	0.378
Living in Buenos Aires Metropolitan area			
(yes vs. no)	0.827	(0.57 – 1.19)	0.314
Received information			
(yes vs. no)	0.336	(0.23 – 0.48)	0.000
Negative attitude			
(yes vs. no)	2.118	(1.47 – 3.04)	0.000

[Table 1. Multivariable logistic regression analysis of factors associated with non-vaccination]

Conclusions: Although we found a small percentage of unvaccinated PLH, is relevant to work with this population in order generate corrective actions. Approximately half of PLH had negative attitudes toward vaccination, which was identified as the most important factor associated to non-vaccination. Therefore, interventions that address knowledge and knock down myths about vaccination, particularly for young PLH, could be critical to increase vaccination rate.

THPED548

HPV self-sampling acceptability and preferences among HIV-infected women in Botswana

R. Kohler[1,2], T. Elliott[3], B. Monare[3], N. Moshashane[3], K. Ramontshonyana[3], P. Chatterjee[1], D. Ramogola-Masire[3], C. Morroni[3,4,5]
[1]Harvard TH Chan School of Public Health, Boston, United States, [2]Dana-Farber Cancer Institute, Boston, United States, [3]Botswana UPenn Partnership, Gaborone, Botswana, [4]Liverpool School of Tropical Medicine, Liverpool, United Kingdom, [5]Botswana Harvard Aids Institute Partnership, Gaborone, Botswana

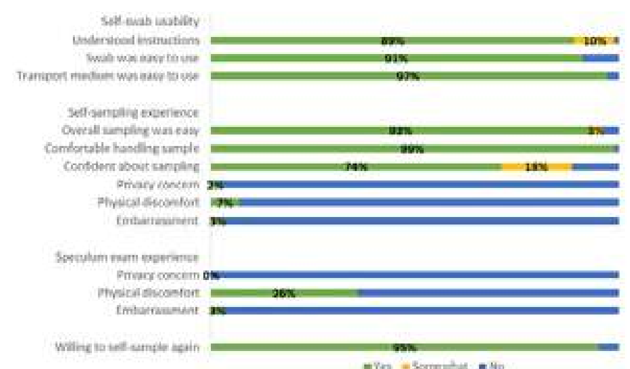
Background: HIV-positive women have increased risk of cervical cancer, however, screening coverage remains low in many high-burden countries like Botswana. Self-sampling has proven to effectively detect high-risk human papillomavirus (hrHPV) and increase screening participation in low-resource settings, especially among women who are hard to reach and or are reluctant to have a speculum exam. The objective of this study was to describe the acceptability, experiences, and preferences of HPV self-sampling among HIV-positive women.

Methods: We recruited HIV-positive women ≥25 years attending an infectious disease clinic in Gaborone, for an hrHPV self-sampling study. Women self-sampled with a flocked swab and had a speculum exam for a provider-collected cervical sample; samples were tested using Cepheid GeneXpert HPV. Descriptive statistics were conducted on interviewer-administered questionnaire responses. Open-ended questions were thematically categorized and compared across groups.

Results: We recruited 104 women, all of whom were on antiretroviral therapy. Most (94%) women had a history of visual inspection or pap screening, and 39 reported a previous negative experience with a speculum exam (Table 1). Over 90% agreed that self-sampling was easy, comfortable, and expressed confidence in doing it correctly (Figure 1).

	Speculum exam 84 (81%)	Self-sample 20 (19%)	Total N (%) 104 (100%)	p-value
Age, mean (sd)	45.2 (8.4)	44.8 (8.3)	45.1 (8.3)	0.43
Secondary or higher education (vs. none or primary)	51 (60.7)	17 (85.0)	67 (65.0)	0.04
Single, never married	60 (71.4)	14 (70.0)	74 (71.1)	0.89
Urban residence	43 (51.2)	16 (80.0)	59 (56.7)	0.02
Previous screening history	80 (95.2)	18 (90.0)	98 (94.2)	0.37
Previous negative screening experience (uncomfortable, painful, embarrassing)	29 (34.5)	10 (50.0)	39 (37.5)	0.20
No or little confidence about correctly self-sampling	10 (11.9)	0 (0)	10 (9.6)	0.14
Somewhat confident about correctly self-sampling	15 (17.9)	2 (10.0)	17 (16.3)	
Extremely confident about correctly self-sampling	59 (70.2)	18 (90.0)	77 (74.0)	

[Characteristics of HIV-positive women by preferred HPV screening method (n=104)]



[Vaginal self-sampling acceptability among HIV-positive women in Botswana (n=104)]

Although 12 women reported a problem handling the swab or transport medium, only three samples were inadequate. Nearly all women (95%) were willing to self-swab again; however, only 20 (19%) stated their preference for future screening was self-sampling over speculum exam. We

found no differences in willingness or preferences by screening history, but urban-residing women and those with higher education were more likely to prefer self-sampling. Self-sampling was preferred because it was more convenient, easier, less embarrassing and less painful. Speculum exams were preferred because of trust in providers' skills, being able to see where to swab, and women's low confidence to sample correctly.

Conclusions: Self-sampling for HPV is acceptable among HIV-positive women in Botswana. However, speculum exams were still preferred largely due to strong trust in providers' skills and women's low confidence for self-sampling correctly. Self-sampling may be an important alternative to provider screening, though education and support to self-sample will be critical to program success.

THPED549

Higher rates of vaccination among PLH compared to general population in Argentina

V. Zalazar, O. Sued, I. Aristegui, L. Cahn, D. Fiore, F. Cahn, P. Cahn, C. Vizzotti

Fundacion Huesped, Buenos Aires, Argentina

Background: Argentina guarantees all vaccines included in the National Immunization Schedule, which are mandatory at all stages of life for general population. In addition, there is a specific vaccine program focused in people living with HIV (PLH), who are among the groups more at risk of presenting complication or dying of preventable infectious agents. However, levels of vaccination in PLH and differences from rates in general population (GP) have still not been explored.

Methods: Data for the present study was drawn from an online survey, conducted between December 2017 and January 2018, which aim to investigate the prevalence of vaccination in PLH in Argentina. This study examined prevalence of dT, HVB, Influenza and Pneumococcal vaccination and compared them with the results of a national survey in GP conducted in 2013 (Tercera Encuesta Nacional de Factores de Riesgo para Enfermedades No Transmisibles).

Results: The final PLH sample included 1025 participants and the national GP survey comprised 32665. PLH receive vaccine information from their HIV provider in 89%, while in GP only 27.9% from a healthcare provider (70.5% referring had received information from the media). Rates of vaccination were uniformly higher among PLH for all the vaccines (dT 66.1 vs 50%, HBV 70.5% vs 21.7%, Influenza 75.1% vs 51.6% and pneumococcal 68.2% vs 16.2%). Differences remained the same in all gender, and educational level groups. Age differences were observed only among PLH, with higher rate of HBV vaccination among young PHL and influenza among older PLH.

Characteristics	dT %		HBV %		Influenza %		Pneumococcal %	
	HIV+	GP	HIV+	GP	HIV+	GP	HIV+	GP
Total *	66.1	49.8	70.5	21.7	75.1	51.6	68.2	16.2
Gender ª								
Man	65.1	49.5	67.9	18.5	72.0	48.5	57.2	14.0
Woman	66.6	50.1	77.1	24.8	81.3	53.8	72.6	18.4
Age group (years) ª								
18-24	72.5	55.8	81.0	38.0	64.2	58.0	61.0	14.4
25-34	72.3	57.1	76.9	27.7	69.7	53.5	63.8	13.0
35-49	61.7	52.0	68.1	20.5	79.4	45.8	70.0	13.3
50-64	69.9	41.9	69.2	12.9	88.0	44.7	77.9	13.6
Educational level ª								
Primary school complete and secondary school incomplete	59.2	50.4	60.4	20.7	75.3	49.6	67.9	15.7
Secondary school and above	67.2	49.8	71.9	23.8	76.1	52.7	68.4	18.0

* HIV+=1025; GP=32665
ª Among participants with a valid response to this questions

[Table 1. Comparison of vaccination prevalence in general population and PLH in Argentina]*

Conclusions: PLH in Argentina show a high rate of vaccination, being higher than GP, particularly for HBV and pneumococcal vaccines. Infectious diseases specialist specialists are the main source of information. However, this data highlights the gap of information for GP and requires reconsidering the vaccination strategy for this population.

THPED550

Adversities, social support, resilience, and health-related quality of life among people living with HIV in Guangxi, China

Q. Zhao[1], X. Li[2], Y. Mao[2], S. Qiao[2], Y. Zhou[3]

[1]Nanjing University of Information Science and Technology, Nanjing, China, [2]University of South Carolina SmartState Center for Healthcare Quality, Columbia, United States, [3]Guangxi Center for Disease Control and Prevention, Nanning, China

Background: Adversities such as HIV-related stigma, comorbidity, and lower socioeconomic status (SES) can negatively impact health-related quality of life (HRQoL) among people living with HIV (PLHIV). Resilience is an individual's ability to cope or adapt in the face of adversities. Social support can reduce effects of adversities and enhance resilience. Given there is a general dearth of research on the mitigating role of resilience and social support between adversities and HRQoL among PLHIV in China, the aim of the study is to examine the associations between several adversities and HRQoL, and whether individual resilience and perceived social support can help mitigate the negative effects of adversities on HRQoL.

Methods: Cross-sectional data from 2,987 PLHIV in Guangxi, China were analyzed. Participants reported their perceived HRQoL, individual resilience, perceived social support, HIV-related stigma, comorbidity, SES, as well as background characteristics. Path analysis was performed in SAS 9.4 to identify the associations of interest.

Results: Considered together, HIV stigma (=-.18, p < 0.001), lower SES (=-0.19, p < .001), and comorbidity (=-.11, p < 0.001) were negatively associated with HRQoL, while resilience was positively associated with HRQoL (=.38, p < 0.001). Resilience buffered the negative effects of HIV stigma and lower SES on HRQoL given HIV stigma had an indirect effect on HRQoL through resilience (=-.09, p < 0.001), and lower SES had an indirect effect on HRQoL through resilience (=-.04, p < 0.001). Perceived social support was positively associated with resilience and had an indirect positive effect on HRQoL through resilience (=.13, p < 0.001). Perceived social support buffered the negative effects of stigma on resilience given stigma had an indirect effect on resilience through perceived social support (=-.04, p < 0.001).

Conclusions: Interventions to improve the HRQoL among PLHIV in Guangxi need to focus on reducing their HIV stigma, helping them find possible ways to improve their livelihoods and coping with comorbidity, enhancing perceived social support, as well as fostering their individual resilience.

THPED551

Factors associated with high STIs in Murehwa district, Mashonaland East province, Zimbabwe

W. Dube[1], T. Magure[2], E. Muzulu[3]

[1]National AIDS Council of Zimbabwe, Programs, Marondera, Zimbabwe, [2]National AIDS Council, Management, Harare, Zimbabwe, [3]National AIDS Council, Monitoring and Evaluation, Marondera, Zimbabwe

Background: Out of the nine districts in Mashonaland East province of Zimbabwe, where concerted prevenive efforts to decrease the number of new sexually transmitted infections have been in place for the past five years, one district, Murewa, continue to record high figures. Increase in STI infections is considered as a proxy for HIV infection.

The study sought to identify factors associated with acquisition of sexually transmitted diseases in the district and to measure knowledge, attitudes and perceptions of people accessing services at health centres in the district. The aim being to provide interventions to reduce STI infections.

Methods: The study used the unmatched case control study design, using both quantitative and qualitative approaches. Using chi-square and t-test, those with a history of STIs were compared with those who said they had experienced an STI, on demographic; attitude, knowledge and practice were picked. Variables that were statistically significant were entered into logistic regression to identify variables associated with STI. Qualitative data was also collected through key informant interviews.

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Results: Using multivariate analysis to control for confounding factors, source of income was statistically significant in determining having or not having an STI, (P-< 0.001). Those whose survived through sex work had a significantly higher rate of infection than all the other sources of income, at 94%. Other variables that were significant included having an STI before, (p-< 0.001), number of sexual partners in the last three months, (p-0.001). Unavailability of adequate medicines in health centers also contributed to recurrence of STIs in the district. Specific ethnic groups were also associated with having STIs.
Conclusions: Significant factors associated with sexually transmitted infections in Murehwa district are; having had an STI before, source of income, and number of sexual partners. Unavailability of adequate medicines in health centers is also a key factor contributing to recurrence of STIs in the district.

THPED552

Anal cancer screening in HIV-infected youth at an urban community health center: Performance evaluation

U. Belkind[1], W. DeWitt[2], P. Carneiro[2], P. Meacher[2], A. Radix[2]
[1]*Callen-Lorde Community Health Center, Health Outreach to Teens (HOTT), New York, United States,* [2]*Callen-Lorde Community Health Center, New York, United States*

Background: Anal cancer incidence in HIV-infected MSM is between 70-144/100,000. Cytological screening of the anal canal may allow detection of precancerous dysplastic lesions or treatable early invasive disease and reduce incidence of invasive anal cancer . The New York State AIDS Institute "Anal Dysplasia and Cancer Guideline" recommends anal cytology at baseline and annually in HIV-infected MSM.
HIV-infected youth are less likely to be engaged in care and/or achieve viral load suppression. Given the challenges faced by this population in accessing care and other related services, we investigated anal cancer screening rates for patients ≤24 years in order to identify adherence to guidelines and racial, ethnic, or gender identity disparities.
Description: This is a quality improvement initiative to assess adherence to anal cancer screening guidelines in HIV-infected youth ≤24 years in a New York City community health center that specializes in care of LGBT and HIV-infected patients.
We conducted a retrospective chart review and analyzed data for patients ≤24 years who accessed HIV care from January 2016 to December 2017 (n=158). Variables included age, race, ethnicity, gender identity, last viral load and anal cytology.
Table 1 shows the prevalence of anal cancer screening rates January 2016-December 2017.

		Anal Cytology Performed (%)
Total	N=158	81 (51.3%)
Gender	Male, n=117	65 (55.6%)
	Transgender Female, n=39	16 (41%)
	Female, n=2	0
Race	White, n=29	19 (65.5%)
	Black, n=71	25 (35.2%)
	Other, n=20	13 (65.%)
Ethnicity	Hispanic, n=68; Non-Hispanic, n=49	39 (57.4%); 23 (46.9%)
Last Viral Load	≤200 copies, n=126; >200 copies, n=32	73 (57.9%); 8 (25%)

[Table 1]

81 patients had anal cytology performed (51.3%). 50 (61.7%) had abnormal results (22 ASC-US, 22 LSIL, 5 HSIL). 50% with abnormal results had high-resolution anoscopy performed.
Lessons learned: This first report of anal cancer screening in HIV-infected youth shows that abnormal anal cytology findings are common. Nearly 50% of this population failed to receive anal cancer screening as per guidelines. Disparities in anal cancer screening were observed across sub-populations in this age group.
Conclusions/Next steps: Monitoring of clinic-wide data is necessary to evaluate all aspects of HIV-related care and expose gender/race disparities. Next steps include reinforcing guidelines with healthcare providers, developing workflows that facilitate anal cancer screening (e.g. self-collected samples), follow-up of abnormal findings, and development of patient education materials.

Policies regarding HIV services and programmes

THPED553

Beyond 90-90-90: The legacy of the 2014 International AIDS Conference in Melbourne and Victoria, Australia

J. Manwaring[1], E. Wright[2,3], B. Allan[4,5], S. Lewin[6], M. West[1], L. Galloway[1], S. Ruth[7], C. Millar[8], A. Fischer[6], J. Hoy[2,9], M. Hellard[3], C. Fairley[10], N. Roth[11], B. Eu[11], M. Catton[12], G. Brown[13], S. Malhotra[8], C. Carter[14], E. Crock[15], B. Price[9], A. Boughey[16], A. Coelho[17]
[1]*Department of Health and Human Services, Melbourne, Australia,* [2]*The Alfred Hospital, Melbourne, Australia,* [3]*The Burnet Institute, Melbourne, Australia,* [4]*International Council of AIDS Service Organizations, Toronto, Canada,* [5]*Australasian Society of HIV, Viral Hepatitis and Sexual Health Medicine, Sydney, Australia,* [6]*The Peter Doherty Institute for Infection and Immunity, Melbourne, Australia,* [7]*Victorian AIDS Council, Melbourne, Australia,* [8]*Living Positive Victoria, Melbourne, Australia,* [9]*Monash University, Infectious Dieseases, Melbourne, Australia,* [10]*Melbourne Sexual Health Centre, Melbourne, Australia,* [11]*Prahran Market Clinic, Melbourne, Australia,* [12]*Victorian Infectious Diseases Reference Laboratory, Melbourne, Australia,* [13]*La Trobe University, Australian Research Centre in Sex, Health and Society, Melbourne, Australia,* [14]*North West Melbourne Primary Health Network, Melbourne, Australia,* [15]*Bolton Clarke, Melbourne, Australia,* [16]*Positive Women Victoria, Melbourne, Australia,* [17]*Centre for Culture, Ethnicity and Health, Multicultural Health and Support Service, Melbourne, Australia*

Background: The selection of Melbourne, Victoria to host the 2014 International AIDS Conference created a unique policy opportunity to accelerate the state's HIV response. Against the backdrop of a new Australian HIV strategy; the goal of the AIDS 2014 Legacy Statement to end new transmissions of HIV by the end of 2020; and approximately 300 new notifications per year and 8000 people living with HIV (PLHIV) in Victoria, the Victorian Government sought to identify and implement new policies, programmes, and initiatives.
Description: The Victorian HIV response is built on partnerships between community, government, clinicians, and researchers. The Department of Health and Human Services (DHHS) convened an HIV working group from these groups to optimise the state's response. The working group identified the development of a state-specific HIV strategy to create an enabling environment for system-level reforms. Between 2012 and 2017, in partnership with stakeholders, the government undertook a series of reforms and innovative initiatives, including: establishing Australia's first peer-led community-based rapid point-of-care testing service (PRONTO!) and pre-exposure prophylaxis study (VicPrEP); funding an expanded PrEP study (PrEPX); funding the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance (ACCESS); repeal of an HIV-specific provision from the *Crimes Act*; funding mainstream express testing clinics; developing an HIV doctor training program; joining the Fast-Track Cities Initiative (FTCI); releasing the *Victorian HIV Strategy 2017-2020*; and establishing an HIV cure research consortium.
Lessons learned: Hosting the International AIDS Conference reinvigorated and accelerated the local and national HIV response. AIDS 2014 facilitated the strengthening of Victorian partnerships, identification of new opportunities and renewed commitment to achieve the virtual elimination of new HIV notifications by the end of 2020. Hosting the first meeting of FTCI at AIDS 2014, in partnership with the City of Melbourne, was integral to Melbourne and Victoria becoming Australia's first and only member jurisdictions.
Conclusions/Next steps: The Victorian Government led development of the Australian AIDS 2014 Legacy Statement, which has been critical to development of the *Victorian HIV Strategy 2017-2020*, and underpins involvement in FTCI. DHHS has reconvened the HIV working group to guide the implementation of the HIV strategy with the aim of achieving the UNAIDS 95-95-95 goals for 2030.

THPED554

Health provider perspectives on implementation of same day ART initiation 6 months after policy change in South Africa

D. Onoya[1], I. Mokhele[1], T. Sineke[1], B. Mngoma[2], M. Vujovic[2], J. Langa[2], M. Fox[3,4]
[1]Health Economics and Epidemiology Research Office, Department of Internal Medicine, School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, [2]Right to Care, Johannesburg, South Africa, [3]Departments of Global Health, Boston University School of Public Health, Boston, Massachusetts, United States, [4]Departments of Epidemiology, Boston University School of Public Health, Boston, Massachusetts, United States

Background: In September 2016, South Africa began implementing the universal-test-and-treat (UTT) policy in hopes of attaining the UNAIDS 90-90-90 targets by 2020. Guidance for antiretroviral therapy (ART) initiation on the same day of HIV diagnosis for clinically stable patients was later provided following policy recommendation by the WHO in July 2017. We conducted a qualitative study to determine progress to UTT policy assimilation and examine health providers' perspectives on implementation of same-day ART initiation 6 months after the policy change.
Methods: We conducted in-depth interviews with three clinic managers and four lay HIV counsellors of four primary health clinics in Johannesburg (South Africa) between October and December 2017. The key informant interviews covered topics including current health system capacity, implementation processes, as well as patient treatment readiness. Interviews were conducted in English, Sotho or Zulu, transcribed verbatim, translated to English and analysed thematically.
Results: There seems to be a disagreement across health care facilities and between counsellor and nursing providers regarding implementation of same-day ART initiation. While nursing providers understood and highlighted the clinical benefits of early ART initiation, there was concerns that, for some patient same day ART initiation may be too abrupt and patients who are not afforded the space to process the new diagnosis are likely to disengage from care after the initial acceptance of ART. As a results the implementation of same day ART initiation is slow because of provider ambivalence, infrastructure and human resources limitations. The process for assessing patient readiness is poorly defined and inconsistent and mainly counsellor dependent. Providers are unclear of the process to ensure patients who defer treatment return for ongoing counselling.
Conclusions: Our results highlight important gaps in the drive to achieve the second UNAIDS 90% (diagnosed patients on ART) target. Specifically, the study demonstrates the need for further engagement with health care providers about same day ART initiation implementation particularly infrastructural/capacity needs. Additionally, improved promotion efforts of same day initiation both in health care settings and in media communication is needed to increase patient demand for ART.

THPED555

The precarious balancing act between evidence and policy making; key factors that affect evidence use for HIV prevention policy

J. Koch
Mott MacDonald, EHPSA, Johannesburg, South Africa

Background: Policymakers face the complex task of considering a wide range of evidence on HIV prevention to inform policy and strengthen programming. This is additionally challenging for policymaking around MSM, prisoners and adolescent girls, as evidence must compete with beliefs and values.
This abstract summarises the main factors affecting evidence in HIV prevention policymaking in eastern and southern Africa.
Methods: The study triangulated three sources of evidence: a knowledge synthesis of 63 published papers and 14 case studies on the role of evidence in health policymaking in the ESA region; survey responses policymakers (N=19), and interviews with key HIV policymakers (N=9).
Results:
- High-level policymakers do not have sufficient time to gather, read and synthesise evidence.
- All stakeholders describe challenges in finding expertise to address the inter-disciplinary nature of HIV prevention.
- Policymakers' lack of access to research and journals constrains evidence informed decision-making.
- Staff relationships and power structures, attitudes towards evidence and research influence how available resources and capacity are deployed.
- Health policymakers support the use of evidence to inform HIV prevention policy, but this is less so at subnational levels and in non-health sectors.
- Beliefs and opinions about what counts as 'good' evidence are potent in the health sector, where evidence-based medicine is deeply influential and certain research, methodologies are more highly valued than others.

Conclusions:
- Public agencies are underfunded and overstretched, and human, financial, infrastructural and administrative capacities are fundamental factors shaping evidence use.
- Mid-level staff should be supported to gather and communicate evidence to high-level policymakers.
- Multilaterals play a powerful role in evidence generation, a feature of a sector which is almost entirely donor funded.
- Initiatives to provide access to journals can strengthen the use of evidence in policymaking.
- The disconnect between national and subnational and health and non-health sectors is an obstacle to effectively addressing the interdisciplinary nature of HIV prevention.
- Start early and engage continuously and responsibly throughout the research continuum for maximum policy influence, tackling persistent beliefs and opinions about the evidence base.

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National policy on nurse-initiated management of ART supports decentralization of HIV services in Namibia

J.F. Mdala[1], S. Wabomba[1], P. Kalimugogo[1], P. McQuide[1], N. Hamunime[2], R. Indongo[3]
[1]IntraHealth International, Windhoek, Namibia, [2]Ministry of Health and Social Services, Windhoek, Namibia, [3]USAID, Windhoek, Namibia

Background: Namibia's Ministry of Health and Social Services (MOHSS) has provided antiretroviral therapy (ART) services since 2003. At first ART could only be initiated by a medical doctor and mainly in hospitals; this limited accessibility and increased indirect costs for patients. From 2008 MOHSS recommended decentralizing ART to primary health care (PHC) facilities where trained nurses could provide follow-up care to patients who had been initiated by a doctor.
In 2012 the MOHSS introduced a policy on Nurse-Initiated Management of ART (NIMART), a task-shifting initiative to equip nurses to initiate and manage ART comprehensively. With USAID funding, IntraHealth International assessed how NIMART has contributed to expansion of ART services in Namibia.
Description: After NIMART training and all requirements are met, the supervising doctor declares the nurse competent in NIMART. The MOHSS training center issues a certificate of authorization. With ongoing support from HIV mentors and PHC coordinators, nurses provide NIMART at all levels of the health system. Our review focused on the expansion of NIMART from 2015-17 in 8 districts in northern Namibia that have 7 hospitals and 65 PHC facilities among them.
Lessons learned: During this period, 78 nurses completed NIMART certification and PHC facilities providing NIMART grew from 4 in September 2015 to 58 in September 2017. Currently 42,713 clients are receiving ART in these districts, 43% from PHC facilities, up from 24% in September 2016. The number of clients started on ART increased from 390 in July-September 2016 to 707 in July-September 2017. Between July and September 2017 over 95% of ART initiations (1,250 clients) were conducted by NIMART-trained nurses. PHC facilities have maintained a viral load suppression rate similar to district hospitals at 86%.

Conclusions/Next steps: The MOHSS NIMART policy has created an enabling environment for the efficient use of available human resources through task-shifting. Furthermore, quality of services is maintained through stringent certification requirements, continuous supervision and mentorship. This initiative makes a significant contribution to the UNAIDS 90-90-90 treatment targets by ensuring a greater number of individuals are initiated on ART and viral loads adequately monitored.

THPED557

Unclogging antiretroviral therapy clinics for people living with HIV: Success of community based delivery of antiretrovirals in Cameroon

A.M. Nga[1], L. Bonono[1], S.-C. Billong[1], A.F. Zeh Meka[2], C. Kengne[1], A.M. Essono[1], J.B. Elat[1]
[1]Ministry of Public Health, National AIDS Control Committee, Yaounde, Cameroon, [2]Ministry of Public Health, Regional Technical Group for the Fight against AIDS, Yaounde, Cameroon

Background: Of an estimated 520 00 people living with HIV (PLHIV) in Cameroon, 251 882 were receiving antiretroviral therapy (ART) as of 31st December 2017. At the end of the year 2015, the care of PLHIV was essentially done at antiretroviral therapy (ART) clinics leading to their congestion, sub-optimal service delivery quality and poor retention on ART. We therefore sought to assess the feasibility of unclogging congested ART clinics through implementation of community-based delivery of antiretroviral (ARV) (CBDA).

Description: We developed strategic documents to guide and ease implementation of CBDA which defined the role of the two key structures. On the one hand, the ART clinic was assigned as responsibilities: HIV diagnosis, referral of diagnosed PLHIV to community based-organizations (CBO), supply of ARVs to the CBO, mentoring to ensure standards are practiced and maintained, conduct biological follow-up tests of CBO patient cohort. On the other hand, the CBO was in charge of delivering ARVs to referred patients in conformity with national guidelines and ensure their retention in care.

A patient considered eligible for CBDA was defined as an adult aged ≥ 20 years, on treatment for ≥12months, clinically stable with a suppressed viral load or CD4 cell count ≥500 cells/mm³, not pregnant and on 1st line ART. A total of 73 CBOs who met the predefined enrolment criteria were conveniently selected for this experimental phase: be legally registered, have working space with ≥2 rooms, be an association of PLHIV, affected by HIV or involved in the fight against HIV. The strategy was implemented over a 15 month period (1st October 2016-31st December 2017).

Lessons learned: A total of 7635 clients were transferred out from ART clinics for community management out of 11701 who met the criteria, representing 65% of eligible clients and 3% of the total number of PLHIV on ART nationwide. We did not record any complaint that led to transfer in of clients back to health facilities.

Conclusions/Next steps: Community-based delivery of ARVs is feasible in Cameroon and we recommend scale-up to reduce the workload in health facilities, improve retention on ART and access to ART for all.

THPED558

Cities leadership as a gamechanger making sustainable 90-90-90 achievable in HIV and TB in EECA region

T. Deshko, I. Kushnir
Alliance for Public Health, International Programs, Kyiv, Ukraine

Background: Cities in EECA are hubs to HIV and TB, some 38% of PLHA in most affected countries of the region reside in urban settings. Donors are transitioning from EECA and local leadership is needed to cover the emerging gap.

Description: Alliance for Public Health together with AFEW International, licit, UNAIDS EECA office and Stop TB Partnership with the support of the Global Fund initiated regional program to establish sustainable models of HIV/TB responces on city level in Almaty (Kazakhstan), Beltsi (Moldova), Odesa (Ukraine), Sofia (Bulgaria) and Tbilisi (Georgia), starting 2017.

Lessons learned: The following lessons emerged after first implementation year:

1. City leadership and committment plays strong role in facilitating 90-90-90. In Odesa which first signed Paris declaration in February 2017, strengthened coordination on city level, designated city program allowed to reach unprecedent 44% growth in ART coverage during 2017 (compared to 18% nationally).
2. Exchange between cities plays a strong peer role. After exchange with Swiss cities, Mayors of Odesa and Beltsi declared plans to open first safe injection rooms in their respective cities and are currently progressing toward the target.
3. Municipal situation awareness and planning allows to allocate city resources to the most needed interventions. Beltsi designed city program with city annual allocation increase from 6000 USD in 2016 to 40000 USD in 2020.
4. Cities pilot strategic interventions to lower thresholds to HIV testing (Almaty) and transition to outpatient primary healthcare models on TB (Odesa) that have the capacity to inspire and support national health reforms.
5. Key populations engagement with the support of regional key populations networks helped to focus city planning towards the needs of local key groups.

Conclusions/Next steps: More cities will get involved into city health leadership: Kishinev and Batumi are joining the city leaders´ groups. Research on city models will further inform transition processess in program countries and beyond. City Health International conference will take place in Odesa, Ukraine, in September 2018 and will become the sharing platform for successful city health solutions.

THPED559

What would it take to build a stronger infrastructure to understand PrEP utilization?

P. Carneiro, A. Cantor, R. Vail, P. Meacher, A. Radix
Callen-Lorde Community Health Center, New York, United States

Background: The implementation of Biomedical Interventions (BI) around the globe has given new life to a generation of advocates and grassroots mobilization around HIV prevention, with Pre Exposure Prophylaxis (PrEP) leading the way.

Because PrEP users do not live with a given illness, it is important that health informatics and medical systems formalize methods to address and survey PrEP and other BIs.

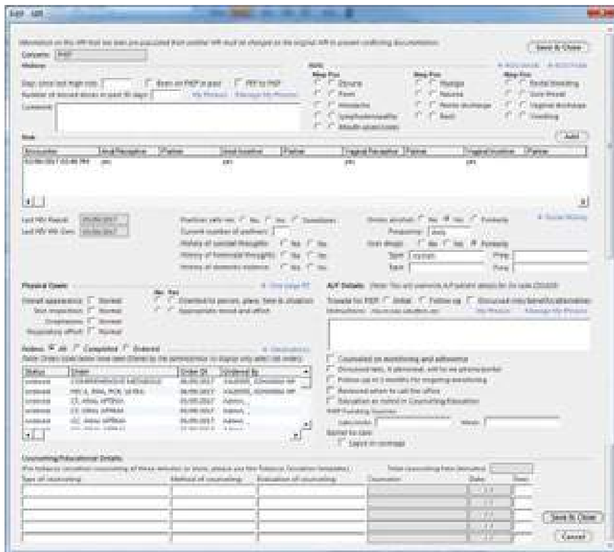
Callen-Lorde Community Health Center has initiated over 4000 people on PrEP since 2015 and has been formalizing data collection for the past 3 years. We discuss here our findings and challenges.

Description: Electronic health records (EHRs) and prescription data are the main sources of information about PrEP utilization, yet prescriptions alone can only tell one side of the story. A standardized EHR template (Figure 1) was developed to help providers have assurance on the care provided to patients, set reminders of care guidelines, and normalize PrEP care. Standardizing PrEP along other chronic conditions like diabetes care, hypertension care and even HIV care can help providers find confidence in the care provided and allow ease of incorporation into ordinary primary care.

In 2016 Callen-Lorde set forth a policy guidance suggesting clear and consistent utilization of specific International Statistical Classification of Diseases and Related Health Problems (ICD-10) codes for BIs, which would further improve one's ability to understand healthcare utilization by various populations accessing BIs.

Lessons learned: EHR templates for PrEP are needed and well accepted. PrEP templates must include collection of sexual health, adherence recall, 3-site STI screening orders, HIV screening and counseling, and information about last screenings - if viable. Callen-Lorde recommends the usage for the following ICD-10 codes for BIs: · Pre Exposure Prophylaxis (PrEP): Z20.6; Non Occupational Post Exposure Prophylaxis -Sexual Contact (nPEP), Z20.2; Non Occupational Post Exposure Prophylaxis -Non Sexual Contact (nPEP), Z20.828; Occupational Post Exposure Prophylaxis (oPEP) , Z20.828 AND an additional code that signifies injury in the workplace, otherwise known as Y92 codes. See Table 1 for definitions.

Conclusions/Next steps: Ratification of medical care systems such as Electronic Health Records, Diagnosis coding and other systems to include BIs are needed to streamline and integrate them into mainstream Primary Care.



[Figure 1 Shows the Customized EHR Template developed to streamline PrEP Care]

ICD-10 Code	Description	Biomedical Intervention
Z20.6	Contact with and (suspected) exposure to HIV	Pre Exposure Prophylaxis (PrEP)
Z20.2	Contact with and (suspected) exposure to infections with a predominately sexual mode of transmission	Non Occupational Post Exposure Prophylaxis -Sexual Contact (nPEP)
Z20.828	Contact with and (suspected) exposure to other viral communicable diseases	Non Occupational Post Exposure Prophylaxis -Non Sexual Contact (nPEP)
Z20.828 AND Y29	Contact with and (suspected) exposure to other viral communicable diseases AND an additional code that signifies injury in the workplace, otherwise known as Y92 codes	Occupational Post Exposure Prophylaxis (oPEP)

[ICD-10 Codes for Biomedical Interventions]

THPED560

Aligning Botswana's national HIV testing services guidelines to the era of Treat All

N. Majingo[1], C. Petlo[2], S. Lesotlho[2], E. Mmatli[2], M. Ngombo[2], O. Phumaphi[3], S. Mawandia[3], J. Ledikwe[3]
[1]*Ministry of Health & Wellness, HIV AIDS Prevention & Care, Gaborone, Botswana,* [2]*Ministry of Health and Wellness, HIV AIDS Prevention and Care, Gaborone, Botswana,* [3]*International Training and Education Center for Health, Gaborone, Botswana*

Background: To achieve the UNAIDS 90-90-90 targets, Botswana adopted "Treat All" in 2016, encouraging ARV initiation for all HIV-positive clients regardless of CD4 count. The Botswana HIV Testing Services (HTS) guidelines were revised to update HTS for implementing Treat All, address gaps in the existing guidelines, ensure alignment with the 2015 WHO Consolidated Guidelines on HTS and guide program managers and service providers in planning and implementing HTS in the Treat All era.

Description: Revision of the Botswana HTS Guidelines was led by the Ministry of Health and Wellness, which fostered a strong collaborative partnership including donors, implementing partners, NGOs and CSOs. In the guidelines, quality standards were improved. Ethical guidance was aligned with WHO's "5 C's". Innovative HTS approaches, such as 'self-testing and partner notification were adopted to promote services for under-served populations in facility and community based settings. Serial-testing algorithm was adopted for cost-effectiveness as well as retesting of HIV positive clients prior ART initiation. Additionally, program monitoring and evaluation was strengthened by updating and standardizing recording and reporting tools. Standardized refresher trainings were implemented to execute the revisions.

Lessons learned: Active participation of a wide group of stakeholders leveraged expertise to ensure development of comprehensive guidelines that met international standards while tailored to the local context. Strengthening quality guidance decreased discordant results to 0.3%. As the revised guidelines were implemented, strategies to provide services for hard-to-reach populations were identified. For example, the provision of facility-based extended-hours testing increased HIV case identification among men. Transitioning from parallel to serial algorithm required intensive coordination by training and supply chain management teams. Implementation of these policy changes standardized service delivery at facility and community testing sites, integrated HTS across primary care, led to the development of Linkage to Care and Partner Notification policies and ultimately reduced HTS burden at health facilities.

Conclusions/Next steps: Botswana's experience of adapting the WHO HTS Guidelines is a significant step in reaching epidemic control of HIV, demonstrating the nation's commitment to rigorous strategies that ensure all Batswana know their status and have timely access to prevention and treatment services. Lessons learned from this process will benefit other countries implementing Treat All.

THPED561

Toward early diagnosis of HIV infection: A population-based case-control study of routine opt-out testing services in Taiwan

Y.-H. Chen[1], C.-T. Fang[1,2]
[1]*National Taiwan University, Institute of Epidemiology and Prevention Medicine, Taipei, Taiwan, Province of China,* [2]*National Taiwan University Hospital, Department of Internal Medicine, Taipei, Taiwan, Province of China*

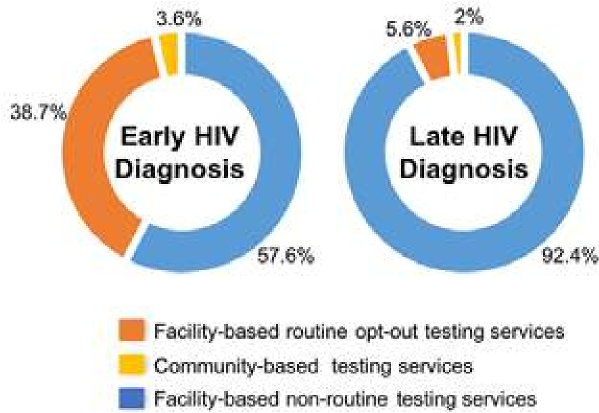
Background: To achieve the World Health Organization goal that 90% HIV infected people know their HIV status by 2020, it is critically important to emphasize on HIV testing services that are acceptable for people in their early stage of HIV infection. This population-based case-control study aims to investigate the role of different testing service scenarios in early diagnosis of HIV infection in Taiwan.

Methods: We analyzed the national HIV/AIDS registry database in Taiwan. Late diagnosis was defined as the onset of AIDS within 90 days after HIV diagnosis. We classified the testing services into three scenarios: facility-based routine opt-out testing services (e.g. antenatal care clinic, sexual transmitted infection clinic, blood donation, routine health examination for occupational health, in military recruitment, or in criminal justice system), facility-based non-routine testing services (e.g. client-initiated anonymous testing or provider-initiated testing at facility in non-routine contexts), and community-based testing services (e.g. outreach, campaign, or self-testing at home). Logistic regression was used to identify the protective factors against late HIV diagnosis, adjusting for age and different HIV risk factors.

Results: From 1984-2014, there were 28,711 domestic HIV patients. Among them, 6,350 (22.1%) were late diagnosed. Compared with late diagnosed HIV patients (cases), early diagnosed patients (controls) are more likely from facility-based routine opt-out testing services (38.7% vs 5.6%) and community-based testing services (3.6% vs 2.0%) (both $p < 0.001$) (Figure).

Multivariate logistic regression showed that facility-based routine opt-out testing services (adjusted odds ratio [OR] = 0.23; 95% CI = 0.20 - 0.26) and community-based testing services (adjusted OR = 0.41; 95% CI = 0.33 - 0.50) were independent protective factors against late diagnosis (Table).

Conclusions: Facility-based routine opt-out HIV testing service is a scenario that provides opportunity for early HIV diagnosis in Taiwan. Beside the community-based HIV testing services, facility-based routine opt-out testing service is another approach that warrants further expansion and refinement to better serve the need of people at risk of HIV infection.



[HIV Testing Scenarios and early Diagnosis]

	adjusted OR	95% CI		P-value
Facility-based routine opt-out testing services vs Facility-based non-routine testing services	0.23	0.20	0.26	< 0.001
Community-based testing services vs Facility-based non-routine testing services	0.41	0.33	0.50	< 0.001
HIV risk factors: Sexual vs Injecting drug user	7.93	6.64	9.47	< 0.001
Age < 25 vs 25-34	0.51	0.46	0.56	< 0.001
Age 35-44 vs 25-34	1.91	1.76	2.07	< 0.001
Age 45-54 vs 25-34	3.21	2.87	3.59	< 0.001
Age > 55 vs 25-34	3.47	3.00	4.01	< 0.001

[Risk Factors for HIV Late Diagnosis, 1984-2014 in Taiwan]

THPED562

How AIDS advocacy supports universal health coverage

S. Teemanka
AIDS Access Foundation, Bangkok, Thailand

Background: Thailand has battled the HIV epidemic for over three decades and has given priority to treating PLHIV with the latest drugs at affordable prices. However, ARV drugs alone are not enough to ensure quality standard care. Thus, Thai AIDS activities mobilized an advocacy effort for a national health insurance program which covers every individual and every condition.

Description: In the beginning of the Thai epidemic, PLHIV were severely marginalized individuals and, thus, had to form self-help groups with assistance from health NGOs. That network of support helped pressure the government to expand access to treatment as it became available. Despite the advent of effective ART, negative attitudes by health providers and cost of treatment still impeded access for PLHIV. Accordingly, in 2002, the NGO network and PLHIV campaigned for a universal health care system absent of discrimination against anyone for any reason. This advocacy was successful and, in 2004, the National Health Security System offered subsidized care to any Thai citizen, including treatment for HIV infection. However, this equitable service is under threat from Big Pharma and hospitals who are losing income from formerly-lucrative drugs sales, and are pressuring the government to return to a less subsidized approach.

Lessons learned:

- Creating a sense of the people's ownership of the national health insurance program was part of the reason that HIV/AIDS was included in Thailand's universal health care benefits package.
- Such an advocacy effort requires systematic participation and unified objectives. The network needs to spearhead mobilization with the message that broader health coverage serves all Thais.
- A diverse network which represents multiple populations and patient groups is more effective for public advocacy than a single-issue-defined group.

Conclusions/Next steps: Progress in the AIDS agenda requires participation of the broader Civil Society - not just those working with PLHIV. AIDS advocacy must be seen as the responsibility of everyone, and universal health coverage is a viable strategy to begin with. That said, advocacy networks need to guard against powerful special interests which threaten to undermine a people's movement for equitable and affordable health care for all.

THPED563

Treat All: WHO policy adoption and implementation status in countries

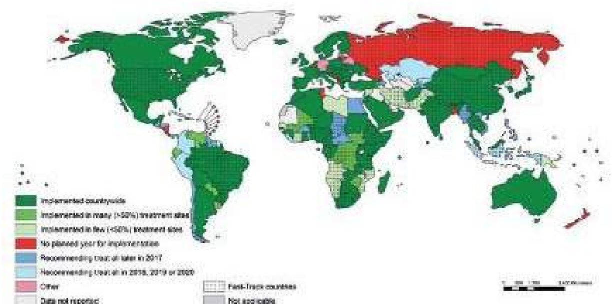
M. Doherty, M. Beusemberg, M. Vitoria, N. Ford, D. Low Beer, G. Hirnschall
World Health Organization, HIV/AIDS Department, Geneva, Switzerland

Background: With the 2016 consolidated ARV guidelines WHO updated and launched new policy recommendations on the clinical and service delivery aspects of HIV treatment and care, and raised the bar to treat all PLHIV regardless CD4 count (Treat All strategy).

Methods: Data from country surveys and Global AIDS Response Progress Reporting (GARPR) have been triangulated and validated for the adoption and implementation of major HIV treatment policies within 139 low and middle income countries (LMICs) and 35 focus countries for Fast Track (FT) support.

Results: Global data are presented through November 2017:
• 70% of LMIC and 89% of FT countries have adopted a Treat All policy, while another 10% of all LMIC and 6% of FT countries plan to adopt Treat All before the end of 2017. This is in contrast to 33% of all LMIC adopting Treat All policy measured one year ago.
• By the end of 2017, 80% of all LMIC and 94% of FT countries will have adopted Treat All.
• However, implementation is just getting underway and only 69 (50%) LMIC have already put the policy for Treat All fully into practice and 8 (6%) LMIC have implemented treat all in a majority of treatment sites.
• Lifelong ART for pregnant women is nearly universally adopted and moving towards full implementation.
• By November 2017, 68% of LMIC and 83% of Fast-Track countries had adopted treat all for children (less than 10 years).
• Dolutegravir (DTG) is soon available at a lower price point combined in fixed-dose combination with TDF/3TC and many countries are moving to adopt DTG as part of first line treatment.
• 72% of LMIC adopted TDF/[3TC or FTC]/EFV as the preferred first-line therapy, whereas an additional 40% of LMIC are making shifts to DTG containing regimens.
• Routine HIV viral load monitoring is fully implemented in 58% of LMIC and partially implemented in 25% of LMIC.

Conclusions: WHO has rapidly updated global guidance to reflect new science regarding the benefit of early HIV treatment and is now planning to update the ARV recommendations in 2018 to address new science and innovations.


[Implementation of Treat All ART recommendation among adults and adolescents living with HIV (situation as of November 2017)]

THPED564

Scaling up harm reduction, but too slowly: Removing legal barriers to supervised consumption services in Canada

R. Elliott[1], C. Kazatchkine[2], D. Macpherson[3], A. Foreman-Mackey[1,4], S.K.H. Chu[1]
[1]Canadian HIV/AIDS Legal Network, Toronto, Canada, [2]Canadian HIV/AIDS Legal Network, Paris, France, [3]Canadian Drug Policy Coalition, Vancouver, Canada, [4]University of Toronto, Toronto, Canada

Background: Use of non-sterile injection equipment accounted for 16.3% of new HIV infections overall in Canada (and 45.3% of new infections among Indigenous people) in 2014 (Public Health Agency of Canada, 2016). The opioid overdose crisis continues unabated, with more than 4000 deaths expected for 2017 (Government of Canada, December 2017). Supervised consumption sites (SCS) reduce both risks. However, until early 2017, there were only two SCS operating with a legal exemption from the federal Health Minister protecting clients and staff from drug possession charges.
Description: One barrier was the *Respect for Communities Act*, enacted in June 2015 by the then-Conservative government in response to a 2011 Supreme Court of Canada ruling compelling it to extend the existing exemption for Vancouver's SCS "Insite." The law established numerous unwarranted requirements, creating a veneer of legal "justification" for any government decision to refuse new exemptions. Advocates pressed the issue during the 2015 federal election. While the Liberal Party that ultimately won repeatedly declared its support during the campaign for SCS and harm reduction generally, it then balked at changing the law, despite it being a clear impediment to scaling up SCS. Advocates lobbied and kept up public calls in the media for legislative reform; communities mobilized with direct action highlighting the worsening overdose crisis. In December 2016, the government finally introduced Bill C-37 to repeal the earlier law, substantially streamlining the legislative framework for SCS exemptions. The bill became law in May 2017.
Lessons learned: With a simplified legislative framework, administered by a government supportive of harm reduction and under sustained pressure to act, as of February 2018, there were 17 SCS in Canada offering services under a ministerial exemption; 10 additional sites had valid provisional exemptions and were undergoing renovations.
Conclusions/Next steps: Advocates welcomed the legislative reforms, but cautioned the government against maintaining unnecessary hurdles in its policy or practice in handling SCS exemption applications. Initial indications, including Health Canada's own guidance material, suggest continued cause for concern, despite legislative improvements. The Canadian HIV/AIDS Legal Network is investigating whether, and which, hurdles remain; results to be reported in June 2018.

THPED565

Barriers to transition from donor support to Uganda government ownership in context of PEPFAR´s ´geographic prioritization´ policy: A qualitative study

H. Zakumumpa[1], L. Paina[2], F. Ssengooba[1], M. Mukuru[1], S. Bennett[2]
[1]Makerere University, School of Public Health, Kampala, Uganda, [2]Johns Hopkins University, Bloomberg School of Public Health, Baltimore, United States

Background: Although transitions from donor HIV funding are becoming increasingly common, there is little research seeking to understand barriers to effective transitions of HIV funding from donors to local sources. Between 2015 -2016, PEPFAR implemented the ´geographic prioritization´ (GP) policy in Uganda whereby it withdrew direct support for HIV services in >800 health facilities and 10 districts with low HIV burden and intensified support in high-burden districts. The objective of our analysis was to explore local stakeholder perspectives on barriers to transition to Uganda government ownership of HIV services previously funded by PEPFAR.
Methods: A total of 106 in-depth interviews were conducted in June 2017(round 1) and November 2017 (round 2) with national-level HIV program managers (n=26), representatives of PEPFAR implementing organizations (n=24), district health leaders (n=22), facility in-charges (n=16), HIV clinic managers (n=18) to elicit transition barriers. Sampling was based on 6 districts (Pader, Amuru, Bulambuli, Luuka, Sironko, Kampala), with an embedded case-study of 6 health facilities (1 from each district) with sufficient variation by ownership-type. Data were analyzed by coding and thematic analysis based on themes derived from Amaya (2014) transition framework (national context, country capacity, actor incentives).
Results: *National context:* While health facilities reported being informed well in advance of PEPFAR´s phasing out of support, participants described GP as misaligned with national-level priorities (national budget cycles, HIV strategic plans, national AIDS levy). *Country capacity:* The 10 transitioned districts were described as newly created ,with weak management capacity for devising transition responses.
Facility-level participants described districts as unable to shoulder the financial burden associated with loss of PEPFAR support. *Actor incentives:* Participants reported that transition was accorded a low priority by district and central government actors given the absence of transition mitigation plans, suggesting leadership and governance deficits.
Conclusions: The low priority accorded to transition responses by government actors, weak district management capacity and a lack of alignment of GP with national context were identified as barriers to full country ownership of HIV services previously funded by PEPFAR. Civil society advocacy could enhance political commitment to transition causes. This study potentially informs future transitions from donor HIV funding especially in low-income countries.

THPED566

A framework for value-based financing of integrated care for persons living with HIV

S. Vermeersch[1], R. Demeester[2], S. De Wit[3], S. Callens[4], L. Annemans[5], BREACH Consortium
[1]Hict NV, Bruges, Belgium, [2]University Hospital of Charleroi, Internal Medicine and Infectious Diseases, Charleroi, Belgium, [3]University Hospital St Pierre, Infectious Diseases, Brussels, Belgium, [4]Ghent University Hospital, Internal Medicine and Infectious Diseases, Ghent, Belgium, [5]Ghent University, Public Health, Ghent, Belgium

Background: Delivery of patient-centered, integrated care is paramount to meet the HIV challenge: reducing undiagnosed patient numbers, improving the continuum of care (90-90-90 treatment targets) and achieving the 'fourth' health-related quality of life treatment target through management of comorbidities and self-perceived quality of life. Integrated care systems, however, face the same (financial) pressures as the healthcare system as a whole as payers struggle to balance costs and outcomes. We developed and deployed an integrated framework to (i) shift the discussion from costs to value and value for money (ii) quantify value impact to bolster value messages and (iii) translate value messages to practical value-driven financing approaches, applied to Belgian AIDS Reference Centers (ARC).
Methods: Our framework consists of 4 pillars: (i) a value-framework translating ARC activities to value-based outcomes; (ii) a modeling approach to quantify and extrapolate these value elements in terms of disease and budget impact; (iii) a logical framework approach to define a value-based indicator set and (iv) an approach to apply this toolkit to develop a value-oriented financing approach for Belgian ARCs.
Results: We focused on 10 value-adding ARC activities:
(i) prevention of new infections,
(ii) reduction of the number of undiagnosed patients,
(iii) linkage to and
(iv) retention in care;
(v) achieving and maintaining virologic control;
(vi) supporting quality of life;
(vii) managing and reducing comorbidities;
(viii) maintaining sexual and reproductive health;
(ix) performing data collection and
(x) driving and executing research.
The health and budget impact and return on investment (or cost of non-investment) of the first five value elements was modeled leveraging the existing BELHIVPREV model, the results of which are presented elsewhere. From these foundations, an indicator set was developed which was used to engage payers in developing a value-driven financing agreement.

Conclusions: We developed an actionable approach to shift financing towards a value-driven, indicator-based model. By focusing on the 'big picture' goals rather than deconstructed costs supported by quantified value messaging and its structured approach to translate this value framework to indicator-supported financing, it provides a platform to engage payers on and support integrated care delivery.

THPED567

Improving access to HIV testing & counselling services in men

M.L. Mabitsi
Anova Health Institute, Public Health, Johannesburg, South Africa

Background: HIV testing & counselling (HTC) services are freely available at all public health facilities in South Africa (SA) and are continuously being promoted through different media platforms to encourage individuals to know their HIV status. However, the uptake of HTC in men is lower than in women. Innovative approaches aimed at attracting men to HTC services are required to meet 909090 objectives.

Methods: Anova in partnership with Johannesburg Health District set up a male friendly HTC site at a shopping complex in July 2016, with three other sites being subsequently opened in other areas across the District. The sites offer HTC to males aged 21 and above, close at 18H00 on weekdays, and 14H00 on weekends to cater for men who are unable to take time off work to access Primary Health Care (PHC) facilities. These locations (shopping complexes) were selected as men could access HTC while shopping, and on their way to & from work. The waiting time at the sites is around 30 minutes, catering for men who are unable to wait for a longer time as is usually the case in clinics. Health promoters mobilise men around the plaza, taxi rank, workplaces, etc. while Community health workers mobilise within nearby communities. HTC services are provided in line with SA DoH guidelines.

Results: From 1st July 2016- 30th December 2017, 31 000 men received HTC at these sites, with 1751 diagnosed HIV positive, overall 6% positivity yield. Of note, 32%, 22% and 20% of those who received HTC were aged 30-34, 35- 39 and 40-49 respectively. The positivity yield was highest in 40-49 year olds (10%), with a yield of 8% in men aged 25-29 and those above 50 respectively.

Conclusions: HTC services can be attractive to men if offered at sites and times convenient for men and efforts should be targeted at men above 40 to increase their uptake of HTC as the positivity yield was found to be highest in this group.

THPED568

Trilateral cooperation between Brazil, Japan and Mozambique: Unifying practices and expertise to strengthen the decentralization process in Gaza and Nampula provinces in Mozambique

V. Cervantes[1], J. Oliveira Dantas[2], R. Alencar de Souza[2], M.C. Gianna Garcia Ribeiro[2], J. Ferreira Nunes Neto[3], R. Paulo Moreira Nandene[4], A. Manhique[5], S. Samuel[6], A. Silva[6], H. Hasegawa[7], S. Victorino[7], T. Sadamori[7]
[1]Secretaria de Estado da Saúde CRT DST/Aids, Assessoria de Planejamento, São Vicente, Brazil, [2]Programa Estadual IST/Aids, São Paulo, Brazil, [3]Agência Brasileira de Cooperação Internacional, Brasilia, Brazil, [4]Conselho Provincial de Combate ao SIDA - Gaza-Moçambique, Gaza, Mozambique, [5]Conselho Distrital de Combate ao SIDA de Chókwè - Gaza-Moçambique, Gaza, Mozambique, [6]Conselho Provincial de Combate ao SIDA de Nampula, Nampula, Mozambique, [7]JICA Moçambique (Agência Japonesa de Cooperação Internacional), Nampula, Mozambique

Background: The HIV epidemic in Mozambique, affect social and economic development. 1.8 million people are living with HIV in Mozambique (IMASIDA, 2015). HIV prevalence is 13,2% amongst adults (IMASIDA, 2015), with higher prevalence amongst female (15,4%) versus male (10,1%). Gaza province presents the highest prevalence in the country (24.4%). Nampula (5.7%).

Since 2013, the Coordination for STI/AIDS of Sao Paulo (CE-STI/AIDS-SP), Brazil, in collaboration with the Japan International Cooperation Agency (JICA), has been supporting efforts for the decentralization of the AIDS response in collaboration with Mozambican autorities. Different than other cooperation, these players used a combined approach to enhance knowledge and capacities in order to generate solutions across the system of HIV responses.

Description: The CE-IST/AIDS-SP approached strengthening management, including related people, tools, and working processes, first by training 24 high-level staff on planning and trainees were comprised managers and activists from NGOs. The interaction and subsequent improvements to working processes has generated specific dynamics amongst the participants/organizations. The training stimulated participants power for change through the learning processes. As it was designed for this cooperation, its implementation has highlighted and commitment of each player. In Gaza, after this training process which took 80 hours, eleven professionals were selected as facilitators who would emulate their own experience for lower-level managers and activists. A total of 291 people were ultimately trained in twelve districts and three provinces. A similar experience happened in Nampula, resulting 82 providers trained.

Lessons learned: Involvement of strategic players at provincial level strengthened the collaboration and alignment amongst managers response at different levels. The facilitators had gained visibility at provincial and national levels, eventually multiplying the diffusion of this integrated model. We observed that it also reduced boundaries between public and private sectors, bringing the communities closer to system and enhancing collaboration and social accountability.

Conclusions/Next steps: Relevant and influential facilitators serve as a regional reference to the amplify strategic and focused planning processes. The combination of expertise and diverse cultures have enriched the processes and the outcomes, showing the potential of horizontal and South-to-South collaboration—triangulated with a Northern agency—has, especially in settings where financial resources become scarce.

THPED569

Monitoring strategies for HIV drug resistance in PrEP rollout settings

L. Levy[1], L. Kudrick[2], B. Chohan[3], I. Mukui[4], K. Rebe[5], J. McIntyre[6], M. Dunbar[7], O. Mugurungi[8], T. Mutasa-Apollo[8], E. Gwavava[9], I. Yacobson[10], J. Peterson[11], M. Fawzy[10], K. Torjesen[10], J. Mellors[12], U. Parikh[12]
[1]FHI 360, Washington, DC, United States, [2]University of Pittsburgh, Pittsburgh, United States, [3]Kenya Medical Research Institute, Nairobi, Kenya, [4]National AIDS & STI Control Programme, Ministry of Health, Nairobi, Kenya, [5]Anova Health Institute, Department of Medicine, University of Cape Town, Cape Town, South Africa, [6]Anova Health Institute, School of Public Health, University of Cape Town, Cape Town, South Africa, [7]Pangaea Zimbabwe AIDS Trust, Oakland, United States, [8]Ministry of Health and Child Care, AIDS and TB Programme, Harare, Zimbabwe, [9]Populations Services International Zimbabwe, Harare, Zimbabwe, [10]FHI 360, Durham, United States, [11]FHI 360, Lilongwe, Malawi, [12]University of Pittsburgh, Division of Infectious Diseases, Pittsburgh, United States

Background: HIV drug resistance among pre-exposure prophylaxis (PrEP) seroconverters is a concern as some antiretrovirals are used for both HIV prevention and treatment. Evidence on HIV drug resistance in PrEP seroconverters is limited and comes from PrEP efficacy studies with different HIV testing intervals and adherence support strategies compared to PrEP rollout. More data are needed to understand the risk of HIV drug resistance in real-world implementation.

Description: Approaches to HIV drug resistance monitoring may include:

1. Standalone **research protocols** that include drug resistance testing (DRT)
2. Adding DRT to ongoing PrEP **demonstration projects**
3. Incorporating DRT into **national PrEP guidelines** and policies
4. Incorporating DRT into ongoing surveillance for antiretroviral therapy failures/pre-treatment surveillance as part of **national surveillance programs**

The Global Evaluation of Microbicide Sensitivity (GEMS) project, in collaboration with country stakeholders, initiated drug resistance assessment projects in Kenya, South Africa and Zimbabwe utilizing Approach-

es 1 and 2. Protocols were developed to assess drug resistance among a national sample of PrEP users (Kenya and Zimbabwe), and among select key populations, including men who have sex with men and sex workers (South Africa). DRT for seroconverters was also incorporated into existing demonstration projects in Kenya and South Africa, involving adolescent girls, young women, MSM and serodiscordant couples.
Lessons learned: Countries have varying degrees of resources and stakeholder engagement for integrating DRT for PrEP delivery, impacting the strategy for resistance monitoring. Countries are supportive of conducting a time-limited evaluation of drug resistance (Approach 1 and/or 2) in the absence of clear data and during early stages of PrEP rollout. The need for long-term monitoring (Approach 3 and/or 4) will be assessed after initial data are analyzed.
Conclusions/Next steps: As PrEP is implemented, early assessment of resistance risk is critical for understanding the implications for oral PrEP programs at scale. Approaches to drug resistance monitoring will vary and may evolve as new data are analyzed. The methods proposed by GEMS, along with its implementation support materials, will assist countries in developing policies that best fit their PrEP program needs and resources.

THPED570

"Nothing for us without us"- community ownership of treatment progrmmes through monitoring of OI/ART services by PLHIV in Zimbabwe

T. Magure[1], R. Yekeye[2], A. Mpofu[3], S. Mpofu[2]
[1]National AIDS Council (NAC), CEO, Harare, Zimbabwe, [2]National AIDS Council (NAC), Programmes, Harare, Zimbabwe, [3]National AIDS Council (NAC), M&E, Harare, Zimbabwe

Background: The Community monitoring Programme in Zimbabwe is a good example of how community involvement in the national response can be achieved. Through this programme, PLHIV as major stakeholder in the national response are able to assess the state of affairs of ART and diagnostic equipment in health centres and ensure that corrective measures are taken by the service providers. The programme aims to:
· To assess the availability of ARVs in the OI clinics and discuss best practices and challenges of the ART Programme with health workers and clients
· To assess the state of diagnostic equipment for OI/ART services.
Description: PLHIV conduct interviews with health practitioners and clients of the ART programme through structured tools in a bid to triangulate the information collected from both sources. A report is compiled and shared with representatives of the policy makers from Ministry of Health, the National Laboratory and National Pharmacy, National AIDS Council and PLHIV at all levels. This is done by PLHIV themselves in the spirit of MIPA.
Lessons learned:
- OI/ART clients still travel long distances to access services but implementation of Community ART Refill Groups are assisting with access.
- The community monitoring programme has greatly assisted the Ministry of Health to unlock bottlenecks in the delivery system of ARVs, DBS and diagnostic equipment and enabled swift corrective action especially where bottleneck are a result of human error.
- PLHIV were able to appreciate the workload that health practioners have and the operational environment
- The Programme has managed to put to the fore the state of diagnostic equipment resulting in prioritising diagnostic equipment such as viral load PIMA machines in the Global Fund Proposal.
- Meaningful Involvement of PLHIV has been enhanced whereby PLHIV, plan, Implement, monitor and advocate for quality delivery of ART services.

Conclusions/Next steps: Community monitoring improves access to ART services and assists in bringing together the services providers and consumers towards a common goal in fulfilling the MIPA philosophy of "Nothing for us without us" Local teams set up for routine monitoring.

Policies addressing social and economic determinants of vulnerability

THPED571

Mobilizing local governments' responses towards the welfare of hijras/transgender women in India: Steps towards improved social well-being of trans people

J. Ignatious[1,2], J. Williams[1], V. Arumugam[1], K. Pramod[3], L. Das[3], R. Dhas[3]
[1]Voluntary Health Services, Projects, Chennai, India, [2]APCOM, MSA-DIVA - Project, Bangkok, Thailand, [3]Voluntary Health Services, Projects Division, Chennai, India

Background: Local governments (district panchayat) are responsible for addressing the needs and priorities of all people in their constituencies. Given the critical lack of awareness and understanding of transgender people, integrating/implementing trans welfare policies or programmes at grassroots level is quite challenging.
Description: Voluntary Health Services (VHS), with support from the Global Fund, is implementing a four-year project (2014-18) titled *'Diversity in Action'* in India to reduce the impact of HIV on hijras/transgender women. A focus area of the project was to conduct policy dialogue with various key stakeholders, especially district panchayat leaders and political parties, on issues faced by hijras/transgender women. As a first step towards creating awareness about the issues and rights of hijras/transgender women, VHS conducted a series of policy dialogue meetings with 85 members of panchayats in 03 districts in Kerala. A promising outcome from these policy dialogue meetings was securing earmarked funds of INR 11 lakh (USD 18,000) for transgender welfare schemes by district panchayats in Kerala. Similarly, another outcome was the inclusion of transgender welfare programmes in the election manifesto of a dominant political party, the Left Democratic Front (LDF), in Kerala.
Lessons learned: Local governments play a crucial role in creating enabling and safe environments for their constituencies, including trans people. Active support and commitment from political parties and leaders have raised hopes for strengthening enabling environments for trans people and improve their social well-being.
Conclusions/Next steps: Trans communities from these districts will monitor the use of the earmarked funds and also follow up with the implementation of the trans-specific action plan announced in the election manifesto. The lessons learnt from this initiative will be helpful in designing and scaling up similar activities in others states in India.

Policies addressing HIV in the workplace and/or educational institutions

THPED572

The case of Peru: Evidence-based sexuality education in the curriculum contributes to reduce inequalities and to prevent HIV in schools

C. Murguía Pardo
UNFPA Peru, Adolescence and Youth, Lima, Peru

Background: In 2016, Peru finished the reform of learnings and the revision of the educational curriculum to strengthen its impact in students life, including their autonomy, decision making competency, self-care and HIV prevention. The incorporation of comprehensive sexuality education (CSE) in the curriculum was key to: respond to limitations in its conceptual and pedagogical treatment, call for political support, make the issue visible and reduce the resistance of conservative sectors .
It was an opportunity to consolidate gender and human rights approaches thanks to the recognition of international cooperation in its role of evidence-based technical assistance.
Description: An intense process of political dialogue and technical assistance based on evidence aimed to MoE was launched by UNFPA and UNESCO to incorporate CSE in the curriculum, impacting at politi-

cal, programmatic and operational levels, involving multiple actors. The process involved the review of evidences, south to south cooperation, participatory forums at the national level, specialized technical assistance and two public opinion surveys on CSE to collect the perceptions of the citizenship. The process ended with the official approval of the curriculum that includes competencies and learnings to the exercise of a healthy sexuality.
Lessons learned: Technical assisstance based on evidence, face to face with officials of the education sector, at national and local level, was highly valuable to answer doubts as well as false concepts about CSE, sexuality, HIV prevention, current legal norms, and to sensitize them around the fundamental role of school in the protection and respect of adolescents human rights.
In the processes of reviewing the curriculum it was key to involve the different areas of the MoE, not only basic education, in order to ensure normative coherence, enrich the proposal from an interdisciplinary perspective, generate consensus regarding the changes to be proposed and ensure the subsequent approval and/or implementation of the curriculum and CSE as key part of it.
Conclusions/Next steps: To support the progressive implementation of the curriculum as planned by the MoE maintaining gender and human rigths approaches as well as CSE as key axes to prevent unwanted pregnancies, gender based violence and STI /HIV and AIDS. The training of teachers is key.

THPED573

Equal rights to health: Reducing discrimination towards persons living with HIV in healthcare settings in China

R. Wu, B. Zug-Castillo
International Labour Organization, Geneve, Switzerland

Background: Persons living with HIV (PLHIV) face discrimination in accessing medical treatment in China. A 2011 study by China's Alliance of PLHIV (CAP+) showed a person living with HIV would normally experience more than six denials of treatment or referrals to other hospitals before finally accessing the services. What are the reasons for this?
Description: The ILO and the China Center of Disease Control researched into the reasons for discriminatory attitudes of healthcare workers towards PLHIV and found two main reasons:
- poor and unsafe working conditions healthcare care workers face; and
- lack of training on the prevention of occupational safety and health (OSH) in healthcare settings and on the adoption of universal precautions.

The ILO and the China STD/AIDS Prevention and Control Association, adapted the ILO/WHO HealthWISE Training Manuals and translated it into Chinese. Four training workshops, covering 70 major hospitals, were organized to share the HealthWISE knowledge and tools with healthcare practitioners and guide them to prevent and manage occupational exposure to blood-borne pathogens, including HIV. 30 senior managers committed to improving OSH and reduce discrimination towards people living with HIV. 50 hospitals already implemented HealthWISE. Their healthcare workers identified occupational hazards and risks in their workplace and found low or no-cost solutions. 15 hospitals created an occupational safety and health management system to address OSH and HIV-related discrimination issues in a systematic manner.
Lessons learned:
- Attention to improving working conditions in healthcare settings, access to information and buy-in of senior management are essential to protect healthcare workers from exposure to occupational diseases, including HIV, and improve the quality care for persons living with HIV.
- It is important to institutionalize the work: HIV and OSH committees have been created under the China STD/AIDS Prevention and Control Association.

Conclusions/Next steps: The programme is to be scaled up and results to be shared with other countries for replication.

THPED574

A human rights approach to successfully change national aviation laws to enable people living with HIV to train as pilots

N. Sparling[1], J. Bushe[2], G. Valiotis[1]
[1]HIV Scotland, Edinburgh, United Kingdom, [2]Community Advocate, Glasgow, United Kingdom

Background: People living with HIV are restricted from gaining required certification to train as Commercial Airline Pilots (CAP) based on medical assessment guidelines set out by the European Aviation Safety Authority (EASA). Although EASA allows for member states to deviate from these guidelines, whilst maintaining a high level of safety, the United Kingdom had refused to grant medical certificates to first time applicants living with HIV. Without coordinated efforts toward updating the policies on medical assessment, the Civil Aviation Authority (CAA) would be in opposition of the Equality Act 2010.
Description: HIV Scotland, the national HIV policy NGO, worked with community members, clinicians, media, and politicians to outline the human rights implications and identifying existing evidence that illustrated that the CAA policies were not in accordance with current medical evidence and international best practice. The British HIV Association and the National Gay Pilots Association provided national and international evidence that supported a change in this policy that people living with HIV on effective treatment did not have neurocognitive impairments that would impact on safety, and therefore should be granted a medical certificate to enable applicants to become a pilot.
Through work with journalists and community activists who were directly impacted by this policy, we were able to raise the profile of this story, whilst highlighting contemporary information HIV. The campaign created opportunities for political leadership and was supported by Scotland's First Minister.
Lessons learned: This community-led work illustrated that by using human rights principles, and partnering with relevant organisations, we were able to advocate to change policy to be in accordance with current medical evidence. This approach allowed the CAA to deviate from the EASA regulations by awarding medical certificates to people living with HIV who would otherwise pass a medical examination. This has resulted in people living with HIV being able to take up training programmes to become CAPs in the UK.
Conclusions/Next steps: By creating links between human rights legislation and the CAA policy, and by building an effective media strategy, we were able to place this discriminatory policy high on the agenda of policy-makers and stakeholders which lead to the discrimination being overturned.

Policies related to treatment access, including intellectual property policy

THPED575

Success of inter-associative advocacy strategies for access to dolutegravir in Morocco

M. Ahmar[1,2], O. Mellouk[3], H. Himmich[1], M. Karkouri[1]
[1]ALCS, Casablanca, Morocco, [2]Coalition PLUS Community-Based Research Laboratory, Paris, France, [3]ITPC, Marrakech, Morocco

Background: Dolutegravir (DTG) is an ARV developed by ViiV. Commercialized since 2014, it has become considered one of the best ARVs and is now recommended as alternative first line by WHO. However, access remains limited in developing countries due to price barriers. A voluntary license (VL) negotiated by ViiV and generic companies through the Medicines Patent Pool (MPP) gives access to generic DTG in 92 countries. As a middle-income country (MIC), Morocco was initially excluded from the license.
Description: Moroccan authorities conducted unsatisfactory negotiations with ViiV with a too high end price of US$ 1500 pppy while generic companies were announcing prices of US$ 44 pppy. Unsuccessful ne-

gotiations would have given the ability to Morocco to issue a unilateral compulsory license (CL) and produce and/or commercialize generic DTG despite patent protection.
Two Moroccan CSOs, ITPCMENA and ALCS partnered to advocate to ViiV, Ministry of Health (MoH) and MPP for access to generic DTG.
1) Advocates met bilaterally ViiV's representatives to demand the integration of Morocco in the VL advancing that Morocco could otherwise issue a CL.
2) Advocates had several encounters with the MPP to discuss access strategies for Morocco.
3) Advocates asked the MoH to issue a CL or formally ask the MPP to be integrated in the VL. They supported the MoH to formally request from ViiV its integration to the VL.
On the occasion of AFRAVIH 2016, ViiV announced the inclusion of Morocco to its license.
Lessons learned: Morocco did not issue a CL however discussions with Moroccan authorities introduced the idea that it was a possible strategy. On the other hand the probability that Morocco could issue a CL prompted ViiV to accept inclusion of Morocco in the VL to avoid losing its market altogether. Finally, discussions with MPP encouraged them to push for Morocco's inclusion in the VL. The strategy of ITPCMENA and ALCS to advocate towards multiple actors enabled access to generic DTG for Morocco.
Conclusions/Next steps: Following civil society's efforts, Morocco now has access to generic DTG. ITPCMENA and ALCS are currently advocating for the immediate inscription of DTG in the therapeutic guidelines as a first line ARV therapy.

THPED576

Mercosur-European union free trade agreement: Impact analysis of TRIPS-plus measures on public purchases and domestic production of HIV and hepatitis C medicines in Brazil

M.C. Fogaça Vieira[1], G. Costa Chaves[2], W. Britto Gaspar[2]
[1]Consultant, AccessIBSA, Sao Paulo, Brazil, [2]Sergio Arouca National School of Public Health, Oswaldo Cruz Foundation, Department of Medicines Policy and Pharmaceutical Services (NAF), Rio de Janeiro, Brazil

Background: The European Union (EU) and Mercosur countries are negotiating a free trade agreement (FTA) containing a chapter on intellectual property rights (IPR) with TRIPS-plus measures that can negatively impact access to treatment. The study assess the public health impact of TRIPS-plus measures on public expenditures on medicines and sales of domestic production in Brazil, with focus on antiretroviral (ARV) medicines used in the treatment of HIV/Aids and medicines used for hepatitis C.
Methods: We applied the Intellectual Property Rights Impact Aggregate (IPRIA) Model to estimate the impact of TRIPS-plus provisions on the public expenditures and domestic sales of medicines in Brazil. We simulated five different scenarios to estimate the impact of including the two main TRIPS-plus provisions proposed by the EU both separately and together (patent term extension and data exclusivity). We also simulated the impact of removing a TRIPS-plus provision that is already included in Brazilian law.
Results: The results show an increase in public expenditures with purchase of medicines and a reduce in sales of domestic production in case of adoption of TRIPS-plus provisions and savings in public resources and increase in domestic production sales in case of removing already existing TRIPS-plus provision. The figures are summarised on table 1.
Conclusions:
1. Strategies adopted to negotiate price and remove patent barriers (TRIPS flexibilities) have reduced the negative impact of IPR on access to ARV allowing for the treatment of more people with small increase in total expenditures.
2. The adoption of TRIPS-plus measures proposed by the EU, besides the increase in public expenditures and reduction of domestic sales, would also reduce the policy space currently available to adopt measures to reduce the negative impact of IPR on health policies. That could lead to higher increase in public expenditures and decrease of sales by national producers in the whole pharmaceutical market;
3. Public expenditures on medicines have been increasing in the past years, consuming rising shares of the total public health budget as a result of incorporating medicines under market exclusivity. The adoption of new measures that increase market exclusivity is detrimental to the sustainability of the public health system.

Scenario	Time period	Variation in ARV expenditure compared to base scenario (BRL)	Variation in expenditure on medicines for hepatitis C compared to base scenario (BRL)
Alternative (Alt) 1	2015-2050 for ARV and 2016-2051 for hepatitis C	-2,054,436,157.85	-16,862,109,838.52
Alt 2		1,255,011,241.61	16,326,989,040.47
Alt 3 (5-years DE)		2,452,784,149.22	31,451,189,948.91
Alt 3 (8-years DE)		3,740,179,503.19	47,861,780,962.03
Alt 4 (5-years DE)		3,707,795,390.84	46,639,086,730.75
Alt 4 (8-years DE)		4,995,190,744.80	63,049,677,743.86

[Table1. Summary of findings]

THPED577

Assessing the effect of test and start policy on HIV treatment uptake in Nigeria: A segmented regression analysis

B.O. Onifade[1], C. Nzelu[2], S. Aboje[2], G. Eluwa[3], O. Folajinmi[4]
[1]National AIDS/STIs Control Programme, Public Health, Federal Ministry of Health, Abuja, Nigeria, [2]National AIDS/STIs Control Programme, Public Health, Abuja, Nigeria, [3]Population Council, Abuja, Nigeria, [4]AIDS Healthcare Foundation, Abuja, Nigeria

Background: Nigeria has an estimated 3.2 million people living with HIV (PLHIV) but only 1,050,594 clients are on antiretroviral treatment (ARTs) as at December 2017. In 2016, Nigeria approved the implementation of the Test and Start policy as a means to increasing access to ARTs and as a means of prevention. We assessed the effect of this policy on initiating newly identified HIV positive clients into treatment.
Methods: Data on HIV treatment were pooled across 10 states between July 2016 and December 2016 representing pre-policy period and between January 2017 to June 2017 representing post-policy period. Segmented linear regression was used to analyze the effect of the intervention as shown by „Yt = $_0$ + $^*_1$time + $^*_2$intervention + $^*_3$postslope + $_{1}$.
Yt is the outcome variable (number of clients initiated on ART) at time t; $_0$ captures the baseline level of the outcome at time 0; $^*_1$ estimates the growth rate in ART uptake independently from the intervention; $^*_2$ estimates the immediate impact of the intervention and $^*_3$ reflects the growth rate in outcome, after the intervention.
Results: A total of 31,631 and 27,402 clients were initiated on treatment in the pre-policy and post-policy periods respectively. Segmented regression analysis showed that at baseline, on the average, 7,684 ($_0$) clients were newly initiated into treatment monthly. There was no significant month-to-month change in the number of clients newly initiated on treatment in the pre-policy ($^*_1$:689 clients; p=0.110) period, however there was an insignificant decline in the post policy period ($^*_3$:29 clients; p=0.940). In addition, there was no immediate effect of the policy on initiation of new clients into treatment ($^*_2$:1,122; p=0.570).
Conclusions: The test and start policy in Nigeria has not yielded any significant increase in the number of new clients initiated into treatment. This directly mitigates the possibility of Nigeria attaining the second "90" of the UNAIDS 90:90:90 goal which aims to ensure that 90% of HIV positive clients are initiated on treatment. Robust evaluations of implementation strategies are urgently required to identify the gaps and consequently design appropriate and effective interventions.

THPED578

Humanitarian crisis and access to HIV services in Nigeria: An analysis of national ART programme coverage from 2014 - 2016 in states with humanitarian crisis

O. Michael Kayode[1], S. Oshagbami[1], J. Aneni[2], G. Ujam[1], S. Aliyu[3]
[1]National Agency for the Control of AIDS, NACA, Policy, Planning and Coordination, Abuja, Nigeria, [2]National Agency for the Control of AIDS, NACA, Monitoring and Evaluation, Abuja, Nigeria, [3]National Agency for the Control of AIDS, NACA, Abuja, Nigeria

Background: The goal of Nigeria ART programme is to utilize available resources to improve ART coverage towards achieving the UNAIDS 90-90-90 targets. Nigeria has 983,980 patients accessing ART out of an estimated 3.2 million patients in 2016. This study analyzed the relationship between ART coverage and humanitarian crisis on national ART indicators in states affected by humanitarian crisis between 2014 and 2016.
Description: Nigeria has suffered severe humanitarian crisis which has resulted in disruption of services and displacement of persons from their communities in many states. The number of displaced persons rose from less than 400,000 in 2013 to above 1.9 million in 2016 and displaced persons are not included in the national ART. The selected states for this study are; Borno, Yobe, Adamawa, Taraba, Kaduna, Plateau, Benue and Nasarawa.
This study analyzed 2014 to 2016 ART coverage in the above eight states and compared the data with ART coverage in the following eight states with similar HIV burden but without humanitarian crisis; Oyo, Abia, Cross Rivers, Kano, Delta, Bauchi, Rivers and Ogun. The data were critically reviewed and described on the following indicators:
(1) Facilities reporting ART services,
(2) Patients currently on ART, and;
(3) Patients Lost to Follow Up(LFTU).
Lessons learned: In Indicator 1, the numbers decreased in 62.5 % and flattened in 37.5% of the states with humanitarian crisis while it increased in 50% and flattened in 50% of the states without humanitarian crisis.
On indicator 2, the numbers decreased in 50%, flattened in 25%, increased in 25% of states with humanitarian crisis and increased in all the states without humanitarian crisis.
on indicators 3, the numbers increased in 37.5% and flattened in 62.5% of the states with humanitarian crisis and decreased in 62.5% and flattened in 37.5% of the states without humanitarian crisis.
Conclusions/Next steps: The result showed a relationship between humanitarian crisis and disruptions to ART services in the states with humanitarian crisis in Nigeria. This has implication for ART wide service gaps in Nigeria (70%).
Nigeria needs urgently a policy and guideline on HIV services for humanitarian emergencies to address the effect of Humanitarian crisis on HIV service gaps.

THPED579

Civil society mobilization for the Compulsory License in Perú

L. Lopez, J. Llamoza
Acción Internacional para la Salud, Advocacy, Lima, Peru

Background: In Peru, less than 5% of the 30,000 PLWH that receive ARV treatment are on a combination with atazanavir, but in 2014, the procurement of this drug cost more than half of the budget. In 2013, Peru paid the highest price for atazanavir 300mg, compared to all the other countries in the region, and 43.5 times the price of the generic version, also available in Latin America.
Description: Accion Internacional para la Salud (AIS) led meetings and demostrations pressing the government to declare atazanavir public insterest and apply the compulsory license in order to optimize resources, contributing to the sustainability of the response. This demand was supported by many civil society organizations from Peru, Latin America and the world including the significant participation of PLWH.
The Government refused to grant the Compulsory License and asked Brazil for donations until the end of 2017. AIS and other CSO, sponsored by the Congress of the Republic, developed a bill that declares atazanavir to be of public interest, which is expected to be soon debated in plenary.
The company, holder of the patent in Peru, responded to civil society pressure with bias communication campaign. However, in 2015, it had to reduce its price by 35%.
Lessons learned: The compulsory licensing process can have as an intermediate result, significant savings in the purchase of medicines. Between 2015 and 2017, due to donations and price reduction, Peru saved more than US 13 million in the purchase of atazanavir.
During the company campaign to distort information, it was key to strengthen civil society organizations to maintain the pressure for compulsory licensing. The support of international organizations from developed and developing countries, was also of critical importance.
We work on intellectual property literacy, in particularly on TRIPS flexibilities with Government officials, politicians, and other stakeholders.
Conclusions/Next steps: In countries such as Peru, active engagement of civil society organizations should encourage the use of TRIPS flexibilities as the compulsory license to promote competition in the market, in order to have more affordable prices for ARVs and contribute to the sustainability of HIV response.

THPED580

Advocacy for gender affirmation care in the United States: Learning from the injectable estrogen shortage and its implications for HIV

K.J. Smith, MPA[1], T. Horn[2], S. Geffen[3], S. Cahill, Ph.D.[4,5]
[1]Callen-Lorde Community Health Center, Administration/Policy, New York, United States, [2]Treatment Action Group, New York, United States, [3]Fenway Community Health Center, Inc., Health Policy Research, Boston, United States, [4]Fenway Institute, Fenway Community Health Center, Health Policy Research, Boston, United States, [5]National Center for Innovation in HIV Care, Washington D.C., United States

Background: Hormone therapy to affirm gender identity is a medically necessary intervention for many transgender individuals. From 2015 to 2017, a reliable supply of 40 mg/mL injectable estrogen was not available in the United States, and reports suggest that shortages have reoccurred for years and continue in 2018. Lack of access to hormone therapy poses a significant health equity issue for transgender women and presents a structural barrier to HIV prevention and care.
Description: In response to the U.S. shortage, an advocacy campaign was developed to emphasize the importance of injectable estrogen for transgender women, educate the transgender community about the health risks of seeking estrogen outside of clinical settings, highlight the failure of the U.S. Food and Drug Administration's (FDA) and pharmaceutical companies' ability to guarantee a supply of injectable estrogen, and outline ways to remedy the shortage. The campaign included a sign-on public comment, co-authored by two community health clinics and a global treatment advocacy organization, which generated 570 signatories. Other advocacy actions included meetings with FDA representatives, an issue brief, and mobilization efforts to encourage individuals to submit public comment. A short-term solution of restocking all formulations of injectable estrogen was proposed.
Lessons learned: Ineffective FDA and manufacturer responses to repeated estrogen shortages are due partially to a lack of research and approved prescribing guidance that recognizes transgender women as a population dependent on continuous access to preferred hormone therapy formulations. Long-term solutions are needed to address the lack of federally-funded research and, consequently, evidence-based practice, on hormone therapy for gender affirmation.
Conclusions/Next steps: The FDA ensures the safety and efficacy of estrogen for menopausal, cisgender women through on-label use informed by clinical trials, but allows off-label use of estrogen for transgender women to remain the standard of care. Such disparate treatment is a health equity issue and presents barriers to HIV prevention and care for transgender women. Advocates will need to push the FDA to accept responsibility for ensuring correct prescribing and usage information of injectable estrogen and further demonstrate to the FDA that the use of prescription injectable estrogen is common among transgender women and supports positive health outcomes.

THPED581

The Strategy of ART optimization in regional AIDS Centers of Ukraine

M. Parkhomenko, L. Hetman, S. Riabokon, O. Svyryd, M. Varyvoda, L. Lehkostup, T. Starichenko, L. Nychyporenko
State Institution 'Public Health Center' of the MoH of Ukraine, Kyiv, Ukraine

Background: Ukraine is low/middle income country with significant number of people living with HIV (PLWH) with great importance to allocate the scarce state budget resources most effectively with maximum health outcome. At the beginning of 2017, estimated number of PLWH was nearly 238,000 (aged 15+; 0.61% of the total population in this age category). At the initiative of State Institution „Public Health Center of the Ministry of Health of Ukraine" (PHC of MoH) taking into account the access for Ukraine to the possibility of purchasing modern generic antiretoviral drugs (Dolutegravir/DTG), the Strategy of ART optimization was developed.

Description: Trying to bring guidelines in accordance to international recommendations the MoH supported the initiative of adoption of recommendations for the early start of ART for all HIV-infected patients, switching patients to modern treatment regimens, as well as work on a new ART protocol. The recommendations were sent by official letter of MoH to all 25 regional AIDS Centers of Ukraine in the procurement process when requirements for antiretroviral drugs at the expense of State Budget 2017 were developing. The following percentage of antiretroviral drugs was recommended for ART regimens in 2017:
· AZT/3TC - 25%
· ABC/3TC - 10%
· TDF/FTC - 25%
· TDF/FTC/EFV - 40%
· LPV/r - 20%
· EFV - 10%
· DTG - 30%

Lessons learned: The strategy gives possibility for the network of 25 AIDS centers of Ukraine at the same time:
· to use modern and effective drugs (Dolutegravir),
· to reject of highly toxic and outdated ART forms (Nevirapin, Stavudin, Didanosin, Zidovudin),
· to deny of non-recommended ART regimens: (3 NRTI),
· to transit to generic drugs (Abacavir, Abacavir/Lamivudine, Tenofovir/Emtricitabine/Efavirenz, Dolutegravir, Atazanavir)

Conclusions/Next steps: As of September 2017, it was planned to maintain recommendation character of the Strategy about subsequent procurements at the expense of the state, international and non-governmental budgets
(Transition from AZT-regimens in favor of TDF-regimens, rejection from NVP and LPV in 1st line of ART in favor of DTG (recommended) and EFV (alternative). Annex)
The Strategy became a basis for National Plan of ART Optimization for 2018-2020, which has to be approved by the order of MoH.

[Present and future of ART regimens (as of September 2017).]

Policy analysis and indicators of policy effectiveness

THPED582

Better targeting of existing investments in prevention is needed to focus on interventions with proven impact: Prevention resources need to double by 2020 to reach Fast Track targets

J.A. Izazola-Licea, D. Mattur
UNAIDS, Strategic Information, Geneve, Switzerland

Background: The response to HIV/AIDS must address funding of efficient and effective prevention, treatment and discrimination reduction. The resource needs for prevention should be focused on the interventions/services with proven impact and for the population/location where needed. UNAIDS has promoted 5 pillars for effective prevention: investment in prevention for key populations (KP), Condoms, Pre-Exposure Prophylaxis (PrEP), and voluntary medical male circumcision (VMMC) and cash transfers for young women and girls (CTYWG) in high prevalence settings.

Methods: Available data from National AIDS Spending Assessments, GARPR/GAM reporting and program coverage data for each service/intervention and estimated unit costs were used to estimate expenditures in 112 low- and middle-income countries (LMICs) by end-2013 and end-2014, which were the baselines for the 2015-2030 Global Resource Needs estimates to reach the End of AIDS as a Global Public Health threat by 2030. 2013/14 data was compared to 2020 targets.

Results: The estimated prevention expenditures totaled US$3.7 and US$3.7 billion in 2013 and 2014 respectively (17.2% and 17.5% of the total HIV resource availability in LMICs respectively).
The major international sources (PEPFAR and GFATM) disbursed $1.1Bn, $1.3Bn and $1.2Bn in prevention in 2013, 2014 and 2015.
Only 36% in 2013 and 43% in 2014 were invested on the 5 pillars of prevention: $608m and $811m for condoms, $335m and 330m for KP, $400m and $424m for VMMC respectively; additionally $350m and $314m on prevention of parent to child transmission of HIV (PMTCT); the rest in various services.
The estimated resource needs for prevention in LMICs by 2020 are $7Bn: $2Bn for condoms, $2.7Bn for KPs, $560m CTFYWG, $781m for PrEP, $485m for VMCC. $476m would be needed for PMTCT.

Conclusions: There is significant room to improve the allocation of prevention expenditures for a more efficient mix. It is unlikely that more resources from international sources can be made available.
Prevention investments needs to double by 2020 compared to 2013/14; improved allocative efficiency by stopping the expenditures in services with no proven impact can help bridge the gap by almost $2Bn per year. Tracking the resources for effective prevention requires granular programme data to be systematically and periodically monitored.

THPED583

A "foreign agents" law in Russia: Away from the "90-90-90" agenda

P. Aksenov
A Free-Lance Expert, Moscow, Russian Federation

Background: The 2012 Russian legislation obliges any NGO receiving foreign funding and performing 'political activities' to voluntarily register itself as 'foreign agent'. The Russian authorities declared the Law as non-restrictive and serving only to enhance public awareness.
NGOs-'foreign agents' need to meet entangled reporting requirements (estimated for the extra USD 4,000 annually), and to label all their information sources accordingly. Otherwise, they are subject to ridiculously high penalties (min eqv. of USD 5,000 for the Organization and 1,800 - for its Director as an individual). Over 150 NGOs have acquired this status since 2012. There are over 100 cases in the European Court of Human Rights on the subject.

Description: The Law is vague defining 'political activities'. Despite a special provision excluding health care, social prevention, culture and other social fields, it gives wide manipulation tools for the authorities. Seemingly, NGO's work in HIV sphere falls under the exclusion, so no one applied for registration and faced legal actions before 2015.
By 2017, 9 NGOs working in HIV were selectively labeled as "foreign agents" and subjected to penalties. Almost half of them discontinued having faced compelling legal, financial and reputational barriers. The Amnesty International (2015) has said: "While the 'foreign agents law' was intended to discredit and stigmatize NGOs in the eyes of the general public by using the Cold War terminology to brand them as spies, the new law was designed to cut off their funding".
Lessons learned: The "foreign agent" Act is a restrictive step to move civil society away from the State agenda, incl. HIV/AIDS. The relevant label affects NGO reputation closing any domestic funding opportunities. Along with administrative fines, it puts NGOs above the risk tolerance among international donors as well. The Act gives strong message to the NGO community to avoid any public debates or dialogues with the authorities.
Conclusions/Next steps: The Law contradicts the Sustainable Development Goals, 90-90-90 Strategy and fundamental Human Rights provisions. The Russian authorities need to be called for lifting this Act. NGO community need to be empowered to resist the pressure. The linkage between this Act and the rapid HIV growth should be studied.

THPED584

Trends of rapid initiation of antiretroviral therapy among newly diagnosed HIV-positive patients at a tertiary referral center in Taiwan

Y.-C. Huang[1], Y.-Z. Luo[2], P.-Y. Wu[2], W.-C. Liu[1], H.-Y. Sun[1], C.-C. Hung[1], S.-C. Chang[1]
[1]National Taiwan University Hospital, Department of Internal Medicine, Taipei, Taiwan, Province of China, [2]National Taiwan University Hospital, Center of Infection Control, Taipei, Taiwan, Province of China

Background: Taiwan has adopted the "treat-all" combination antiretroviral therapy (cART) policy since 2015. Recent WHO guidelines recommend rapid initiation of cART, defined as cART initiation within 7 days after confirmed HIV diagnosis, to reduced morbidity and mortality among HIV-positive patients in 2017. The real-world data of rapid initiation of cART is still unknown in Taiwan.
Methods: Medical records of newly diagnosed HIV-positive patients seeking HIV care at the National Taiwan University Hospital between March 2014 and December 2017 were reviewed and information on clinical characteristics were collected. Patients who were aged < 18 years (n=5), had been treated at another hospital (n=40), or enrolled in a clinical trial (n=48) were excluded.
Results: During the 4-year study period, 614 HIV-positive patients were included, with a mean age of 32.6 years, 98.7% being male and 9.3% with acute HIV infection. The mean CD4 count was 318 (SD, 235) cell/μl and 35.0% of the patients (n=200) had CD4 counts < 200 cell/μl at diagnosis. The mean interval between HIV diagnosis to cART initiation decreased from 128 days (SD, 232) in 2014 to 10 days (SD, 13) in 2017. The percentage of patients with rapid cART initiation increased from 16.9% in 2014 to 55.6% in 2017. The mean interval between HIV diagnosis to viral suppression (PVL < 200 copies/ml) decreased from 227 days in 2014 to 83 days in 2017. The median interval between HIV diagnosis to viral suppression were 107 days among patients who received cART within 7 days of diagnosis and 344 days among patients who initiated cART at least 30 days after HIV diagnosis. Before achieving viral suppression, a total of 37 incident cases of syphilis were identified; the incident rates were similar between patients who were rapid initiators of cART (16.7 per 100 person-years of follow-up [PYFU]) and those who delayed cART (17.1/100 PYFU) (p=0.23).
Conclusions: Increasing trends of HIV-positive patients initiated cART within 7 days of HIV diagnosis in Taiwan, which resulted in a shorter interval from HIV diagnosis to viral suppression. The high rates of syphilis before achieving viral suppression implied potentially onward HIV transmission among those who delayed cART initiation.

THPED585

Not "Siri" but SIMONE! - technological and data-driven solutions to improve treatment retention rates among people living with HIV in Bolivia

C.L. Cardozo Martinez[1], W. Velasquez Martinez[2]
[1]Fundacion Hivos, Direccion, La Paz, Bolivia, [2]Fundacion Hivos, Monitoring an Evaluation, La Paz, Bolivia

Background: Hivos and partners have conducted continuous in-depth assessments to promote and increase retention rates of people living with HIV (PLWHIV) and key populations (KPs) across the HIV treatment cascade in Bolivia. These assessments identified different weak points across the care continuum, and in response a specialized HIV Information System software and online platform for Monitoring and Evaluation -called SIMONE, for its abbreviation in Spanish- was developed to address and identify the gaps and it was implemented since 2011.
Description: Currently, SIMONE links -online and on real time- the information received from the voluntary testing and counselling (VTC) points with the databases with the treatment and follow-up centers in charge of antiretroviral therapy (ART) provision. This linkage allows for personalized follow-up with each of the programme's registered patient living with HIV.
Thanks to this technology, SIMONE is able to generate data that allows the programme to monitor the treatment and health status of patients over time, as well as measure program performance in health facilities and in different geographic settings. This information is available in real time for all users of the system in order to: promote transparency, allow early identification of ART abandonment cases generating automatic alerts for doctors, and facilitate data collection and analysis of all key HIV cascade indicators.
Additionally, the SIMONE system also provides information for the adequate quantification of national needs for reactive drugs and supplies, which allows the programme to procure the required medicines and resources in a timely and cost-effective manner.
Lessons learned: SIMONE's value is ultimately dependent on the quality of information that is uploaded. The programme conducts recurring capacity-building activities with specialized staff to ensure both that only high quality data is uploaded in the system, and also the sustainable and effective use of the resources of the online platform.
Conclusions/Next steps: SIMONE provides the country with updated and accurate information to:
· Maintain high ART retention rates.
· Design strategies to address any potential gaps in HIV treatment cascade.
· Enable evidence-based advocacy by civil society.
· Avoid stock-outs of medicines, resources and reactive.
· Comply with international public health reporting standards.

THPED586

Religion in the United Nations (UN) political declarations on HIV/AIDS: An interdisciplinary, critical discourse analysis

S. Smith[1,2]
[1]UNAIDS, Community Support, Social Justice and Inclusion, Geneva, Switzerland, [2]University of Glasgow, College of Arts, Glasgow, United Kingdom

Background: There is tension around issues of HIV and SRHR at the UN in negotiations that seek to achieve consensus on the text of Political Declarations on HIV/AIDS. The consequences of this are compromises in the text, which lead to limitations in national HIV responses and distorted funding flows. Religion is implicated as a source of this tension and conflict.
Methods: A policy analysis was undertaken of Political Declarations on HIV/AIDS adopted by the UN (2001, 2006, 2011 and 2016). A critical discourse analysis methodology (with a cultural studies lens) was applied; with analysis time frame 2010-2017. This study was framed as embedded research, conducted by an 'insider researcher' with dual positionality as an academic/researcher and practitioner within the UN.

Results: The research identifies four discourses in the declarations and two in the wider AIDS response, relevant to policy tensions; i) public health, biomedical; ii) human-rights, gender equality and community engagement discourses: iii) Political discourses of leadership and national sovereignty; and iv) a traditional religio-cultural discourse. In the wider AIDS response a broad bridge-building religious discourse and secularist discourse are evident, but not in the text of the declarations.
The traditional religio-cultural discourse operates to: limit public health and rights-based approaches HIV prevention; influence the tone of paragraphs, framing women and girls as victims, without agency to exercise rights. Compared against UNAIDS strategies the declarations are missing: commitments to address the risks of key populations to HIV and reference to positive contributions of faith communities to the epidemic. The traditional religious discourse is implicated in gaps in the text on key populations and rights. The broad religious discourse includes supportive approaches to public health, human-rights and gender equality, with the potential to bridge gaps. The dominance of secularism at the UN is implicated in exclusion of the broad religious discourse.
Conclusions: Potential solutions to the tension lie in the broad religious discourse, present in countries which practice 'hard' secularism in political negotiations. Locking a broad religious discourse out of the debate maximises space for the conservative voice to dominate. Are States willing to explore counter-intuitive partnerships and ways of working to reverse this trend?

Monitoring and evaluation of policies and their impact on people living with HIV and key populations

THPED587

Removing legal barriers to reduce HIV-related impacts on key populations in ten African countries

L. Ferguson[1], A. Nicholson[1], D. Patel[2], D. Owolabi[2], A. Saha[2], T. Sellers[2], S. Gruskin[1]
[1]Program on Global Health and Human Rights, Institute for Global Health, University of Southern California, Los Angeles, United States, [2]United Nations Development Program, Regional Service Centre for Africa, Addis Ababa, Ethiopia

Background: As part of the Global Fund's Africa Regional HIV Grant for Removing Legal Barriers to Access, UNDP organized a partnership of organizations to reduce the impact of HIV and tuberculosis (TB) on key populations in ten countries (Botswana, Côte D'Ivoire, Kenya, Malawi, Nigeria, Senegal, Seychelles, Tanzania, Uganda and Zambia). Four sub-recipient (SR) organisations administer the grant: the AIDS and Rights Alliance of Southern Africa (ARASA), Enda Santé (ENDA), Kenya Legal & Ethical Issues Network on HIV and AIDS (KELIN), and the Southern Africa Litigation Centre (SALC). UNDP contracted the Program on Global Health and Human Rights (GHHR), University of Southern California to conduct the baseline assessment.
Methods: Using human rights as the framework for this evaluation, we conducted document and literature reviews, 44 key informant interviews and 16 focus group discussions with project implementers and beneficiaries.
Results: Across the region, the legal and policy environment poses distinct but related challenges ranging from bad and conflicting laws to insufficient knowledge, implementation and use of what good law exists. Key populations have a clear understanding of how their rights are being infringed, but their capacity and ability to organize varies by population and location. Stigma remains a key challenge. Cultural and religious leaders play vital roles in communicating messages about HIV and related issues both positively and negatively.
With attention to the specificity of country contexts and populations, evaluating the impacts of policies on key populations requires looking not only at policies and their implementation or at how they are felt and understood within communities but the linkages between a range of factors and actors.
Understanding these interactions and the actions needed to both foster supportive policies and ensure their impact requires qualitative work that considers the combination of actors, existing and potential engagement and collaborations between government actors and key populations and different processes through which positive change might be achieved.
Conclusions: Lessons from this review can support efforts to implement human rights-based approaches to evaluation bringing into focus not only the effectiveness, relevance and sustainability of activities carried out but attention to equality and non-discrimination, inclusion, participation, and accountability.

THPED588

Does awareness of the 2010 Cross River state HIV/AIDS anti-discrimination law influence the experience of HIV stigma among people living with HIV/AIDS in Cross River state of Nigeria?

O.N.O. Nwankwo[1], S. Ameh[1], C.N. Obionu[2], G.I. Nwankwo[3], E. Ugwu[4], O.A. Nwankwo[5]
[1]University of Calabar Teaching Hospital, Community Medicine, Calabar, Nigeria, [2]University of Nigeria Teaching Hospital, Community Medicine, Enugu, Nigeria, [3]Federal Teaching Hospital, Paediatrics, Abakaliki, Nigeria, [4]Center for Clinical Care and Clinical Research, Enugu, Nigeria, [5]Cedacrest Hospital, Labaratory Services, Abuja, Nigeria

Background: HIV stigma is an impediment to dealing effectively with the HIV epidemic.The Cross River state HIV anti-discrimination law was enacted to safeguard the rights of People living with HIV/AIDS(PLWHA) in the state.The law prohibits individuals/institutions from denying PLWHA of their right to job,healthcare,admissions amongst other rights due to their status.However,the effectiveness of such laws in preventing enacted,internalized or anticipated HIV stigma amongst PLWHA have been largely unexplored.This study aimed to assess the impact of awareness of the law on the experience of HIV stigma amongst PLWHA in the state.
Methods: The study was carried out in two randomly selected local government area in Cross River state,Nigeria.All eligible patients attending the comprehensive HIV clinics in the areas from November to February were asked to participate.Data was obtained from 714 PLWHA through a validated,structured questionnaire.Domains of HIV stigma(anticipated,internalised and enacted)was measured based on agreement/disagreement to a 40-item statements based on participants actual/perceived experiences with stigmatization as described in the validated Berger's HIV stigma scale.Descriptive statistics was carried out using frequencies,proportion while inferential statistics was done with chi-square.
Results: Majority of respondents were female(522,70%),married (387,52%) with an average age of 39 years and a monthly income of below 50 USD/day(466,63%).About half,(56.5%)were aware of the HIV anti-stigma law with a minority(11.9%)having ever read its content.Those with tertiary education were more aware of the law compared to those with no formal education(69.0% vs.41.2%,p< 0.0001).Males were more aware of the law than females(64.9%vs.53.0%,p=0.004),with those accessing care in urban area being more aware compared to their rural counterpart(61.7% vs. 51.1%,p=0.04).There was less experience of overall stigma amongst respondents who were aware of the Law compared to those not aware(36.1% vs.41.0%,p=0.002).On examination of the different domains of stigma,awareness to the law was significantly associated with fewer experience of enacted stigma(p=0.013)and internalized stigma (p=0.003).It was also associated with fewer perceived public attitude stigma-a proximate pointer to anticipated stigma(p=0.001).
Conclusions: This study reveals there is socio-economic disparity in awareness of the law and that knowing about the law is associated with fewer reported stigmatizing experiences.Thus the law has a potential to enforce people´s(PLWHA)recognition of their human rights and reduce feelings of stigmatization.

THPED589

Independent multi-country review of community engagement in global fund grant processes: Lessons learned, key principles, and ways forward

N. Rafif[1], M. O'Connor[2], L. Messerschmidt[3], C. Baran[4],
CLAC Indépendant Review
[1]*The Global Forum on MSM and HIV, Policy, Oakland, United States,* [2]*ICASO, Toronto, Canada,* [3]*Independant Consultant, Portland, United States,* [4]*Independant Consultant, Los Angeles, United States*

Background: Evidence shows that HIV programs are more effective when affected communities, including men who have sex with men, transgender people, sex workers, people who use drugs, and people living with HIV are involved in their design and delivery. The Global Fund's strategy (2017-2022) includes an objective to support meaningful engagement of key and vulnerable populations and networks in Global Fund-related processes. To help achieve this meaningful engagement objective, the Fund commissioned CLAC (a collaboration among global key population networks) to carry out an independent study to solicit recommendations and identify key strategic actions and mechanisms to ensure greater accountability by the Global Fund.

Methods: The study took place October to December 2016 and involved a desk review of current best practices, 90-minute interviews with 19 key informants nominated by CLAC and representative of all regions, diseases and population groups. The findings from interviews were synthesized into a working definition of meaningful engagement and a draft set of strategic recommendations. 7 one day in-country consultations were hosted (100 participants in total) to review the recommendations and provide additional country specific context.

The recommendations were summarized into five categories, with ten strategic actions and follow-up activities directed at the Global Fund and other partners.

Results: There was considerable consistency and agreement about what will foster better community engagement in Global Fund process. These included

· Effective and proportional representation in planning and decision-making bodies and processes

· Adequate time and resource allocation to communities to understand systems, derive shared priorities, contribute to debate and discussion, and deliver programs

· Independent oversight of grant negotiations and implementation

· Ongoing efforts to strengthen the capacities of community organizations and community leaders, so that they are able to take on increasing responsibilities and have greater impact

Conclusions: This independent review was conducted at the outset of the 2017-2019 funding cycle. Ongoing monitoring is required to ensure that the recommendations are being heard and acted upon. An agreed definition of meaningful engagement and a measurement tool would help to ensure that the meaningful engagement strategic objective is implemented, and the Global Fund is held to account.

THPED590

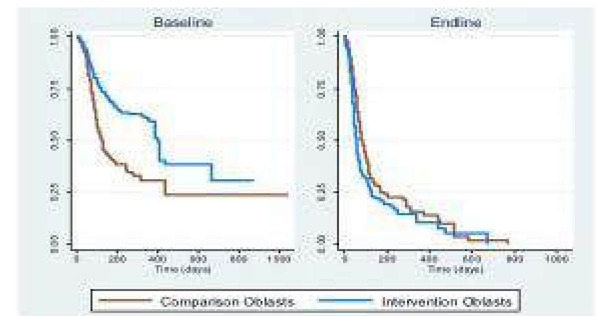
How does integrating HIV and TB services affect health outcomes for HIV-TB coinfected patients in Ukraine? Results from an impact evaluation

S. Agarwal[1], S. Curtis[1], S. Mullen[2], M. Skiles[1], Z. Charyeva[3], K. Brugh[4], C. Suchindran[5], O. Zaliznyak[6], T. Senik[6], P. Brodish[1], S. Eagan[7]
[1]*MEASURE Evaluation, University of North Carolina, Chapel Hill, United States,* [2]*MEASURE Evaluation, John Snow, Inc., Virgina, United States,* [3]*MEASURE Evaluation/University of North Carolina at Chapel Hill, Palladium, Chapel Hill, United States,* [4]*MEASURE Evaluation, Palladium, Chapel Hill, United States,* [5]*University of North Carolina, Department of Biostatistics, Chapel Hill, United States,* [6]*IFAK Institut, Kyiv, Ukraine,* [7]*JSI, Washington, United States*

Background: Ukraine is one of the 10 countries with the highest incidence of multi-drug resistant TB, and about a quarter of all TB patients are also infected with HIV. The USAID-funded Strengthening Tuberculosis Control in Ukraine (STbCU) project aims to strengthen the integration of TB and HIV services to improve timeliness of care and enhance the life expectancy of patients with HIV-TB coinfections. This study evaluated the impact of the STbCU project on HIV and TB service utilization and mortality.

Methods: The study employed a mixed-methods approach, with a quasi-experimental quantitative evaluation design, complemented by qualitative interviews. Using data abstracted from HIV and TB health facility records at baseline in 2012 (N=2,491) and endline in 2015 (N=2,993), we employed a Cox-proportional hazards model with a difference-in-differences approach to assess the impact of integration on screening, diagnostic testing, and treatment for HIV and TB at each of the health facilities.

Results: The HIV-TB integration program was associated with a significant increase in timely initiation of antiretroviral therapy (ART) in HIV centers (HR=1.49, $p<0.05$), and was significantly associated with the likelihood of patients in TB centers receiving a diagnostic HIV test (HR=1.28, $p< 0.05$) and starting ART (HR=2.91, $p<0.001$) (Figure 1). Despite improvements in timely initiation of ART, we did not detect an impact on survival. The survival models did not control for disease severity, due to a large amount of missing data on important variables such as CD4 cell count and TB disease stage.



[Figure 1: ART initiation among coinfected patients at TB dispensaries]

Conclusions: The study suggests that the STbCU program has a positive impact on integrating HIV and TB services and is associated with improvements in timely testing and treatment. At the individual level, having complete records is critical to clinical decision making. At the population level, it is not possible to understand how well interventions are working without complete data. To address this, facility-level measures to ensure data completeness and quality control should be instituted. Efforts to develop digital databases with protocols for sharing confidential patient information across facilities should be strengthened.

THPED591

Effects of PEPFAR's geographic prioritization on HIV and non-HIV services and health systems in Kenya: A mixed methods evaluation

D. Rodriguez[1], C. Mackenzie[2], J. Wilhelm[1], M. Qiu[3], D. Mohan[1], S. Bennett[1]
[1]*Johns Hopkins Bloomberg School of Public Health, International Health, Baltimore, United States,* [2]*Ipsos-Kenya, Nairobi, Kenya,* [3]*ThinkWell Global, Washington, DC, United States*

Background: PEPFAR initiated its Geographic Prioritization (GP) process in 2015 to prioritize its investments in high-burden areas. Seven counties in Northeast Kenya were transitioned to government central support (CS) in September 2016. We conducted a mixed-methods study of USAID-supported CS facilities to assess the GP effects on HIV and non-HIV service delivery and health systems indicators.

Methods: A cluster-based survey of 230 health facilities (173 CS, 57 Maintenance) and analysis of DHIS2 data were combined with national-level qualitative interviews and longitudinal case studies of select facilities. Survey data from health facilities focused on shifts in PEPFAR support for health service delivery and systems. We also extracted four years of service delivery data from DHIS2 for select HIV and non-HIV services. Qualitative data described the GP planning and implementation process.

Results: Service coverage indicators show minimal effects of GP thus far and are confounded by health worker strikes. 10% of transitioned facilities discontinued provision of ART, but DHIS2 data show the number of

patients currently on ART rising faster in CS facilities than in Maintenance following GP (IRR=1.020; p=0.016). Trends in HIV testing, outpatient visits, facility deliveries, and immunizations were either similar or showed CS facilities having better results. Only for ANC visits, which were heavily affected by strikes, were CS facilities worse off (0.987; p=0.024). Study data indicate that effects of GP in CS facilities have been greater, including more health worker terminations, and less training and supervision for HIV services; viral load testing delays; discontinuation of outreach services; and decreasing access to care across population groups. Although county governments have partially stepped in to replace lost support, engagement and investments are uneven.
Conclusions: PEPFAR's GP has not had immediate negative consequences for coverage of HIV or non-HIV services in facilities transitioned to CS in Kenya; however, the losses in health systems investments for HIV services suggest potential for delayed effects of transition resulting in future reduced access and care. As prioritization of HIV efforts receives greater emphasis, more attention must be paid to how to sustain investments in order not to jeopardize gains made thus far to reach 90-90-90.

THPED592

Building bridges to improve HIV-positive women's access to breast-milk substitutes: Research from six different regions in the Russian Federation

N. Petrova[1], E. Shastina[2], E. Ivanova[3], E. Burina[4], N. Sukhova[3], Y. Derevenchuk[5], I. Evdokimova[6], E. King[7], I. Sergeeva[3]
[1]Association EVA, Ulyanovsk, Russian Federation, [2]Association EVA, Orenburg, Russian Federation, [3]Association EVA, St. Petersburg, Russian Federation, [4]Association EVA, Yekaterinburg, Russian Federation, [5]Association EVA, Tyumen, Russian Federation, [6]Nuzhna Pomosh, Moscow, Russian Federation, [7]University of Michigan, Ann Arbor, United States

Background: Russian recommendations on PMTCT state that HIV-positive mothers should not breastfeed. The Action Strategy for Children's Interests includes a point about the government's obligation to provide breast-milk substitutes (BMS) for HIV-positive mothers. Supply of BMS is based on regional budgets. Given high levels of poverty among families with children, < 30% HIV treatment coverage, and frequent interruption in ART after giving birth, there is a risk for ineffective PMTCT. It is unclear to what extent BMS is available in all regions. The goal of our research is to determine the accessibility of BMS in Russia and to identify gaps in provision and perceived quality of BMS.
Methods: Research was conducted in six locations: St. Petersburg, Leningradskaya, Ulyanovskaya, Orenburgskaya, Tyumenskaya, and Sverdlovskaya Regions. Since October 2017, regional activists studied epidemiological data, regulatory documents on assurance of BMS, submitted requests for information to government officials, conducted 20 interviews with specialists at AIDS Centers and clinics, and surveyed 89 HIV-positive mothers.
Results: Regulation of BMS provision varies regionally: available to all women unable to produce milk, offered to low-income women, based on HIV-positive serostatus or other medical reasons. However, it is not always available everywhere. The survey showed that only 44% of HIV-positive women were told during pregnancy about eligibility to receive BMS. Two-thirds received formula, but only 25% received a full supply and 10% only once. Moreover, 55% of the women needed to change formulas because they were not suitable for their infants, but only 14.5% received a different formula. Providers at AIDS Centers who were not providing formula often did not know about algorithms for BMS provision and did not inform women. Some providers reported stockouts in the purchasing of BMS, insufficient quantity, and the inability to provide another formula if one is unsuitable for the child. Some providers supported providing BMS to motivate women to more frequently visit AIDS Centers.
Conclusions: Bridges were built among community activists, HIV-positive women, and healthcare professionals. Joint efforts were made to improve availability of BMS as part of HIV-prevention by fixing the identified gaps in the system. Further advocacy work on improving access to BMS is planned.

THPED593

Evaluating the impact of the Affordable Care Act on HIV trends in the US

S. Shittu[1], P. Fueta[2], O. Adebayo[3]
[1]Emory University, Department of Epidemiology, Atlanta, United States, [2]Emory University School of Medicine, Department of Obstetrics and Gynecology, Atlanta, United States, [3]American University of Antigua, Coolidge, Antigua and Barbuda

Background: HIV remains a major epidemic in the US today. The Affordable Care Act (ACA) stemmed from the need to increase access to health care for more Americans by increasing health insurance coverage. The implementation of the ACA in 2010, and its subsequent expansion ensured that people living with HIV enjoyed greater health insurance coverage. We seek to highlight the impact that the implementation and expansion of the ACA has on the HIV trend in the US.
Methods: The National Health and Nutrition Examination Survey (NHANES) dataset was used to conduct the statistical analysis for this study. The NHANES dataset is cross-sectional and weighted to represent the entire US population. 4 cycles of data were collected; 2007 - 2008 (cycle 1), 2009 - 2010 (cycle 2), 2011 - 2012 (cycle 3) and 2013 - 2014 (cycle 4) and the analysis was conducted in SAS 9.4. We created 2 datasets, 2007 - 2010, and 2011 - 2014 merged by sequence numbers to compare HIV trends before and after the passage of the ACA. Two-sample T-Tests were used to compare the difference in means between HIV status by insurance status in the two datasets.
Results: In the 2007 - 2010 dataset, 73.3% had insurance coverage, and 0.86% of the population were HIV positive. T-Test results revealed no statistical difference between having insurance coverage and HIV status 95% C.I (-0.172 - 0.004) with a p-value (0.0606). While in the 2011 - 2014 dataset, 78.8% had insurance coverage, and 0.89% of the population were HIV positive. T-Test results revealed significant statistical difference between having insurance coverage and HIV status 95% C.I (-0.213 - -0.064) with a p-value (0.0003).
Conclusions: The results highlight the positive change in health insurance coverage and a decline in the HIV trend after the implementation of the ACA. The importance of increasing access to care in the fight against HIV cannot be overemphasized. It is therefore imperative that efforts be made to expand on the gains made by the ACA with the aim of providing coverage to all, especially the people living with HIV.

THPED594

Changes in HIV and Non-HIV service delivery outcomes at the subnational level associated with PEPFAR funding shifts in Kenya and Uganda

E.G. Sutherland, C.B. Agala, K. Xiong, S. Watson-Grant
University of North Carolina at Chapel Hill, Carolina Population Center MEASURE Evaluation, Chapel Hill, United States

Background: In 2014, PEPFAR changed its investment strategy within priority countries. This policy shift increased PEPFAR funds and support to some subnational units (SNU), while leaving investment unchanged—or virtually eliminated—in others, according to HIV disease burden. We aimed to identify shifts in HIV and non-HIV service delivery outcomes associated with changes in PEPFAR investment at the SNU level between 2015-2017 in Kenya and Uganda.
Methods: MEASURE Evaluation extracted quantitative data from relevant national HIV health information system databases (e.g., DHIS 2, TiBU [Kenya], iHRIS, etc.) between 2015-2017. Outcomes examined included HIV testing, initiation on ART, and adherence, ANC 4, or 4+ visits, confirmed malaria cases, and TB case detection rate. Qualitative interviews were conducted with SNU health teams to better understand the trends observed. Longitudinal multivariate analyses were conducted to determine the level of statistically significant changes in study outcomes by year, by change in PEPFAR investment, and for an interaction effect between year and PEPFAR investment level.
Results: Preliminary analyses of data between 2015-2016 suggest changes in PEPFAR investment did not immediately affect the direction of trends observed in HIV or non-HIV outcomes at SNU level. However,

the magnitude of changes in outcomes observed in the post-PEPFAR prioritization period did significantly vary for some health outcomes by level of PEPFAR investment. For example, the proportion of newly identified HIV-positive individuals initiated on ART in Ugandan districts that lost PEPFAR funding increased significantly less than the same proportion in districts with maintained or increased PEPFAR support.
Conclusions: Because there were some significant differences in the magnitude of changes in health delivery outcomes (both HIV and non-HIV) associated with PEPFAR investment status at the SNU, findings suggests that shifts in PEPFAR investment (and by extension other large shifts in donor investment) may contribute to or worsen pre-existing health outcome disparities among subnational units within countries. However, as this study used aggregate SNU data, there could be a lag time between the implementation of investment shifts within countries, implementation of new interventions, and when changes in service delivery outcomes can be observed.

THPED595

The working group on criminalization of HIV exposure: A multisector partnership at the intersection of law, policy and science

É. Fleury[1], L. Pelletier-Marcotte[2,3]
[1]Ministère de la Santé et des Services Sociaux, Direction de la lutte contre les ITSS, Montreal, Canada, [2]COCQ-SIDA, Human Rights and HIV/Aids Sector, Montreal, Canada, [3]Coalition PLUS, Community-Based Research Laboratory, Pantin, France

Background: Canadian criminal law requires people living with HIV to disclose their status before engaging in sexual activities that involve a "realistic possibility" of transmission. Although there is no evidence that criminalization effectively prevents transmission, criminal law is often used in the name of public health. Quebec has the second highest rate of prosecutions for HIV exposure in Canada. The mediatised *D.C.* case spurred a dialogue between Quebec's key stakeholders on criminalization. To further this dialogue, the Working Group on Criminalization of HIV Exposure (WGCHE), a multisector partnership (MP), was established in 2011.
Description: As a MP, the WGCHE aims at solving a complex issue - criminalization of HIV exposure - by involving multiple actors and their specific expertise. The WGCHE advises the Ministry of Health and Social Services (MSSS) and the Ministry of Justice (MJ) on the interplay of justice and public health policies, in light of scientific data and legal principles. Its membership is comprised of twelve (12) public health experts, community members, lawyers, scientists, law enforcement and ministerial representatives (MSSS, MJ and Public Security).
Lessons learned: The WGCHE's mandate evolved to reflect changes in the scientific and legal landscape. From ensuring that the latest scientific data is considered by the criminal justice system, it now aims to highlight the intrinsic relationship between public health, public policies and criminal law. Although prosecutorial guidelines have yet to be adopted, the WGCHE ensures that prosecutors have access to the latest scientific and legal findings by developing and offering them trainings and tools (ex: tables tracking the evolution of jurisprudence/sentencing).
Conclusions/Next steps: Over the years, the WGCHE has allowed for the accommodation of different visions, languages and missions, uniting stakeholders in the pursuit of a common goal. While criminal law is still being used in cases of HIV exposure, the WGCHE is engaged in a long-term dialogue to ensure that the latest scientific advances and public health prevention messages are taken into account. Important gains have been made, and improvement areas will be identified following Justice Canada's recent report on the criminal justice system's response to non-disclosure of HIV.

THPED596

Availability and affordability of ARV´s: Observatory of access to medicines in Argentina

M. Bacigalupo[1], M.L. Di Giano[1,2]
[1]Fundacion Grupo Efecto Positivo, Buenos Aires, Argentina, [2]REDLAM, Buenos Aires, Argentina

Background: Civil Society has a key role in monitoring access and availability of ARV´s in many countries. In Argentina, FGEP holds an Observatory that contributes to monitor access to HIV and Hep C medicines in Argentina, through the analysis of public purchases -since in Argentina State provides ARV´s to 68% of the people living with HIV- and the impact of further policies.
The Observatory has been conducted since 2013, with annual conclusions related not only to availability, but also to affordability of treatments and sustainability of public budgets. This proposal is to introduce the specific methodology and the comparative results for 2016 and 2017.
Methods: The Observatory collects information from different sources related to public information, direct purchases and competitive biddings. The information collected is checked with the National Aids Program official provided information, and compared with international studies and price publications related to generic prices in the world, for instance MSF or Liverpool University.
The information is systematized and related with other macroeconomic variables that can be related with most of middle income countries.
Results: The main findings of the Observatory show:
a) there is a significant difference between prices from public bids or direct purchases,
b) the introduction of new ways of purchasing can drop down prices,
c) pediatric medicines are the most expensive,
d) ARV´s prices rises in general 42%.
Conclusions: Sustainability of health provisions programs is at risk when big pharma and direct purchases increases the annual investment in ARV´s, this risk could be minimized by managing programs with predictability, strategic planning and prices reduction strategies in order to assure access to treatments for PLWH.

THPED597

A critical evaluation of drug policy environment in Ukraine: Implications for prevention and treatment of substance use disorders and HIV among people who use drugs

L. Vlasenko[1], S. Sereda[2], S. Rudyi[3], T. Kiriazova[4], O. Zvinchuk[2], A. Latypov[5]
[1]Independent Consultant, Dnipro, Ukraine, [2]Deloitte Consulting LLP, SAMHSA Ukraine Legal and Policy Project, Kyiv, Ukraine, [3]Independent Consultant, Kyiv, Ukraine, [4]Independent Consultant, Odesa, Ukraine, [5]Deloitte Consulting LLP, Kyiv, Ukraine

Background: Over the past decade, policy improvements in Ukraine have contributed to advancing the treatment and prevention of substance use disorders (SUD). However, people who inject drugs continue to face disproportionate HIV risks in Ukraine, with HIV prevalence rate standing at 21.9% in this group in 2016. In 2017, through SAMHSA Ukraine Legal and Policy Project, we conducted a desk review of policy environment for SUD to identify drug policy impediments and to help systematically address existing challenges.
Description: The review offers a snapshot of advantages and disadvantages of Ukraine's current systems of SUD treatment, prevention, education, and research and evaluates the degree to which the legal and policy environment supports treatment and prevention of HIV and legal protections for people with SUD.
Lessons learned: Ukraine has one of the largest networks of opioid substitution therapy sites in the region, with 177 sites serving 9,615 clients across 25 regions. Methadone, buprenorphine, vivitrol, naltrexone, naloxone and disulfiram are authorized as part of SUD treatment. The country aims to meet the European standards in substance use care and has confirmed its commitment through various international agreements.
However, the focus of SUD policies and response measures is shifted to prohibition and law enforcement, with treatment and social support

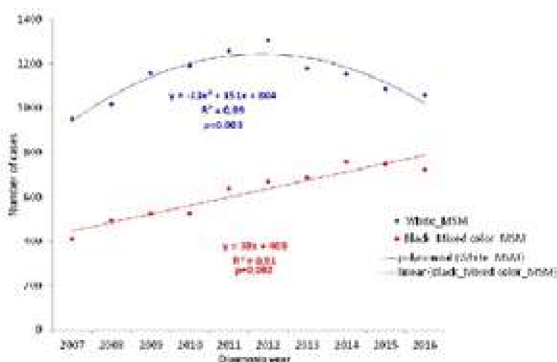
under-prioritized. Evidence-based approaches to SUD treatment are applied on a limited scale, whereas HIV care is poorly integrated into psychiatric services. The SUD treatment curricula of graduate and post-graduate medical institutions are outdated, with content often based on knowledge operationalized during the Soviet era. The SUD care system continues to retain restrictive elements, as evidenced by mandatory patient registration that leads to multiple negative ramifications for SUD patients.
Conclusions/Next steps: Our study provides recommendations for the development of SUD system governance and coordination in Ukraine, including the structure of service providers, the scope of services to be offered in the context of substance-use driven HIV epidemic, human resources and financing issues, and standards of SUD care. This review serves as a basis for informing next steps and for establishing a national unit that would be responsible for effective policy development and organization of services for people who use drugs.

THPED598

Trends of greater vulnerability of black and mixed color men who have sex with men (MSM) to develop and die of AIDS compared to white MSM São Paulo State, Brazil

A. Olhovetchi Kalichman, M.C. Gianna, R. Alencar Souza, A. Tayra, C.S. Bruniera Domingues, S. Romera da Silva, I. De Paula, P. Sousa, N.J. Seabra Santos, M. Vono Tancredi
Centro de Referência e Treinamento DST/Aids, CCD - São Paulo State Health Department, São Paulo, Brazil

Background: Highly Active Antiretroviral Treatment (HAART) is available in the Brazilian Public Health System since 1996 and its indication was expanded to all people living with HIV since 2013, also as a prevention strategy. Before HAART the trends of HIV infection (HIV+), AIDS cases (AC) and AIDS related deaths (ARD) were similar, just lagging in time due to HIV infection physiopathology. After HAART the vulnerability to develop and die of AIDS became highly dependent on having or not an opportune access to HIV diagnosis and treatment. In the State of Sao Paulo MSM are one of the most vulnerable population for HIV/AIDS. We compared the trends of HIV+, AC and ARD among white and black/mixed color (BMC) MSM to access disparities in their vulnerability related to social and institutional racism, stigma and discrimination (R,S&D).
Methods: Trend analysis study performed through polynomial regression models using data from all mandatory reported events of HIV+, AC, ARD among MSM >13years until 06/2017. The numbers of events as dependent variable (Y) were compared between White and BMC MSM using calendar year as independent variable (X). The goodness of fit via r^2 and $p < 0.05$ were used to determine models and data appropriateness.
Results: 24,648 HIV+, 17,549 AC from 2007 to 2016 and 4,818 ARD from 2007 to 2015 reported among MSM were analyzed. Trends of HIV+ grew expressively and linearly among BMC and white MSM [Y=159x+54; r^2=0,97;p=0,001] and [Y=226x+294; r^2=0,96;p=0,001], respectively. AC trends for BMC MSM rose linearly all the period [Y=38x+408; r^2=0,91; p=0,002] and trends for white MSM increased until 2012 and then decreased [Y=-13x^2+151x+804; r^2=0,89;p=0,003] (chart1).



[Graph 1. Trends of AIDS reported cases in MSM by race-color, State of Sao Paulo, 2007 - 2016]

Deaths among white MSM remain stable and among BMC MSM presented increasing trends [Y=9x+ 110; r^2=0, 78; p=0,022].
Conclusions: There is an increasing vulnerability for HIV infection among White and BMC MSM not averted by current prevention strategies. White MSM may have a higher access to HIV test compared to BMC MSM. Despite universal access to healthcare and HAART through a public policy, R,S&D seems to increase individual, programmatic and social vulnerability of BMC MSM to develop and die of AIDS when compared to trends among white MSM.

THPED599

Revisit methadone maintenance treatment service in Indonesia after 14 years

N. Afriana[1], E. Hastuti[2], T. Nisa[3], F. Siagian[4], S. Riyadi[3]
[1]Ministry of Health of Indonesia, National AIDS Program, Jakarta Pusat, Indonesia, [2]Ministry of Health, National AIDS Program, Jakarta Pusat, Indonesia, [3]WHO Country Office of Indonesia, Jakarta Pusat, Indonesia, [4]University of Indonesia, Depok, Indonesia

Background: In 1999, there were estimated 40,000 PWID in Indonesia. Surveys in early 2000, reported 50% HIV prevalence among PWID. Methadone Maintenance Treatment (MMT) Program was piloted by NAP in 2003 as part of harm reduction efforts, with scale up of services in 2006. In 2016 there are 92 MMT services, with 2000 clients across country. The maximum number of clients were 3000 in 2010, and until 2016, the number of clients in MMT program continue to decrease, with 6 months retention in the program only 54%. MOH conducted s to explore contributing factors and develop recommendation for improvement.
Methods: In-depth interview, focus group discussion, literature review and observation were held with various stakeholders at national level, program implementer in hospitals (RS), primary health center (Puskesmas), NGOs, and Client in 3 cities (Jakarta, Denpasar, Makassar). The data or information collected includes: driving and inhibiting aspect of service utilization (based on clients´ and provider´s perspectives), and experience/lessons learned by providers in MMT program.
Results: There were two issues in reduced number of methadone clients;
1. Lack of new MMT client; this results from the change in drug use trend from opioid to amphetamine, National PWID size estimation reduced from 70,000 in 2012 to 30,000 in 2015, that leads to lack of referral from NGO to MMT service.
2. Low retention; due to personal factors such as mixed drug use, bored, perception of more severe withdrawal symptoms and only shift the addiction to methadone, no role model. Health service factors such as tight criteria for take home dose, unmet need of addiction counseling, due to overburdened of health facilities.
Conclusions: MMT services needs to be maintained to continue providing service for the clients and anticipate the trend of drug use back to opioid. A comprehensive program needs to be redesigned to improve retention, such as program involving family to support MMT clients, networking with existing psychological services to provide addiction counseling, evaluate and revisit the implementation of take home dose and adjust/update the MMT national guideline.

THPED600

"Without insurance and without Ryan White and without Virginia ADAP, I don't know where I would be:" clients' perspective on the Virginia AIDS Drug Assistance Program's Affordable Care Act Implementation

K.A. McManus[1], C. Debolt[2], S. Elwood[1], T. Saint-Surin[2], C. Winstead-Derlega[2], R.O. Brennan[3], R. Dillingham[1], T.E. Flickinger[4]
[1]University of Virginia, Infectious Diseases and International Health, Charlottesville, United States, [2]University of Virginia, School of Medicine, Charlottesville, United States, [3]Infectious Diseases Associates of Central Virginia, Lynchburg, United States, [4]University of Virginia, Internal Medicine, Charlottesville, United States

Background: The Virginia AIDS Drug Assistance Program (ADAP) offered to purchase Affordable Care Act Qualified Health Plans (QHPs) for low-income people living with HIV (PLWH). The object of this study was to gain information about the process of enrollment, decision-making, and the experience of enrolling in health insurance.
Methods: English-speaking PLWH, ages 18-64 who were eligible for AIDS Drug Assistance Program-funded QHPs were recruited at three HIV clinics in Virginia. The goal was to enroll ≥5% of those who were eligible for ADAP-funded QHPs in two Virginia Department of Health planning districts. Participants were surveyed about demographics and socio-economic characteristics, and semi-structured interviews were performed. Descriptive analyses were performed for cohort characteristics. Using a Grounded Theory approach, codebooks were generated for the interviews by a single reviewer. The codebook was then refined until excellent reliability between two reviewers was achieved (kappa statistic 0.85). All interviews were coded.
Results: The cohort of 53 participants met our recruitment goal. All participants enrolled in an ADAP funded-QHP. Within the category "Impact to Care After Enrollment," 77% of participants described a positive impact on their medication delivery and 71% described a positive impact on medical providers. The most common perceived and actual barriers to enrollment were concerns about privacy (87%), computer and internet access/literacy (69.2%), mental health (64%), insufficient assistance (64%), substance abuse (62%) and physical barriers (60%). In terms of privacy, the concerns centered on QHP-mandated use of mail-order pharmacies. 67% reported that their ACA/QHP knowledge was formed at their HIV clinic, specifically through working with case managers and social workers.
Conclusions: To our knowledge, this is one of the first studies to examine barriers to enrollment and re-enrollment of QHPs under the ACA, specifically among PLWH. Our findings indicate that addressing privacy concerns may encourage enrollment.
Given the high frequency of privacy concerns, further evaluation of logistics of mail delivery service, or the option to opt-out, would be constructive. Case managers and social workers are often the primary source of knowledge for patients about insurance options and their assistance is crucial for enrollment.

THPED601

Evaluating progress towards triple elimination of mother-to-child transmission of HIV, syphilis and hepatitis B in the Netherlands, 2012-2015

M. Visser[1], C.P.B. van der Ploeg[2], C. Smit[3], F. Abbink[1], C.W.P.M. Hukkelhoven[4], B.H.B. van Benthem[1], E.L.M. Op de Coul[1]
[1]National Institute for Public Health and the Environment, Bilthoven, Netherlands, [2]Netherlands Organisation for Applied Scientific Research (TNO), Leiden, Netherlands, [3]HIV Monitoring Foundation, Amsterdam, Netherlands, [4]Perined, Utrecht, Netherlands

Background: In 2014 the World Health Organisation (WHO) established validation criteria for elimination of mother-to-child transmission (EMTCT) of HIV and syphilis. Additionally, the WHO set targets to eliminate hepatitis, including hepatitis B (HBV). We evaluated to what extent the Netherlands has achieved the combined WHO criteria for EMTCT of HIV, syphilis and HBV.
Methods: Data of HIV, syphilis and HBV infections among pregnant women and children (born in the Netherlands with congenital infection) for 2012-2015, and data required to validate the WHO criteria were collected from multiple sources: the antenatal screening registry, the HIV monitoring foundation database, neonatal registration of congenital syphilis diagnoses, and national HBV notification data.
Results: Prevalence of HIV, syphilis and HBV was stably low among pregnant women and children (Table 1). With a screening coverage of >99% since 2012, the WHO criterion of antenatal screening for HIV and syphilis (>90%) was amply met in the Netherlands. All WHO criteria specific for HIV were also met: antiretroviral treatment of pregnant women of ≥90% (Netherlands: 96% in 2014 and 100% in 2015), case rate of HIV of ≤50 per 100,000 live births (0.57 in 2014 and 0.00 in 2015), and MTCT rate of ≤2% (0.75% for 2014 and 2015 combined). For HBV all targets were accomplished as well: vaccination coverage for children was ≥90% (universal vaccination coverage 93.1% for birth-cohort 2014, birth-dose vaccination and immunoglobulin admission at birth to children of HBV-positive mothers >99% in 2014 and 2015), and prevalence among children was ≤0.1% (0.0% in both 2014 and 2015). For syphilis, data were lacking to validate the goal of ≥95% treatment of syphilis-seropositive pregnant women. Data on congenital syphilis were partly lacking and only included live born children, but the WHO goal of ≤50 cases/100,000 live births is not expected to be exceeded.

	HIV		Syphilis		Hepatitis B	
	Estimated prevalence among pregnant women[a] (n screened positive)	Case rate per 100,000 live births among children[b] (n infections)	Estimated prevalence among pregnant women[a] (n screened positive)	Case rate per 100,000 live births among children[c] (n infections)	Estimated prevalence among pregnant women[a] (n screened positive)	Case rate per 100,000 live births among children[d] (n infections)
2012	0.07% (113)	0.57 (1)	0.06% (101)	1.14 (2)	0.31% (536)	0.57 (1)
2013	0.06% (99)	0.58 (1)	0.08% (135)	1.75 (3)	0.30% (529)	0.00 (0)
2014	0.06% (100)	0.57 (1)	0.06% (97)	1.14 (2)	0.32% (559)	0.00 (0)
2015	0.06% (105)	0.00 (0)	0.06% (98)	n.a.	0.29% (506)	0.00 (0)

Sources: a Antenatal screening registry, RIVM; PSIE process monitor (TNO/RIVM) b HIV monitoring foundation; Stichting HIV Monitoring c Paediatrician data on diagnoses of congenital syphilis; Perined d National notification data; OSIRIS (RIVM) n.a. not yet available

[Table 1 Estimated prevalence for HIV, syphilis and hepatitis B among pregnant women and case rate among children in the Netherlands, 2012-2015]

Conclusions: In the Netherlands, the antenatal screening programme has a very high coverage and the prevalence of maternal HIV, syphilis and HBV is low. Congenital infections are extremely rare. The WHO criteria for validation of EMTCT are met for HIV and HBV, but for syphilis more data are needed to prove elimination.

THPED602

Using the 2016 UN general assembly special session and the 2019 high level meeting on drugs to strengthen the HIV response for people who inject drugs

F. Murphy[1], O. Szubert[2]
[1]Harm Reduction International, Advocacy, London, United Kingdom, [2]Harm Reduction International, London, United Kingdom

Background: In 2014 Harm Reduction International established a global working group of harm reduction organisations and networks of people who use drugs to coordinate advocacy around the 2016 UNGASS on Drugs.
Description: The Group agreed to advocate for
- A health pillar within the UNGASS outcome document
- Commitments to harm reduction within that pillar
Our methods:
· Launching our 10 by 20 campaign, highlighting the disproportionate amount spent on drug control compared to harm reduction
· Launching a Harm Reduction Declaration. Working with high-profile signatories to ensure visibility at key events including the Dec 2015 PCB
· Inserting our messages into UN agencies' pre-UNGASS reports

· Reviewing draft UNGASS outcome documents. Coordinating group members to communicate our edits to governments
· Releasing mathematical modelling showing that with 7.5% of funds currently spent on drug control, we could end AIDS among people who inject drugs by 2030
Outcomes
· The UNGASS document includes a chapter on demand reduction, prevention, treatment and health
· UNGASS para 1(o) urges States to consider "medication-assisted therapy", "injecting equipment programmes", antiretroviral treatment and naloxone, and calls for harm reduction in prisons - both firsts in a UN document on drugs
· Messages on rebalancing funds from drug control to harm reduction included in UNAIDS, WHO, UNDP and GFATM reports.
Lessons learned:
· Pooling members' contacts enabled the working group to reach a significant number of governments with coordinated messages
· Inserting messages into UN agency reports was highly impactful
· The 10 by 20 campaign, Declaration and mathematical modelling research helped profile our messages around major events.
Conclusions/Next steps: By getting key interventions into the UNGASS document, the working group´s advocacy has given governments a clear signal that harm reduction is an acceptable, internationally-endorsed response to drug use.
In our 2018 Global State of Harm Reduction report, HRI will measure whether countries are increasingly implementing these interventions.
Our coordinated work ensured that a growing number of countries are now willing to defend harm reduction. HRI is coordinating a "Champions Network" of governments, UN agencies and civil society to secure further progress at next year's High Level Meeting on Drugs.

THPED603

Monitoring of access to treatment and social services for people living with HIV and its impact on treatment adherence in Russia: Results of SIMONA+ community-based project

A. Petrova[1], S. Prosvirina[2], S. Golovin[3], A. Ladonkin[2]
[1]Patient Controle, Saint Peterburg, Russian Federation, [2]Patient Controle, Kaliningrag, Russian Federation, [3]ITPCru, Saint Petersburg, Russian Federation

Background: Currently, only 35.5% of people living with HIV (PLHIV) in Russia receive treatment. Patients face problems, including drug shortages, regimen changes, treatment initiation deferral. These problems lead to poorer treatment adherence. In 2017, at least 21 903 patients chose to stop treatment, according to Federal AIDS Centre. A monitoring project SIMONA+ was implemented by the patient community Patients Control, with a goal to analyze barriers to specialized medical and non-medical services and develop recommendations, with a focus on vulnerable groups.
Description: The project was realized from June 2016 to January 2018 and consisted of two parts: monitoring and evaluating the quality of medical and non-medical services and implementing activities to improve the service quality, with a focus on key groups. Interviews were conducted with **2387 patients** from 13 regions. Researchers also used interviews with specialists, drug procurement data, as well as replies from government agencies. Based on the monitoring results, meetings with stakeholders and press-conferences were organized in several regions to address the problems identified.
Lessons learned: The research shows that 50% of respondents faced problems with treatment. 25.5% of patients stopped treatment for a long time period. Every third patient needs more information of HIV. Key barriers to HIV treatment, as identified by the analysis, include: lack of access to medical services, delays in delivery of ART, treatment regimen changes, social pressure associated with stigma and discrimination, and lack of awareness about different aspects of HIV among patients.
Conclusions/Next steps: Based on the results, recommendations have been developed for the Russian Ministry of Health, AIDS centres and non-profit organizations:
1) take measures to ensure all PLHIV have access to antiretroviral treatment;
2) ensure emergency funds in regional budgets to cover treatment gaps if they occur due to supply failures on the federal level;
3) promote full use of the existing register of PLHIV;
4) develop a network of infectious disease clinics in remote areas, i.e. decentralization of services;
5) develop non-medical services and ensure multi-professional approach to improve motivation and adherence to treatment.
These recommendations serve as a basis for the activities of the Patients Control movement.

THPED604

An updated assessment of WHO guidelines of treating and preventing HIV infection. Concerns on methodology and transparency

E. Sánchez, F. Rossi, C. Vargas
Fundacion IFARMA, Bogotá, Colombia

Background: To update of the assessment of quality and reporting of "Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection. Recommendations for a public health approach second edition 2016" by World Health Organization (WHO).
Methods: Two individuals independently assessed the second edition of consolidated guidelines developed by WHO regarding the use of antiretroviral drugs for treating and preventing HIV infection, using the Appraisal of Guidelines for Research and Evaluation instrument (AGREE II). Supplementary material, when available, was examined, such as evidence reviews, feasibility, value and preferences reports.
Results: We established methodological deficiencies in domains 2, 3, 4 and 6 of AGREE II in the guideline quality assessment. On Domain 2 " Stakeholder Involvement. Is impossible to know if members of guideline development group are an appropriate match for the topic and scope On Domain 3 "Rigour of Development", the methods used to search for evidence were not available so neither the criteria for selecting the evidence nor methods for formulating the recommendations were clearly described. In Domain 4 "Clarity of presentations" we found strong recommendations despite low quality of evidence, for instance on oral pre-exposure prophylaxis to prevent HIV infection or use of integrase inhibitor in first line even thought the poor information about it safety. Last, in Domain 6 "Editorial Independence" we found the most worrisome issue related of the lack of transparency and credibility of recommendations, as well as we realize in a previous assessment of the first edition of this guideline. The Guideline Development Group members were not declared all conflict of interest, co-chair of Clinical Guideline Development Group, was board member of a pharmaceutical company that produce one of the recommend treatment. Other advisory members have receipt consulting fees or declared financial support through grants for research not only for pharmaceutical companies but also for funding body.
Conclusions: The overall assessment was 43% and keeping in mind the low quality of the guideline we do not recommend it. Since the independence and transparency of WHO is a matter of global controversy, countries must conduct a revision before the adoption of guidelines.

Interventions to increase demand, uptake, and retention of key populations for HIV services and programmes

THPED605

Empowering community-based organizations led by men who have sex with men to increase demand, uptake and retention in HIV prevention and treatment Côte d'Ivoire: Three years of cascade results

C. Trout[1], A. Kouadio[2], K. Hervé[2], K. Venance[2], Y. Esso[2]
[1]*Heartland Alliance International, Technical, Los Angeles, United States,* [2]*Heartland Alliance International, Côte d'Ivoire, Abidjan, Cote D'Ivoire*

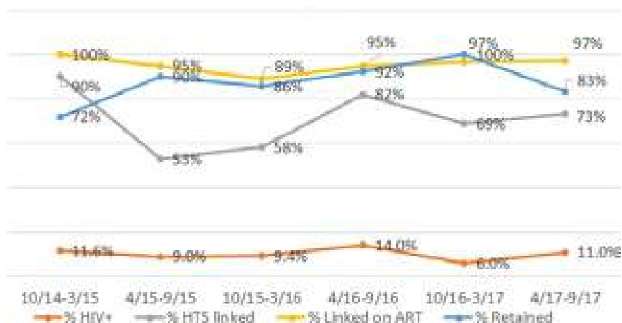
Background: According to a bio-behavioral study in Abidjan-Côte d'Ivoire, in 2012 the HIV prevalence among men who have sex (MSM) was 18%, almost five times that of men in the general population in the same city (4.1%, EDS-2012). Since 2011, Heartland Alliance International (HAI) and the US Centers for Disease Control and Prevention have empowered MSM-led organizations (MSMLOs) in Côte d´Ivoire to increase demand, uptake and retention in HIV/AIDS prevention, care and treatment.

Description: HAI provided technical assistance to MSMLOs on best practices at each step of the "prevention-treatment cascade". MSM peer educators increased the offer of HIV testing services (HTS) in community settings and during home visits. MSM peer navigators led support groups for HIV-positives and provided case management and gender-based violence prevention and care. MSM were significantly involved in the selection of the health centers providing HIV care and treatment services sensitive to their needs.

Lessons learned: Overall, 12,646 MSM were reached through communication strategies between October 2014 and September 2017 (three years) and 45.6% of them (n= 5,224) were tested for HIV. Of those tested, 8.7% (n= 499) were HIV-positive of whom 70.1% (n=350) were linked to care; of whom 95.4% (n=475) started ART. Retention (0-6 months) was high (83.4%, n=242).

ART start and retention were high throughout the three years. Due to greater emphasis on HTS, the total receiving HTS and the percentage of those reached tested tripled by 2017 but HIV+ yield dropped slightly, due to saturation of testing in MSM communities as well as the higher denominator. Linkage also improved in 2017. However, large numbers of MSM who tested positive at night were difficult to refer to clinic the following morning. Note that the project closed and reopened in 2017 Semester 2. (Table 1, Graph 1)

Conclusions/Next steps: In 2018, HAI will target HTS using a risk assessment, expand to new sites and test partners of HIV positives. For linkage, HAI will start ART in the field. Transport support would further improve linkage. HAI will continue to use community-based, peer-led approaches to promote good health outcomes. Finally, there will be greater emphasis on trauma-informed psychosocial support and access to justice.



[Graph 1. HAI MSM Côte d'Ivoire 3-year cascade October 1, 2014-December 31, 2017]

Semester	# Reached	# Tested	% Tested	# HIV-positive	% HIV-positive	# ART start	% Start ART	# Retained 0-6 months	% Retained 0-6 months
10/14-3/15	322	346	108	40	11.6	36	90	23	72
4/15-9/15	2185	463	22	40	9	20	50	18	90
10/15-3/16	2947	985	33	93	9.4	93	52	36	86
4/16-9/16	3563	702	20	98	14	76	76	60	92
10/16-3/17	3161	2876	91	184	6	123	67	89	100
4/17-9/17	468	392	84	44	11	31	70	24	83
Total	12646	5764	45.6	499	8.7	334	95.4	242	83.4
							30% lossed in link stage, 5% in treat stage		Patients transferred or died not included in denominator

[Table 1 TABLE 1. HAI IMPACT-PROTECT 3 year Cascade Information MSM]

THPED606

From incarceration to community-based drug addiction treatment in Asia

B. Wang[1,2], T. Cai[1], S. So[3], T. Luo[1], O.T.H. Khuat[4]
[1]*AIDS Care China, Kunming, China,* [2]*International HIV/AIDS Alliance, Brighton, United Kingdom,* [3]*KHANA, Phnom Penh, Cambodia,* [4]*Centre for Supporting Community Development Initiatives, Hanoi, Vietnam*

Background: Faced with ever-increasing HIV and Hepatitis B and C epidemics amongst PWUD, several countries in Asian begun to adopt harm reduction approaches over the past two decades. However, these harm reduction programmes operate only within the drug control framework where compulsory centres for 'treatment' and rehabilitation' remain as the predominant response to drug use. Despite efforts from the UN agencies urging the national government in East and Southeast Asia to close down these centres there is very little progress. Due to lack successful models of community-based drug addiction treatment that can be adapted to use nationally or regionally, some governments' effort trying to close these centres end up replacing them with new prisons or similar closed settings.

Methods: Since 2011, the Alliance has been piloting community-based treatment models in China, Cambodia and Vietnam. These pilot model started in close cooperation with the local police and health authorities. Over 400 opioids users were enrolled into these pilots. These pilots changed the local police´s practices through different models of agreement with the police whereby they stopped arresting people who use drugs and put them in prisons or compulsory rehabilitation centres. Results of these pilots demonstrated significant improvement the adherence of MMT, reduced new HIV infection and at the same time, reduced the consumption of illicit drugs and drug related crime. The Chinese government are now investing their own resources to replicate these pilots.

Results: Harm reduction was initially started in many countries in Asia purely as a way to control HIV among people who inject drugs. The community-based drug addiction treatment pilots have been proven to be effective not only in preventing new HIV infection, but also in reducing drug use and drug related crimes. The model was appreciated by the local police.

Conclusions: International HIV/AIDS Alliance will work with AIDS Care China who piloted the model in China and Cambodia to Thailand and Myanmar. These models primarily target only opioids users. The Alliance is exploring models that can serve other substance users in partnership with local police and public health authorities.

THPED607

Facilitated Transition in closure of trials involving HIV positive participants in Uganda: A grounded theory study

S. Nalubega[1], K. Cox[2], H. Mugerwa[3], C. Evans[4]
[1]Soroti University, Health Sciences, Soroti, Uganda, [2]University of Kent, Kent, United Kingdom, [3]Joint Clinical Research Centre, Kampala, Uganda, [4]University of Nottingham, Nottingham, United Kingdom

Background: Although the field of post-trial care is gaining recognition in clinical research practice, significant gaps exist in the area of post-trial ethical regulation. There is need to develop contextualized guidelines on HIV-related post-trial care in low income settings based on research with relevant stakeholders. This study aimed to understand the closure process of HIV drug trials involving HIV positive participants, and their transition from research-based to non-research based healthcare facilities in Uganda.

Methods: A qualitative grounded theory study was conducted with 21 adult HIV positive post-trial participants and 22 research staff from three clinical trials, between October 2014 and August 2015. Semi-structured interviews were used to collect the data. Ethical approval was gained from the UK and Uganda.

Results: The findings showed that HIV clinical trial closure is a complex transition process for HIV positive participants, involving three main phases. (i) The pre-closure phase represents events occurring before the actual trial closure but that influence post-trial care. These events include personal circumstances such as ill health and low-socio economic status, and structural factors such as care inequalities between research and public health facilities in a low-income context. (ii) The trial closure phase is when participants are exited from the trials and linked to non-research facilities. In this phase, participants undergo an emotional reaction, attributed to the fear of leaving better standards to lower standards of care, and to practical concerns associated with re-establishing in non-research care facilities. (iii) The post-trial phase represents events occurring after trial participants have been linked back to non-research facilities up to 12 months later. Here, participants experience psychosocial challenges such as increased stigma and financial needs. The different needs across the transition process require specific interventions. The transition process is presented as a conceptual model of 'Facilitated Transition'.

Conclusions: The trial closure process of HIV drug trials among HIV positive participants in a low-income setting is complex and can be represented by the model of Facilitated Transition which suggests guidance in implementing a person-centered approach to post-trial care provision. Further research needs to be done to verify the model in other contexts.

THPED608

Young key populations in Myanmar's first national youth policy

M.T. Oo[1], S. Naing[2], E.M. Kyaw[3], L. Hendriksen[4], O. Golichenko[5]
[1]Myanmar Youth Stars Network, Management, Pyay, Myanmar, [2]HIV/AIDS Alliance in Myanmar, Yangon, Myanmar, [3]Myanmar Youth Stars Network, PITCH Advocacy, Yangon, Myanmar, [4]International HIV/AIDS Alliance, Policy (PITCH), Brigton, United Kingdom, [5]International HIV/AIDS Alliance, Policy, Brighton, United Kingdom

Background: In Myanmar sexual and reproductive health and rights information/services for young people are scarce, particularly for key populations (KPs). Until recently, there was no national youth policy.

Description: During 2016 National Youth Forum young people called on government to develop a National Youth Policy. Ministry of Social Welfare led the process in partnership with other ministries, UN Agencies and National Youth Congress. It involved state public consultations with young people, including young KPs. Myanmar Youth Stars Network (MYS) - a network working with and for young KPs affected by HIV/AIDS, including MSM, sex workers, people who use drugs, and people living with HIV - took part at national and state levels. Our main advocacy messages were: meaningful inclusion of marginalized young people to ensure HIV services are friendly for young KPs; ending HIV related stigma and discrimination; the importance of formulating a sustainable financing strategy; and young KPs should be identified as priority groups in the policy. In November 2017, the Government adopted the Youth Policy in Myanmar. Young KPs are priority groups for policy implementation. In 2018 relevant ministries, the UN and youth representatives will develop the National Strategic Plan detailing the package of health and social services available to young people, budgets available and progress indicators.

Lessons learned:
- Multi-lateral partnerships of public and private sectors and youth organizations can effectively influence policy to secure services and rights for young KPs.
- It is important to have a clear vision about anticipated policy change and language in the policy document and communicate consistent messages.
- Influencing by activists from young key populations movements is important at every stage of policy development.
- It is vital to keep broader movement of young key populations informed through diverse communication channels, including social media.

Conclusions/Next steps: The methodology used in influencing the policy development in Myanmar by young people from key populations community can be useful for national and regional policy development in other countries as well as internationally.

Source: www.moi.gov.mm

Myanmar Youth Policy released

Myanmar's youth, which makes up more than a third of the country's population, will lead the way towards a better future, and an official policy promoting and nurturing youth will help, State Counsellor Daw Aung San Suu Kyi said yesterday. (5 Jan 2018)

[State Counsellor meeting with youth representatives at Youth Policy Orientation Meeting in Nay Pyi Taw]

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THPED609

Evaluation of Integrated social marketing campaign to promote HIV treatment and health insurance coverage in Vietnam

B. Dao[1], V. Nguyen[1], C. Wong[2], C. Hoang[3], H. Nguyen[3]
[1]FHI 360, Strategic Information, Hanoi, Vietnam, [2]FHI 360, Global Health, Population and Nutrition, North Carolina, United States, [3]Hanoi School of Public Health, Health Policy and Legislation, Hanoi, Vietnam

Background: In 2015, Vietnam still relied on donors for approximately 60% of funding for its HIV response. The country is facing a formidable challenge as these international contributions decline. Social health insurance (SHI) is one proposed solution to address this challenge. However, only approximately 35% of people living with HIV (PLHIV) were covered by SHI in 2015. In 2016, the USAID SMART TA Program led a social marketing campaign in Nghe An and Dien Bien provinces to encourage PLHIV to enroll in treatment and SHI, and reduce healthcare provider and community stigma and discrimination (S&D) against PLHIV. This descriptive qualitative study aimed to explore stakeholder and target audience members' opinions of the campaign's messages and communication channels, and provide insights for future program activities.

Methods: We conducted 23 in-depth interviews and eight focus group discussions with target audiences exposed to the campaign and relevant stakeholders in Nghe An and Dien Bien. Participants included 87 key informants from PLHIV and key populations vulnerable to HIV infection, family members and community networks surrounding PLHIV, health service providers, and representatives of local health authorities. Interview transcripts were imported and analyzed using Nvivo 7 software.

Results: Results show that to all participants the campaign's messages were well-received and they increased awareness of the availability and benefits of HIV treatment as well as SHI. They also gained awareness of the vital role of reducing S&D to encourage PLHIV to integrate into daily social life and HIV interventions. Regarding communication channels, healthcare providers' advice, loudspeakers, posters and leaflets were identified as the most effective methods while TV and radio were mentioned as less effective i. Adding other channels such as text messages via mobile phone and social networks was also suggested.

Conclusions: Results from the study were indicative of the utility of social marketing to promote HIV treatment and SHI enrollment during a transition from donor-funded programs to country management. Multiple communication strategies should be used to reach different target audiences, possibly mobile phone and social networks to expand coverage to otherwise unreachable groups.

THPED610

The peer navigation model successfully facilitates linkage of eligible key populations to treatment in India

B. RaviKumar[1], M. Parthasarathy[1], D. David Raj[1], E. Ajay Kumar Reddy[1], G. Shreenivas[1], B. George[1], J. Baishya[2]
[1]FHI 360, LINKAGES, New Delhi, India, [2]USAID, Project Management Specialist, New Delhi, India

Background: India adopted a 'Test and Treat' policy in April 2017, but operational challenges still constrain implementation at scale, especially among key populations (KPs) - female sex workers (FSW), men who have sex with men (MSM), transgender women (TG) and people who inject drugs (PWID). The national HIV prevention program for KPs is implemented through 'targeted interventions' (TI) that are run by nongovernmental organizations. India has achieved renowned prevention successes among KPs through its domestic investments in the TI program, but has identified a need for stronger links between the TI and antiretroviral treatment (ART) services. About 50% of KP living with HIV (KP PLHIV) are yet to be initiated on ART.

Description: To complement the prevention-focused peer outreach of the TI program, the USAID- and PEPFAR-supported LINKAGES project engaged a Peer Navigator (PN) in each of the 24 TI localities in three high HIV prevalence districts of south India to mobilize and link all KP PLHIV to ART facilities and initiate ART. In close coordination with national program staff of the TI program and ART centre, PN sought to reengage and link to treatment all recorded previously diagnosed and pre-ART KP PLHIV. In the process, the registries were updated to exclude all truly lost-to-follow up and deceased clients.

Lessons learned: By July 2017, 798 KPLHIV were identified, of which 55.5% were already on ART and 30.8% were either deceased or lost-to-follow up. PN followed up the remaining 109 clients; 97% were initiated on ART by September (72 FSWs, 20 MSM, 12 TG and 2 PWID). From September to December, the program detected 61 new HIV infections and 86.8% of them were initiated on ART (47 FSW, 5 MSM and 1 PWID).

Conclusions/Next steps: Results from peer navigation demonstrate the benefits of extending the focus of the KP prevention program to include care and treatment. PN effectively bridged the ART and KP program divisions of the National AIDS Control Organization at facility level and improved access to ART among KPs. LINKAGES advocates that the national KP HIV prevention program integrate peer navigation within the existing package of services for KPs.

THPED611

Improving care and treatment access for children and adolescents affected by HIV/AIDS in Zimbabwe through the expanded integrated model for paediatric AIDS care and treatment (EIP)

R. Malaba, P. Ndlovu
World Education, Inc., Harare, Zimbabwe

Background: Children and adolescents are disproportionately affected by access issues to comprehensive HIV care. In 2014, Zimbabwe was a high burden HIV/AIDS country with 15.4% HIV prevalence, including 2.99% among children aged 0-14 years and 48% of eligible children receiving ART, in comparison to 85% of the adult population. A model to accelerate access to testing and care, particularly in underserved districts, was warranted.

Description: World Education's Bantwana Initiative employed a combined community/facility approach to increase identification, enrolment and retention of HIV+ children and adolescents into a continuum of comprehensive care. From 2014-2017, EIP's community-based interventions across 17 districts centred around training of community cadres to identify children for testing and link children/adolescents living with HIV to health facilities. Case management, parenting education and economic strengthening services engaged caregivers to promote children's treatment adherence. Clinic-based training, mentorship and supportive supervision was deployed to build clinical provider capacity in diagnosing and managing paediatric cases, with Results Based Financing (RBF) to incentivize attainment of paediatric ART benchmarks. EIP supported HIV testing for over 460,000 children; initiated 10,904 children onto ART and increased HIV+ children enrolled in case management from 28% to 86%; provided 3,697 mothers with parenting education and economic resilience groups; trained 3,189 community health workers to support HTS linkage and follow-up; trained 217 nurses in comprehensive HIV service delivery; and provided RBF to 248 clinics.

Lessons learned: Effective engagement of key ministries, local leaders, and community cadres to mobilize communities around paediatric ART, coupled with strong clinical-community linkages contributed to increased community awareness of paediatric and adolescent HIV services. Together with Treat All policy shifts, EIP contributed to universal paediatric ART coverage in project districts, up from 42% coverage in project districts at baseline (2014). A case management approach demonstrated to be an effective strategy for follow-up of affected children and families.

Conclusions/Next steps: Emerging lessons underscore the need for expanding and tailoring HIV case finding and case retention modalities to promote good clinical and social outcomes particularly for adolescents affected by HIV/AIDS. We continue to hone ways to introduce more differentiated care options that better meet the needs of children, adolescents and other key sub-populations.

THPED612

Case management approach to upscale antiretroviral therapy (ART) uptake among people who inject drugs (PWIDs) in HIV high prevalence states, Malaysia

H. Jonet[1], T. Kurusamy[2], M.Y. Yusoff[3], S. Linggie[2]
[1]The Malaysian AIDS Council, Special Initiatives Project, Kuala Lumpur, Malaysia, [2]The Malaysian AIDS Council, Programme, Kuala Lumpur, Malaysia, [3]The Malaysian AIDS Council, Global Fund Project, Kuala Lumpur, Malaysia

Background: In Malaysia, despite decentralized HIV care with free ART for all, ART uptake only 37% (2016) across PLHIV. The Integrated Bio-Behavioural Survey (IBBS) 2014 among Key Populations (KPs), showed HIV prevalence among 1,445 PWIDs is 16.3%, with only 37.8% had tested in the last 12 month for HIV and know their results, and 29.1% of them received ART.

Description: From July 2016, five NGOs from five states with the highest HIV prevalence among PWID (44.7%, 30%, 27.1%, 21.3% and 5.7%) are chosen to implement the Case Management Project funded by the Global Fund.

The case management approach aims to link PWIDs to the public primary healthcare clinics. Community case workers were trained on knowledge on HIV/TB/Hepatitis C/OST treatment and supportive counseling skills to link PWIDs from community to the local clinic. Collaboration standard operating procedures (SOPs) workshops between NGOs and key stakeholders from public clinics under the Ministry of Health were organized at all selected states in July 2016, aimed to increase the understanding of clinics to challenges and facilitating factors of treating HIV positive PWIDs, and streamline the referral process of PWIDs to health clinics. Case workers also serves as facilitators between PWIDs clients and clinics to minimize issues such as miscommunication, stigma and discrimination in the clinic.

Lessons learned: Twenty five case workers has been trained to understand client's needs and the best strategy to link PLHIV among PWIDs to care. Collaboration with the clinics has increase the uptake of HIV screening and OST. However, challenges remained to HIV treatment enrollment as PWID faced additional challenges along the process, such as criminalization of drug use in the country and compulsory drug rehabilitation programme by Anti-Drug Agency, making high drop-out rate of PWID from clinic follow up for ART and OST. Only 22% of HIV+ PWID in the programme has initiated ART in 2017.

Conclusions/Next steps: Malaysian AIDS Council (MAC) will advocate for decriminalizing of drug use from the removing legal barriers activities. Invited on national platform of drug policy reform working group to explore voluntary based treatment centers and rights to access for treatment by PWID. The country is committed Drug Policy Reform.

THPED613

Reaching the unreached through the use of social media application for service delivery

K. Shetty
GAURAV, Grassroot Community Based Organisation, Mumbai, India

Background: In today's digital life, social media and social web-based platforms, provide new opportunities to more effectively reach and engage MSM and transgender populations with HIV testing and treatment. Men who have Sex with Men (MSM) have been impacted extremely by high rates of sexually transmitted infections, including HIV as the community is stigmatized, marginalized and criminalized.

Description: Due to changes in outreach patterns and community access, if is difficult to reach all at-risk individuals through existing physical outreach. Considering the current issue and availability of modern technology platforms, the organization took need-based initiatives to develop the use of social media application i.e. WhatsApp application for service delivery. Methodology adopted:

1. Community Sensitization and Consent
2. Whatsapp group: groups were made by community outreach workers with the purpose of coordination between outreach workers and community members, sharing organizations activities and health camp schedule, social humor and immediate crisis response.
3. Whatsapp broadcast group: Broadcast groups are for HIV testing and Regular medical Checkups

Outputs:

· Out of 2479 registered population, 42% approached for service delivery in from January 2017 until December 2017
· 29% availed HIV Testing service and 36% availed Regular Medical checkups using WhatsApp application
· 207 crisis were immediately responded and successfully solved.

Lessons learned: Social media and Internet and communication technology (ICT) use for HIV prevention isn't just for *fun* - WhatsApp application is a promising way to inform HRGs about their due services such as HIV Testing. - It's an innovative and low-cost approach.

Conclusions/Next steps: Currently, the reach of this application is still less than 50 percent of the population covered. Lessons learned will need to be systemically analyzed to see the feasibility of scaling up this intervention to other sites with a bouquet of specialized services and manpower.

[Adopted Methodology, Data flow and Glimpses of groups and services]

THPED614

Brazilian eHealth strategy for expanding, strengthening and monitoring ART adherence

J.G. Netto[1,2,3], A.F. Kolling[1,4], R. Viana Brizolara[1], M. Camelo Madeira de Moura[1], F. de Barros Perini[1], A. Schwartz Benzaken[1]
[1]Ministry of Health of Brazil, STI, AIDS and Viral Hepatites, Brasilia, Brazil, [2]Global e-Network of People Affected by HIV, Communication, Brasilia, Brazil, [3]Centers for Disease Control and Prevention of United States of America, Curitiba, Brazil, [4]University of Brasilia (UnB), PhD student on Collective Health, Brasilia, Brazil

Background: The Ministry of Health (MoH) of Brazil developed Viva Bem app, in order to provide free tools for strengthening self-care and promoting adherence of people living with HIV (PLHIV) to treatment, and recognizing that technology has been achieving an important space in people´s lives about health care.

Description: The app concept came from the perception that treatment information influences self-care and adherence to antiretroviral therapy. The development was supported by PLHIV of different age groups, genders and social classes. The app uses data from logistic control and

laboratory tests (viral load, CD4 and HIV genotyping) systems, showing tests results, ART information and allowing users to create alerts for medical appointment, laboratory tests and vaccines. The app allows the users to report the quality of health services and side effects. All information is saved in the MoH database.

Lessons learned: Viva Bem was released in September 2017 and has not been yet widely released, however, it already has 3,200 active users and 235,000 pageviews. 81.3% of users have returned to the app in less than 14 days, with 20.4% searching for laboratory test results and 6.3% for information about their medications. Access is higher among young people aged 18 to 34 years (61%), of both genders and all regions of the Brazil (51% from the Southeast region). Feedback from users reinforce the need for greater dissemination of the app. They report the impact that information quality has on their self-care, leading them to make more appropriate decisions about their health care, thus improving adherence to treatment. The tool for access test results in almost 9 days (less than before the app creation) has been the most praised tool.

Conclusions/Next steps: It is recommended to update the app with attractive, informative and useful content for its users and create functions that allow the app to collect more data about the use and about the impact of it in self-care and adherence to treatment, allowing create public policies and develop effective interventions with eHealth strategies.

THPED615

Comprehensive model of the client involvement in HIV testing and treatment: USAID RESPECT Project Experience

O. Vynogradova[1], O. Bryzhovata[2], D. Dmitriev[2], O. Petrash[2]
[1]All-Ukrainian Network of PLWH, Innovative Programs Unit, Kyiv, Ukraine, [2]All-Ukrainian Network of PLWH, Kyiv, Ukraine

Background: The National PLHIV Stigma Index research (All-Ukrainian Network of PLWH, 2016) indicates that HIV-related stigma and discrimination (S&D) resulted in 11% of them deliberately avoid hospitalization and 8% faced with obstacles in access to health services. As of January 1, 2016, the estimates totaled 290,000 of PLHIV in Ukraine (with about 130,000 registered with AIDS centers). As a part of the RESPECT Project, the Network implemented the Client Involvement to Testing and Treatment (CITT) Model aimed at decreasing HIV-related S&D at healthcare facilities (HCF) and reaching the UNAIDS targets 90-90-90.

Description: Six regions of Ukraine have been covered with the CITT Model; 73 pilots HCF from those regions implemented the following activities:

· Gender-sensitive policies and awareness campaign to decrease HIV-related S&D among healthcare practitioners.

· Legal and psychological counseling and assistance for PLHIV; collecting the PLHIV rights violation cases, protecting of the patient rights, and preventing self-stigmatization.

· Provider-initiated HIV testing and counseling (PITC) according to clinical indications and risk behavior screening.

· Approved patient referral algorithm (different for each HCF, according to the local specific features and requirements) aimed at patient successful involvement in testing and treatment.

Lessons learned: The designed and piloted algorithms results are as follows: 5,513 people tested for HIV; out of them, 939 are HIV+ and 797 registered with AIDS service. The overall testing yield is at 17%. The following key findings and lessons learned can be stated:

1. To be efficient, an algorithm must take into account such factors like HCF organizational structure, local situation with ongoing health reform, availability of the rapid HIV test kits, and political factors
2. Trainings and policies for healthcare practitioners increase their motivation to providing PITC
3. The role of a social worker is crucial in algorithm implementation.

Conclusions/Next steps: The CITT Model has proved its effectiveness in Ukraine; its components have been approved by chief doctors of the pilot HCFs. Patient referral algorithms will be used under the USAID HealthLink Project to be launched by the Network in March 2018.

THPED616

Reaching people online via chat-based PrEP navigation services: The PleasePrEPMe: Connect experience

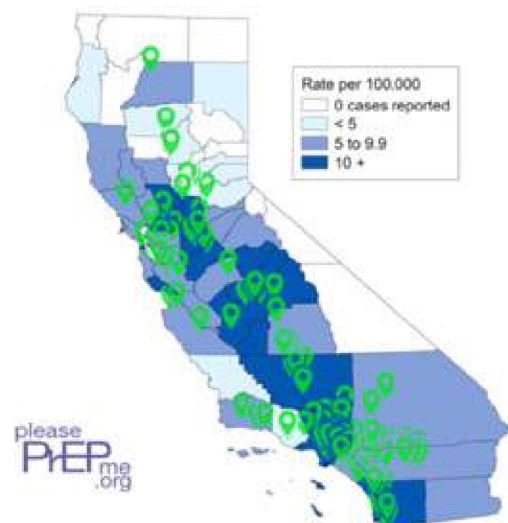
S. Weber[1], Y. Oseguera-Bhatnagar[2], A. McCord[3], C. Romero[4], R. O'Neal[2], L.M. Lazar[1]
[1]University California, Family and Community Medicine, San Francisco, United States, [2]PleasePrEPMe.org, San Francisco, United States, [3]Project Inform/PleasePrEPMe.org, San Francisco, CA, United States, [4]Project Inform/PleasePrEPMe.org, Los Angeles, United States

Background: In the U.S., uptake of PrEP has been high among white, gay men in urban centers where access to PrEP has been fostered by convenient and attractive clinical services supported by benefits navigation. Uptake of PrEP is lower than the CDC's estimated 1.2 million U.S. adults who could benefit; an estimated 98,732 having started PrEP by the end of 2016. Reasons for not using PrEP include lack of PrEP awareness, denial of HIV risk, fear of high costs associated with PrEP care, and concerns about side effects and HIV-related stigma. Navigation is essential to assure potential users access insurance coverage, state and local government PrEP services, and industry-sponsored services. New information reveals people whose social interactions are primarily online are at higher risk of acquiring HIV, highlighting the potential impact of finding novel ways to improve engagement with vulnerable populations through online services.

Description: PleasePrEPMe:Connect provides HIV prevention education and resources through online chat in English and Spanish, aiming to reach potential PrEP users ages 13 and up not already engaged in services. Email, text and telephone follow-up are offered. PleasePrEPMe:Connect utilizes a sexual health coaching model helping Californians find PEP/PrEP services through PleasePrEPMe's directory and resources. Online outreach targets geographic locations and populations currently underserved by existing services. Follow up surveys, assessing satisfaction and referrals to providers, are sent immediately and two weeks following.

	n	%
Total Connects	1119	100%
Connects (relevant chat)	700	63
Non-Connects - excluded from analysis (incomplete/ irrelevant/inappropriate chat)	419	37
Topics* (n=700, more than one topic may be discussed per Connect)		
Navigation (explaining the healthcare and coverage systems)	413	59
PrEP (safety, effectiveness, side effects, dosing, adherence)	181	26
Identified a specific medical provider/clinic	253	37
Spanish chats	62	9
Average length of chat	8 minutes, 24 seconds	

[Characteristics of Connect interactions April 2016- January 2017.]



[2015 Syphilis rates in California counties and PleasePrEPMe:Connect chat locations from April 2017 - January 2018.]

Lessons learned: During April 2017-Jan 2018 there were 128,000 visitors to PleasePrEPMe.org. 86,000 were offered proactive chat. 700 engaged with PleasePrEPMe:Connect -providing navigation and HIV prevention information via chat (44%); email (3.2%); text, social media and telephone calls (1.7%) (Table 1). Connects originated from a wide geographic range across California (Figure 1).
Conclusions/Next steps: While PleasePrEPMe:Connect visitors come from diverse California regions, mapping chats geographically illustrates further outreach is needed to areas of moderate-to-high syphilis incidence. Paid advertising and partnerships with online and offline community leaders have been key in increasing visitors. Further evaluation is needed to understand the service needs of the 22,000+ monthly visitors who do not engage in chat.

THPED617

Leveraging mobile technology through helpline counseling: An effective strategy for accelerating progress toward Ghana's 90/90/90 targets for key populations

E.K. Bruce[1], A. Nyanor[1], P. Tapsoba[1], H. Nagai[1], W. Tun[2], E. Adiibokah[1], K. Eifler[1], S. Maher[3], Y.A. Abdul Rahman[1], D. Nartey[4]
[1]JSI Research & Training Inst., Inc., Accra, Ghana, [2]Population Council, Accra, Ghana, [3]JSI Research & Training Inst., Inc., Washington, United States, [4]JSI Research & Training Institute Inc., Monitoring and Evaluation, Accra, Ghana

Background: The USAID Strengthening the Care Continuum Project (Care Continuum), implemented by JSI, collaborates and builds Government of Ghana and civil society partners' capacity to provide quality, comprehensive, and stigma-free health services for key populations (KPs) and people living with HIV (PLHIV). In Ghana, national policy guidelines protect and promote all basic, fundamental human rights and freedoms, including the rights of vulnerable groups.
Description: Innovative technology approaches are required to better link KP to HIV related services. The Care Continuum trained 16 Helpline Counsellors (HLCs) in stigma reduction and HIV-related issues as an innovative approach to improving KP information and access to HIV services through live, confidential phone-based counseling services across all five regions. The unique feature about the strategy is to provide private, confidential and accessible services to those that may not seek HIV services at facilities. The Helpline Counsellors (HLCs) are also volunteers who work at Anti-Retroviral Therapy (ART) and Sexually Transmitted Infection (STI) clinics, facilitate referrals to their units, provide testing and counselling. They also accompany KP positives to get their laboratory tests, to collect ART drugs, and to help them follow-up treatment and support adherence plans.
Lessons learned:
- KP referrals by HLCs accounted for 42% of all KP enrollment and initiation in treatment from April 2017 to September 2017.
- Helpline counsellors trained in stigma reduction provide quality confidential HIV services to KP.
- Recruiting volunteer professional counselors at ART and STI clinics as HLCs is cost effective because they do not need much additional training.

Conclusions/Next steps:
- Scale-up training of moreHLCs at ART and STI clinics to reach more KP and PLHIV.
- Training HLCs from private sector will expand options for KPs to access quality services.
- This HLC intervention can be scaled at low cost by the government since it builds from current professional volunteers.

THPED618

Dating App to prevent HIV: A Brazilian eHealth project with/for young gay people

J.G. Netto[1], J.A. Paz Paz[1], D. Callisto[1], V. Araujo Rocha[2], A. Schwartz Benzaken[1]
[1]Ministry of Health of Brazil, STI, AIDS and Viral Hepatites, Brasilia, Brazil, [2]Global e-Network of People Living with HIV, Brasilia, Brazil

Background: In Brazil, smartphones and apps are majority used by the youngest ones (higher access in some regions and groups). In this context, the Close Certo project was developed during the Rio 2016 - Olympics and Paralympics games, a non-costs partnership with the Ministry of Health of Brazil (MoH), dating app Hornet, UNAIDS and UNESCO.
Description: A total of 18 young gay men from 15 Brazilian cities volunteered for the project. They previously took part in a youth leadership training. A special miniguide was prepared to support their performance online. Labels and hashtags indicated on their profile availability to chat (some opened-up their serostatus). During 49 days, over 1,000 messages were exchanged between Brazilian Hornet users and volunteers. Four messages were sent to over 1 million users about combination prevention (PEP, PrEP, condom and no discrimination). Daily experiences received mentoring in a confidential WhatsApp group, coordinated by the Ministry's collaborators.
Lessons learned: Dating Apps help to prevent HIV, but one has to understand people´s expectations without pushing too hard: users were looking for sex, not to chat about health. The project helped the Brazilian MoH´s to improve the use of online channels and peer-to-peer strategies to reach out to the young population. New types of activism was also discussed. Some people questioned the project, when #closecerto (a youth slang, that means "nice done") was "tweeted" live in the MoH press conference. Some thought the project was full of prejudice. It was an opportunity to discuss about it with a wide audience. Gradually, internet users began to understand the ideas behind the Close Certo. Among the Hornet users, within the dating app chats, there was no registration of criticism, only supportive messages.
Conclusions/Next steps: eHealth strategies can be combined with traditional communication strategies to spread the message in different ways to reach the HIV epidemic key populations, such as young gay men and MSM. Governments need to know the dating apps culture and develop new online communication strategies (in partnership with the apps). The challenge is to approach the key population through suitable messages.

THPED619

Easy to preach difficult to practice - experiences of evidence-based programme management

D. Kumar[1], V. Arumugam[1], U. Chawla[2], F. Joseph[3], S. Mehta[4], N.R. Manilal[5]
[1]Inida HIV AIDS Alliance, Strategic Information - Monitoring and Evaluation, New Delhi, India, [2]Inida HIV AIDS Alliance, Technical Support, New Delhi, India, [3]Inida HIV AIDS Alliance, Programme, New Delhi, India, [4]Inida HIV AIDS Alliance, Chief Executive, New Delhi, India, [5]Inida HIV AIDS Alliance, Project Director and Principal Investigator: Nirantar, New Delhi, India

Background: With the support of CDC, India HIV/AIDS Alliance implements "Nirantar" programme to complement, aid and supplement National AIDS Control Organisation (NACO) in strengthening specific key areas of National AIDS Programme in selected three states (Madhya Pradesh, Chhattisgarh and Orrisa) through strategic information and utilisation of programmatic data of 124 targeted interventions (TIs) sites for prevention. However, it was observed that there was a huge discrepancy in data entry and data quality in all the three states and only 17% TI provided error-free data out of 124 TIs.
Description: Nirantar has collected and reviewed 0.11 million individuals' data from 124 TIs implemented by NGOs. Further data analysis was carried-out to effectively strategize prevention interventions for all KP groups. This data is currently being exported into a geographical information system (GIS) application to generate and establish evidence-based-monitoring system in the three states. During the review, the gaps were identified, which led to a bit of mistrust in NGOs from government.

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Nirantar provided capacity building trainings, mentorship, technical support and handholding support to the 124 TIs in the three states on data management, data quality assurance methodology.

Lessons learned: Intensive technical support and capacity building of field level implementers on data management significantly increased quality and timely reporting from 17% to 95%. The analytical engine and GIS software has enabled efficient monitoring of TIs at the state and national level on KP profiling, risk practices, vulnerability aspects and service uptake.

Conclusions/Next steps: By providing technical support Nirantar team was able to regain the faith of government in NGOs and with increased capacities, NGOs also felt confident to do the better implementation for the communities.

THPED620

Desired characteristics of an eHealth enabled peer support intervention to address psychosocial and health system barriers to care among HIV-positive men who have sex with men in China

K. Muessig[1], C. Li[1], W. Dong[1], G. Lei[2], P.Y. Tang[1], D. Giovenco[3], C. Golin[1,4], E. Fisher[1], H. Jiang[5,6]
[1]University of North Carolina at Chapel Hill, Department of Health Behavior, Gillings School of Global Public Health, Chapel Hill, United States, [2]Aibai Culture & Education Center, Chengdu, China, [3]University of North Carolina at Chapel Hill, Department of Epidemiology, Gillings School of Global Public Health, Chapel Hill, United States, [4]University of North Carolina at Chapel Hill, Department of Medicine, Chapel Hill, United States, [5]Sichuan Provincial People's Hospital, Institute for Emergency and Disaster Medicine, Chengdu, China, [6]University of Electronic Science and Technology of China, School of Medicine, Chengdu, China

Background: Peer support offers tools for reducing multi-level barriers to timely appraisal and initiation of antiretroviral therapy (ART) among men who have sex with men (MSM) in China. Under half of HIV-positive MSM receive a CD4 count within 6 months of diagnosis (a step required to initiate ART as recommended), and less than half who qualify for ART initiate timely therapy. We aimed to understand the roles community-based organization (CBO) practices and internet-based support play in HIV-positive MSM's illness self-management in order to adapt an evidence-based peer support model to assist throughout the continuum-of-care.

Methods: We interviewed HIV-positive MSM (n=30) recruited in Chengdu, China, about interpersonal and systems-level influences on care, quality of life, and desired peer support services. We thematically analyzed transcripts in order to identify ways in which peer support might address barriers and challenges to care.

Results: Participants had lived with HIV 1.6-10.6 years. All were taking ART. Half reported symptoms consistent with mild/moderate depression (PHQ-9) and 5/30 reported thoughts of suicide or self-harm. In managing HIV diagnosis and treatment, participants used a range of support services including in-person (group and individual counseling) and electronic sources (online forums, chat groups, smartphone apps). CBOs were especially helpful post-diagnosis in coping with emotional difficulty and supporting linkage to care. Participants continued to encounter HIV-related fear and discrimination in societal and medical contexts, particularly from providers outside HIV care. Valued peer support functions included: accurate HIV/ART information, mental health support, information on gay/HIV-friendly providers, ART adherence assistance, and accompaniment to medical appointments. Prioritized characteristics of a peer supporter were HIV knowledge, kindness, providing an example of hope, non-judgmental, trustworthy, viewed as an equal, and HIV-positive.

Conclusions: Non-integrated HIV care systems, stigma, fear, distress, and minimal social support hindered service utilization. Peer-support was viewed as a desirable service among HIV-positive MSM to cope with systemic and psychosocial barriers to care. Formalizing an evidence-based peer support intervention for "one-stop" delivery through trusted CBOs could enhance CBO capacity and intervention accessibility and impact. Offering multiple options to engage with peer supporters (e.g. in-person and online, pair and group) could increase appeal and uptake.

THPED621

Nurse-led open access program to improve engagement in HIV treatment and care services at an urban community health center

P. Meacher, L. Comstock, D. Latimer, C. Trossello, A. Radix
Callen Lorde Community Health Center, New York, United States

Background: The HIV treatment cascade, particularly engagement in care, is critical to improved outcomes. Some patients face individual-level and structural barriers to medical visit adherence. Neither a rigid, traditional appointment schedule nor an entirely open-access unscheduled visit model is ideal for all patients. At Callen-Lorde, 20% of patients account for 80% of missed appointments underscoring the need to develop new and flexible models of care access.

Description: Callen-Lorde, a community health center in New York City, provides comprehensive primary care to the lesbian, gay, bisexual & transgender (LGBT) communities and people living with HIV (PLWH). The clinic provides care to 3485 PLWH, predominantly MSM (90%) and transgender women. When reviewing the center's HIV treatment cascade, missed visits predicted loss of viral suppression as well as uptake of preventive care services. We pilot-tested open access same-day HIV appointments. It became clear that most patients preferred traditional scheduled appointments. A more targeted, triage nurse-led open access program (NLOAP) was implemented. Using triage was key as patients missing routine appointments still have interim urgent care needs. Patients missing ≥three scheduled appointments within six months were eligible. Additionally alerts were placed in patients' charts to alert staff that patients were NLOAP eligible should they present for case management, medication refills or other face-to-face or phone encounters. Open-access eligible patients receive same-day appointments that address both urgent and HIV primary care needs with care delivered by a primary care provider with HIV expertise. The patient can opt to obtain all future HIV care using the open-access model or return to scheduled appointments.

Lessons learned:
- Nursing triage is an ideal way to identify patients who are lost to care for referral to an open-access care model
- HIV treatment and care can be successfully delivered in an embedded, targeted open-access program model
- The program was well received by patients and staff
- Patients re-engaged in care have improved HIV-care outcomes
- Some patients have subsequently decided to use only the open access program for HIV services

Conclusions/Next steps: Further study is needed to determine and compare long-term outcomes for patients using only open-access HIV care models, hybrid models or traditional models of HIV care delivery.

THPED622

The role of community organisations in negotiating with generic suppliers for equitable access to PrEP

H. Paynter
Australian Federation of AIDS Organisations, Sydney, Australia

Background: In Australia, most HIV infections occur among gay and bisexual men. With evidence showing that PrEP is highly effective at preventing HIV transmission among this group it is critical that national policies enabling rapid scale up of PrEP among key populations are adopted. Australia's health system subsidises medication on the grounds of cost-effectiveness. Gilead Sciences, the original patent holder of the medication used for PrEP would not release their drugs to the Australian Government at a cost effective price. AFAO introduced competition into the system to break the monopoly and deliver equitable and affordable PrEP access in Australia. The gap between political will and cost effective access to PrEP was resolved through a well-intentioned productive relationship between community, generic manufacturers and government.

Description: The prospect of system failure compromised equitable access to PrEP in Australia. The solution was to create competition and break Gilead Sciences' monopoly. Invariably it is the patent holder that

initiate applications for government subsidisation in Australia. The situation with PrEP was different as the medication was an established drug that had come off patent. AFAO's role was to act as an intermediary and broker conversations between generic manufacturers and the Australian Government. In effect, AFAO supported formal submissions from bona fide generic manufacturers into an unfamiliar process enabling a cost-effective price to be negotiated in competitive pricing environment. As a community-led organisation, AFAO's unique role in establishing a relationship with generic manufacturers and government agencies brokered a solution to an impasse that placed Australia's progress towards meeting its target to end HIV transmission in jeopardy.
Lessons learned: Relations between pharmaceutical companies and HIV community organisations are often characterised through the power imbalance between capital and consumer.
AFAO's role in brokering equitable access to PrEP in Australia challenges this narrative and provides a window into the opportunity for community to influence outcomes that are in the public interest when relations with government and pharmaceutical companies are based on trust and goodwill.
Conclusions/Next steps: The goodwill and trust between government and HIV community organisations in Australia enabled AFAO to engage with genereic providers of PrEP to broker equitable access to PrEP.

THPED623

Equitable access of PMTCT services in humanitarian setting with the involvement of conflict affected community

M.K.M.M. Oo
UNICEF, YCSD, Mandalay, Myanmar

Background: Kachin is one of the states where there is highest HIV prevalence in Myanmar. As long-term conflict between Myanmar Army and KIA starting since June 2011, there are over 31,000 internally displaced persons (IDPs) from 4700 households of 480 villages in Bhamo District, Kachin under non-government controlled area (NGCA). Most of IDPs depend on camp clinics for basic health care and there is no PMCT services before. Only 35% of the area are covered by basic health staff under Ministry of Health & Sports (MOHS) in Government control area(GCA) and some of the rest area are covered only by KBA volunteers.
Description: UNICEF initiated partnership with KBA in delivering PMTCT services for most vulnerable pregnant women at NGCA through agreement with MOHS under equity based humanitarian response in 2013. Kachin Baptist Association, Bhamo (KBA-BD) is the religious organization which is the most influential faith based organization among Kachin ethnic people. KBA-BD is delivering prevention of mother to child transmission of HIV (PMTCT) cascade services including HIV counselling & testing (HCT) by rapid test kits and referral to nearest health facility for confirmation & treatment by 20 trained volunteers from conflict affected community.
Lessons learned: With support of UNICEF, 787, 897, 710 pregnant mothers were tested and positivity rate is 3.2%, 3.4% & 5.2 % in 2015, 2016, 2017 respectively. Positivity rate is very high compared to national HIV prevalence of pregnant women, 0.6% in 2016. The significant achievement is 100% of HIV positive pregnant mothers receiving ARV in every year. Moreover, spouse testing rate is 4.7%, 2.7%, 8.3% in 2015, 2016, 2017 respectively so spouse testing is still needed to be strengthened. Early Infant Diagnosis has been introduced in 2017 and only 13 exposed babies were tested.
Conclusions/Next steps: These above successful evidence-based results are remarkable. Considering the sustainability of partnership and providing health care services at conflict situation in line with Do-No-Harm principle is very critical.

THPED624

Reaching the "unreached": Secondary distribution of needles/syringes for people who inject drugs reduces harm for the most vulnerable in Northeast India

B. George[1], A. Singh[2], P. Goswami[2], S. Mathew[2], N. Bakshi[2], K. Ditya[2], T. H. Holtz[3], S. Kumar[3]
[1]FHI 360, Country Director, India, Gurgaon, India, [2]FHI 360, New Delhi, India, [3]Division of Global HIV and TB, Centers for Disease Control and Prevention, New Delhi, India

Background: In India, harm reduction for people who inject drugs (PWID) focuses on needle-syringe (NS) exchange. An outreach worker provides clean NS to PWID on a daily/weekly basis at injecting sites or drop-in centers (DIC), referred to as primary distribution of NS. However, primary distribution is unable to reach PWID in remote locations in India. PWID face barriers in NS collection including adjusting schedules to outreach hours, travel to DIC, and disruption of outreach by police.
Description: In March 2016, Project Sunrise, implemented by FHI 360 and funded by Centers for Disease Control and Prevention (CDC), addressed the issue of reaching PWID unable to access NS through primary distribution in Northeast India. Consultations were conducted with PWID and local stakeholders. Sites were mapped to ascertain which locations might effectively reach most vulnerable PWID. Subsequently, secondary NS outlets were identified including government facilities, pharmacies and tobacco shops. NGOs provided NS to secondary outlets. PWID were provided coupons for collecting NS based on demand. By December 2017, 40 secondary outlets were established across 13 districts, reaching 1,000 "hard to reach" and "unreached" PWID.
Lessons learned: Prior to establishing secondary outlets, community consultations and site-mapping are essential. Secondary distribution of NS can be successful even in government health facilities (primary health centres and rural clinics) which are often the only access points in remote locations. A coupon system allows clients to collect and track the distribution of NS. Injecting sites are dynamic, thus, a flexible approach of shifting "secondary" sites are important.
Conclusions/Next steps: In cases where primary distribution is unable to reach the most vulnerable populations, secondary distribution of NS should be explored. Secondary distribution outlets provide NS access to PWID, however, it should be ensured that they serve as an entry point for PWID to access other services including HIV testing, medically assisted treatment and linkage to ART. Project Sunrise will advocate with the Indian National AIDS Control Organization to include secondary distribution of NS as a key strategy in national guidelines on HIV prevention and treatment services for PWID in India.

THPED625

Combining research and advocacy is key to the HIV response. An example from Morocco

M. Ahmar[1,2], A. Benmoussa[1], F.Z. Hajouji[1], L. Ouarsas[1], H. Himmich[1], M. Karkouri[1]
[1]ALCS, Casablanca, Morocco, [2]Coalition PLUS Community-Based Research Laboratory, Paris, France

Background: Halting the HIV infection epidemic among key populations can only be achieved by deploying additional and innovative tools, such as Pre-Exposure Prophylaxis (PrEP) and community-based testing. In that sense, Association de Lutte Contre le Sida (ALCS), a major NGO in the field of HIV response in Morocco, has conducted advocacy based on research to enable access to these two strategies to Moroccan key populations.
Description: ALCS conducted from March to October 2015 a research project on community based HIV testing (CBHTS) operated by lay providers in four Moroccan cities. The results were extremely compelling: 68% of beneficiaries tested for the first time and 95% of them reported being satisfied with the experience, citing in particular ease in communication and respect of confidentiality. The study results were used to advocate towards the Ministry of Health (MoH), leading to the authorization given to ALCS to continue CBHTS as per the project before a national roll out.

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Regarding PrEP, advocacy enabled research. After mapping of existing obstacles in the Moroccan context, ALCS developed position papers based on scientific proof and institutional recommendations and circulated them to the MoH. As a result, ALCS were cleared to conduct a demonstration project on PrEP, which was elaborated jointly by the research and advocacy teams at ALCS. The project, including 400 MSM and SW, started in May 2017 and is currently ongoing. But, as the preliminary results are already encouraging, PrEP has been included in the 2018-2021 HIV/AIDS National Strategic Plan. The final results of ALCS's study will be used by the MoH to decide future modalities of PrEP implementation.

Lessons learned: These two examples show interdependence of research and advocacy: advocacy enables the development of research projects, whose results legitimize and feed advocacy actions. Under the umbrella of Coalition Plus, ALCS has developed over the past years structured research and advocacy departments capable of working in a coordinated manner.

Conclusions/Next steps: The common experience of research and advocacy of ALCS has already shown impact. Today, ALCS is attempting to consolidate its research and advocacy workforce to achieve new objectives ie implementation of HIV self-testing or exploration of differentiated ARV distribution models.

THPED626

Evaluation of PrEP demand creation and uptake among young women in a Cape Town township: The 3P study

K. Gill[1], L.-G. Bekker[1], M. Duvyer[1], L. Myers[1], J. Morton[2], R. Aunger[3], V. Curtis[3], M. McConnell[4], A. Van der Straten[5], G. Breen[2], J. Baeten[2], C. Celum[2]

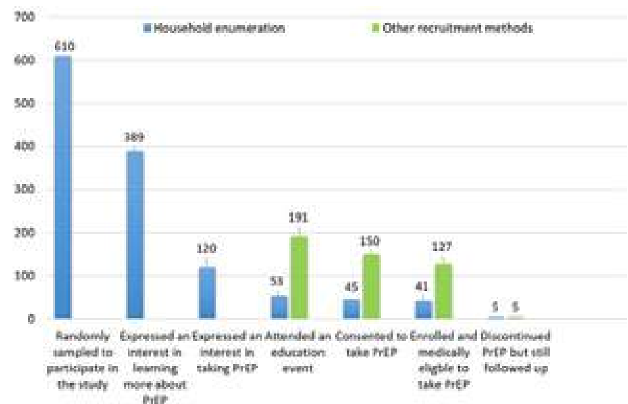
[1]Desmond Tutu HIV Centre, University of Cape Town, Cape Town, South Africa, [2]University of Washington, Seattle, United States, [3]London School of Hygiene and Tropical Medicine, London, United Kingdom, [4]Harvard University, Boston, United States, [5]RTI International, San Francisco, United States

Background: Oral Pre-exposure prophylaxis (PrEP) may significantly reduce HIV incidence among young South African women, who are particularly vulnerable to HIV infection. While PrEP has proven to be safe and effective, an implementation gap exists in terms of understanding how to create demand for PrEP among young women who would benefit the most. We developed a social marketing campaign to raise awareness and educate young women about oral PrEP, enumerate interest and quantify the PrEP cascade in Masiphumelele Township near Cape Town, South Africa.

Methods: We developed a 90 second video about PrEP in collaboration with McCann Global Health, based on ethnographic research using behaviour-centered design, in Masiphumelele. The 2016 Masiphumelele census estimated 2092 young women ages 16-25, of which a random sample of young women were asked to complete a survey and to watch a short recruitment video. Participants who were interested in learning about PrEP were referred to community PrEP education sessions. Young women who were interested in PrEP and who had not been sampled were also invited to join the education sessions. All young women who had attended sessions were also invited to screen for a PrEP demonstration project.

Results: Of the randomly sampled 610 young women, 389 expressed an interest in learning more about PrEP and of these, 120 reported an interest in taking PrEP. Of those, 50 attended an education session and 45 consented to take PrEP. One hundred and ninety one young women who had not been sampled but were curious about PrEP came to the clinic to attend an educational session and of those 150 consented to take PrEP.

Conclusions: Even though our social marketing campaign was specifically tailored towards our target population, the PrEP cascade showed that the video stimulated interest in PrEP, but a minority followed through for additional information. Other recruitment strategies, including word of mouth, youth community education events, provider discussions, and social media (e.g., Facebook, WhatsApp) were complimentary components of PrEP demand creation.



[Figure 1: The PrEP cascade]

Funding for HIV programmes and services

THPED627

Costing comprehensive approaches to address human rights-related barriers to HIV services

D. Burrows[1], C. Schutte[2], A. Iovita[3], G. Arustamyan[4], R. Armstrong[2], L. Ferguson[5], A. Stangl[6], R. Jurgens[7]

[1]APMG Health, Sydney, Australia, [2]HEARD, Johannesburg, South Africa, [3]The Global Fund to Fight AIDS, TB and Malaria, Community, Rights and Gender Department, Geneva, Switzerland, [4]The Global Fund to Fight AIDS, TB and Malaria, Community, Rights and Gender Department, Vernier, Switzerland, [5]University of Southern California, Los Angeles, United States, [6]ICRW, Washington DC, United States, [7]The Global Fund to Fight AIDS, TB and Malaria, Grand Saconnex, Switzerland

Background: There is an urgent need to reduce human rights-related barriers to HIV services, such as stigma, discrimination and gender inequality. Despite UN member state commitments to support the 7 key programs known to reduce these barriers (stigma and discrimination reduction; training for health care providers on HR and medical ethics; sensitization of law-makers and law enforcement agents; reducing discrimination against women; legal literacy; legal services; and monitoring and reforming laws, regulations and policies), these programs have nowhere been sufficiently scaled up. Information about how much it will cost to address human rights-related barriers has also been missing. An initiative of the Global Fund to Fight AIDS, TB and Malaria (GFATM) is assessing human rights-related barriers to HIV services and supporting the scale-up of programs to reduce those barriers. A central element of this work is improved costing of these programs to facilitate planning and scale-up.

Description: An extensive consultation identified 20 countries for this effort . Country-level research assessed barriers to HIV services and whether existing programs addressed these concerns. Retrospective costs of existing services were estimated, alongside prospective costs of a proposed comprehensive five-year response to these barriers.

Lessons learned: Preliminary results show that investments in these programs remain far too low, sometimes representing under 5% of reasonable estimates of needed program support. Legal literacy programs are among the least funded. The GFATM's estimates of investment needed over five years for a comprehensive response to rights-related barriers represent a significant increase from current levels, but the expected benefit in terms of access to and retention in HIV services is great.

Conclusions/Next steps: Multi-stakeholder consultations in the 20 countries are finalizing costed five-year plans to scale up programs to reduce rights-related barriers, with intensive evaluation and costing of programs to continue over that period. Additional GFATM funding is being made available to the 20 countries to kick-start the scale-up while contributions from other donors are sought. The unprecedented trove of information on cost of rights-related HIV programs from this initiative will enable modeling of impact of human rights programming and will inform advocacy and program planning worldwide.

THPED628

Contributing one dollar for HIV&AIDS by businesses: A sustainable funding strategy for workplace and community responses

G. Tamale
Federation of Uganda Employers, Business Development Services, Kampala, Uganda

Background: Since 1982 of battling HIV&AIDS burden in Uganda, its financing has largely been relied on external funding of national, workplace and community interventions. With hardly any domestic funding, workplaces are most hit as businesses reluctantly invest in HIV&AIDS programmes despite impacting on productivity and competitiveness.
In 2016 businesses in Uganda coordinated by Federation of Uganda Employers, the private sector one dollar HIV&AIDS initiative (ODI) was started and implemented. ODI aims at mobilizing local domestic resources from private sector organizations and individual business persons to intensify responses targeting working men and women and general population through prevention, treatment and care programmes.
Description: ODI identifies, mobilizes and organizes resources; in-kind & financial to provide meaningful and sustainable investment to HIV&AIDS workplace responses in Uganda targeting employees, suppliers and consumers. This corporate sustainability approach receives contributions of not-less-than one dollar from corporate organizations and business individuals making available technology, learning services and networks. Resources are channeled and invested into prevention, treatment and care of HIV&AIDS infected and affected working population, supply chains and consumers.
Lessons learned: Private sector presents untapped resources, opportunities and tested models to supplement efforts for sustaining gains achieved in the workplace HIV&AIDS responses if well mobilized and coordinated.
-Workplace HIV&AIDS responses require simple innovative approaches with clear demonstration on impact to the bottom line attracting support from multiplicity of partners.
-Efficient and transparent HIV&AIDS financing mechanism processes and systems attract investment from micro, small, medium and large enterprises across sectors including informal economy to invest in HIV&AIDS workplace programmes on a sustainable basis of up to 25% contribution towards national annual HIV&AIDS budget.
-In-kind investment from hotel, media and manufacturing sectors through free seminar venues, Air-time on electronic media and beverage products with HIV&AIDS messages reach the vulnerable adolescent girls and boys who comprise over 70% of general population.
Conclusions/Next steps: -Engaging private sector corporate sustainability approaches can support critical HIV&AIDS gaps and challenges accruing benefits to businesses.
-Demonstrating impact to company´s bottom-line is vital and effective for buy-in to support HIV&AIDS prevention initiatives in their workplaces,
-Robust tools for monitoring and assessing HIV&AIDS investment and spending are critical to attribute sector contribution.

THPED629

There may be harm in not asking: The state of behavioral and social science research in global HIV prevention research

K. Fisher[1], F. Riaz[2], M. Warren[1]
[1]*AVAC, New York, United States,* [2]*AVAC, Policy Data and Analytics, New York, United States*

Background: With recent advances and some disappointing trial results, the biomedical HIV prevention research field has pivoted to examining data on questions of acceptability, adherence, scalability within and across populations and communities at risk of HIV, but the key *behavioral and social science research (BSSR)* is often missing.
Methods: Since 2004, the HIV Vaccines and Microbicides Resource Tracking Working Group has employed a comprehensive methodology to track trends in HIV prevention research. Data on BSSR grants identified as relevant to HIV prevention were collated and analyzed for 2016 for global funders of this work. BSSR was defined as those grants with an explicit focus on the understanding of behavioral or social processes impacting HIV incidence, the understanding of these processes as they affect HIV incidence, or biomedical research in the context of such processes. Research was divided by biopsychosocial, cohort studies, applied research and population-specific implementation research.
Results: In 2016, global funding for HIV prevention biopsychosocial and population-specific applied/implementation research totaled US$59 million, with an additional US$43 million in cohort studies. BSSR research was distributed among biopsychosocial research (31%), trial network core BSSR support (0.3%), cohort studies (35%), non-intervention specific applied research (16%) and implementation research in specific populations (17%). Intervention specific implementation research was highly concentrated in work to test new behavioral interventions or to improve uptake of PrEP (25%) and TasP (59%) through treatment linkage and adherence. For BSSR, where populations were identified, the areas of interest were women (19%), youth (17%), men who have sex with men (20%) and people who use drugs (7%).
Conclusions: Of the US$1.17 billion investment in HIV prevention research in 2016, designated BSSR research comprised approximately 0.5% and biopsychosocial research within that 0.3% of total investment. Yet, BSSR is critical to inform development of treatment and prevention interventions with positive public health impact and effectively engage civil society in development of products through end-user research and community perceptions/opinions. BSSR remains an underfunded and underutilized tool to inform the development of new prevention interventions.

THPED630

Story mapping to maximize resource allocation for key population (KP) HIV intervention in Ghana

D.T. Nartey[1], Y.A. Abdul Rahman[1], F.C. Matute[1], P. Appiah[1], E.K. Bruce[1], K. Eifler[2], H. Nagai[1]
[1]*JSI Research & Training Inst., Inc., Accra, Ghana,* [2]*JSI Research & Training Inst., Inc., Boston, United States*

Background: For over a decade in Ghana, USAID (PEPFAR) and Global Fund (GF) have supported Civil Society Organizations (CSO) in reaching Female Sex Workers (FSW) and Men Who Have Sex with Men (MSM) KP groups with critical HIV and STI information and services at 'hotspots'. The lack of maps or databases to track shifting hotspot locations has resulted in disproportionate KP access to HIV and STI services and ineffective coordination among CSOs and public sector planners. A Story Map of funders, services and hotspots is a powerful tool to depict the KP experience in health service seeking while helping multi-donor agencies effectively coordinate HIV programs for greater impact.
Description: The USAID Strengthening the Care Continuum Project, implemented by JSI, collaborates with and builds the Government of Ghana and CSO partners' capacity to provide quality, comprehensive, and stigma-free health services for KPs. The Project developed an Esri Story Map of funders, 140 service delivery points (SDPs), and 1,700 KP hotspots in collaboration with 13 project grantee CSOs in 23 priority districts by efficiently aggregating information from multiple sources in 2 short workshops in March 2017. CSO participants and the Care Continuum used Google maps on web-browsers and smartphones to navigate, capture, and validate geographic coordinates for SDPs (i.e., public sector KP-friendly health facilities and CSO KP Drop-In Centers). The resulting web-based, password-protected Esri Story Map filters information by KP type, CSO, and funder, while integrating narrative and photos to holistically convey KP's experiences. The map masks locations at close range according to approved IRB protocols to prevent location tracking.
Lessons learned: The Story Map shows hotspots in relation to CSOs funded by USAID / PEPFAR and G, proving useful for stakeholders to better visualize collaboration and overlap areas, and estimate for 90-90-90 activity scale-up.
Conclusions/Next steps: Story mapping is an effective, efficient, replicable tool which improves geo-scope coordination, while protecting KP and hotspot privacy.
Using common apps (i.e., Google Maps) to collect data is low-cost, where data collectors routinely report updated hotspot locations securely to a master map designer without requiring extensive technical support.

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THPED631

Lessons learnt from a novel HIV care & treatment funding model for health facilities in Nigeria, a resource constrained country: The reimbursement for incidentals (RFI) funding model

O. Yemisi Bolanle[1], O. Agbaje[1], I. Osaigbovo[1], I. Utuk[1], C. Momah[1], C. Agbakwuru[2], O. Adedokun[2], O. Olayemi[1], H. Khamofu[1], E. James[3], S. Raj Pandey[1]
[1]FHI 360, Program Management, Garki, Nigeria, [2]FHI 360, Monitoring and Evaluation, Abuja, Nigeria, [3]United States Agency for International Development (USAID), Abuja, Nigeria

Background: Partnership between the governments of Nigeria(GoN) and the United States (USG) through PEPFAR aims to strengthen the capacity to scale up HIV prevention, care and treatment services in Nigeria. While PEPFAR streamlined operational health facility costs in 2014, the GoN was unable to adequately fund operational HIV/AIDS related services. As a result, health workers were using their personal funds to pay for operational costs, and when they could not, services were not administered. In response to these gaps in care, the SIDHAS project developed the RFI funding model to better cover health facility operational costs. The RFI model reimburses health facilities through service providers, for operational cost incurred during service delivery. This abstract describes lessons learnt using the RFI funding model.
Description: The RFI funding model for 13 SIDHAS-supported states in Nigeria was developed to cover operational health facility costs such as telephone cards and home visits for HIV clients, internet costs for data entry, transport for sample logging to hub laboratories, and quality improvement measures. Funds reimbursed for operation costs to each health facility were calculated at 110 naira ($0.31 US) per client currently on ART in comprehensive treatment facilities and 300 naira ($0.83 US) per pregnant woman tested for HIV in PMTCT standalone facilities. The model reimbursed health workers monthly using standardized verifiable activity request and report forms.
Lessons learned: The RFI funding model was adopted in 100% of health facilities across 13 SIDHAS supported states in Nigeria. Health workers were motivated because of the RFI model directly reimburses cost incurred during service delivery. Improvement in service delivery was recorded, resulting in more clients visiting health facilities. Monthly pay out to health facilities improved from an average of 57% in 2015, to 66% in 2016 and 84% in 2017.
Conclusions/Next steps: The RFI model has proven to be a motivational tool for health workers and a means to fund and improve HIV care treatment related operational costs in a resource-constrained country such as Nigeria.

THPED632

Integrating viral hepatitis, HIV, and opioid addiction advocacy: A successful campaign in North Carolina

L. Storrow[1], D. Rowan[2]
[1]NC AIDS Action Network, Raleigh, United States, [2]University of North Carolina at Charlotte, School of Social Work, Charlotte, United States

Background: Since 2010, the North Carolina AIDS Action Network (NCAAN) has led HIV/AIDS treatment and prevention advocacy and lobbying efforts in North Carolina (NC), a state in the southern United States. In 2017, NCAAN expanded its scope of advocacy to include hepatitis testing and linkage to the hepatitis C (HCV) cure. Further, NCAAN explored trends in the opioid addiction epidemic occurring across the state. Due to the impact of the opioid crisis on the middle and upper classes, it has garnered the attention of conservative legislators who are not typically in support of expanded public health policy.
Description: According to NC Department of Health and Human Services (DHHS), HCV is the most common blood-borne infection and accounts for prevalence of 110,000 infections in NC. Nationally, about one-third of people with HIV are co-infected with hepatitis B (HBV) or HCV.
To build support for state funding for treatment and prevention of hepatitis infections, NCAAN hosted six regional advocacy trainings across the state and organized an advocacy day at the NC state capitol. Advocates met with NC legislators to discuss HIV and hepatitis infection trends and how they align with opioid addiction trends. Hepatitis testing was provided in a public location to raise visibility. Professional lobbyists worked closely with key legislators to ensure funding was included in early drafts of the state budget.
Lessons learned: Based on interviews with legislators and lobbyists, NCAAN's advocacy efforts were critical in securing a state appropriation of US $600,000 in 2017 to fund increased hepatitis testing and train staff to link individuals to the cure.
Framing increasing rates of hepatitis as a consequence of the opioid epidemic was politically strategic and helped generate support with more conservative, Republican lawmakers.
The resulting funding appropriation supported increased testing for individuals at high risk across the state, and staff in the two regions of the state with the highest incidence of hepatitis.
Conclusions/Next steps: In 2018, NCAAN will generate and share data on increased HCV testing and cure rates in order to justify continued funding. During the next legislative session, NCAAN will be lobbying for US $1.2 million in state appropriations to support expanded efforts.

THPED633

Active position during procurement process to cut the price of ARVs and diagnostic helps to expand the access to treatment

E. Rudenka
All-UkrainianNetwork of People Living with HIV/AIDS, Kyiv, Ukraine

Background: The corrupted system, economic crisis, are preconditions of unfavorable conditions for procurement of drugs under prices available at the market.
Description: In order to reduce the costs for treatment and monitoring of HIV Network use a various methods:
- regular negotiations with suppliers of antiretroviral drugs and diagnostics with the purpose to less the price. Negotiations even with winners of tender procedure, or with suppliers in conditions of limited market or even in case if market represented only by one (soul) sours. In all negotiations we rely on prices available on world market.
- use of reduction bidding procedure when purchasing ARVs.
- Increase the volume of procurements combining the needs for 2 or even 3 year in one procurement, which also helps to obtain better prices.
- procurement of drug combination instead of separate drugs.
All indicated methods can be effective. The costs spend by Network for ARVs decreased from year to year.
TDF+FTC+EFV (generic) - price per yaer course
$186,24 - 2014
$101,16 - 2015
$101,16 - 2016
$87,24 - 2017
This experience helps to achieve savings, expand treatment, advocate price reduction at the level of other procurement structures, incl. the state level facilities, such as Ministry of health.
The difference in prices between Network procurements an procurements performed by MoH was significant, that fact helps to advocate the transferring of procurement functions from MoH to international procurement agencies, which resulted the huge economy of state budget, and possibility to cover additional need in treatment.
Lessons learned: regardless of the situation on the market, the use of various cost-cutting methods is always relevant, considering the goals of treatment expansion. Low prices can be a good argument for advocating price reductions at the state level procurements in conditions of corrupted system.
Conclusions/Next steps: such an approach will be applied in the further, if possible, not only with the purchase of antiretroviral therapy, but also other products.

Integration of HIV and sexual and reproductive health services

THPED634

Working with children and young people as agents of change for better SRH/HIV health outcomes in Zambia

K. Meda[1], C. Chomba[2], L. Chingandu[3]
[1]SAfAIDS Zambia, Programmes, Lusaka, Zambia, [2]SAfAIDS Zambia, Country Representative, Lusaka, Zambia, [3]SAfAIDS Zambia, Harare, Zimbabwe

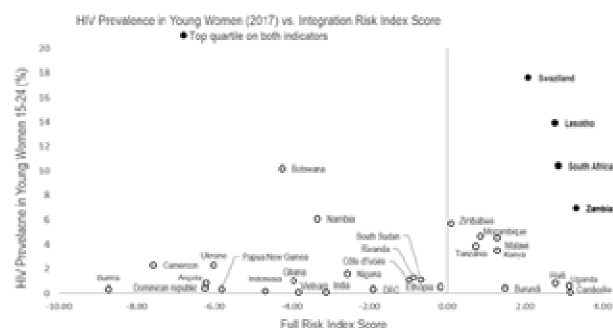
Background: Zambia has a young population which faces various SRH/HIV challenges that threaten their health including early sexual debut, teenage pregnancy, child marriages & HIV. The country has over the past two decades been at the epicenter of the HIV epidemic resulting in 13.3% of young population aged 15-49 estimated to be HIV-positive (ZDHS,2014). The current Ministry of Health policy is to allow adolescents, from the age of 16 years, to access HIV services without parental consent. In addition, the Family Planning policy states that mature minors can also access SRH/HIV services. Although evidence has shown that policy pronouncements have prioritised SRHR services for adolescents and young people but is it a main concern in Zambia? It is against this background that SAfAIDS is implementing a Social Accountability Project whose aim is to strengthen social accountability and advocacy skills of adolescents as the right holders to hold duty bearers accountable in public resource management for SRH/HIV.
Description: SAfAIDS built capacity in 20 Social Accountability Monitors to take action and responsibility for their SRHR and hold government accountable in public resource management in the provision of SRHR services. The monitors analyze the documents from the health facilities such as the activity workplans, annual reports and budgets. Apart from analyzing the documents the monitors also conduct meetings with the youths that access services from the youth friendly corners at the health facilities in order to encourage them to realize their rights to accessing SRH services as a lived capability thus resulting in an increase in the uptake of services.
Lessons learned: Young People can be powerful drivers of social change, when availed with requisite tools, resources, confidence and entry into strategic and safe spaces to navigate the SRH/HIV allocations to meet their specific needs. Evidence generated by the monitors has paved way for evidence based monitoring and engagement of key stakeholders at community level and community level advocacy has resulted in key actions at national level for provision of ASRH services.
Conclusions/Next steps: Hosting of national policy dialogues with key government representatives to ensure the young people access to SRH information, access to care centers and adequate services.

THPED635

Mapping the impact of the expanded Mexico City Policy for HIV/ family planning service integration in PEPFAR-supported countries: A risk index

J. Sherwood[1], A. Sharp[1], B. Honermann[1], C. Horrigan[2], A. Jones[1], C. Cooney[2], G. Millett[1]
[1]amfAR, Public Policy Office, Washington DC, United States, [2]Planned Parenthood Federation of America, Washington, United States

Background: The previously named Mexico City Policy (MCP) -which prohibited non U.S.-based non-governmental organizations (NGOs) from receiving U.S. family planning (FP) funding if they advocated, provided, counseled, or referred clients for abortions, even with non-U.S. funds - was reinstated and expanded in 2017. For the first time, the expanded MCP (EMCP) applies to HIV funding through the President's Emergency Plan for AIDS Relief (PEPFAR) in addition to FP funding. Previous, and more limited, iterations of the policy forced clinic closures and decreased women's contraceptive access, prompting the need to examine where and how the EMCP may impact in-country FP/HIV service integration.
Methods: The likelihood of FP/HIV service de-integration under the EMCP was quantified using a composite risk index for 31 PEPFAR-funded countries. The index combines six standardized indicators from publically available sources organized into three sub-indexes: 1) The importance of PEPFAR for in-country service delivery of HIV and FP services; 2) The susceptibility of implementing partners to the EMCP; and 3) The integration of FP/HIV funds and programming through PEPFAR and USAID.
Results: Countries with the highest overall risk scores included: Zambia (3.3) Cambodia (3.2), Uganda (3.1), South Africa (2.9), Haiti (2.8), Lesotho (2.8), Swaziland (2.1), and Burundi (1.5). Zambia's risk score is driven by sub-index 1, having a high proportion of country HIV expenditures provided by PEPFAR (86.3%). Cambodia and Uganda's scores are driven sub-index 3, with both countries reporting 100% of PEPFAR supported HIV delivery sites were providing integrated FP services in 2017. South Africa's risk score is driven by sub-index 2, where roughly 60% of PEPFAR implementing partners are non U.S.-based NGOs. Of the countries with the highest risk scores, Swaziland, Lesotho, South Africa, and Zambia are in the top quartile of PEPFAR countries for HIV prevalence among young women [Figure 1].



[Figure 1. HIV Prevalence in Young Women (2017) vs. Integration Risk Index Score]

Conclusions: This analysis highlights where and why the EMCP may have the greatest impact on FP/HIV service integration. The possible disruption of service integration in countries with generalized HIV epidemics highlights significant risks. Researchers, national governments and non-U.S. funders can consider these risk factors to help target their responses to the EMCP and mitigate potential harms of the policy.

THPED636

Assessing the family planning needs of people living with HIV in Cross River and Akwa Ibom states, Nigeria

M. Saleh[1], E. Oladele[1], N. Mba-Oduwusi[2], B. Nwagbara[1], M. Salawu[1], A. Abu[3], C. Agbakwuru[1], K. Afolabi[4], D. Ogundehin[5], E. James[5], N. Ojehomon[5], M. Jagun[5], K. Badiane[5], H. Kang[5], H. Khamofu[1], S.R. Pandey[1]
[1]FHI 360, Abuja, Nigeria, [2]Insight Health Consulting, Abuja, Nigeria, [3]FHI 360, Uyo, Nigeria, [4]Federal Ministry of Health, Abuja, Nigeria, [5]USAID, Abuja, Nigeria

Background: There is now sufficient evidence to demonstrate integrating family planning (FP) and HIV services significantly reduces unmet need for FP among HIV infected women. In Nigeria, where unmet need for family planning (16% NDHS 2013) is high, as is HIV prevalence (3.2%, 2014), there is little known about the specific FP needs of people living with HIV (PLHIV). With funding from PEPFAR through USAID, FHI 360, lead implementing partner on the Strengthening Integrated Delivery of HIV Services (SIDHAS) project, conducted a study to determine the FP needs of PLHIV in selected sites in southern Nigeria.
Methods: A cross- sectional quantitative study was conducted in September 2016 in Akwa Ibom and Cross River states in southern Nigeria. Forty-three of the 100 PEPFAR facilities supported for FP-HIV integration were selected based on the criteria of providing both HIV and FP services and having a minimum of 1000 HIV-positive clients on treatment. All PLHIV attending clinic in the two states were approached to participate in the study. Respondents who consented were interviewed using

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structured questionnaires. Questions asked include current contraceptive use, future fertility desires and linkage to FP. Data were entered in Microsoft Excel and exported to SPSS for descriptive analysis.
Results: Overall, 470 men and women living with HIV were interviewed; 443 (94.3%) were >18 years. Over half of all PLHIV age 18+ (234; 52.8%) were currently using FP. Of these 96.5% (226) used a single FP method mainly: male condoms (79.9%) and injectables (6.8%). Overall 44.7% (198) men and women did not use any FP method. Majority (94.7%) of non-users reported they were neither offered nor referred for FP services by their HIV provider. Amongst HIV positive women aged 18-49 (285), 52.8% (151) reported currently using FP while the unmet need for FP amongst them was 38.2% (49).
Conclusions: The low dual method use, high unmet need and poor linkages between HIV and FP services reported in the study underscore the need for an integrated approach which leverages FP and HIV funding to increase contraceptive uptake. This would reduce unmet need and unintended pregnancies among PLHIV in Nigeria.

THPED637

Integration of prevention of mother-to-child transmission within antenatal and postnatal care, and its impact on HIV service delivery and utilization: A mixed methods study in rural Tanzania and Malawi

F. Hassan[1], J. Songo[2], A. Dube[2], L. Luwanda[3], E. Geubbels[3], T. Kalua[4], J. Renju[5], A. Crampin[2], E. Metta[3], A. Wringe[6]
[1]Ifakara Health Institute, Health System and Impact Evaluation, Dar es Salaam, Tanzania, United Republic of, [2]Malawi Epidemiology and Intervention Research Unit, Karonga, Malawi, [3]Ifakara Health Institute, Dar es Salaam, Tanzania, United Republic of, [4]Minstry of Health Malawi, Lilongwe, Malawi, [5]London School of Hygiene and Tropical Medicine, Kilimanjaro, Tanzania, United Republic of, [6]London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Integration of prevention of mother-to-child transmission (PMTCT) services within antenatal and postnatal care (ANC/PNC) in African settings has been shown to increase uptake of HIV care and treatment, and to improve retention by reducing clinic visits during pregnancy and postnatal periods. However, there are limited data on how service integration has occurred in practice at the health facility level, and how differences in implementation across settings may influence women's experiences of using these services.
Methods: A mixed methods study was conducted that included a policy review of World Health Organization (WHO) guidance and national HIV policies in Malawi and Tanzania over the period 2003-2017 to capture the evolution in policy adoption pertaining to the delivery of antenatal and HIV services, including those for PMTCT.
In-depth interviews were conducted in rural Malawi (Karonga District) and rural Tanzania (Ifakara District) with health providers (5) and women (15) receiving ANC/PNC, PMTCT or routine ART services to explore their experiences in receiving or providing ANC/PNC and HIV services. Data were recorded, transcribed, translated and analysed thematically.
Results: A review of six (6) national policy documents indicated that Malawi and Tanzania adopted a policy of providing integrated PMTCT and ANC/PNC services since 2005 and 2007 respectively, which was after the first recommendation by WHO in 2004. In Malawi, policy stipulates that following the delivery of the baby, women living with HIV should be transferred to routine ART care at six weeks, in contrast to Tanzanian policy which indicates referral to routine ART services when the child reaches two years and breastfeeding often ceases.
The qualitative data indicated that ANC/PNC providers in both settings appreciated integrated services, and often found means to adhere to policies and guidelines. Pregnant women living with HIV and receiving ANC/PNC services spoke favourably of integration, particularly in rural Tanzania where it enabled them to collect ART without being identified as attending a HIV clinic.
Conclusions: WHO recommendations on integration of PMTCT into ANC/PNC have been adopted differently in Tanzania and Malawi. These differences should be considered when investigating variation in retention in care for HIV-infected mothers across Africa settings.

Assessments of cost-effectiveness: provider and community perspectives

THPEE638

Results of a cost-effectiveness analysis of HIV testing algorithms in Ukraine

M. Duda[1], L. Khomych[1], N. Avaliani[1], V. Galayda[2], A. Latypov[1]
[1]Deloitte Consulting LLP, USAID Project 'HIV Reform in Action', Kyiv, Ukraine, [2]Independent Consultant, Kyiv, Ukraine

Background: Ukraine has one of the highest HIV burdens in Eastern Europe and Central Asia, with an estimated 243,000 people living with HIV. The HIV epidemic is mainly concentrated among key populations. Expansion of HIV diagnostic services is needed to reach the UNAIDS 90-90-90 targets. The Ministry of Health requires a cost-effective strategy to inform evidence-based policy-making and optimize budget allocation. This study estimated and compared the cost of identifying one new HIV-positive case using three testing modalities used in Ukraine: ELISA, Rapid, and 'Sorting' testing algorithms.
Methods: A comparative cost-effectiveness analysis of Ukraine's HIV testing algorithms was conducted in 2017. The model includes programmatic data and data on equipment, supplies, personnel, overhead, and transportation costs associated with these tests. Data were collected from the National Public Health Center of the Ministry of Health, a Regional AIDS Center Laboratory, and NGOs working in prevention programs. Effectiveness, measured as the cost per one new HIV identified case, was compared across the HIV rapid testing, ELISA, and Sorting algorithms. The specificity of the various HIV tests' and HIV prevalence rates were analyzed and included in the calculations.
Results: Based on specificity and sensitivity of the tests and the number of tests required for identifying one new HIV case, rapid HIV tests are cheaper than ELISA across all HIV prevalence rates. The cost of identifying a new HIV case in a population with 1.0% prevalence is 159.1 USD using the HIV rapid testing algorithm, 165.1 USD using the 'sorting' algorithm, and 303.1 USD using the ELISA algorithm (all assuming 99.5% specificity). Comparative analyses indicate large cost savings when using rapid HIV tests versus the ELISA algorithms, ranging from a saving of 10.9 USD in populations with 20% prevalence to 274.2 USD in populations with 0.5% prevalence.
Conclusions: When comparing the cost of detecting a single HIV-positive case, rapid HIV tests are more cost efficient than conventional HIV ELISA tests across all prevalence levels. Expansion of HIV diagnostic services in Ukraine should be implemented using rapid HIV tests in non-specialized healthcare facilities and for outreach interventions.

THPEE639

Reaching the first "90" in HIV testing: Implications for efficiency and resource allocation decisions in Malawi

S. Vyas[1], J. Songo[2], A. Nkhata[2], L. Guinness[1], J. Renju[1], M. Crampin[3], S. Geis[3], T. Kalua[4], J. Todd[1], A. Wringe[1]
[1]London School of Hygiene and Tropical Medicine, London, United Kingdom, [2]Karonga Prevention Study, Malawi, Karonga, Malawi, [3]Malawi Epidemiology and Intervention Research Unit, Lilongwe, Malawi, [4]Ministry of Health, Lilongwe, Malawi

Background: By 2016 an estimated three-quarters of HIV-positive females and two-thirds of HIV-positive males knew their HIV status in Malawi. Facility-based HIV testing services has been a mainstay for this achievement and for moving further towards the first "90" target. Yet cost information for assessing efficiency and resource requirements of testing and how this might change as the epidemic evolves is limited. This study estimates and compares the levels of technical efficiency of facility-based testing services (routine, e.g. antenatal care, and voluntary) in Karonga district, Northern Malawi.
Methods: Provider costs of HIV testing services (e.g. wages) were collected at five rural facilities with differing characteristics. HIV test prices were collected from the Global Fund price list. Technical efficiency was defined as the cost per HIV case diagnosed. Data on personnel time was

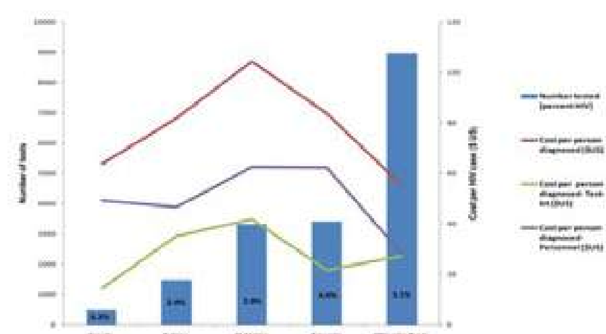
allocated to HIV testing based on patient load. Routine data on persons tested were extracted from facility registers for October 2016-September 2017. The costs per person tested and per person diagnosed with HIV were calculated and compared across the facilities.

Results: A total of 17'655 persons were tested for HIV (range 507-8'950), with 549 (3.1%) cases of HIV detected. The average cost per person tested is $2.19US (range $1.73 - $4.0). The cost per HIV case diagnosed ranges from $55.16-$104.44US. Health worker time, on average, represents 61.2% of the cost per person tested (range 50.7%-77.5%). There is no clear relationship between the cost per HIV case and the number of people tested (scale) or HIV prevalence (Figure 1).

Conclusions: The costs of facility-based testing services estimated in this study are consistent with recent facility-based studies in low income Southern Africa (cost per person tested ranges from $4.24 - $14.12US). Both cost per person tested and cost per diagnosis show considerable variation across the facilities. While scale and HIV prevalence are often considered key drivers of the cost per HIV diagnosis, our data suggests that additional factors, such as the nature of the facility and the interaction between scale of operation and HIV prevalence, may also need to be considered in making resource requirements estimations for reaching the last 90.

Facility / Type of facility	Number of HIV tests (1st / conf.)	% HIV	Total Annual Cost ($)*	Staff cost as a % of total annual cost	Cost per person tested ($)	Cost per HIV case ($)
Sangilo / Faith-based health clinic	507 / 32	6.3%	2,030	77.5%	4.00	63.44
Barracks Military health facility	3,404 / 136	4.0%	11,392	74.2%	3.35	83.77
Chilumba Rural Hospital Public health facility	8,950 / 280	3.1%	15,444	50.7%	1.73	55.16
Fulirwa Public health clinic	1,469 / 35	2.4%	2,859	56.9%	1.95	81.70
St Anne's / Faith-based health facility	3,325 / 66	2.0%	6,893	59.9%	2.07	104.44
Average	3,351 / 110	3.1%	7,724	61.2%	2.19	70.34
Total	17,655 / 549		41,619			
* Unit cost Determine (1st Test) $0.80; Unit cost confirmatory test (Unigold) $1.60; costs of test kits plus personnel (previously shown to be 80-90% of total costs).						

[Table 1: Service outputs, average annual cost and average costs of HIV testing (USD, 2017 prices)]



[Figure 1: Number of persons tested, HIV prevalence and cost per HIV diagnosis by facility]

THPEE640

PrEP for priority populations in Vietnam has the potential to cost-effectively decrease HIV incidence in urban settings: A mathematical modeling analysis

T. Herrick[1], S. Gannon[1], D. Green[2], H.T. Nguyen[3], K. Green[3], R. Cummings[1], R. Barnabas[4]

[1]PATH, Seattle, United States, [2]University of Washington, Department of Epidemiology, Seattle, United States, [3]PATH, Hanoi, Vietnam, [4]University of Washington, Department of Global Health, Seattle, WA, United States

Background: HIV remains a public health threat in Vietnam, with 11,000 new infections and 7,800 AIDS-related deaths in 2016. The epidemic is concentrated among key populations, especially injecting drug users, men who have sex with men, and female sex workers and their partners. Large cities are a focus of the concentrated epidemic. Antiretroviral pre-exposure prophylaxis (PrEP) decreases HIV acquisition by approximately 90% and has the potential to decrease HIV incidence among key populations.

Methods: We adapted and validated a dynamic HIV transmission model (Spectrum) for the urban centers of Hanoi and Ho Chi Minh City (HCMC). We estimated the impact and cost of PrEP scale-up to key populations between 2018 and 2050. Assuming a five-year scale-up beginning in 2018, PrEP coverage varied, from 20% to 80%, with 80% adherence and 90% efficacy. The cost of PrEP also varied, from US$89 to $246 per person per year. Net costs were calculated as the difference in PrEP and averted antiretroviral therapy costs.

Results: The model predicted that at 60% PrEP coverage among high-risk populations in Hanoi, by 2050 almost 30% of new HIV infections could be averted each year. This could prevent more than 7,200 new infections over the forecast period. Additionally, more than 15% of AIDS deaths could be averted each year and almost 1,800 deaths prevented over the forecast period.

In HCMC, almost 50% of new HIV infections could be averted each year by 2050 by scaling up PrEP to 60% coverage in high-risk populations. This could lead to prevention of more than 24,300 new infections over the forecast period. In addition, almost 30% of AIDS deaths could be averted each year and more than 5,500 deaths prevented by 2050.

Overall, with low PrEP costs, scaling up PrEP could cost-effectively prevent incident HIV infections (incremental cost-effectiveness ratio: $4,500/incident case averted). PrEP would be more cost-effective in HCMC than in Hanoi, due to higher HIV prevalence in HCMC.

Conclusions: PrEP has the potential to cost-effectively, substantially reduce HIV incidence and HIV-associated mortality in a concentrated epidemic setting. Targeting PrEP to key populations in an urban setting could be a high-yield strategy.

THPEE641

Cost and efficiency of short messing service (SMS) and peer navigation to improve linkage and retention for patients newly enrolled in HIV care in South Africa

S.B. Shade[1,2], E. Agnew[2], J. Grignon[3], H. Gilmore[2], J. Sumitami[3], M.-J. Ratlhagana[3], W. Steward[2], S. Lippman[2]

[1]University of California, San Francisco, Institute for Global Health Sciences, Department of Epidemiology and Biostatistics, San Francisco, United States, [2]University of California, San Francisco, Division of Prevention Science, Department of Medicine, San Francisco, United States, [3]University of Washington, International Training and Education Center for Health, Pretoria, South Africa

Background: Short messaging service (SMS) and peer navigation (PN) show promise in facilitating linkage to and retention in HIV care. However, the cost and efficiency of these interventions have not been established in sub-Saharan Africa where cost-effective programs to improve care engagement are urgently needed. We estimated the incremental cost per patient linked to and retained in care within SMS and PN interventions among patients newly HIV diagnosed in North West Province, South Africa.

Methods: We conducted a three-arm randomized trial in 17 clinics in Bojanala Platinum District comparing standard of care (SOC, 4 clinics), an SMS intervention (SMS, 6 clinics) and an SMS plus peer navigation in-

tervention (PN, 7 clinics). Participants were over 18 years and diagnosed with HIV in the prior year. We conducted standardized micro-costing and time-and-motion studies to determine the incremental costs of the two interventions. We employed chart abstraction to assess linkage (within 30 days) and 12 month retention (Pre-ART clients: biennial CD4 screening, spaced 4-8 months apart; ART clients: 4 clinic visits over 12 months, < 4 months between visits). We employed generalized estimating equations to assess outcomes and estimated the incremental cost and efficiency of SMS and PN compared to SOC.

Results: We enrolled 752 individuals across trial arms (see Table). Over the entire trial, the incremental costs (over SOC) of SMS were $19,458 and the incremental costs of PN were $151,286. Compared to SOC: PN, but not SMS was associated with increased linkage to (OR=2.70, 95% CI=1.57-4.96; OR=1.64, 95% CI=0.87-3.10, respectively) and retention in care (OR=2.90, 95% CI=1.67-5.06; OR=1.30, 95% CI=0.78-2.18, respectively); the incremental cost per patient of PN ($511) was higher than the incremental cost per patient of SMS ($67); the incremental cost per patient linked of PN was $1251; and the incremental cost per patient retained of PN was $1428.

Arm	N	Patients Linked	Patients Retained	Incremental Cost Overall	Incremental Cost per Patient	Incremental Cost per Patient Linked	Incremental Cost per Patient Retained
PN	296	204 (69%)	183 (62%)	$151,386	$511	$1251	$1428
SMS	289	159 (55%)	155 (54%)	$19,458	$67	Not Effective	Not Effective
SOC	167	83 (50%)	77 (46%)	--	--	--	--

[Enrollment, Outcomes and Incremental Cost and Efficiency of SMS and PN]

Conclusions: Although the SMS intervention cost less than the PN intervention to implement, only the PN intervention was effective at increasing linkage to and retention in care and thus an efficient use of resources. It will be important to test how these interventions can be used together to maximize both efficiency and cost-effectiveness.

THPEE642

Discontinuing cotrimoxazole preventive therapy in ART-stable HIV-positive adults in Uganda: An economic evaluation

S. Torres-Rueda[1], P. Munderi[2], J. Levin[3], J. Lutaakome[2], Z. Anywaine[2], A. Abaasa[2], R. Kasirye[2], S. Sweeney[1], K.R. Katumba[2], S. Settumba[2], A. Vassall[1]
[1]London School of Hygiene & Tropical Medicine, Global Health and Development, London, United Kingdom, [2]MRC/UVRI Uganda Research Unit on AIDS, Entebbe, Uganda, [3]School of Public Health, University of Witwatersrand, Johannesburg, South Africa

Background: Cotrimoxazole preventive therapy (CPT), which reduces opportunistic infections and malaria, is part of the package of care for HIV-positive people in Africa. However, the added value of long-term CPT has been questioned given its cost, related haematological adverse events, and the wide availability of effective antiretroviral therapy (ART). A placebo-controlled trial in Uganda investigated the safety of discontinuing CPT in ART-stable patients. We carried out an economic evaluation using trial data to determine the cost-effectiveness of CPT discontinuation.

Methods: Data were collected from a provider's perspective for the trial duration (average 26.8 months per participant). Patient-specific data on resources used to diagnose and treat CPT-preventable events, malaria cases, and severe CPT-related haematological adverse events, as well as CPT use, were collected from patient files. Morbidity data (frequency and duration of individual events) and mortality data were collected from the trial dataset. An expert clinician panel determined illness severity, from which disability weights were derived. Disability-adjusted life years (DALYs) were calculated and an incremental cost-effectiveness ratio (ICER) estimated.

Results: The trial enrolled 1089 participants in the placebo arm and 1091 in the CPT arm. Discontinuing CPT led to statistically-significant increases in CPT-preventable events and malaria, and a decrease in severe CPT-related haematological adverse events. More deaths were observed in the placebo arm, but the difference was not statistically significant. Despite additional costs of treating more CPT-preventable events and malaria in the placebo arm, total costs were lower in the placebo arm ($21,013) than in the CPT arm ($37,686) largely due to the cost of co-trimoxazole in the latter. Mean costs per person/year were $8.75 in the placebo arm and $15.23 in the CPT arm. Better health outcomes were observed in the CPT arm than in the placebo arm (with means of 0.06 and 0.03 DALYs averted per person during the trial, respectively), largely driven by improvements in mortality. The ICER of CPT discontinuation was $631/DALY averted.

Conclusions: Discontinuing CPT is cost-effective using thresholds of 0.5x or 1x GDP per capita. However, our findings need to be interpreted with caution pending further uncertainty analysis as differences in mortality were not found to be statistically significant.

THPEE643

Cost-effectiveness of integrating buprenorphine/naloxone for opioid use disorder into treatment for HIV/HCV co-infected persons who inject opioids in the U.S.

J. Barocas[1], J. Morgan[2], D. Fiellin[3], B. Schackman[4], M. Stein[5], K. Freedberg[1], B. Linas[2]
[1]Massachusetts General Hospital, Boston, United States, [2]Boston Medical Center, Division of Infectious Diseases, Boston, United States, [3]Yale School of Medicine, New Haven, United States, [4]Weill Cornell Medical College, New York, United States, [5]Boston University School of Public Health, Boston, United States

Background: Untreated opioid use disorder (OUD) impacts the care of HIV/HCV co-infected persons who inject drugs (PWID). A proportion of this population is engaged in HIV care, adherent to HIV medications, and increasingly offered HCV treatment. Integrating medications for OUD such as buprenorphine/naloxone (BUP-NX) into care may improve outcomes, but the clinical impact and costs are unknown. We evaluated the cost-effectiveness of integrating BUP-NX into onsite HIV/HCV treatment for this population compared with the status quo.

Methods: We used a Monte Carlo simulation model to compare the cost-effectiveness of:

1) standard HIV care with onsite HCV treatment and referral to offsite OUD care (*status quo*);

2) standard HIV care with onsite HCV and BUP-NX treatment (*integrated care*).

All individuals begin the simulation in HIV care. We used national databases, clinical trials, and observational cohorts to inform model inputs, including demographics (66% male, mean age 45y), HIV and HCV care characteristics (HIV: 71% ART adherence, HCV: 94% initiation, 97% completion), HCV treatment efficacy (up to 100%), and HCV re-infection risk (12 cases/100PY). Outcomes included life expectancy (LE), discounted quality adjusted-life years (QALYs), lifetime discounted costs, incremental cost-effectiveness ratios (ICERs), deaths, and HCV reinfections. Costs ($US) and QALYs were discounted at 3% annually, and ICERs compared to a threshold of $100,000/QALY.

Results: The *status quo* resulted in LE of 10.85y and 3.61 QALYs at a cost of $364,400. *Integrated care* extended LE by 0.35y, provided an additional 0.23 QALYs, and, compared to *status quo*, had an ICER of $59,100/QALY. The *status quo* resulted in 642 reinfections/1,000 individuals and *integrated care* resulted in 46 fewer reinfections. In the near-term (5 years) the benefit of *integrated care* was preventing fatal sequelae of opioid use (28 fewer deaths/1,000). In the long-term (20 years), *integrated care* also decreased the burden of liver-related mortality (2.9 fewer liver-deaths/1,000). Findings were robust in sensitivity analyses assessing variation in reinfection risk, cost of BUP-NX, and BUP-NX duration and efficacy, except when both reinfection rates and BUP-NX costs were higher (ICER=$129,000).

Conclusions: Integrating BUP-NX into treatment for HIV/HCV co-infected PWID improves life expectancy, is cost-effective, and should become part of routine treatment.

THPEE644

Modeling the cost-effectiveness of repeat maternal HIV testing in Kenya and South Africa

J. Meisner[1], K.A. Thomson[1], C. Quinn[2], S. Farid[3], E. Marum[2], R. Barnabas[3,4], R. Baggaley[2], S. Essajee[5], C. Johnson[2,6], A.L. Drake[3]
[1]*University of Washington, Epidemiology, Seattle, United States,* [2]*World Health Organization, HIV Department, Geneva, Switzerland,* [3]*University of Washington, Global Health, Seattle, United States,* [4]*University of Washington, Medicine, Seattle, United States,* [5]*UNICEF, HIV Section, New York, United States,* [6]*London School of Hygiene and Tropical Medicine, Clinical Research Department, London, United Kingdom*

Background: Repeat HIV testing during pregnancy/breastfeeding can help detect new maternal HIV infections and prevent mother-to-child HIV transmission (MTCT). Many African countries have introduced repeat testing approaches; however, economic analysis and public health impact of approaches have not been conducted.
Methods: We constructed a Markov decision-analytic cohort model for MTCT to assess the cost-effectiveness of repeat testing in Kenya and South Africa. Model parameters incorporate maternal HIV infection status and stage of seroconversion, pregnancy/postpartum status, maternal antiretroviral therapy, infant antiretrovirals, and viral suppression. We estimated the potential impact of varying the timepoint and frequency of repeat maternal testing on infant HIV infections averted under various testing scenarios:
1) late gestation/delivery,
2) 6 weeks postpartum,
3) 6 months postpartum, and
4) late gestation/delivery plus 6 weeks postpartum.
Repeat testing was cost-effective if the incremental cost-effectiveness ratio (ICER) was < 3 times the threshold national per capita gross domestic product (US$1500 in Kenya and US$5500 in South Africa).
Results: Assuming a population of 1,600,000 for each country, the number of infant infections averted during pregnancy and through 12 months postpartum attributed to repeat maternal testing ranged from 2,296-6,289 in Kenya and 2,960-42,454 in South Africa (Tables) under scenarios 3 and 4, respectively. The ICER for repeat maternal HIV testing ranged in Kenya from $440 (scenario 1) to $3,113 (scenario 3) and in South Africa from $461 (scenario 1) to $3,285 (scenario 3) per infant infection averted. Compared to the base case model, repeat testing at 2 time points (scenario 4) averts the largest proportion of MTCT (21% reduction in Kenya vs. 34% in South Africa). Using a single repeat testing strategy, repeat testing during late gestation/delivery resulted in the largest reduction in MTCT (16% in Kenya vs. 30% in South Africa).
Conclusions: In our model, all repeat maternal testing scenarios were cost-effective and averted infant infections in Kenya and South Africa, but repeat testing in late pregnancy/delivery or at 6 weeks postpartum resulted in substantially larger reductions in MTCT than at 6 months after delivery. These findings have important implications for designing repeat testing approaches as a strategy to prevent MTCT and improve maternal health.

Testing strategy (a)	Incremental costs (b)	Infant infections averted (b)	ICER (b)	Percent of maximum potential benefit achieved (c)
SOUTH AFRICA				
Strategy 1	16,650,531	37,852	440	30.5
Strategy 2	12,650,573	11,973	1,057	9.7
Strategy 3	9,216,296	2,960	3,113	2.4
Strategy 4	23,033,301	42,454	543	34.3

Cost effectiveness analysis results. a) Strategy 1= testing at first antenatal care (ANC) visit and in late gestation or delivery; strategy 2= testing at first ANC, 6 week maternal child health (MCH) visit; strategy 3= testing at first ANC, and 6 month MCH visit; strategy 4=testing at first ANC, late gestation or delivery, and 6 week MCH visit. b) ICER= incremental cost effectiveness ratio, in 2017 US$ per infant infection averted; base case assumes testing at first ANC only. c) The percent of maximum potential benefit achieved is the number of infant infections that could be averted by the testing strategy divided by the total number of infants expected to be infected under the base case scenario (testing at first ANC alone) in a population restricted to women eligible for HIV testing under model assumptions.

[Table 1: Cost-effectiveness of repeat maternal HIV testing under model scenarios, South Africa]

Testing strategy (a)	Incremental costs (b)	Infant infections averted (b)	ICER (b)	Percent of maximum potential benefit achieved (c)
Kenya				
Strategy 1	4,064,181	4,567	890	15.5
Strategy 2	3,441,495	2,977	1,156	10.1
Strategy 3	2,946,144	2,296	1,283	7.8
Strategy 4	6,668,310	6,289	1,060	21.4

Cost effectiveness analysis results. a) Strategy 1= testing at first antenatal care (ANC) visit and in late gestation or delivery; strategy 2= testing at first ANC, 6 week maternal child health (MCH) visit; strategy 3= testing at first ANC, and 6 month MCH visit; strategy 4=testing at first ANC, late gestation or delivery, and 6 week MCH visit. b) ICER= incremental cost effectiveness ratio, in 2017 US$ per infant infection averted; base case assumes testing at first ANC only. c) The percent of maximum potential benefit achieved is the number of infant infections that could be averted by the testing strategy divided by the total number of infants expected to be infected under the base case scenario (testing at first ANC alone) in a population restricted to women eligible for HIV testing under model assumptions.

[Table 2:Cost-effectiveness of repeat maternal HIV testing under model scenarios, Kenya]

THPEE645

Work and home productivity of HIV-positive and HIV-negative individuals in Zambia and South Africa: A cross-sectional baseline survey of the HPTN071/PopART trial

R. Thomas[1], R. Friebel[2], K. Barker[2], L. Mwenge[3], S. Kanema[3], N. Vanqa[4], A. Harper[4], N. Bell-Mandla[4], P. Smith[2], S. Floyd[5], P. Bock[4], H. Ayles[5], N. Beyers[4], S. Fidler[2], R. Hayes[5], K. Hauck[1], HPTN 071(PopART) Study Team
[1]*Imperial College London, Infectious Disease Epidemiology, London, United Kingdom,* [2]*Imperial College London, London, United Kingdom,* [3]*University of Zambia, ZAMBART Project, Lusaka, Zambia,* [4]*Desmond Tutu TB Centre, Stellenbosch University, Cape Town, South Africa,* [5]*London School of Hygiene and Tropical Medicine, London, United Kingdom*

Background: Little is known about the impact of HIV on the work and home productivity of HIV-positive individuals in sub-Saharan Africa. Most existing evidence originates from individuals employed in the formal sector and at specific disease stages, which are not representative of the general working population. This study compared the number of work days lost to illness or accessing health care for HIV-positive and HIV-negative individuals in South Africa and Zambia.
Methods: As part of the HPTN 071 (PopART) study, data from approximately 2000 randomly selected adults aged 18-44 years were gathered between November 28, 2013, and March 31, 2015, from each of 21 communities in Zambia and South Africa. Information on the number of productive days lost in the last 3 months, laboratory-confirmed HIV status, labour force status, age, ethnicity, education, and recreational drug use was collected. Differences in productive days lost between HIV-negative and HIV-positive individuals at various lengths of time on treatment were estimated with negative binomial models. Results are presented in differences in productive days lost.
Results: From data for 19,750 respondents in Zambia and 18,941 respondents in South Africa, HIV prevalence was 21.0% (Zambia) and 22.2% (South Africa). HIV-positive individuals lost more productive days to illness than HIV-negative individuals in both countries. Excess productive days lost by HIV-positive individuals in a 3-month period were 0.74 (95%CI:0.48-1.01;p< 0.001) in Zambia and 0.13 (95%CI:0.04-0.23;p=0.007) in South Africa compared to HIV-negative individuals. Results for excess days lost disaggregated by ART status were as follows:

	Zambia	South Africa
HIV-positive individuals not on treatment	0.61 (95%CI:0.30-0.92,p<0.001)	0.03 (95%CI:-0.05-0.11,p=0.416)
HIV-positive individuals on treatment for less than one year	1.24 (95%CI:0.34-2.14,p=0.007)	1.41 (95%CI:-0.004-2.82,p=0.051)
HIV-positive individuals on treatment for one to two years	1.08 (95%CI:0.06-2.11,p=0.038)	0.18 (95%CI:-0.19-0.54,p=0.341)
HIV-positive individuals on treatment three years or more	0.79 (95%CI:0.16-1.41,p=0.014)	0.001 (95%CI:-0.13-0.14,p=0.961)

[Excess days lost disaggregated by ART status]

Conclusions: There is a significant burden in lost work and home productivity due to HIV in the general population, but it is smaller than existing estimates for samples dominated by formal sector workers. Productive days lost need to be considered when evaluating the benefit of HIV prevention from a societal perspective. The findings will support policy makers in building an investment case for HIV interventions.

THPEE646

Economic evaluation of HIV self-testing in outpatient departments in Malawi: Results from EQUIP

B.E. Nichols[1,2], O.A. Offorjebe[3,4], R. Cele[2], F. Shaba[5], L.C. Long[1,2], S. Rosen[1,2], K. Dovel[5,6], on behalf of EQUIP
[1]Boston University, Global Health, Boston, United States, [2]Health Economics and Epidemiology Research Office, Department of Internal Medicine, School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, [3]University of California, David Geffen School of Medicine, Los Angeles, United States, [4]Charles R. Drew University of Medicine and Science, Los Angeles, United States, [5]Partners in Hope, Lilongwe, Malawi, [6]University of California, Division of Infectious Diseases, Department of Medicine, Los Angeles, United States

Background: The provision of HIV self-testing (HIVST) in outpatient departments (OPD) has been shown to increase facility capacity for HIV testing in Malawi, given high OPD patient volumes and substantial waiting times. To assess the feasibility of HIVST scale-up at OPDs in Malawi, the cost per new HIV-positive patient identified using HIVST in the OPD was calculated and compared to routine provider initiated testing and counseling (PITC) and Optimized-PITC.
Methods: A three-arm cluster randomized controlled trial of HIVST was conducted at 15 sites in Malawi:
1) PITC;
2) Optimized-PITC (additional training and job-aids); and
3) HIVST (HIVST demonstration, distribution, and kit use in OPD, private spaces for kit interpretation, optional HIV counseling).
Costs were estimated from a provider perspective at 5 sites using a bottom-up costing approach. Optimized-PITC costs included facility staff training, while HIVST costs included research staff training and salaries, community sensitization, and the cost of HIVST kits. A cost per newly identified HIV-positive patient ("new positive") was calculated for three scenarios
(1) trial-based costs (baseline),
(2) routine implementation costs (use of local staff, annualized training and community sensitization costs), and
(3) negotiated HIVST cost (routine implementation costs with the price of HIVST reduced to the price of a standard HIV test (from $2 to $1)).
Results: In scenario 1, the average cost per patient tested was $2.33, $4.68, and $4.73 for PITC, Optimized-PITC, and HIVST, respectively. The average cost per "new positive" was $95, $152, and $179. The cost drivers were HIVST kit price, training and community sensitization. In scenario 2, the average cost per new positive dropped substantially to $79, and $92, for Optimized-PITC and HIVST respectively, and remained the same for PITC. In scenario 3, HIVST became cost saving at $54 per new positive. Cost savings for HIVST remain even when the HIV-positive yield is reduced by 40%.
Conclusions: While identifying a new HIV-positive patient through HIVST in the OPD is slightly more expensive ($7) than PITC in routine implementation, HIVST may become cost-saving if the cost of HIVST kits can be reduced. For high volume or overcrowded clinics, HIVST may offer one approach to increasing capacity and efficiency.

THPEE647

Model estimated cost-effectiveness of integrating cervical cancer screening and treatment with LEEP vs. cryotherapy into HIV care clinics in Kenya

M. Sharma[1,2], E. Vodicka[3], S. Green[4], M. Chung[1], C. Regan[2], S. Sy[2], R. Barnabas[1], J. Kim[2], N. Campos[2]
[1]University of Washington, Department of Global Health, Seattle, United States, [2]Harvard T. Chan School of Public Health, Department of Health Policy and Management, Boston, United States, [3]University of Washington, Health Services, Seattle, United States, [4]University of Washington, Epidemiology, Seattle, United States

Background: HIV-infected women have 2-fold higher risk of developing cervical cancer (CC). Integrating screening and treatment of precancerous lesions into HIV clinics may be an efficient strategy to reduce CC. Lesions are often treated with cryotherapy in resource-limited settings. A randomized clinical trial (RCT) in Kenya found loop electrosurgical excisional procedure (LEEP) was more effective than cryotherapy for treating precancerous lesions in HIV-infected women (31% vs. 44% lesion recurrence at 12 months, respectively). However, LEEP is resource-intensive and cost-effectiveness should be evaluated.
Methods: Using effectiveness data from an RCT comparing cryotherapy vs. LEEP and cost data from a micro-costing in the same clinic, we parameterized an individual-based mathematical model of HPV and CC pathogenesis in HIV-infected women. We projected health benefits and costs associated with CC screening strategies using cytology, visual inspection with acetic acid (VIA), and HPV DNA testing combined with treatment using either cryotherapy or LEEP at 70% screening coverage of HIV-infected women on ART.
Results: VIA testing five-times per lifetime (every five years, age 25-45) was projected to reduce lifetime cervical cancer risk by 30% when combined with cryotherapy treatment and 34% with LEEP treatment. The corresponding incremental cost-effectiveness ratios (ICERs) were $187 and $1,341 per year of life saved (YLS) for treatment with cryotherapy and LEEP respectively. Both strategies fell below Kenya's per capita GDP of $1,540 USD, the WHO recommended threshold for cost-effectiveness. HPV DNA testing five times per lifetime with LEEP treatment was the most effective strategy that was also cost-effective, reducing CC burden by 45% with an ICER of $1,445 per YLS. Strategies using cytology were dominated (i.e. more costly and less effective) than other strategies. At screening frequencies higher than seven times per lifetime, strategies with LEEP exceeded the cost-effectiveness threshold.
Conclusions: Integrating screening with VIA or HPV DNA testing and treatment with LEEP into ART clinics provides moderate health benefits over cryotherapy and is cost-effective at screening frequencies of seven or fewer times per lifetime. Screening with VIA followed by cryotherapy was the most efficient strategy at higher screening frequencies. Integrating screening and treatment into ART clinics is a promising strategy for reducing CC burden.

Economics of affordability

THPEE648

Costs of two rounds of home-based HIV testing and counselling in Zambia: Evidence from the HPTN 071(PopART) study

R. Thomas[1], S. Kanema[2], L. Mwenge[2], S. Floyd[3], P. Bock[4], H. Ayles[3], N. Beyers[4], S. Fidler[5], R. Hayes[3], K. Hauck[1], HPTN 071(PopART) Study Team
[1]Imperial College London, Infectious Disease Epidemiology, London, United Kingdom, [2]University of Zambia, ZAMBART Project, Lusaka, Zambia, [3]London School of Hygiene and Tropical Medicine, London, United Kingdom, [4]Desmond Tutu TB Centre, Stellenbosch University, Cape Town, South Africa, [5]Imperial College London, London, United Kingdom

Background: The HPTN 071(PopART) trial is a 3-arm RCT offering a combination prevention intervention comprising annual rounds of home-based HIV testing (HBTC) delivered by Community HIV-care Providers (CHiPs) who also support linkage to care, ART retention and other HIV-related services in 21 communities in Zambia and South Africa. In Zambia, 8 communities received the CHiPs community wide intervention. We estimated total and community-specific unit costs over two rounds of the intervention.
Methods: We applied micro-costing methods to estimate the economic costs of HBTC delivered to over 250,000 individuals between December 2013 and December 2016. Total costs, cost per person tested, and cost per person tested positive were calculated. Data on salaries, equipment, supplies, transport, and general administration were extracted from program records, and merged with outcome indicators from program data. Probabilistic sensitivity analysis (PSA) by random sampling from specified distributions was conducted to determine the sensitivity of estimates to uncertainty in cost components. Costs are presented as means and standard deviations from the PSA simulations.

Results: In the first round, 126,208 individuals were tested, and among those 9,196 (7%) tested HIV-positive. In the second round, 136,966 individuals were tested and among those 4,921 (3.6%) tested HIV-positive. Costs by rounds are presented in Table 1.

	Round 1	Round 2
Total economic costs	US$ 3.37mn (SD=110,911)	US$ 3.40mn (SD=125,450)
Average cost per population	US$ 7.61 (SD=0.25)	US$ 7.67 (SD=0.28)
Cost per person tested	US$ 26.77 (SD=0.89)	US$ 25.42 (SD=0.94)
Cost per person tested HIV-positive	US$ 367.00 (SD=12.06)	US$ 691.88 (SD=25.49)

[Table 1: Costs of home-based HIV testing and counselling by rounds]

The costs per person tested (round1: min=US$ 22.00, max=US$ 42.11, round2: min=US$ 20.30, max=US$ 36.28) did vary across communities and rounds. The costs per person tested positive (round1: min=US$ 252.29, max=US$ 751.99, round2: min=US$ 538.66, max=US$ 1,087.69) varied substantially across communities and increased between rounds.
Conclusions: The findings suggest that costs are sensitive to community-specific factors related to service delivery or population characteristics. The cost per person tested HIV-positive nearly doubled between rounds, which is partly explained by a reduction in the number of persons tested HIV-positive in the second round. The costs of HBTC can be compared with standard healthcare facility-based testing, to inform policymakers on the merit of intensified testing and counselling campaigns in high-prevalence settings. Further analysis is required to evaluate the cost-effectiveness of HBTC in terms of their wider health and non-health benefits.

THPEE649

Capacity building of rural healthcare providers used as a tool to scale-up early infant diagnosis in Southeast Nigeria

A. Oniyire[1], O. Adebayo[2], A. Eyo[3], O. Onyedinachi[4]
[1]Jhpiego-Johns Hopkins University, Obstetrics and Gynecolgy, Abuja, Nigeria, [2]Jhpiego-Johns Hopkins University, Enugu, Nigeria, [3]ECWES, Uyo, Nigeria, [4]Enugu State Ministry of Health, Enugu, Nigeria

Background: A significant number of pediatric HIV infection is through mother-to-child transmission and Nigeria is responsible for 30% globally. LOCATE CDC funded project supported PMTCT services, including early infant diagnosis (EID) for HIV exposed infants (HEIs) in 209 health facilities in Southeast Nigeria. In 2013/2014, none of the healthcare providers at LOCATE supported primary healthcare centers (PHCs) were able to collect dried blood spot (DBS) for EID and send to the designated comprehensive care and treatment (CCT) centers, thus project staff often carried out this activity.
Description: LOCATE provided hands-on mentoring on DBS sample collection, drying, packaging and transportation, to healthcare providers at CCT sites, established a "hub and spoke system" that enabled these providers to transfer skills to low cadre providers at the PHCs at no extra cost to the project. Phone directories were developed for timely intervention for EID. The healthcare providers at the CCT hubs served as back up on need basis, thus promoting ownership and sustainability, while project staff provided supervisory and logistics support. The PMTCT Jhpiego team did a retrospective data collation of two targeted indicators from the supported health facilities at 6 months before- and 6 months after-the intervention. The data was reviewed and analyzed using Chi square.
Lessons learned: Six months pre-intervention, only 24% of eligible HEIs had EID and 13% of healthcare workers demonstrated the availability for EID services at PHCs. This increased to 81% ($p < 0.05$) and 87% ($p < .001$), respectively, 6 months post-intervention. Similarly, all DBS samples were collected by project staff pre-intervention; post-intervention, DBS collection was by healthcare providers. The increase in the two target indicators is attributable to the government healthcare providers in supported facilities taking ownership of this specific intervention for HEIs.
Conclusions/Next steps: The findings demonstrate the value of using empowered healthcare providers as mentors to their colleagues in ensuring that infants of HIV infected women have EID services, especially in rural hard to reach areas at no extra cost to both the caregivers and the project.

THPEE650

Characteristics and costs of optimized background therapy for treatment of heavily treatment-experienced adults with multidrug-resistant HIV-1 in the US: A clinical trial analysis

S. Talbird[1], J. Fulton[2], E. La[1], Z. Miao[3], A. Brogan[1], S. Lewis[4]
[1]RTI Health Solutions, Research Triangle Park, United States, [2]Westat, Rockville, United States, [3]Theratechnologies Inc., Montréal, Canada, [4]TaiMed Biologics Inc., Irvine, United States

Background: Heavily treatment-experienced adults with multidrug-resistant (MDR) HIV-1 infection have limited remaining antiretroviral treatment options and are typically treated with optimized background therapy (OBT) based on individual resistance profiles. Composition and cost of OBT are not well described in the literature. This study assesses the characteristics and cost of OBT for participants in a phase 3 clinical trial for adults with MDR HIV-1 treated with ibalizumab plus OBT (TMB-301; 2015-2016).
Methods: Patient-level antiretroviral therapy regimens were analyzed at baseline using descriptive statistics. Costs of individual antiretroviral drugs were applied using wholesale acquisition costs (2017) to calculate annual OBT costs. Outcomes included composition of OBT; number of antiretroviral drugs; use of fixed-dose combination and investigational drugs; and annual cost, with and without generic drug use.
Results: Among trial participants (n=40), the most frequent antiretroviral drugs used as part of OBT were tenofovir disoproxil fumarate (DF) (72.5% total, 62.5% as emtricitabine/tenofovir DF, 10% as tenofovir DF alone), dolutegravir (60%), ritonavir (57.5%), darunavir (65% total, 50% boosted with ritonavir, 15% as darunavir/cobicistat), investigational agent (42.5%), and etravirine (12.5%). Other antiretroviral drugs were used by ≤ 10% of participants. All protease inhibitors were boosted. On average, OBT consisted of 4.7 antiretroviral drugs (range: 1-7), with more drugs used by those treated with an investigational agent (mean: 5.5; range: 3-7) than by those not treated with an investigational agent (mean: 4.0; range: 1-6). As part of OBT, 85% of participants used ≥ 1 (range: 0-2) fixed-dose combination drug.
Assuming brand prices and standard dosing for all antiretroviral drugs, the mean annual cost of OBT was $51,551 (range: $18,697-$105,533). Annual OBT costs were higher among those treated with an investigational agent (mean: $56,797; range: $19,086-$105,533) than among those not treated with an investigational agent (mean: $47,673; range: $18,697-$78,920). Few participants' OBT regimens included drugs with generic options available (7.5%); costs for these participants were 6%-41% lower if generic options were used.
Conclusions: For heavily treatment-experienced patients with MDR HIV-1 infection, the composition of OBT is heterogenous with high associated costs. New, potent therapies with a new mechanism of action are needed for this patient population.

THPEE651

Cost data to inform purchasing of antiretroviral treatment services across borders: A cross-country comparison of first and second line adult and pediatric antiretroviral treatment costs in Kenya, Rwanda and Uganda

A. Gatome[1], M. Costa[2]
[1]Swiss Tropical and Public Health Institute of Basel, Basel, Switzerland, [2]Abt Associates Inc, 10 Fawcett Street, Cambridge, United States

Background: The East African Community (EAC) partner states-Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda-collectively have 4.9million people living with HIV (PLHIV)-13% of the global PLHIV population. The EAC Common Market Protocol facilitates movement of people across the six countries necessitating access to healthcare services across countries. Easy mobility also puts additional pressure on HIV/AIDS services to meet the needs of transiting populations. Countries will need to discuss how to purchase antiretroviral treatment (ART) services across borders to reduce treatment defaulters, improve treatment out-

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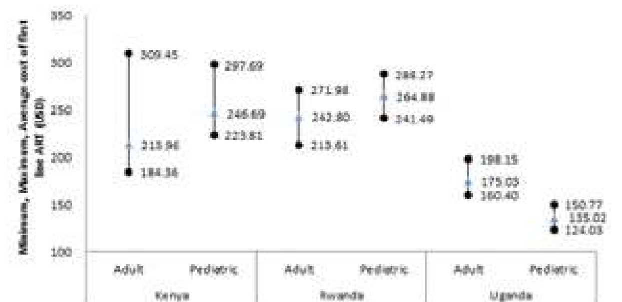
comes and reduce transmission across borders as PLHIV move across countries. The objective of this study was to provide cost data for HIV/AIDS services in Kenya, Rwanda, and Uganda for use by policymakers addressing HIV/AIDS service provision and financing across the region. This specific presentation reviews first and second line adult and pediatric ART costs only.

Description: USAID-funded Cross-Border Health Integrated Partnerships Project collected July 2014-June 2015 data at public and private clinics, health centres, and hospitals within five kilometers of five cross-border locations in Kenya, Rwanda and Uganda. Service provision inputs were collected from facility records and through interviews with clinicians. An excel-based tool was used to analyze the data from a provider perspective and generate average unit costs.

Lessons learned: Annual costs of first line and second line adult and pediatric ART varied between countries. In Kenya and Rwanda, average costs were higher than Uganda - first line ART in Kenya was $213.96 (adult) and $246.69 (pediatric), in Rwanda $242.80 (adult) and $246.88 (pediatric), and in Uganda, $175.03 (adult) and $135.02 (pediatric). ART drugs cost was the key cost driver. The differences between countries were also attributable to personnel costs which were highest in Kenya, frequency and type of laboratory monitoring which was highest in Rwanda, and frequency of visits which was lowest in Uganda. Similar trends were observed for second line ART.

Conclusions/Next steps: These results give insight into the differences in costs of HIV services and their cost drivers and can inform planning and purchasing of HIV services across borders. These costs can also be used to benchmark facilities and identify opportunities for efficiency gains.



[Maximum, minimum and average unit cost of first line adult and pediatric ART in US dollars (Kenya, Rwanda and Uganda)]

THPEE652

Relationship between client age profile and unit expenditure among PEPFAR-supported voluntary medical male circumcision programs for HIV prevention, 2015

S. Davis, H. Nasrallah, S. Pals, B. Batayeh, G. Parent, C. Toledo
US Centers for Disease Control and Prevention, Atlanta, Georgia

Background: Voluntary medical male circumcision of males 10 years and older is a key component of PEPFAR-supported HIV prevention in 14 southern and eastern African countries. Since 2015, PEPFAR's priority client age band for circumcision has been 15-29 years, for immediate HIV prevention. However, demand is intrinsically higher in 10-14-year-olds although services packages are the same, and the focus on older males has raised concern that unit expenditures (UEs), expenditures per circumcision, may increase. Routinely-collected 2015 PEPFAR program data allows exploration of whether this association currently exists.

Methods: Implementing partner-level fiscal year 2015 circumcision UE and client age distribution data (age bands 10-14, 15-19, 20-24, and 25-29 years) were used. Partner-level descriptive analysis was performed, followed by univariable and multivariable linear regression of log-transformed UEs on percent of total clientele represented by each age band, adjusting for country due to intercountry variations in operating costs.

Results: Thirty-nine implementing partners (counted once for each country of operation) in 12 countries had data. The median unit expenditure was $93.7, with range $40.4-727.1. The median percent of clients aged 10-14 was 39.1 (range 0.0-72.2); the median percent aged 15-29 was 48.7 (range 11.6-88.2). In univariable analysis, each 1% increase in percent of clients aged 10-14 was associated with a 1% decrease in UE; a 1% increase in percent aged 15-29 had almost no association (anti-log slope = 1.003). After adjustment for country, the association with age 10-14 did not change, but each 1% increase in clients 15-29 years was associated with a 2% UE increase. By 5-year age bands, a negative association with UE was seen for 10-14 and 15-19 years, and a positive association with 20-24 and 25-29 years.

Conclusions: In this cross-sectional analysis, programs with more 10-19-year olds had slightly lower UEs than those with more 20-29-year-olds, and programs with more clients in the combined priority age band of 15-29-year-olds had slightly higher expenditures. If these associations persist over time with successful targeting of this age range, modest UE increases could be seen. However, programs often achieve decreasing UEs over time due to increased productivity, so this association may be mitigated.

THPEE653

Hepatitis C treatment regimens in Russia in 2017: Drug choice compromises in the context of intellectual property and registration barriers

S. Golovin[1], K. Babikhina[2]
[1]Treatment Preparedness Coalition, IP and Access, St. Petersburg, Russian Federation, [2]Treatment Preparedness Coalition, St. Petersburg, Russian Federation

Background: Hepatitis C epidemic is a major threat to public health in Russia, with an estimated number of 6 million people with HCV antibodies, and 1.8 million confirmed cases. The HIV/HCV coinfection is also widespread, with at least 200,000 confirmed cases. The HCV treatment in Russia is gradually changing with the introduction of direct-acting antivirals (DAAs), which are more effective and safe than pegylated interferon and can be safely used in people with HIV, with regard taken to drug-drug interactions with antiretroviral medicines. ITPCru continuously monitors HCV drug procurement in Russia: this abstract summarizes the data for 2017.

Methods: We analyzed 781 tenders for HCV drugs in Russia in 2017. International non-proprietory names were obtained from the official register grls.rosminzdrav.ru.The research focused on the following key parameters: drug regimens (based on National HCV treatment guidelines and leaflet), number of patients who could potentially be treated (based on the recommended regimen duration), and price per patient. The research has limitations as it focuses on procurement figures; also, it does not include standard interferon.

Results: The key HCV treatment regimens were as follows: PEG-IFN/RBV (4512 treatment courses, 24 weeks); simeprevir/PEG-IFN/RBV (1814); dasabuvir/ombitasvir/paritaprevir/ritonavir (1146); daclatasvir/asunaprevir (870); narlaprevir/PEG-IFN/RBV (598); sofosbuvir/daclatasvir (180). No SOF-based fixed-dose combinations were registered in Russia in 2017. No generics of DAAs were officially registered; however, several biosimilars were available.The total number of patients who could potentially receive treatment lies between 9100 and 10,000. The prices can be found in Table 1.

Regimen	Average Weighted Price per patient, USD
PEG-IFN/RBV*	2 442,60
SIM/PEG-IFN/RBV*	12 246,25
3D	14 838,67
DCV/ASV	13 773,55
NPV/PEG-IFN/RBV	8 286,22
DCV/SOF	18 694,33

[Table 1]

Conclusions: The data shows that the majority of patients are still treated with PEG-IFN-based regimens, the key reason being the finanical one. The price for PEG-based regimens is several times lower than the price of all-oral regimens. The only WHO-recommended first-line regimen is SOF/DCV. Due to IP constraints, generics cannot enter the market, and the price of SOF/DAC in 2017 was over 18,000USD for 12 weeks.

Neither SOF/LDV nor SOF/VEL are registered, which is a consequence of the difficult registration system in Russia requiring local clinical trials. Measures for reducing DAA prices, including IP interventions, are recommended to significantly scale up access to HCV treatment in Russia.

THPEE654

Enhancing program efficiency through service integration, population focus and geographic localization: Finding and treating HIV, syphilis, and cervical cancer in Zambia

Y. Mulenga[1,2], M. Kalufyanya[1], K. Mapoma[2], C. Mukelebai[1,3], G. Mburu[3]
[1]PCI, Programs, Lusaka, Zambia, [2]Zambia Defence Force Medical Services, HIV/AIDS Programs, Lusaka, Zambia, [3]PCI Global, HIV/AIDS Programs, Washington DC, United States

Background: In a context of diminishing funding for HIV programs, there is need for efficient allocation of available finite resources on interventions, populations and geographic contexts that maximise programmatic impact. In Zambia where the national HIV prevalence is 12%, prevalence is higher among women (15%) compared to men (10%). On average, 4% of women screened for cervical cancer are found with precancerous cervical lesions. Rapid syphilis testing (RST) is not routinely provided in Zambia.
Description: Between November and December 2017, PCI set out to improve program efficiency by adopting three strategies:
1) integrating mobile HIV testing, cervical cancer screening, and RST services,
2) geographically focussing this intervention in Southern Province, where prevalence of HIV among adults is higher than the national average at 13%, and;
3) intensifying efforts to reach women, which is the population at highest risk of HIV.
Women testing positive to HIV and RST were immediately linked to antiretroviral therapy and syndromic treatment of STI, respectively. Women found with early precancerous cervical lesions were treated on site using cryotherapy while those with advanced lesions were referred for further management.
Lessons learned: A total of, 571 women, mean age 34, were reached with integrated HIV testing, Cervical Cancer Screening, and RST services in the three sites: 174 in *Livingstone A*; 149 in *Livingstone B*; and 248 *in Choma*. The yield rates of HIV were higher than the national and regional average in all the three sites at 35.6%, 31.8% and 16.1% respectively. Similarly rates of cervical dysplasia were much higher than program/national average at 6.8% and 7.4% in Livingstone A and B respectively. In *Choma* cervical dysplasia was at lower at 2.5%. Positive RST tests were reported at two sites: Livingstone A (3.3%), and Choma (2.5%).
Conclusions/Next steps: Results demonstrates that combining population focus, geographic localisation and an integrated package of screening services can enhance programmatic efficiency. This approach increased HIV yield, enhanced early detection of cervical cancer and identified cases of syphilis that would otherwise have been undetected, and can inform future scale-up of effective screening services for women of reproductive age.

THPEE655

Cost effectiveness analysis of nationally scaled point-of-care diagnostic platforms compared to central laboratory models for routine viral load monitoring of HIV-positive Kenyans on antiretroviral therapy

E. Mangone[1], C. Cintron[1], R. Haider[1], B. Johns[1], C. Avila[1], Y. Vartanova[2]
[1]Abt Associates, Health Finance and Governance Project, Rockville, United States, [2]Abt Associates, Cambridge, United States

Background: The National AIDS and STI Control Programme (NASCOP) in Kenya has scaled up its program for routine viral load (VL) monitoring to serve one million HIV-positive Kenyans receiving antiretroviral therapy (ART). Yet the traditional model of batching blood samples to national laboratories is expensive and presents logistical challenges including delays and loss of test results. Point-of-care (POC) technology presents an alternative to laboratory monitoring that may improve timeliness of test results, retention in care, and health outcomes.
Methods: A Markov model was developed from a health system perspective to compare routine POC to laboratory VL testing among a hypothetical cohort of 100,000 adult HIV-positive Kenyans initiating ART. The model follows the cohort over a ten-year time horizon through first and second-line treatments using a six-month cycle length to accommodate NASCOP/WHO testing guidelines. Patients were modeled to be at risk of death, loss to follow up, and increased probability of transmission due to uncontrolled VL. Costs in 2017 USD were pulled from a parallel costing study which considered Cepheid GeneXpert-IV and Alere POC diagnostic platforms and Abbott and Roche laboratory technology. Clinical input parameters were derived from primary data collection on turnaround times and published literature. Parameters uncertainty was assessed through probabilistic and univariate sensitivity analyses. Costs and effects were discounted by 3% annually.
Results: Over the ten-year time horizon, POC implementation cost $4.48 million more than laboratory monitoring. POC implementation resulted in 852 quality-adjusted life years (QALYs) gained, 297 HIV transmissions averted, and 89 deaths averted. The incremental cost effectiveness ratios (ICERS) per QALY gained, transmission averted, and death averted over ten years were $5,259, $15,094, and $50,392, respectively. Using the 2016 Kenyan PPP adjusted, per capita GDP of $3,161 as a threshold and considering income elasticities from 1 to 2.5, POC implementation was not cost-effective. Model outcomes were most sensitive to probabilities of delay in test results.
Conclusions: POC implementation at national scale in Kenya is not cost-effective possibly due to strong NASCOP investment in laboratory infrastructure over the past decade. However, POC platforms may be cost-effective in remote areas of Kenya and in countries with weaker infrastructure and HIV monitoring programs.

THPEE656

Differences in antiretroviral drug prices between low and middle income countries

A. Hill[1], J. Sim[2], R. Smith[3]
[1]Liverpool University, Translational Medicine, Liverpool, United Kingdom, [2]Imperial College London, Faculty of Medicine, London, United Kingdom, [3]MetaVirology Ltd, London, United Kingdom

Background: Antiretroviral (ARV) prices have fallen substantially in low-income countries, but low prices may not be consistently available in middle-income countries with large HIV epidemics where key ARVs are still on patent. We examined price differences between countries within and outside sub-Saharan Africa.
Methods: Prices and transactions for ARVs used in national treatment programmes (2017 data) were extracted from the WHO Global Price Reporting Mechanism database for >100 countries. Prices were recorded as US$ per person per year for each given ARV treatment. Median prices were calculated for each country for 2017. For each treatment, price differences were calculated as percentage increases relative to the lowest median price for that treatment.
Results: Prices of generic ARVs in sub-Saharan Africa were much different to prices outside sub-Saharan Africa (NonSSA). Two originator drugs had significantly higher median prices when sold outside sub-Saharan Africa: LPV/r $546 (NonSSA) vs $268 (SSA), DRV $3503 (NonSSA) vs $651 (SSA). Central Asian countries reported originator DRV prices >900% of the minimum reported originator DRV price of $422 in Myanmar; Ukraine $5467, Tajikistan $4821, Kazakhstan $4519. Six NonSSA countries and South Africa all reported LPVr prices >400% of the minimum reported price of $123 in Eritrea; El Salvador $748, Armenia $740, Albania $733, Kyrgyzstan $733, Ukraine $731, South Africa $660, Viet Nam $622. Further price differentials were observed in ATVr prices.
Conclusions: There are still significant differences in HIV drug prices between countries with similar GNI. Mechanisms to ensure fair pricing across middle-income countries need to be improved to ensure the sustainable treatment access.

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THPEE657

Viral hepatitis C elimination strategy in Vietnam: Willingness to pay for treatment among patients receiving antiretroviral therapy and methadone treatment

T. Nguyen[1], T. Cao[1], H. Nguyen Van[2], T. Nguyen[2], J. Sacks[3], J. Tebor[3], C. Boeke[3], C. Ramers[4], K. Nguyen Van[5]
[1]Clinton Health Access Initiative, Ha Noi, Vietnam, [2]Hai Duong Provincial HIV/AIDS Center, Hai Duong, Vietnam, [3]Clinton Health Access Initiative, New York, United States, [4]Clinton Health Access Initiative, San Diego, United States, [5]National Hospital of Tropical Diseases, Ha Noi, Vietnam

Background: HCV treatment remains costly, posing a challenge for scale-up, particularly in Vietnam where patients are required to pay out-of-pocket for diagnostic and treatment, even with health insurance. Understanding the maximum amount that patient populations are willing to pay may help to guide future pricing discussions and HCV elimination strategy. A brief assessment of willingness to pay at Hai Duong was conducted where rates of HCV infection are high especially among high-risk groups, such as individuals receiving methadone maintenance treatment (MMT) and people living with HIV.

Methods: A structured interviews conducted with 251 anti-HCV positive patients at an ART clinic and 165 anti-HCV positive patients at a MMT clinic from January-May 2017. Patients were asked about insurance coverage and the maximum amount of money they would be willing to pay for 3 months of HCV treatment. Degree of fibrosis was assessed using APRI scores. Analysis was primarily descriptive, with the percentage of patients per category calculated. Willingness to pay was also assessed in relation to other patient characteristics using multivariable linear regression.

Results: In the ART clinic, 880 adults were screened for HCV; 251 (28.5%) were anti-HCV positive. Of those, 96.4% had health insurance. 47.8% had APRI score < 0.5 and 7.2% had an APRI score $^{3}2$; 23.5% were willing to pay up to $1100 (converted to approximate USD values), whereas 22.3% were willing to pay if treatment was < $220. In contrast, in the MMT clinic, 288 adults were screened; 165 (57.3%) were anti-HCV positive. Of those, only 17.0% had health insurance (p< 0.001 compared to ART clinic). 64.2% had APRI < 0.5 and no patients had an APRI score $^{3}2$. 72.1% were willing to pay < $220 and 12.1% were willing to pay up to $1100. Patients with lower fibrosis score (p=0.04) and MMT patients (p=0.002) were willing to pay significantly less for HCV treatment.

Conclusions: MMT patients had much lower insurance coverage than HIV patients on ART and most were not willing to pay more than ~$220 for treatment. Greater willingness to pay was related to higher fibrosis score. Price reductions is needed to eliminate HCV in this patient population.

Supporting effective linkages between Maternal and HIV services

THPEE658

Integrating PMTCT into primary health care services for virtual elimination of mother-to-child transmission of HIV: Facilitators for and barriers to integrated services in South Africa

J.C. Mutabazi[1,2], H. Trottier[1,3], C. Zarowsky[1,2,4]
[1]University of Montréal, School of Public Health-Department of Preventive and Social Medicine, Montréal, Canada, [2]Centre de Recherche du Centre Hospitalier de l'Université de Montréal, Montréal, Canada, [3]Centre de Recherche du Centre Hospitalier Universitaire Sainte Justine, Montréal, Canada, [4]University of the Western Cape, School of Public Health, Cape Town, South Africa

Background: The PMTCT cascade is increasingly well delivered and virtual elimination of mother-to-child transmission (MTCT) in the era of B+ option seems achievable when services aiming to combat HIV/AIDS, reduce child mortality and improve maternal health are integrated into existing health care services. We explored facilitators and barriers to PMTC services integration into comprehensive primary health care (PHC) services in South Africa.

Methods: We conducted 10 semi-structured interviews with national and local key informants and 9 semi-structured interviews with clinic managers, nurses and midwives in disadvantaged facilities in Cape Town. All interviews (N=19) were in person between June 2016 and October 2017 and were audio-recorded and transcribed. Atlas.ti software was used to assist thematic analysis.

Results: All participants underlined the importance of PMTCT integration to the extensive MTCT reduction in South Africa but report uneven progress. Slow and partial integration of PMTCT in PHC followed its initial roll out in the post AIDS denialism era. Pressure from the ground due to high HIV prevalence and AIDS related deaths mobilised health care professionals and the health system. Working with non-profit organisations and community health workers especially in post-partum follow-up helped to bring and keep women and their babies under treatment and reduce new paediatric infections. Nurse-initiated and managed antiretroviral therapy and related PMTCT trainings have also been a key facilitator to PMTCT integration especially in the well-established antenatal care system, but not to the overall PHC services.
However, major barriers impede full integration of PMTCT and consequent virtual elimination of MTCT in South Africa. In addition to small spaces and other infrastructure related challenges at PHC, these barriers include bureaucratic slowness and lack of managerial accountability, poor quality of care including suboptimal fidelity to algorithms, shortage and poor training of staff, work overload, high staff turnover, attitudinal issues, discrimination, stigma and loss to follow-up.

Conclusions: Multiple barriers to PMTCT integration remain a roadblock towards achieving virtual elimination of MTCT in South Africa. Our findings contribute to the efforts for enhancing PMTCT integration at PHC level towards virtual elimination of MTCT.

THPEE659

HIV/Syphilis co-infection among antenatal clinic attendees and their partners in Njombe region, Tanzania

E. Okechukwu[1], J. Gamaliel[1], B. Christian[2], A. Ikonje[3], M. Ndile[3], P. Swai[4], J. Bisimba[4], M. Njelekela[3]
[1]Family Health International (FHI 360), Global Health, Dar es Salaam, Tanzania, United Republic of, [2]Management and Development for Health, Programs, Dar es Salaam, Tanzania, United Republic of, [3]Deloitte Consulting Limited, Dar es Salaam, Tanzania, United Republic of, [4]US Agency for International Development, Dar es Salaam, Tanzania, United Republic of

Background: Antenatal clinic (ANC) setting has provided a good platform for integrated healthcare delivery among pregnant women. Although HIV and syphilis screenings are routinely offered to ANC attendees in Tanzania, HIV screening has received more attention than other sexual transmitted infections. Also, the major focus has been on pregnant women with lesser attention to the male partners especially for other diseases. ANC setting serves as a platform for reaching men (male partners of the pregnant women). In this study, USAID Boresha Afya Southern Zone project evaluated HIV/Syphilis infection and co-infection cascade among both pregnant women and their male partners in Njombe region.

Methods: A retrospective cross-sectional study of three months (April - June 2017) routine ANC services in 10 project supported health facilities was conducted. Facilities were selected based on the provision of integrated MCH/HIV services. Monthly data was collected from the ANC service delivery registers and summary forms, recorded in the excel sheets and analyzed using STATA 15.1 where the proportions were calculated.

Results: A total of 1,571 pregnant women attended first ANC, 51% and 99% were screened for syphilis and HIV respectively. This showed poor syphilis screening coverage among the ANC attendees in general. Syphilis screening among positive pregnant women was 42%, revealing missed opportunities. It also revealed high co-infection rate among the HIV positives screened for syphilis (10.4%). Overall, Syphilis treatment

coverage among those tested positive to syphilis was good (91%). Twenty percent (318) of male partners were screened for syphilis, out of which 5% (16) tested positive and 88% of them received syphilis treatment. Only 2% of HIV male partners were screened for HIV showing missed opportunities and the co-infection rate among male partners tested was high (29%).

Conclusions: HIV/Syphilis co-infection is high among pregnant women and their partners attending ANC services. Individual program resources should be leveraged to facilitate and monitor the delivery of a more comprehensive integrated health service package for both the pregnant women and their male partners using a one-stop shop model.

THPEE660

Post natal clubs: A differentiated model of care integrating maternal, child health and prevention of mother to child transmission (PMTCT) in Khayelitsha, South Africa

A.K. Nelson[1], T. Cassidy[1,2], L. Trivino Duran[1], A. Hoxha[1], K. Buchanan[1], A. Shroufi[1], R. Uenishi[1], N. Matangana[1], L. Mdani[1], E. Mohr[1], V. De Azevedo[3], S. Abrahams[3], C. Hofmeyr[4], J. Igumbor[4]
[1]MSF South Africa, Cape Town, South Africa, [2]University of Cape Town, Division of Public Health Medicine, School of Public Health and Family Medicine, Cape Town, South Africa, [3]City Health of Cape Town, Cape Town, South Africa, [4]mothers2mothers, Cape Town, South Africa

Background: With the advances of option B+ implementation, mother to child transmission (MTCT) in South Africa has fallen from 16,000 (2010) to 5,100 (2015). However, post-natal MTCT stays high (4.3%) at 18 months. Furthermore, access to post natal services and uptake of infant HIV testing is poor. We describe an integrated primary care intervention to improve uptake of HIV services for mother and infant pairs (MIP).

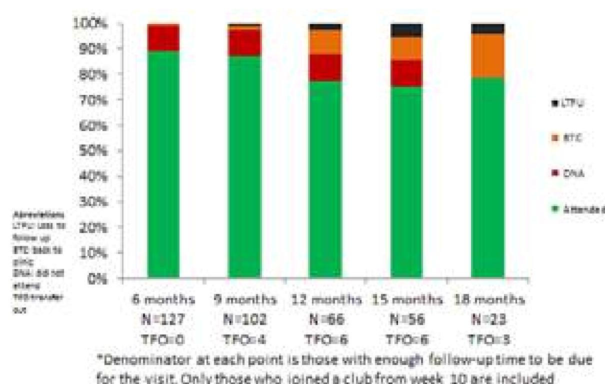
Methods: We adapted the adult ART adherence club model to provide double integration of care (maternal health, child health and HIV services) and components of the first 1000 days (mental health, nutrition advice and early childhood development activities) to HIV-positive mothers (stable and high risk) and their HIV-exposed-uninfected infants. The model was piloted at Town2 clinic, where antenatal prevalence is 34%, from June 2016 until now. Post Natal Clubs (PNC) were formed according to the infants' dates of birth into clubs of 2-10 MIP and were held at regular intervals (1-3 monthly) until 18 months of age. We analyzed and described maternal and child data routinely collected during the intervention.

Results: From July 2016 to December 2017, we recruited 227 mothers (8 high risk) and 232 infants (5 twins). Of the mothers who joined a PNC from week 10, 78% were still in care at 18 months (see graph 1). For the overall cohort, uptake of infants' 9 months and 18 months tests was 140/153 (91.5%) and 44/52 (84.6%) respectively with 0% positivity rate. Infants' vaccination coverage at 12 months was 75/93 (84.6%). Of the 88 mothers completing the 18 months intervention, 47 received a pap smear (53.4%) and 12 had an intra-uterine device inserted (13.6%). There were 46 instances of positive mental health screens out of 432 done (10.1%). Maternal viral load testing decreased over time but suppression remained high (see graph 1).

Conclusions: PNCs have shown good early retention-in-care for the MIP, good viral load suppression for the mother, optimal testing uptake for the child and efficient integration of services for the mother and infant pair. Implementation and monitoring challenges of the model are being worked on for future scalability and qualitative research is being conducted.

Viral Load	Number due	Complete*	Suppressed
week 10	166	151(91%)	146 (97%)
month 6	127	107(84%)	102 (95%)
month 12	72	44(61%)	43 (98%)
month 18	26	15(58%)	14 (93%)
*some capturing still underway			

[Table 1: Viral load completion and suppression in the PNC]



[Graph 1: Proportion of mothers attending PNC visit]*

THPEE661

Challenges to implementation of prevention of mother-to-child HIV transmission in Kalimantan, Indonesia

A.B. Pratiwi[1,2], M.S. Hidayat[1,3], T.A. Sugiyatmi[4], V. Kania[1]
[1]Centre for Health Financing Policy and Health Insurance Management, Faculty of Medicine, Universitas Gadjah Mada, Yogyakarta, Indonesia, [2]Faculty of Medicine, Universitas Gadjah Mada, Medical Education and Bioethics, Yogyakarta, Indonesia, [3]Universitas Ahmad Dahlan, Public Health, Yogyakarta, Indonesia, [4]Tarakan District Health Office, Tarakan, Indonesia

Background: According to the Indonesian Ministry of Health, more than 30% of people living with HIV are women. In the newly formed province, North Kalimantan, an increasing number of newly reported cases in Tarakan municipality are among women who acquired HIV sexually. Although government programs to prevent vertical transmission of HIV exists, low utilisation and lost to follow up in the program cascade, indicates that it is suboptimal. This study explores the barriers and facilitators to implementation of HIV counselling and testing for pregnant women in Tarakan.

Methods: We conducted six focus group discussions and seventeen in-depth interviews between March and October 2017 to collect the data. The participants consisted of stakeholders and implementers in the prevention of mother-to-child-transmission (PMTCT) program, including health care workers in public and private health care facilities, District Health Office staff, management in the private hospital, HIV counselling and testing team in the public hospital, and women living with HIV. We applied coding and thematic approach to analyse the transcripts. Investigator triangulation was conducted to ensure validity of the analyses.

Results: There is a gap in implementation of PMTCT in public and private health care facilities, while HIV counselling and testing is available in public primary health care facilities, they are not available in the private. Pregnant women choosing to visit the private healthcare providers for antenatal care have missed the opportunity to get HIV counselling and testing during their pregnancy. In addition, interacting factors are affecting the individual decision in utilising PMTCT services, namely fear that their confidential data will be shared, stigma and discrimination from health care workers, time and transportation constrain.

Conclusions: In order to increase the coverage of counselling and testing and to avoid missed opportunities for pregnant women, private health care sectors need to be engaged in the implementation of this program. Regulation, facilities, and trained staff in the private healthcare sector should be initiated to increase the coverage of HIV counselling and testing as part of the PMTCT cascade. This would provide the opportunity to save more mothers living with HIV and their children.

Supporting effective linkages between Maternal and HIV services

THPEE662

Non-presentation to antenatal care impacts birth outcomes and PMTCT uptake in Botswana

M.D. Diseko[1], R. Zash[1,2,3], J. Mabuta[1], G. Mayondi[1], S. Lockman[1,3,4], C. Petlo[5], G. Mogomotsi[5], M. Mmalane[1], T. Sekoto[1], N. Seonyatseng[1], J. Makhema[1], R. Shapiro[1,3]
[1]Botswana Harvard AIDS Institute, Gaborone, Botswana, [2]Beth Israel Deaconess Medical Center, Boston, United States, [3]Harvard TH Chan School of Public Health, Boston, United States, [4]Brigham and Women's Hospital, Division of Infectious Disease, Boston, United States, [5]Ministry of Health and Wellness, PMTCT, Gaborone, Botswana

Background: Non-presentation to antenatal care (ANC) increases pregnancy complications and adverse birth outcomes, but its specific impact among HIV-infected women and efforts to prevent mother-to-child HIV transmission are unknown.
Methods: We abstracted data from obstetric records for all women who delivered at 8 government hospitals in Botswana (~45% of nationwide deliveries). Outcomes evaluated by ANC presentation status included stillbirth (SB), preterm delivery (PTD) (< 37 weeks gestational age (GA), and receipt of HIV testing and ART during pregnancy. Because women with PTD may have less opportunity to initiate ANC, we conducted sensitivity analyses restricted to outcomes occurring >=28 weeks GA.
Results: Between Aug 2014-Aug 2016, 47,027 women delivered at surveillance sites. ANC status was known in 46,502 (98.9%), and median GA at first ANC visit was 17 weeks [IQR 13,22]; 1,539 (3.3%) had no ANC visit and were classified non-presenters (NPs). NPs were more likely to be unmarried, unemployed, non-citizens, HIV-infected, have low education, and >4 prior pregnancies (Table 1).

	Women who received no antenatal care (N=1539) (N, %)	Women who received antenatal care (N=44963) (N, %)	P-value
Maternal Age, yrs (median, IQR)	26 [22,31]	26 [22,32]	0.16
Married	124 (8.8%)	4963 (11.2%)	0.005
Not a Botswana Citizen	327 (19.8%)	1162 (2.6%)	<0.0001
Low education	195 (15.5%)	3546 (8.0%)	<0.0001
Employment Status			<0.0001
Student	75 (6.0%)	3602 (8.3%)	
Unemployed	843 (67.8%)	24238 (55.9%)	
Salaried	325 (26.2%)	15560 (35.9%)	
Primigravid	354 (24.4%)	16393 (36.5%)	<0.0001
Grand multip (>4 prior preg)	191 (13.1%)	4561 (10.2%)	0.0004
Delivered at a tertiary maternity	948 (61.6%)	22116 (49.2%)	<0.0001
HIV status unknown	292 (19.0%)	168 (0.4%)	<0.0001
HIV-infected	393 (31.5%)	11539 (25.5%)	0.02
Timing of HIV test			<0.0001
HIV diagnosed prior to pregnancy	193 (49.1%)	7711 (67.6%)	
HIV diagnosed during pregnancy	87 (22.1%)	3546 (31.1%)	
HIV diagnosed at the time of labor and delivery	77 (19.6%)	27 (0.2%)	
HIV-infected and received no antiretrovirals during pregnancy	220 (56.0%)	822 (7.2%)	<0.0001

[Table 1: Characteristics of women by ANC presentation status in Botswana]

Adverse birth outcomes were increased among NPs compared with ANC presenters, including stillbirth (9.4% vs. 2.3%) and PTD (52% vs. 17%) (both p< 0.0001). When outcomes were restricted to >=28 weeks GA, NPs still had more stillbirth (7.0% vs. 1.8%) and PTD (45% vs. 16%) (both p< 0.0001). Among NPs with known HIV status, 393 (31.5%) were HIV-infected, compared with 11,539 (25.5%) presenters (p< 0.0001). HIV-infected NPs had a similarly high risk for stillbirth compared with HIV-uninfected NPs (8.7% vs. 8.4%, p=0.91) and higher risk for PTD (58.3% vs. 48.1%, p=0.003). Among HIV-infected NPs, 220 (56%) received no ART during pregnancy, including 77 (20%) diagnosed with HIV at delivery; in contrast, only 7.2% of presenting HIV-infected women received no ART. NPs accounted for 63% of women with unknown HIV status and 21% of HIV-infected women who received no ART in pregnancy.
Conclusions: The small number of women who do not present for ANC in Botswana represent the majority of those who are not HIV tested and a large proportion of HIV-infected women without ART receipt in pregnancy. In order to further reduce pediatric HIV infections, efforts are needed to engage these women in care.

Supporting effective linkages between Maternal and HIV services

THPEE663

Acceptability and primary outcomes of an integrated early childhood development (ECD) program for Option B+ mothers in Malawi

S.E. Deressa[1], E. Udedi[2], K. Dovel[1,3], A. Schooley[1,3], L.C. Bruns[3], T.J. Coates[3]
[1]Partners in Hope, Lilongwe, Malawi, [2]Partners in Hope, Programs, Lilongwe, Malawi, [3]University of California Los Angeles (UCLA), Division of Infectious Diseases, David Geffen School of Medicine at UCLA, Los Angeles, United States

Background: Successful strategies in the fight against HIV have changed the agenda for HIV infected and affected children from survival to thriving. Both HIV infection and the strained caregiving environment experienced by HIV affected families have negative impacts on children's cognitive development. Responsive and stimulating parenting plays a vital role in improving cognitive development, although such skills are rarely taught in low-resource, sub-Saharan settings. This study examines the acceptability and primary outcomes of an early childhood development (ECD) programme that imparts responsive, stimulating parenting skills to Option B+ mothers in Malawi.
Methods: The integrated Option B+/ECD program was conducted in two rural antiretroviral therapy (ART) clinics in central Malawi. Pregnant, Option B+ women were approached to participate in an interactive ECD skills development program starting from when the child was 6 to 8 weeks of age. The intervention was comprised of 9 monthly sessions (approximately 1-hour each) that coincided with mothers' scheduled ART appointments. Trained ECD counselors led each session using the WHO-UNICEF "Care for Child Development" package. Baseline and follow-up home visits and exit interviews were conducted at 2 and 9 months of age to assess changes in mothers' ECD knowledge and practice. Descriptive statistics and McNemar Tests were used to analyze the data.
Results: Between April-December 2016, 149 mother-infant pairs were enrolled in the program. Of the enrolled mothers, 114 (77%) graduated from the ECD program. There were no socio-demographic differences between mothers who dropped out of the program and those who graduated. Among graduates, 96 (84%) attended ≥8 of the 9 ECD sessions. Graduates' knowledge and observed practice of ECD activities significantly improved following the 9-month program. Availability of homemade toys, reading and singing to the child showed a 2 to 5-fold increase at the end of the program (Table 1).

Variables	Baseline	Follow-up	P-Value
Mother's knowledge of ECD stages	53%	93%	<0.001
Books available for the child in home	19%	54%	< 0.001
Homemade toys available in home	42.6%	85%	< 0.001
Child plays with household objects	31%	85%	< 0.001
Reading books to the child	14%	73%	< 0.001
Telling stories to the child	55%	95%	< 0.001
Singing songs to the child	19%	90%	<0.001

[Change in ECD Related Variables at the End of the Program (Data from Home Visit and Questionnaire)]

Mothers believed that the ECD program improved their parenting skills overall, and increased familial involvement in child-rearing, especially among fathers. Four mothers also reported initiating ECD group activities in their communities, suggesting desire for such programs.
Conclusions: High retention and positive ECD outcomes provide encouraging indications of the acceptability and effectiveness of an ECD intervention integrated into HIV care.

THPEE664

Paraprofessional home-visiting improves maternal caregiving for mothers living with and without HIV over the first two years of life in rural South Africa

L. Stansert Katzen[1], M. Tomlinson[2], J. Christodoulou[3], C. Laurenzi[2], I. le Roux[1], V. Baker[1], K. le Roux[4], M.J. Rotheram-Borus[3], L. Li[5]
[1]Philani Maternal, Child Health and Nutrition Project, Cape Town, South Africa, [2]Stellenbosch University, Department of Psychology, Stellenbosch, South Africa, [3]University of California, Department of Psychiatry and Biobehavioral Sciences, Semel Institute, Los Angeles, United States, [4]Zithulele Hospital, Mqanduli, South Africa, [5]University of California, Department of Psychiatry and Biobehavioral Sciences, Los Angeles, United States

Background: More than 50% of Africa's population lives in rural areas, which have few professional health workers. South Africa has adopted task-shifting health care to paraprofessionals to achieve the Sustainable Development Goals, however little is known about their efficacy in rural areas. This study examines whether home visiting by paraprofessional community health workers (CHWs) is associated with variations in maternal and child outcomes for mothers living with HIV (MLH) over the first two years of life in a deeply rural district of South Africa.
Methods: Almost all mothers giving birth (95.3%; N=494) in the Zithulele Hospital catchment area of the OR Tambo District were recruited and reassessed five times over two years after birth with 84.7-96% follow-up rates. Based on geographic location, mothers received either standard antenatal and HIV care (SC) (N=313 mothers) or SC with paraprofessional home-visiting (HV) (N=157 mothers, 37 CHWs). Almost one-third of mothers were mothers were mothers living with HIV (MLH) (N=139/470). By chance, there were significantly more MLH receiving HV than SC. Multiple linear and logistic regressions evaluated maternal comorbidities, maternal caretaking, and child development over time.
Results: MLH were older on average, less likely to report alcohol use after learning about pregnancy, and were more likely to be employed, married, and non-primipara. MLH attended more antenatal clinic appointments on average and were more likely to breastfeed exclusively for three months compared to uninfected mothers. Despite HIV infection, compared to mothers receiving SC, mothers with HV had significantly lower depression scores, were more likely to attend the recommended four antenatal care visits, and were less likely to consult traditional healers at 3 months. Infant growth and achievement of developmental milestones for children of MLH, whether receiving SC or HV were similar to un-exposed peers over the first two years of life.
Conclusions: HV result in better maternal caretaking for both MLH and uninfected mothers but did not directly benefit infant growth or developmental milestones in their first two years of life. This study examines a comprehensive, home-visiting model that will inform the upcoming broad implementation of CHW programs by South African Government in rural areas.

Approaches to effective HIV/SRH integration

THPEE665

Achieving the first two 90s through provider-initiated testing and counselling at family planning clinics in Ibadan, South West Nigeria

O. Ayinde[1], A.B. Usman[2,3], O.O. Oleribe[4]
[1]Ministry of Health, Public Health, Ibadan, Oyo State, Nigeria, [2]LAUTECH Teaching Hospital, Department of Community Medicine, Osogbo, Nigeria, [3]Nigerian Field Epidemiology and Laboratory Training Program, Abuja, Nigeria, [4]Excellence and Friends Management Care Center (EFMC), Abuja, Nigeria

Background: HIV testing is the first step in the 'HIV treatment cascade, therefore integrating Provider Initiated Testing and Counseling (PICT) into family planning/reproductive health (FP/RH) services is of great importance, as women of reproductive age are at risk of both HIV infection and unintended pregnancies. The integration will also contribute to primary prevention of HIV, achieving the United Nations "90-90-90" global targets, and Sustainable Development Goals (SDGs). FP providers have not successfully integrated PITC into FP services over the years in Nigeria and Oyo state, as implementation was met with inconclusive outcomes and inadequate documentation.
This study seeks to determine the outcome of PITC capacity building intervention for FP providers on HIV Testing services (HTS), linking and initiation of HIV positive clients on antiretroviral treatment (ART) in Ibadan, Oyo State, Nigeria.
Methods: An evaluation of FP/HIV integration was conducted in 20 purposively selected facilities, providing FP services, in Oyo State, by retrospectively reviewing 6 months HTS in the facility registers. FP health care providers were then trained in order to implement PITC strategy. The trained HCP was monitored and supervised. Six months after the training, FP/HIV integration was re-evaluated. Data was analyzed using SPSS version 20.
Results: A total of 14,032 clients visited the facilities six months pre-training, out of which 39, were tested for HIV and only 1 (0.3 %) was positive. After the training, 15,974 utilized FP services, and 48 (23.6%), were positive. The new clients increase from 8,066 pre-training, to 8,311 post-training, others were re-visit clients. At post-training, a total of 5,654 clients were offered HTS. The increase, in the number of clients that were tested for HIV, and those that tested positive, post-training, were statistically significantly, ($P<0.05$). A total of 48 clients were referred and linked to ART initiation.
Conclusions: It was established that PITC, not only increased the number of clients tested, but also revealed HIV positive clients, who were previously unaware of their HIV status. This also strengthened the linkage and initiation of ART among the clients. It is therefore recommended that this strategy be strengthened to achieve the United Nations "90-90-90" global targets.

Approaches to effective HIV/TB service delivery

THPEE666

Clinical characteristics of people with tuberculosis drug resistant according to HIV status in Brazil

G.T. Magnabosco[1], A. Veras de Oliveira[1], B. Reis Santos[1], A. Coelho Brito[1], R. Souza Junior[1], K. Bonfim Andrade Alves[1], R. Coelho[2], G.F. Mendes Pereira[2], F. Dockhorn Costa Johansen[1], P. Bartholomay Oliveira[1], D. Arakaki-Sanchez[1]
[1]Ministry of Health, National Tuberculosis Control Program, Brasilia, Brazil, [2]Ministry of Health, Department of Sexually Transmitted Disease, AIDS and Viral Hepatitis, Brasilia, Brazil

Background: Tuberculosis (TB) is one of the leading causes of death among infectious diseases in the world, and its control remains a challenge, mainly due to the number of new cases associated with human immunodeficiency virus (HIV). Additionally, TB-HIV coinfection is often related to the development of drug resistance in TB treatment, which worsens the patients clinical situation, extends the treatment time, and raises the cost of control actions. This study aimed to identify clinical characteristics of people with TB Drug Resistant (TBDR), according to HIV status in Brazil, from 2013 to 2017.

Methods: It is a longitudinal database study. The database from TB Special Treatment Information System (SITE-TB) was analyzed. SITE-TB records all treatments that showed some resistance to first-line drugs, cases of nontuberculous mycobacteria (NTM) and TB special treatments. Cases classified as TBDR were eligible, excluding those who did not test for HIV or presented inconclusive results. Frequency statistics was used to data analysis of the variables: case type, form, and associated comorbidities.

Results: There were 5,878 cases of TBDR in Brazil from 2013-2017, of which 661 were HIV positive (11.2%). The percentage of cases classified as type "return after lost follow-up" (16.9%), as form: extrapulmonary (8.9%) and extrapulmonary+pulmonary cases (12.0%), as well as those with the comorbidities: viral hepatitis (4.8%), mental disorders (3.1%), cancer (1.3%), ilicit drugs (30.8%), and tobacco (29.3%) was higher in TBDR coinfected than in non-coinfected TBDRs (Figure 1).

		TBDR			
		HIV + (n=661)	%	HIV - (n=[illegible])	%
Case type					
	New Case	478	72.3	2733	76.1
	Lost to follow-up	112	16.9	342	9.5
	Relapse	17	2.6	60	1.7
	Failure after first treatment	23	3.5	199	5.5
	Failure of Retreatment	12	1.8	155	4.3
	Scheme change	7	1.1	11	0.3
	Change in resistance pattern	3	0.5	54	1.5
	Others	8	1.2	33	0.9
	No information	1	0.2	4	0.1
Form					
	Pulmonary	523	79.1	3518	98.0
	Extrapulmonary	59	8.9	29	0.8
	Pulmonary+ Extrapulmonary	79	12.0	44	1.2
Associated comorbidities#					
	Viral hepatitis (B or C)	23	4.8	37	1.4
	Diabetes mellitus	12	2.5	353	12.9
	Mental Disorders	15	3.1	50	1.8
	Cancer	6	1.3	23	0.8
	Alcoholism	108	22.6	638	23.3
	Ilicit drugs	147	30.8	482	17.6
	Tobacco	140	29.3	790	28.9
	Others	37	7.7	259	9.5

Subtitle: TBDR – Tuberculosis Drug Resistant; * Number of cases; # For associated comorbidities the total number of new cases was used (N=478 for HIV+ and N=2733 for HIV-).

[Clinical characteristics of Tuberculosis Drug Resistat cases in coinfected and non-coinfected by HIV. Brazil, 2013-2017.]

Conclusions: TBDR-HIV coinfected people had complex clinical characteristics. The results reinforce the complicacy of care beyond the biological challenges in TBDR-HIV coinfection cases. Studies have shown that TB-HIV coinfected people have difficulty in adhering to treatment due to adverse effects and drug interactions favoring the lost follow-up. In this sense, TBDR and HIV interaction remain an important challenge for the both diseases control programs, requiring early detection of cases, adequate treatment and comprehensive care.
It is imperative that TB and HIV programs develop joint strategic actions to favor the timely and correct diagnosis of both infections, as well as comorbidities, ensuring adequate treatment and person-centered follow-up aiming of improving favorable outcomes and better quality of care.

THPEE667

Policy implementation gap of isoniazid preventive therapy (IPT) among people living with HIV in limited resource setting: Lessons from Nepal

K. Deuba[1], U. Shrestha[1], B. Rawal[2], R.P. Khanal[1], R.K. Bhattarai[3], B.D. Pandey[2], R. Shrestha[4], A.M. Ekstrom[5]
[1]National Centre for AIDS and STD Control/ Global Fund Programs, Kathmandu, Nepal, [2]National Centre for AIDS and STD Control, Ministry of Health, Kathmandu, Nepal, [3]Save the Children, Kathmandu, Nepal, [4]Public Health and Environment Research Centre, Lalitpur, Nepal, [5]Karolinska Institutet, Department of Public Health Sciences, Stockholm, Sweden

Background: Tuberculosis (TB) is one of the most common opportunistic infections that cause high morbidity and mortality rate among people living with HIV (PLHIV) in Nepal. Since 2014 Nepal has adopted the WHO recommendations to initiate Isoniazid Preventive Therapy (IPT) among PLHIV who does not have active TB. From early 2015 the Nepalese government's AIDS centre designed a project to increase the coverage of IPT and to reduce the burden of TB among PLHIV in Nepal.

Description: PT had been rolled out across all Nepal's 69 HIV treatment centres. Monitoring visits, meetings and brief orientations on the IPT guidelines was conducted with all HIV health personnel. The targets for IPT were finalized by the estimating number of PLHIV each year using mathematical modelling. To summarize the progress, we analyzed routine program data from July 2015 to November 2017.

Lessons learned: The overall cumulative coverage (2015-2017) of IPT among eligible PLHIV was low (18%; 5488/29952) whereas the coverage differed significantly between men (14%; 2637/18512) and women (25%; 2851/11440). In 2015, the IPT coverage among women (5.3%) was slightly higher than among men (3.2%) whereas not much difference was observed between age groups. The IPT coverage among women increased to 14% in 2016 whereas it increased only marginally to 8% among men. In 2017, the IPT coverage came down again for both men (3%) and women (7%) in 2017. There were no changes in the incidence of TB among PLHIV between 2015 and 2017. The qualitative findings showed a reluctancy among clinicians' to initiate IPT among eligible PLHIV because of a lack of local evidence on the effectiveness of IPT, and fear of interaction with antiretroviral therapy causing drug resistance among PLHIV. The low acceptance rate of IPT among PLHIV was seen as another major barrier blamed on increased pill burden and side effects.

Conclusions/Next steps: Findings suggest that future policy recommendations need to be more clearly discussed with front-line care providers before roll out of activities in routine health programs. Ensuring active participation from care providers during the policy-making process would also help the implementation of recommendations and contribute to achieving planned outcomes.

THPEE668

Expanding use of TB-LAM for HIV+ individuals with CD4< 200: Evidence from MSF operational research and beyond

K. England[1], E. Fajardo[1], G. Ferlazzo[2], H. Huerga[3]
[1]Médecins Sans Frontières (MSF) Access Campaign, Geneva, Switzerland, [2]Médecins Sans Frontières (MSF) Southern Africa Medical Unit (SAMU), Cape Town, South Africa, [3]Médecins Sans Frontières (MSF) Epicentre, Paris, France

Background: World Health Organization (WHO) recommends the use of TB-LAM (LAM) to detect TB in HIV+ individuals with CD4 ≤100 cells/mm³ or who are severely ill irrespective of their CD4 counts. MSF operational research and published literature were analysed to provide evidence for expanding use of LAM to diagnose TB among HIV+ individuals with CD4 < 200 cells/mm³.
Description: Presented are the results from MSF operational research in three locations (Kenya, Mozambique and Malawi), which included an analysis of using LAM as a diagnostic tool for HIV+ individuals with CD4< 200. In Kenya, MSF analysed the incremental diagnostic yield achieved by adding LAM to standard algorithms in ambulatory and hospitalised HIV+ individuals. In Mozambique, LAM was used as a diagnostic tool in ambulatory settings for people with symptoms of TB and CD4< 200. In Malawi, LAM was used to diagnose TB for HIV+ individuals regardless of symptoms and CD4 count. Furthermore, a literature review was conducted of diagnostic performance studies of LAM compared to a reference standard (culture, composite standard or Xpert) for HIV+ individuals with CD4 < 200 from March 2015 to date.
Lessons learned: Data from Homa Bay, Kenya demonstrated that 68.2% (88/129) of patients with bacteriologically confirmed TB and CD4 < 200 were diagnosed using LAM. The additional diagnostic yield when adding LAM was 19.3% for this cohort, compared with clinical signs and microscopy alone. In Maputo, Mozambique, using LAM as a diagnostic tool for all ambulatory patients with symptoms of TB and CD4< 200 demonstrated a positivity of 44.8% (128/286). Positivity rate among patients with CD4 100-199 specifically was 44.4% (24/54). In Chiradzulu, Malawi, using LAM in hospitalised patients regardless of symptoms showed a positivity of 30.0% (60/200) in patients with CD4< 200 and 20.6% (13/63) in patients with CD4 100-199. Finally, the literature review identified 14 additional studies published since March 2015 which further substantiate the need to expand use of LAM to HIV+ individuals with CD4< 200.
Conclusions/Next steps: In conclusion, WHO should consider expanding current guidelines to include the use of LAM to diagnose TB in an expanded cohort of HIV+ individuals with CD4< 200.

THPEE669

Using a targeted approach to boost TB case-finding among vulnerable children - the SMILE experience

C. Anoje[1], T. Lan[1], E. Olashore[1], M. Bebia[1], A. Efuntoye[1], O. Temitayo[2], P. Gado[2]
[1]Catholic Relief Services, Abuja, Nigeria, [2]United States Agency for International Development, Abuja, Nigeria

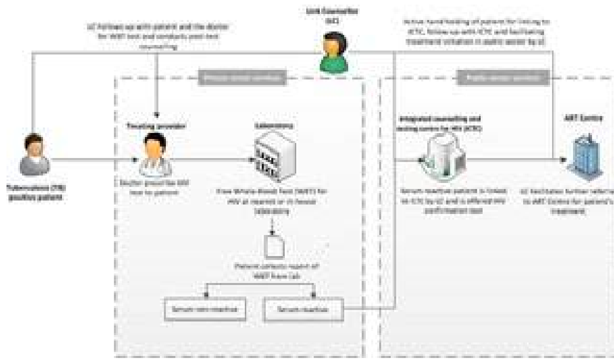
Background: The World Health Organization (WHO) estimates that one million children (< 15 years) currently suffer from tuberculosis (TB) worldwide, and that more than 210,000 die each year Nigeria's children, especially those living in high-density, slum communities, are at high risk for contracting TB. Nigeria has the highest TB burden in Africa, with an estimated half a million new TB cases every year. TB case notification rates are alarmingly low, with only 100,433 TB cases notified in 2016 representing approximately 20% of actual cases. In the face of limited access to TB services at the health facilities, weak health extension services and health seeking behaviour, innovative approaches are required to increasing TB case detection.
Description: Sustainable Mechanisms for Improved Livelihood and Household Empowerment (SMILE) is an OVC project funded by the USAID and implemented by Catholic Relief Services.
As per a funding agreement with USAID, SMILE integrated CTBC activities into its existing child-focused interventions in Benue state, aiming to identify presumptive pediatric TB cases from among the program's targeted beneficiaries. The approach include house -to-house screening, school based screening and index contact tracing. Using a child focused screening tool, trained case managers and volunteers identified presumptive TB cases, these presumptive cases were immediately referred and escorted by trained to health centers for TB diagnoses.
Lessons learned: A total of 11,125 children were screened for TB between February and August 2017 with 2,553 presumptive TB cases referred for further diagnosis. A total of 1,767 children (69%) completed their referrals, with 466 children diagnosed with active TB including 20 newly tested HIV positive. This TB case-finding represents a dramatic increase over performance in the three preceding years (2014 [79 cases], 2015 [112 cases], and 2016 [116 cases]. 424 children commenced TB treatment and 147 had successfully completed their 6-9 month course by December 31, 2017; the majority of those remaining are on track to complete treatment by the end of February 2018.
Conclusions/Next steps: Integrating a pediatric TB initiative into an OVC program has the significant advantage of leveraging the skills, infrastructure, relationships and credibility of a child-focused, community-based mechanism to increase case finding of TB amongst children.

THPEE670

Engaging private medical practitioners for early HIV screening and treatment initiation of tuberculosis (TB) patients in Maharashtra

J. Thakker[1], P. Bogam[1], R. Taralekar[1], S. Vijayan[1], L. Sadasivan[2], R. Chopra[1], A. Ali[3], D. Gangurde[4], S. Acharya[5]
[1]PATH, International Health, Mumbai, India, [2]PATH, International Health, Washington DC, United States, [3]Maharashtra Janavikas Kendra, Mumbai, India, [4]Alert India, Mumbai, India, [5]Mumbai District AIDS Control Society, Mumbai, India

Background: Per World Health Organization's estimates, India had 2.8 million TB patients in 2016, one-fourth of global incidence. Among notified patients, 87,000 were HIV co-infected of which 12,000 (14%) died. TB patients notified in the public sector go through HIV screening, however there is no information on the HIV status of about 1 million TB patients that would seek care in the private sector who are not notified. From 2014-17, PATH implemented a Private Provider Interface Agency (PPIA) model which notified 40,000 TB patients by engaging private healthcare providers in Mumbai. In 2016, the project began working with private providers to screen TB patients for HIV and refer them to public sector for treatment.
Description: The intervention aimed to screen all TB patients notified by private providers in engaged facilities of Thane, Mumbai, and Pune for HIV at accredited private laboratories and enable free testing. After HIV screening, Link Counsellors (LCs) accompanied patients to Integrated Counselling and Testing Center (ICTC) for confirmation of HIV and further linkage to public sector's Anti-retroviral treatment (ART) centres for treatment initiation. A dedicated cadre of LCs handheld patients throughout the pathway of care. Public sector providers were trained to fast track private-sector patients for HIV testing and treatment.
Lessons learned: From March 2016 to November 2017, out of 12,535 TB patients notified from 135 private facilities, 9,098 (75%) were screened for HIV. Of these, 262 were TB-HIV co-infected patients (2.9% HIV positivity). Of these, 79 (30%) were already on ARV treatment; and of the 183 newly diagnosed patients, 157 (85%) were linked to ICTCs, of which 147 (94%) were linked to ART centres. The LC model shortened time between linkages compared to the public sector to, on average: 5 days for linkage from private center to ICTC center, 7 days for ART registration, and 14 days for treatment initiation.
Conclusions/Next steps: The intervention demonstrated successful early HIV screening of TB patients in private sector linked with public sector for timely treatment initiation. The intervention provides an important platform to engage government for scaling up in 100 HIV high-burden districts of India ensuring high yield HIV case finding.



[Comprehensive processes involved in the TB-HIV project for Private Health Sector, Mumbai, India, 2016-17]

Categories	Number	Proportion
Total number of TB patients notified in selected facilities	12535	100%
TB patients screened for HIV	9095	75%
Male	4276	47% (n=9096)
Female	4822	53% (n=9096)
HIV positive	262	2.9% (n=9096)
Male	157	3.6% (n=4276)
Female	105	2.1% (n=4822)
5-34 years	84	32% (n=262)
35-50 years	126	48% (n=262)
50 and above	53	20% (n= 262)

[Demographic characteristics of participants, Engaging private practitioners for early HIV screening and treatment initiation of tuberculosis (TB) pati]

THPEE671

Achieving systemic and scalable quality assured private sector engagement in HIV/TB care and prevention in Nigeria - successes and lessons learnt from the building models for the future (BMF) project

V.A. Adepoju[1], P. Edo[2], F. Egbedeyi[3], A. Asumah[3], M. Brunetti[4], K. Schuts[5], N. Kamp[6], K. Fiekert[7]

[1]KNCV Tuberculosis Foundation, TB/HIV Prevention, Care and Treatment, Lagos, Nigeria, [2]KNCV Tuberculosis Foundation, TB/HIV (Monitoring and Evaluation), Lagos, Nigeria, [3]Pharmaccess Foundation, Quality Manager (Health Systems Strengthening), Lagos, Nigeria, [4]KNCV Tuberculosis Foundation, Monitoring and Evaluation Officer, The Hague, Netherlands, [5]KNCV Tuberculosis Foundation, Project Officer, The Hague, Netherlands, [6]KNCV Tuberculosis Foundation, Senior Technical Advisor (Building Model for the Future Project), The Hague, Netherlands, [7]KNCV Tuberculosis Foundation, Senior TB Consultant/ Team Co-ordinator Health Systems & Key Populations, The Hague, Netherlands

Background: Since 2015 KNCV and PharmAccess implement the project "Improved TB/HIV prevention and care - Building models for the future" in collaboration with the Lagos State TB Program. The objective is to increase affordable access to quality TB screening, early diagnosis and treatment in the private sector.

Description: The project integrated the international SafeCare quality improvement standards with the International Standards for TB Care (ISTC) into a quality improvement tool. Implementation of the tool in private facilities started with a participatory baseline assessment. Identified gaps such as absence of SOPs, IEC materials, knowledge and standard M&E forms were addressed. Targetted trainings were given on TB/HIV, staff retention, quality management and "healthy business" topics. Training was complemented with on-site support and mentoring during joint supervision with public TB officers. The intervention was scaled from initially 37 to 60 engaged private health facilities by end 2017.

After introducing active TB screening, we observed a five-fold and three-fold increase of presumptive and confirmed TB diagnosis respectively. Improved access to diagnostics through a sputum transportation system increased TB patients diagnosed using Xpert_MTB/RIF from 43% to 82%. Improved contact investigation tripled eligible children placed on IPT. TB literacy of patients improved by introducing the patient charter and the TB literacy tool. Orientation of HCWs and District TB supervisors on the patient charter led to increased knowledge and referrals of presumptive TB patients.

Treatment success increased from 59% at baseline to 87%. In less than one year 43% of facilities with poor adherence to ISTC standards reached 100% compliance. The implemented model has contributed to a marked quality improvement in all facilities enrolled.

Lessons learned: A facility wide quality improvement approach that integrates TB/HIV quality standards into overall health care can increase TB/HIV case finding and quality care in the private sector.

Conclusions/Next steps: The next step is to translate the model into building sustainable health systems, exploring health financing options and business models and integrate the ISTC quality tools into the Lagos State quality inspection standards and National TB program supervision tools.

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THPEE672

Community health workers facilitate access to tuberculosis (TB) diagnostic services for clients with limited access to health care

C. Lesedi, B. Segwabanyane-Morapedi, J. Irige, G. Morineau

Family Health International 360 Botswana, Advancing Partners and Communities Project, Gaborone, Botswana

Background: In Botswana, the HIV prevalence among TB patients is 61%. The Advancing Partners and Communities project- Botswana (APC) is a three-year USAID-funded project implemented by FHI 360 through community based organizations by integrating TB/HIV activities at community level and promoting TB cure in eight districts. Community Health Workers (CHWs) are trained on four-symptom TB screening to conduct contact tracing, intensive and active case finding. The report on evaluation of community tuberculosis approaches in Botswana (2012-2013) recommends that CHWs collect and transport sputum for TB investigation to improve referral completion and TB diagnosis.

In 2016 the project experienced challenges with referral completion of presumptive TB clients identified in the community. From 1,978 presumptive TB clients identified and referred to facilities for further investigations, 1,053 (53%) had completed referrals. Barriers to referral completion include lack of transport, long distance to facilities and nomadic clients, among others. The project then emphasized community sputum collection to close the gap of referral completion.

Description: CHWs were trained on safe home sputum collection and transport from community to the facility. CHWs were provided with cooler boxes, gloves, sputum bottles, and respiratory masks to collect and transport sputum from community to facilities.

Lessons learned: Out of 1,237 presumptive TB clients identified and referred to facilities in 2017, 816 (66%) clients completed referral. Among those who had completed referral, 267 clients (33%) had their sputum collected at community level. Fifty-four APC clients were diagnosed with TB through community TB screening, including 16 TB patients (30%) who had their sputum collected within the community. HIV testing was proposed and provided to those with unknown HIV status.

Conclusions/Next steps: With the implementation of community sputum collection, the referral completion rate has increase from 53% in 2016 to 66% in 2017. Community sputum collection enhances TB diagnosis, particularly for clients far from facilities and those nomadic. The project will continue to support CHWs in high TB/HIV districts of Botswana to collect sputum at community level.

THPEE673

Low ART coverage of TB/HIV infected patients in Central Asia: Results from Kazakhstan and Kyrgyzstan

Y. Kudussova[1], T. Ellman[2], A. Deryabina[1]
[1]ICAP at Columbia University, Central Asia, Almaty, Kazakhstan, [2]ICAP, Mailman School of Public Health, Columbia University Medical Center, Division of Infectious Diseases, New York, NY, United States

Background: Tuberculosis (TB) remains the leading cause of morbidity among people living with HIV (PLHIV) in Central Asia. WHO recommends that all TB patients co-infected with HIV (TB/HIV patients) start TB treatment first and then ART within 8 weeks of TB treatment initiation, unless CD4 < 50 cells/µl when ART should be started within 2 weeks, given the demonstrated survival benefit. In 2016, ICAP conducted a study to assess initiation of ART in TB/HIV patients at nine HIV care and treatment sites in Kazakhstan and Kyrgyzstan.

Description: To assess ART initiation rates, we conducted a retrospective review and analysis of 590 records of TB/HIV patients that were enrolled in HIV care and started TB treatment during 2015. Nine sites were selected on the basis of geographical location, strategic role for the country, number of PLHIV enrolled in care, and the number of TB/HIV cases. To determine obstacles to prompt ART initiation, we conducted semi-structured small group interviews with 37 physicians that provide HIV treatment services.

Lessons learned: During 2015, there were 316 new and 180 relapse TB cases in Kazakhstan. Among them, 221 and 123 patients started ART during TB treatment. In Kyrgyzstan, there were 74 new and 20 relapse TB cases with 48 and 15 of them respectively started on ART during TB treatment.

Overall, ART coverage of TB/HIV patients during TB treatment was 70% among new and 68% among relapse TB cases in Kazakhstan, and 65% and 75% in Kyrgyzstan respectively. Many physicians were reluctant to initiate ART in patients receiving TB treatment fearing patients' poor adherence. In the opinion of physicians, patients were also hesitant to start ART while on TB treatment because of concern for high pill burden and complicated regimens.

Conclusions/Next steps: ART coverage among TB/HIV patients is low. Physicians do not initiate ART during TB treatment in sufficient numbers as they fear poor adherence. Additional training to promote early ART initiation among medical staff, as well as introduction of optimized one-pill a day ART regimens may increase ART initiation in TB/HIV patients. In addition, increased integration between TB and HIV services may also help increase ART coverage in TB/HIV patients.

THPEE674

Task shifting increased Isoniazid preventive therapy uptake and completion among people living with HIV in secondary health facilities South-East Nigeria

O. Onyedinachi[1], O. Eghaghara[2], O. Adebayo[3], A. Eyo[1], G. Odutuga[2]
[1]Excellence Community Education Welfare Scheme (ECEWS), Clinical Services Unit, Abuja, Nigeria, [2]Excellence Community Education Welfare Scheme (ECEWS), Clinical Services Unit, Enugu, Nigeria, [3]JHPIEGO, Clinical Services Unit, Abuja, Nigeria

Background: People living with HIV (PLHIV) have a 20-fold higher risk of developing Tuberculosis (TB), which is responsible for over 33% mortality in PLHIV. Although Isoniazid Preventive Therapy (IPT) is effective in the prevention of active TB in this people, a retrospective review of 2014/2015 Isoniazid (INH) data from 9 secondary health facilities in south-East Nigeria, revealed poor uptake and completion rate of the six months course. This was mainly due to workload on the physicians who often fail to initiate eligible PLHIV on Isoniazid Preventive Therapy (IPT) . Excellence Community Education Welfare Scheme (ECEWS), LOCATE Project introduced task shifting to address this gap.

Description: In March 2015, ECEWS (LOCATE project) trained, supported and provided Job Aids for non-physicians including Pharmacy technicians and Treatment Support Staff on identification, initiation and completion of Isoniazid Preventive Therapy (IPT) for PLHIV. Pharmacists and other treatment support staff were mentored on adverse drug reaction monitoring. PLHIVs were educated (during Support group meetings) on benefits of IPT, adherence, 6 months completion; and the need to prompt dispensers when INH was omitted.

Lessons learned: The percentage of eligible PLHIV (3459) initiated on Isoniazid Preventive Therapy (IPT) increased from 8% (n=277) before intervention to 85% (n=2940) 9 months post-intervention. Similarly, 99.5% of them completed the 6 months course as against 0% completion rate recorded pre-intervention. IPT was discontinued in three (0.2%) PLHIV due to side effects, while 6 (0.3%) clients declined medication.

Conclusions/Next steps: Task shifting was found to be effective in Isoniazid Preventive Therapy (IPT) uptake and completion. This demonstrates the value of using none-physicians to optimize HIV care and support services, especially in resource limited settings.

Supporting resilient health systems

THPEE675

Strengthening capacity of county planning and budgeting for sustainable health financing: An experience from the devolved health system in Lamu County, Kenya

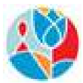
T. Oneko[1], D. Koech[1], D.S. Were[1], P. Abonyo[1], V. Tole[2]
[1]Palladium Group - Afya Pwani, Health Systems Strengthening, Nairobi, Kenya, [2]Lamu County Government, Health Services, Lamu Island, Kenya

Background: The Constitution of Kenya assigns the functions of health policy and service delivery to national and county governments, respectively. Health sector resources are envisaged to be mobilized from three sources—nationally-allocated revenue, county-generated revenues and donors. Evidence shows that the devolved county governments have inadequate capacity to effectively undertake health planning and budgeting to ensure sustainable health financing, against a backdrop of declining donor support to programs such as HIV, malaria and tuberculosis.

Description: Sustainable health care in a devolved system requires appropriate skills and understanding of the new planning and budgeting requirements. The Afya Pwani project, funded by USAID, has strengthened the planning and budgeting of health departments through capacity building of health managers on programme-based budgeting to improve allocative efficiency and establishing stakeholder forums to foster transparent consensus-building in aligning health sector goals. In addition, the project facilitated the use of evidence, such as budget analysis, in high-level advocacy efforts between the Department of Health, County Assembly, and Treasury to create an informed enabling environment that improves political will for sustainable health financing. It is expected that the improvement in overall institutional capacity will increase the health sector's fiscal space for sustainable health financing.

Lessons learned: The transition to programme-based budgeting in Lamu enabled health department to influence increased sector allocation ceilings and align their resources to priority programmes. The approach provided a mechanism to establish a budget line item for HIV in addition to creating an opportunity to leverage partner funding to address county-specific health priorities.

Conclusions/Next steps: Effective adoption and implementation of programme-based budgeting at the county health department and health facility level has enhanced the institutions' ability to identify, prioritize, set goals, allocate resources and exercise control to deliver health sector programmes more efficiently. Centralization remains a hindrance to effective planning and budgeting at the facility level and there is a need to progressively decentralize decision making to hospital management teams to undertake planning and budgeting functions. In addition, the health department needs to put in place legislation that allows health facilities to retain and utilize revenue generated for the improvement of health care service delivery.



THPEE676

Results from a rapid health workforce assessment of PEPFAR-supported facilities in three counties in Kenya

S. Mbaabu[1], M. Ochieng[1], W. Owino[1], A. Vinluan[2], J. Muriuki[1], P. Milo[1]
[1]IntraHealth International, Nairobi, Kenya, [2]IntraHealth International, Chapel Hill, United States

Background: IntraHealth International's USAID-funded Human Resources for Health (HRH) Kenya Mechanism conducted an assessment in PEPFAR-supported health facilities using the rapid site-level HRH assessment tool. The PEPFAR HRH Technical Working Group developed the tool, which assists countries to establish availability and quality of HRH to meet 90-90-90 targets.

Methods: We employed a cross-sectional study design using a mixed-methods approach to data collection. In-person interviews with health facility in-charges, supervisors and health workers were conducted at 21 PEPFAR-supported health facilities and 6 community units within Kisumu, Kilifi and Nakuru counties. The assessment adopted a purposive stratified and multistage sampling design to select facilities on basis of HIV disease burden, geographical distribution, facility tiers and PEPFAR support.

Results: The facilities had total daily patient attendance of 5,485 with 27,416 ART patients. The proportion of staff available, compared to WHO norms and standards, indicated a severe shortfall with only 43% (n=2,774) of staff needed to deliver Kenya's Essential Package for Health. On average, facilities provided HIV services only 39% of business hours in a week. HIV services at community units were open 24% of business hours. The highest full-time equivalent staff for HIV services was nurses at 238 followed by support staff (125) and HIV testing and counseling (HTC) providers (73). Community-based HIV services were predominantly provided by nurses; HIV testing and linkages by HTC providers; and ARV initiation by clinical officers.

Inadequate infrastructure was identified as the top HRH challenge, followed by health worker shortages, and recruitment, contractual and/or payroll processes. Staff quit their jobs because of insufficient salary and benefits, reassignment by government, and better opportunities in the private sector.

Conclusions: Low percentage of staff available to deliver HIV services has major implications on the successful rollout of Kenya's 90-90-90 strategy. Results indicate need to hire more staff in a sustainable manner; institutionalize in-service trainings; address space constraints; improve recruiting, deployment, supervision, and perfomance management processes; and better transfer skills from experienced staff to new employees. Data show need for advocacy and/or decision-making to address cadre deployment and distribution gaps, reconfigure HRH task allocation and explore new HIV service delivery models.

THPEE677

Increasing availability and access to life-saving ART commodities through improved inventory management and forecasting using a commodity management supportive supervision scored checklist: Case study of five coastal counties of Kenya

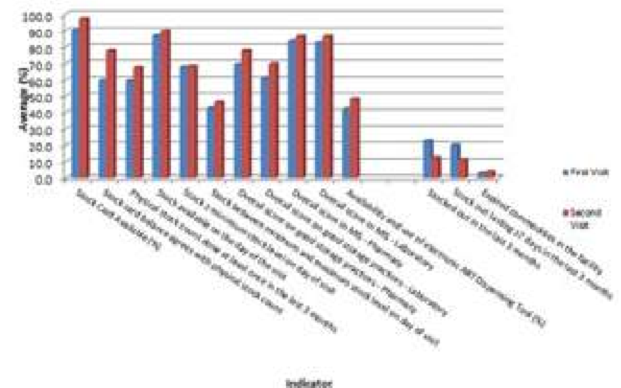
A.I. Mwangi
Pathfinder International, Programs & Impact, Watertown, United States

Background: Health products and technologies is one of the six pillars of health identified by the WHO. Existing national mechanisms for commodity data reporting in Kenya (KEMSA LMIS and DHIS2) collect consumption data to inform forecasting, quantification and resupply for health facilities. However, health facilities lack effective monitoring systems to track commodity management, including stock outs and inventory management, which are important for proper quantification. The USAID's Afya Pwani project, which is active in five coastal counties (Mombasa, Kilifi, Kwale, Taita Taveta and Lamu), adopted a supportive supervision checklist to assess the baseline gaps and monitor progress. Baseline assessment in the facilities showed a weak inventory management system with 40% of tracer commodities showing a discrepancy between recorded balance and physical count, and unacceptable level of stock outs. 22.8% of tracer commodities had a stock out lasting more than 7 days in the previous three months.

Description: To promote uninterrupted availability of antiretroviral and TB/HIV medicines, rapid HIV test kits, HIV nutrition products and other vital health products, joint supportive supervision on commodity management is conducted by project staff and county health department managers using the scored checklist. Focus areas include inventory management, storage practices, reference materials (guidelines and SOPs), and availability and use of management information system tools. The checklist automatically aggregates scores for pharmacy and laboratory departments. The score informs the commodity management situation in the counties. Analysis of data from 31 health facilities supported by Afya Pwani yielded important indicator-based statistics as shown in the attached graph.

Lessons learned: Stock outs in the previous three months reduced from 22.8% to 12.4%, and discrepancies between recorded balance and physical count reduced from 40% to 22.3%. Designing corrective interventions such as on-the-job training, provision of job aids and guidelines became easier. The checklist data provides information on vital commodities shortages or stock outs. This allows lacking commodities to be sourced from elsewhere and resupplied as forecasting, quantification and ordering improves.

Conclusions/Next steps: Evidence justifies continued use of the checklist during supervision and scale up to all other facilities in the project-supported counties.



[Commodity Management Indicator Analysis for Facilities Visited Twice (N=31)]

Making health systems work for adolescents

THPEE678

Advancing youth-led social accountability in adolescent and youth HIV/sexual reproductive health and rights programs in public health facilities within 4 districts of Uganda: Achievements & lessons learnt from 2015 to 2017

Q. Matovu[1], J.K. Tumusiime[1], D. Mulesa[1], P. Ibembe[2], P. Ojulong[3], S. Baumgartner[4]
[1]Reproductive Health Uganda, Programs, Kampala, Uganda, [2]Reproductive Health Uganda, Kampala, Uganda, [3]Action Group for Health Human Rights and HIV/AIDS Uganda, Kampala, Uganda, [4]International Planned Parenthood Federation (IPPF), London, United Kingdom

Background: The global community's growing enthusiasm for the potential of social accountability approaches to improve health systems' performance and accelerate health progress remain unmatched. Promising evidence suggests that social accountability contributes to citizen empowerment, service provider and power-holder effectiveness, ac-

countability responsiveness and spaces for negotiation between the two that are expanded, effective and inclusive. Reproductive Health Uganda (RHU) as part of its approaches to strengthen provision of quality adolescent & youth friendly services in 10 public health facilities in Uganda *(2014/2016-Gulu, Tororo-Access to Services & Knowledge "ASK"-project, 2017-Iganga, Bugiri;-Get Up Speak Out for youth rights "GUSO" project)* adapted the use of youth-led social accountability model using a tailored community score card as the key assessment tool.

Description: The process involved identification of 20 young people for capacity building as expert facilitators, developing a community score card with input track indicators drawn from national policies and standard guidelines, conducting self evaluation by health facilities, community(young people) performance assessment, stakeholders' interface meetings, action planning and monitoring. It was rolled out in 10 public health facilities, 10 action plans were developed and implemented with progressive assessments after every 3 months within 3 years. Key findings were documented and disseminated at sub-county and district level. Progressive reports indicated improvement of youth friendly service delivery especially service providers' attitudes, health facilities ambiance, adherence to service delivery standards and meaningful youth participation.

Lessons learned: The community score card built trust, strengthened relationships between service users (young people) and service providers as it focused on settling group scores rather than personal opinions. Engaging young people in monitoring programs at community level strengthened advocate for youth HIV/SRHR issues at district level resulting into quick wins.

Stakeholders' involvement in the problem identification facilitated quick actions towards improvement of the adolescent and youth sexual and reproductive health services in the health facilities and districts at large.

Conclusions/Next steps: Youth-led social accountability strengthened community ownership of service delivery processes, created a peer to peer model of identifying and resolving challenges using local resources, designation of youth friendly spaces, adolescent/youth service time among other. RHU plans to scale-up the same approach to in 2 more districts in 2018.

THPEE679

Reaching at-risk adolescent men who have sex with men through social media and instant messaging in Thailand for HIV prevention service provision

W.N. Songtaweesin[1], T. Teerawit[2], N. Teachatanawat[3], T. Monta[2], K. Termvanich[3], S. Bureechai[2], S. Thammasala[4], N. Phanuphak[3], T. Puthanakit[1]

[1]Chulalongkorn University, Center of Excellence for Pediatric Infectious Diseases and Vaccines, Bangkok, Thailand, [2]Chulalongkorn University, Department of Pediatrics, Faculty of Medicine, Bangkok, Thailand, [3]The Thai Red Cross AIDS Research Center, Prevention, Bangkok, Thailand, [4]The HIV Netherlands Australia Thailand Research Collaboration, Bangkok, Thailand

Background: Men who have sex with men (MSM) are a key population contributing to over half of all new HIV infections in Thailand, the highest incidence being in adolescent MSM. Unfortunately, several barriers exist in the access of this population to healthcare services, including uncertainty about how to access sexual health services, stigma, and fear of judgement by healthcare staff. Online technology availability has enabled service delivery to reach previously difficult to reach key populations.

Description: We advertised our new youth-focused HIV prevention services at the Thai Red Cross Anonymous Clinic targeting youth aged < 20 years through social media. This consisted of a poster with contact details through social media for MSM aged 15-20 and a desire to have safe sex. Within 2 months, 102 participants added us on social media and 69 requested services. Of those who revealed their age (N=21), 28% were under 20 and 72% were 20-35 years old. Thirty-eight (55%) participants contacted us out of regular office hours. We responded back to all queries within 1-6 hours. Sixty-five (94%) made contact exclusively through instant messaging rather than telephoning.

Commonest queries were regarding access to free pre-exposure prophylaxis (PrEP) 34 (49%), suspected exposure to risk 16 (23%), how to take PrEP 13 (18%), emotional support following an HIV diagnosis 4 (5%), and post-exposure prophylaxis (PEP) 4 (5%). There was one telephone call from a client recently diagnosed with HIV who was suicidal. Psychosocial assessment and counselling were provided to all clients, along with referral support to nearest suitable services. Twenty-three (33%) cases lived outside Bangkok and were referred to other service locations. Three (4%) cases had PEP posted to them within 72 hours of exposure.

Lessons learned: Health care teams serving youth need to be flexible in offering out-of-hours services and be knowledgeable in providing and/or linking clients to a wide variety of services according to their needs including HIV prevention, sexual health, HIV testing, and initial mental health assessment and counselling.

Conclusions/Next steps: There is scope for development of virtual online clinics to support young people to stay safe and link them to appropriate HIV services.

THPEE680

Understanding organizational incapacities on reaching adolescents living with HIV in Lagos, Nigeria

M. Onuenyenwa[1], C. Ifekandu[2]

[1]Military Hospital Lagos, Infectious Disease Clinic, Lagos, Nigeria, [2]Federal University Lafia, Sociology, Lafia, Nigeria

Background: Sexual and reproductive health (SRH) issues are mostly seen as exclusive right of married adults in Africa. Despite studies showing that average age of sexual debut in Nigeria is below 13years old, and adolescents between the ages of 15-19 consist of the 21% of the HIV infection in Nigeria, Health service providers and policy makers are yet to prioritize HIV-Youth friendly services in Nigeria. The need to address the situation informed the Healthcare sensitivity training to health facilities to evaluate the quality of treatment, care and services rendered to HIV-Positive adolescents in Nigeria.

Methods: A total of 122 HIV focal persons drawn from 10 health facilities in Lagos states. The participants were requested to complete a semi-structured questionnaire to assess their level of working experience with adolescents. Participants included male and female doctors, nurses and counselors/testers. A test was administered to measure their knowledge on adolescents sexual risk practices, HIV prevention and healthcare needs and also to assess their attitudes (including substance misuse) beliefs and norms and how it affects service uptake by adolescents particularly girls below the age of 20.

Results: The mean age of the HCP was 38years. Of the 34 HCPs, 45% were female, 55% 85% counsellor/testers; 15% doctors and nurses; 92% work in government facilities. 81% of HCPs had never had any sensitivity training on provision of youth-friendly services. 34% believed that adolescents were stigmatized because they engaged in premarital sex which is an immoral behavior. 54% strongly agreed that sex education should be for young persons from age 18 and above. 61% agreed that sex education for adolescents below 18 is unAfrican/something brought by foreigners while 85% reported that they must report adolescent who visits their facility to their parents.

Conclusions: Scaling up youth friendly sensitivity training for Nigerian HCPs is likely to be a timely and effective means to improve their understanding of adolescent-related health issues, reduce prejudice and enhance their capacity to provide responsive HIV prevention, treatment and care services in a supportive and non-stigmatizing environment.

THPEE681

Providing peer-led female sexual reproductive health (SRH) services to adolescents in rural South Africa: Lessons learned from delivering youth services in rural KwaZulu-Natal

H. Humphries[1], M. Mdladla[1], S. Phakathi[1], Q. Abdool Karim[1,2]
[1]*CAPRISA, Durban, South Africa,* [2]*Columbia University, Department of Epidemiology, Mailman School of Public Health, New York, United States*

Background: Adolescent sexual reproductive health (SRH) service provision remains a critical gap in South Africa. New, innovative approaches for providing SRH services that are feasible, sustainable and have high acceptability from young women are needed. We discuss the impact of peer-led demand creation on the uptake of SRH services.

Description: We used a novel approach to providing SRH services to female students attending 5 high schools in rural KwaZulu-Natal between May 2013 and November 2016. The SRH service included:
(i) in-school group SRH information and awareness sessions;
(ii) in-school SRH services through mobile clinics, which included, individual SRH counselling, customised HIV counselling and testing (CCT), TB screening, screening, counselling and referrals for those experiencing gender-based violence, STI screening, pregnancy testing, contraception provision and basic primary health care;
(iii) peer recruitment and (iv) referrals to, clinic services at the research clinic or public sector primary healthcare clinics.
Quarterly adolescent "boot-camps" were held to discuss and provide SRH information.

Lessons learned: Our SRH service provision model was successful at providing services to adolescents in schools. Using early adopters of the service, peer-led demand creation had a significant impact on service access at the mobile clinics. Post-implementation in May 2014, visits at the mobile clinic increased from an average of 4 visits/month, to an average of 37 visits/month in the first 4 months' post-intervention, peaking at an average of 75 visits/month in the last 3 months of the year. Visits to the mobile clinic remained high (approximately 90 visits/month), and indicate the importance of peers in creating demand. In total, CAPRISA SRH service provided SRH services to over 1441 high-school students aged between 12 and 25 years. Of those who accessed services, 87.9% had at least one HIV test, 27.1% consistently accessed contraception, and 51% of those testing positive initiated HIV treatment.

Conclusions/Next steps: Using early adopters as ambassadors for increasing adolescent SRH services is an important strategy for increasing uptake.

THPEE682

Feasibility and challenges of mobile phone peer mentoring and education support in Nigeria

E. Iwu[1,2], G. Adamu[2], D. Yahaya[2], J. Aghatise[2], G. Asuquo[3,4], M.A. Ya'u[5], I. Takuma[5]
[1]*Rutgers University, School of Nursing, Newark, United States,* [2]*Institute of Human Virology Nigeria, Abuja, Nigeria,* [3]*Association of Positive Youths in Nigeria, FCT, Abuja, Nigeria,* [4]*National Agency for Control of AIDS (NACA), Abuja, Nigeria,* [5]*Association of Positive Youths in Nigeria, Abuja, Nigeria*

Background: With high perinatal HIV infection rates, Nigeria has a burgeoning number of Adolescents Living with HIV (ALHIV) facing extreme challenges with psychosocial support and access to health services. While peer education is effective for supporting ALHIVs, peer educators require supportive mentoring and timely feedback to efficiently perform their roles. This project explored the feasibility and challenges of implementing complementary peer mentoring and continuing education using a mobile phone application in Nigeria.

Description: A structured WhatsApp group was initiated to: engage newly trained ALHIV peer educators (n=30) and mentors (n=10); provide biweekly interactive continuing education; and complement traditional face-to-face mentoring support. Although 40% of the Peer Educators (PE) and 100% of the peer mentors owned phones, only 20% and 40% respectively had access to WhatsApp. Both mentors and PEs posted questions, requests and comments, but only two lead mentors who were savvy with social media groups, were assigned to moderate discussions and manage new consumer driven topics biweekly. Educational topics included: HIV myths/facts, ART, adherence, HIV disclosure, stigma, STI prevention and reproductive health, PMTCT and conference updates. PEs had access to all mentors in the group for support.

Lessons learned: While WhatsApp groups is a viable tool for engaging PEs to provide timely guidance and support, more basic mobile platforms and traditional mentoring strategies are still required in Nigeria. Many of adolescents do not own phones. Fewer PEs and mentors owned internet-ready phones, therefore, access and participation were limited. Some PEs preferred private chats on self-related issues, which were carefully utilized to generate discussion topics while maintaining confidentiality. Frequent reminders were needed to curtail non-related posts. To ensure accuracy of information, program staff must consistently provide tools, materials and guidance for educational posts.

Conclusions/Next steps: Despite growing availability of cellphones globally, very basic technology and traditional mentoring should remain core strategies in Nigeria. Creative, inclusive strategies to deliver continuing education and engage PEs should be utilized e.g. facility-based mentoring, text messages and quarterly retreats. Mobile health grants and partnership with hospitals to implement sustainable mobile phone access for assigned PEs could facilitate PE access and participation in WhatsApp group support and education activities.

THPEE683

Innovative Africaid Zvandiri model increasing uptake of HTS among HIV positive adolescents in 10 high burden districts in Zimbabwe

T. Chimbidzikai[1], T. Napei[2], N. Willis[2], S. Chamoko[2], K. Madzeke[2], M. Mawodzeke[2], B. Mutede[3]
[1]*Africaid Zvandiri, Harare, Zimbabwe,* [2]*Africaid, Harare, Zimbabwe,* [3]*EGPAF, Harare, Zimbabwe*

Background: Providing HIV care and treatment services to adolescents presents unique challenges that must be met with innovative programs to succeed. While the number of new infections among children aged 0-9 in Zimbabwe has been reduced significantly, the number of new infections among adolescents (aged 10-19), especially girls and young women, continues to grow. Africaid is therefore implementing the Accelerating Children's HIV/AIDS Treatment (ACT) Adolescents Project in Zimbabwe working with EGPAF providing technical assistance to the MOHCC. The project aims at increasing demand for, access to, and uptake of adolescent HIV testing within 60 health facilities and surrounding communities.

Description: The ACT project employed the different strategies to improve identification of ALHIV including optimising PITC at all entry points where adolescents encounter the health system.120 Community Adolescents Treatment Supporters (CATS) were recruited, trained and placed at 60 health facilities across 10 districts. The CATS promoted community-based HIV testing of adolescents through index case testing and adolescent community dialogue days. Africaid Zvandiri Mentors and EGPAF Community Linkages Coordinators (CLICs) provided ongoing mentorship and technical support to health care workers and CATS in the 60 facilities. The CATS identified index cases from different entry points at both facility and in the community.

Lessons learned: 603 index case home visits were conducted by CATS in 2017. 343 adolescents were referred to the nearest health facility for HIV testing and confirmed to receiving an HIV test. 44 adolescents were diagnosed HIV positive, translating to a positivity rate of 12.8%. CATS facilitated the linkage of 86% of those identified positives to ART services. The improved performance was attributed to HCW capacity building for differentiated HIV service delivery including on-site coaching and mentoring. CATS facilitated the enrolment of 1,073 ALHIV into support groups.

Conclusions/Next steps: To achieve the first 90, targeted testing to maximise the identification of new ALHIV is critical. Declining yields from conventional facility and community-based HIV testing modalities (outreaches) require innovation. Peer-led approaches like the Zvandiri model are essential to reaching AYP in both urban and rural/ farming communities with HTS. Targeting of siblings, sexual partners and immediate family members of ALHIV index cases achieves an excellent yield rate.

THPEE684

Addressing stigma and discrimination in Tanzania: The missing piece to make a health system work for youth

A.N. Sabasaba[1], E. Mangi[1], S. Shoko[2], G. Lija[2], B. Rabiel[2], A. Ramadhani[2], W.O. Akyoo[3], E. Mlanga[4], M. Balampama[5], C. Stewart[6], R. Mbuya-Brown[5], P. Mingkwan[6], S. Bowsky[5], L. Nyblade[6]

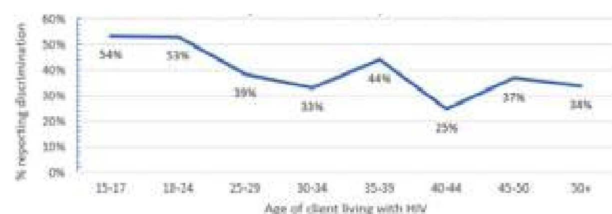
[1]Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam, Tanzania, United Republic of, [2]National AIDS Control Programme (NACP), Dar es Salaam, Tanzania, United Republic of, [3]Muhimbili University of Health and Allied Sciences (MUHAS), Epidemiology and Biostatistics, Dar es Salaam, Tanzania, United Republic of, [4]United States Agency for International Development, Dar es Salaam, Tanzania, United Republic of, [5]HP+/Palladium, Washington, United States, [6]HP+/RTI International, Washington, United States

Background: Stigma and discrimination (S&D) are barriers to every aspect of the HIV response. Globally, including in Tanzania, youth living with HIV demonstrate lower rates of adherence to ART and higher virologic failure than children or adults. Recognizing that youth account for a disproportionate number of new infections and face S&D when trying to access HIV and sexual and reproductive health services, the USAID-and-PEPFAR-funded Health Policy Plus project included youth (15 - 24) living with HIV in a study to: 1) determine the prevalence and actionable drivers of HIV-related S&D in the health system from the perspective of health facility staff (HFS) and clients; 2) inform the design of a tailored HIV-stigma reduction intervention 3) support evaluation.

Methods: Survey data was collected from 233 HFS (148 female / 83 male/2 not stated), 243 adults living with HIV, (166 female / 77 male) and 88 youth living with HIV (40 female / 44 male) in two district hospitals, Morogoro region, Tanzania (July - September 2017).

Key measures included among staff: presence and levels of S&D key drivers (fear / attitudes / health facility environment) and observed discrimination among staff. Among clients: anticipated, observed, and experienced S&D in health services and avoidance / delay of health services among youth clients.

Results: Youth reported routinely receiving supportive care and high satisfaction with HIV services. However, over 50% also reported having experienced discrimination in the past three months, more than all other age groups (Graph 1), with little variation by sex. HFS also reported high observed discrimination toward all categories of youth (Table 1), greatest toward unmarried pregnant youth (41%).



[Figure 1. Experienced discrimination (at least 1 of 9 acts of discrimination) in HIV services, last 3 months]

Observed at least 1 of 3 acts of discrimination: unwillingness to provide care, provision of poorer quality of care, and talking badly about a youth client, last 3 months	Medical Staff (n=149)	Administration Staff (n=21)	Support / Auxiliary Staff (n=38)	Total (n=208)
Sexually-active adolescents	43.6% (65/149)	38.1% (8/21)	26.3% (10/38)	39.9% (83/208)
Young people living with HIV who did not acquire HIV perinatally	42.3% (63/149)	38.1% (8/21)	21.0% (8/38)	38.0% (79/208)
Perinatally infected young people living with HIV	40.9% (61/149)	38.1% (8/21)	23.7% (9/38)	37.5% (78/208)
Unmarried pregnant adolescents	46.3% (69/149)	38.1% (8/21)	23.7% (9/38)	41.3% (86/208)

[Table 1 Observed discrimination toward youth living with HIV in the health facility during the 3 months before the survey, by job category]

Stigmatizing attitudes toward youth were prevalent among staff with over 90% reporting a least one of four stigmatizing attitudes and highest among medical staff (93%). 46% of HFS believed that youth living with HIV should not have sex. More staff reported negative attitudes towards sexually active girls (69%), compared to their male counterparts (46%).

Conclusions: These data are informing design and evaluation of health facility-based stigma-reduction interventions with youth participation at all levels, starting with questionnaire development. Measuring and addressing S&D towards youth within health facilities is critical to improve health systems, ensure equitable access to care, reach and retain youth in HIV services, and strengthen the quality of service delivery for youth.

THPEE685

Status of access to HIV and sexual & reproductive health care services for adolescents and young people in Tanzania: Findings from an abstraction of secondary routine health facility data

R. Kirkegaard[1], S. Kimambo[1], U. Gilbert[1], V. Chuwa[2], M. Rutaihwa[3], G. Mallya[3]

[1]UNICEF, Dar es Salaam, Tanzania, United Republic of, [2]UNICEF, Gaborone, Botswana, [3]Ministry of Health, Community Development, Gender, Elderly and Children, Dar es Salaam, Tanzania, United Republic of

Background: With more than 200,000 people aged 10-24 living with HIV and comprising 40% of new infections, adolescents and young people (AYP) in Tanzania face one of the highest burdens of HIV globally in addition to various sexual and reproductive health (SRH) issues with 27% of females having begun childbearing by age 19. Yet, little is known about the extent to which this age group accesses health care due to the limited availability of age and sex disaggregated data. To address this gap, this study aimed at establishing national disaggregated estimates for AYP's utilization of HIV and sexual and reproductive health services.

Methods: A retrospective cross-sectional cohort study was conducted for the period January-December 2015. Data were abstracted from HIV and SRH registers and databases from a two-stage proportionate to size sample of 114 health facilities located in 16 districts with high HIV testing and HIV burden. Descriptive and retention analysis was conducted for three different age bands: 10-14, 15-19 and 20-24 and disaggregated by sex.

Results: AYP contributed to 19% (64% female) of all people accessing HIV testing and counselling services, of which 7% were adolescents (10-19 years). Of the 7.8% AYP testing HIV positive, 63% (78% female) were linked to pre-ART care (prior to updated WHO guidelines) and 51% (81% female) were initiated on ART. ART retention at 12 months decreased with increasing age to 84% for young adolescents (10-14 years), 75% for older adolescents (15-19 years) and 70% for youth (20-24 years). In contrast, 44% of all pregnant women accessing antenatal care were AYP, of which 13% were adolescents and 56% received screening for sexually transmitted infections. 22% of family planning clients were youth and 4% older adolescents.

Conclusions: The findings suggest the existence of gender and age-differentiated disparities in access to HIV and family planning services for AYP in Tanzania, including better linkages to HIV treatment and care for females than males. Further research on disparities and their causes is needed to inform the design of targeted interventions and service delivery models that better address the health care needs and retention challenges of male and female AYP at different ages.

[Figure 1: Linkage to care and treatment initiation]

THPEE686

Implementing adolescent and youth friendly services in Cape Town, South Africa

N. Ahmed[1], L. Mtwisha[1], A. Sondinga[1], C. Herman[1], T. Naledi[2], L.-G. Bekker[1]
[1]The Desmond Tutu HIV Centre, Cape Town, South Africa, [2]Western Cape National Department of Health, Cape Town, South Africa

Background: Adolescence is a period of developmental transition between childhood and adulthood. Navigating their way through this time of physical, psychological and social development, young people need appropriate and accessible services that recognise and support their needs. Amongst other programmes developed by the South African National Department of Health (DOH) for supporting adolescents and youth, is the Adolescent and Youth Friendly Services (AYFS) package. We aimed to implement the package in 24 healthcare facilities in Cape Town, South Africa.
Description: A programme was designed by the Desmond Tutu HIV Centre with Pathfinder International to support AYFS assessment, implementation and accreditation of healthcare facilities in the Klipfontein/Mitchell's Plain subdistrict. This includes introduction and training of the AYFS package to all personnel, formation of a task team led by a facility champion, adolescent focus groups, regular mentoring and progress review, and a quarterly learning forum with other facilities to share progress. The final step involves DOH validation and accreditation.
Lessons learned: The AYFS programme commenced in April 2017 with all 24 healthcare facilities enrolled. Baseline assessments were conducted at all, with follow-up assessments at nine facilities to date. The standards scores are shown in figure one; following AYFS package implementation improvements have been seen in all standards. Three Champion's learning forums held, showcased progress made, including dedicated youth clinics after school hours, youth spaces and committees. Facilities shared innovation including youth clinic launch events, regular school clinics and fast-track youth cards. The forum identified and addressed challenges including some clinics having a maximum quota for patients seen daily resulting in adolescents turned away, and the need for adolescent health profiles. Peer navigators have been placed at all facilities, proving to be essential in meeting and greeting youth on arrival, and navigating them quickly and efficiently through the service.
Conclusions/Next steps: Adolescents face many barriers to accessing health services. AYFS addresses these by making services more attractive to young people and retaining them within care to support ongoing needs as they develop into adulthood. Our programme provides structured support and mentorship to clinics, and encourages a shared learning environment. Youth feedback is ultimately needed to solidify this AYFS package.

[Figure 1. AYFS Standards Score across 24 Healthcare Facilities]

THPEE687

Operationalizing and implementing the U.S. CDC's guidelines for youth: Will this stop new infections and improve health outcomes?

M.J. Rotheram-Borus[1], I. Fernández[2], K. Nielsen-Saines[3], D. Swendeman[1], J. Lee[1], S.E. Abdalian[4], E. Arnold[5], B. Kapogiannis[6], Adolescent Medicine Trials Network (ATN) CARES
[1]UCLA, Psychiatry & Biobehavioral Sciences, School of Medicine, Los Angeles, United States, [2]Nova Southeastern University, Fort Lauderdale, United States, [3]UCLA, Department of Pediatrics, Los Angeles, United States, [4]Tulane University School of Medicine, Department of Pediatrics, New Orleans, United States, [5]University of Central Florida, Center for Behavioral Health Research and Training, Orlando, United States, [6]National Institutes of Health, Eunice Kennedy Shriver National Institute of Child Health and Human Development, Bethesda, United States

Background: The number of youth living with HIV (YLH) in the U.S. has doubled in the last 10 years and is focused among gay, bisexual, and transgendered youth (GBTY), and incarcerated, and homeless substance abusing youth. These youth at high risk (YHR) for HIV acquisition and YLH are not utilizing or adhering to the HIV Prevention or the HIV Treatment Continuua. The U.S. CDC has recommended quarterly testing for HIV, linkage to medical care, utilization of PrEP/PEP and ART over time by YHR and YLH. A set of studies was launched to evaluate if new infections can be averted and YLH will optimize adherence to these Continuua.
Methods: Three inter-related studies are designed to operationalize these guidelines, with one deviation - only three assessments were scaled per year (i.e., for testing HIV or viral load, STI, and substance abuse rapid diagnostic tests [RDT]), rather than four. For both YHR and YLH a cadre of behavioral and mobile/social media interventions are evaluated within randomized controlled trials (RCT). In each study, youth are randomized to receive a set of low-cost, mobile interventions, increasing the intensity to a higher cost, peer-support and, then, an interpersonal coach to test stepped care model of intervention. Study 1 aims to optimize the HIV prevention continuum for YHR (N=1500). Study 2 evaluates if YLH become virally suppressed (N=220). Study 3 examines viral reservoirs among acutely infected YLH over time compared to treatment- naïve YLH with established infection (N=72).
Results: YHR, YLH, and acutely infected youth can be successfully identified and engaged through a combination of clinics and community-based agency sites serving high risk youth. Rapid, 4th gen HIV testing, STI and substance abuse testing can be conducted in field settings efficiently. Over six months of recruitment, 607 youth (549 YHR, 49 YLH, and 9 acutely infected/treatment naive YLH were recruited.
Conclusions: Monitoring youth three times annually, with a set of innovative interventions will identify if the CDC's recommendations are feasible and effective in the U.S. with YHR and YLH.

THPEE688

Adolescent-specific provider training and provision of services is associated with retention in Kenyan HIV clinics

K. Wilson[1], C. Mugo[2], H. Moraa[3], A. Onyango[3], M. Nduati[3], I. Inwani[4], J. Slyker[1,5], B. Guthrie[1,5], B. Richardson[1,6], G. John-Stewart[1,5,7], D. Bukusi[8], D. Wamalwa[9], P. Kohler[1,10]
[1]University of Washington, Global Health, Seattle, United States, [2]University of Nairobi/Kenyatta National Hospital, Nairobi, Kenya, [3]University of Nairobi, Nairobi, Kenya, [4]Kenyatta National Hospital, Nairobi, Kenya, [5]University of Washington, Department of Epidemiology, Seattle, United States, [6]University of Washington, Department of Biostatistics, Seattle, United States, [7]University of Washington, Department of Medicine, Seattle, United States, [8]Kenyatta National Hospital, VCT and HIV Prevention Unit/Youth Centre, Nairobi, United States, [9]University of Nairobi, Department of Pediatrics and Child Health, Nairobi, Kenya, [10]University of Washington, School of Nursing/Department of Psychology and Community Health, Seattle, United States

Background: Adolescents and young adults (AYA) have disproportionately worse clinical outcomes. We measured retention in HIV care, and evaluated correlates of retention, among AYA at 24 public HIV clinics en-

rolled in a stepped-wedge randomized trial of standardized patient actor training to improve quality of care and AYA clinical outcomes (SPEED Study).
Methods: Eligible records were from AYA ages 10-24 enrolled at 24 HIV clinics with ≥40 AYA active clients in Central (Nairobi, Kiambu counties) and Western (Kisumu, Homa Bay counties) Kenya during the 15 months preceding the trial (11/1/2015-3/31/2017). Sociodemographics, clinical characteristics, and visit dates were abstracted from electronic medical records (EMR). Facility-level surveys assessed any prior AYA-focused training and services. Surveys with individual health providers working in AYA HIV care (3-10 per facility) assessed self-reported history of AYA-specific trainings, experience caring for AYA, and self-rated competency; facility-level means were derived from individual responses. Retention in care was defined as return for first follow-up visit within 3 months among newly enrolled or recently re-engaged AYA. Multi-level regression modeling was used to estimate risk ratios (RRs) and 95% Confidence Intervals (CIs) between facility and individual cofactors and AYA retention. Final models adjusted for AYA age and clinic volume (total AYA enrolled during period).
Results: Among 3,656 AYA records at first eligible visit, most were female (75.0%), older (20-24 years: 54.3%), and on ART (79.5%). Overall, 2,636 AYA were retained (72.1%), with retention higher among females (73.1% vs. males 68.9%), older AYA (20-24 years: 75.0% vs. 10-14: 69.2%, 15-19: 68.0%), and at Western Kenya clinics (82.7% vs. 66.0% Central) (Table 1). Clinics where >20% health providers reported being trained in adolescent-friendly care had higher AYA retention than those with ≤20% of providers trained (85.4% vs. 66.4%, aRR 1.18, 95%CI:1.08-1.29). Clinics using the Kenyan government's AYA package of care checklist had significantly higher overall AYA retention (88.9% vs. 69.2%;aRR 1.14, 95%CI:1.06-1.23).
Conclusions: Results suggest sub-optimal retention among HIV-positive AYA in Kenya. This is one of the first studies demonstrating that adolescent-specific health provider training and services may improve AYA retention, suggesting that health provider interventions are necessary to achieve the '90-90'-90' targets for AYA.

Factors	Retained (n/%) or median IQR	RR 95% CI	aRR 95% CI
Individual-level factors			
Age 10-14 (ref) 15-19 20-24	413 (69.2) 680 (68.0) 1,531 (74.9)	1.0 0.98 (0.82-1.17) 1.08 (0.84-1.40)	0.98 (0.83-1.16) 1.08 (0.87-1.30)
Male (ref) Female	630 (68.9) 2,002 (73.1)	1.06 (0.94-1.19)	1.04(0.96-1.12)*
Years on ART (n=3,204) Retained Not retained	0.66 (0.04-4.29) 3.0 (0.66-7.78)	0.96 (0.92-0.99)*	0.95 (0.94-0.98)*
Facility-level factors			
Western Region, 9 facilities Central Region, 15 facilities (ref)	1,095 (82.7) 1,537 (66.2)	1.09 (0.99-1.21)	1.17 (1.02-1.33)‡
>20% of Health providers report training in AYA care	934 (85.4)	1.18 (1.09-1.28)	1.18 (1.08-1.29)
Self-rated competency score in caring for AYA Retained Not retained	33 (32, 35)‡ 30 (25, 34)	1.02 (0.99-1.05)	1.03 (1.01, 1.05)
Facilities that offer training in AYA care	765 (85.8)	1.13 (1.02-1.24)	1.12 (1.02-1.23)
Facilities that report using Adolescent Package of Care checklist	471 (88.9)	1.15 (1.06-1.25)	1.14 (1.06-1.23)

ART, antiretroviral therapy; AYA, adolescent and young adult
* Final individual-level models were adjusted for individual AYA age (median centered) and AYA client volume (total number of AYA in care during the 15-month period). The final model with age as a cofactor only adjusted for client volume.
† Final models including facility-level factors were adjusted for individual AYA age (median centered), median AYA age at each facility, and AYA client volume.
‡ Overall self-rated competency scores were computed by summing responses to 8 questions on a 5-item Likert scale. Score range was 8 to 40 total points.

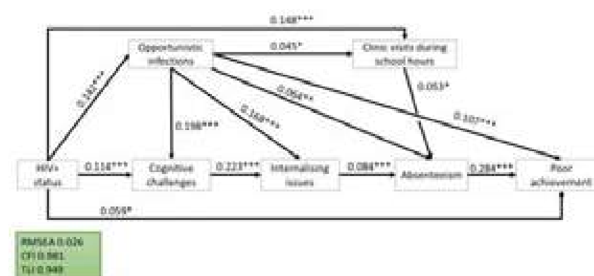
[Table 1. Individual and Facility Cofactors of AYA Retention in HIV Care in Kenya (N=3,656 AYA)]

THPEE689

Tracking through teaching: Using schools to reach the first 90 for adolescents living with HIV

E. Toska[1,2], L. Cluver[2,3], M. Orkin[2], A. Bains[4], L. Sherr[5], M. Berezin[2], L. Gulaid[6]
[1]University of Cape Town, AIDS and Society Research Unit, Cape Town, South Africa, [2]University of Oxford, Department of Social Policy and Intervention, Oxford, United Kingdom, [3]University of Cape Town, Department of Psychiatry and Mental Health, Cape Town, South Africa, [4]UNICEF ESARO, Nairobi, Kenya, [5]University College London, London, United Kingdom, [6]UNICEF ESARO, Johannesburg, South Africa

Background: It is essential that adolescents living with HIV (ALHIV) are reached for treatment, care and support. However, many slow progressors and newly HIV-infected adolescents remain unidentified and disconnected from health systems, especially in high-prevalence settings. This study examines differences in educational outcomes for ALHIV, in order to:
i) identify educational markers for targeting HIV testing, counselling and linkages to care, and
ii) to identify essential foci of educational support for ALHIV.
Methods: Quantitative interviews with N=1,057 ALHIV and N=467 uninfected community control adolescents (10-19 year olds) included educational outcomes (enrolment, fee-free school, school feeding schemes, absenteeism, achievement), physical health, cognitive difficulties (difficulties remembering to take medicine, to concentrate at school and home), internalising issues (depression, stigma), missing school to go to the clinic, and socio-demographic factors. Validated scales and measures were used where available. Voluntary informed consent was obtained from adolescents and caregivers (when adolescent < 18 years old). Analyses included multivariate logistic regressions, controlling for socio-demographic covariates, and structural equation modelling using STATA15.
Results: ALHIV reported accessing educational services (enrolment, free schools, school feeding schemes) at the same rates as other adolescents (94%, 30%, and 92% respectively), suggesting that school is a valuable site for identification. ALHIV reported poorer attendance: missing >2 weeks in the past term (OR2.1 95%CI1.4-3.2 p< 0.001); achievement: behind >1 grade (OR1.9 95%CI1.5-2.4 p< 0.001); more opportunistic infections OR2.6 95%CI2.1-3.3 p< 0.001; missing school to go to the clinic (OR6.0 95%CI3.4-10.5 p< 0.001); more internalising issues (OR1.6 95%CI1.3-2.0 p< 0.001), and greater levels of cognitive difficulties (OR1.9 95%CI1.5-2.4 p< 0.001). A structural equation model with good model fit (RMSEA=0.027, CFI 0.984, TLI 0.952) indicated that negative educational outcomes were associates with a series of poor physical health and cognitive difficulties which led to negative educational outcomes



[Figure 1. Cascades to poor educational outcomes among ALHIV (N=1,527)]

Conclusions: ALHIV have high access to schools and educational services such as feeding schemes. Key school-based markers for identifying unreached adolescents living with HIV may be low attendance, frequent sickness, low mood and slow learning. Educational support services for ALHIV are necessary to support their school achievement and success, by helping them to cope with physical, emotional and cognitive difficulties.

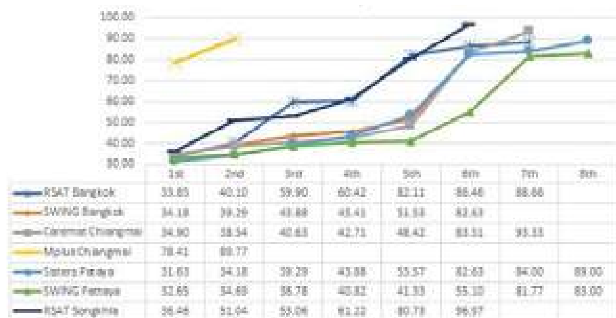
Community participation in systems for health

THPEE690

Sustainable laboratories for key population-led HIV services in Thailand: Mentoring and twinning lead to government accreditation and financing

C. Sa-nguansilp[1], O. Monkongtanakit[1], N. Praweprai[2], P. Thapwong[3], A. Udomjirasirichot[4], S. Petchaithong[5], S. Saiwaew[6], R. Apiputthipa[7], A. Inyasom[8], P. Phiayura[9], T. Pankam[9], S. Pengnongyang[9], S. Charoenying[1], S. Mills[1], J. Robinson[1]
[1]FHI 360 and USAID LINKAGES Project, Bangkok, Thailand, [2]Sisters Foundation, Chonburi, Thailand, [3]Service Workers IN Group (SWING) Foundation, Bangkok, Thailand, [4]Service Workers IN Group (SWING) Foundation, Chonburi, Thailand, [5]Rainbow Sky Association of Thailand (RSAT), Songkhla, Thailand, [6]Rainbow Sky Association of Thailand (RSAT), Bangkok, Thailand, [7]Mplus Foundation, Chiang Mai, Thailand, [8]Caremat, Chiang Mai, Thailand, [9]Thai Red Cross AIDS Research Centre, Bangkok, Thailand

Background: In laboratories for key population-led HIV services (KP-LHS), knowledge of recognized quality diagnostic practices and Quality Management Systems (QMS) is weak, which hinders quality service delivery, including HIV and Sexually Transmitted Infections (STI) diagnostic services. Through the USAID- and PEPFAR-supported LINKAGES project, FHI 360 implemented a systems strengthening program with the following organizations that provide KP-LHS, primarily for men-who-have-sex-with-men (MSM), transgender people (TG), and sex workers (SW): Sisters Foundation, SWING Foundation, The Rainbow Sky Association of Thailand (RSAT), Mplus Foundation, and Caremat.
Description: Using the Thailand Medical Technologist Council (TMTC) checklist, we conducted quarterly laboratory assessments to identify gaps, set goals, and provide recommended actions and mentorship. FHI 360's Laboratory Quality Manual was adapted to suit the laboratories and translated into Thai. On-site training was provided on how to implement the Manual and establish systems for QMS to comply with the TMTC standards. Trainings in QMS and Good Clinical Practice were provided to strengthen knowledge and technical assistance (TA) was provided to implement that knowledge. Quality control and external quality assurance samples were provided to monitor testing accuracy and to help with correction of errors. We also established a twinning program for the KP-LHS laboratories whereby accredited KP-LHS laboratories served as mentors to other laboratories.
Lessons learned: After only 18 months of support, significant progress was achieved, as evidenced by the increases in the quality compliance scores of the KP-LHS laboratories over time (Figure).



[Figure. Laboratory Assessment Score]

One laboratory has been accredited by the TMTC, one has applied for Laboratory Accreditation, three are in the process of Medical Technologist Clinic registration, and the remaining two are implementing QMS. This success was facilitated by understanding of the need for QMS, capacity building of assessors and mentors, teamwork and support, and regular TA to guide progress.
Conclusions/Next steps: This program demonstrated that community public laboratories can meet accepted national laboratory quality standards. Through a model of assessment, mentorship, and twinning for the KP-LHS network, the laboratories showed significant progress towards ensuring that the HIV testing services provided by community laboratories are accurate and reliable.

THPEE691

Vulnerability of PLHIV to nutrition, food security shocks in Rwanda

C. Ouma, M. Mumma, D. Nsengiyumva
WFP Nairobi Region Bureau, Nairobi, Kenya

Background: Limited data is available regarding the present status of nutrition as well as food security among PLHIV in Rwanda. With the aim of guiding decision makers to appropriate nutrition and food assistant interventions, a national survey was conducted by the RBC/HIV, STIs and OBBI Division of Rwanda Ministry of Health, with support of WFP, to determine nutrition and food security status, as well as vulnerability among People Living in HIV (PLHIV).
Methods: The sample was 2252(816 males and 1436 females) who received comprehensive HIV services in 30 districts and 60 health facilities. 418 (18.6%) were Pre-ART and 1834 (81.4%) were on ART. Two stage cluster-sampling method was used: health facilities as the primary sampling unit, and PLHIV aged from two years old and above attending the selected HF as the secondary sampling units. Tracnet ID was used for random selection. Data was collected from 17th August to 5th September 2015. SPSS ver.24 and the BMI calculator were used for data cleaning and analysis.
Results: The prevalence of underweight among children under 5 and adolescents below 19 years was more than double (15.7%) compared to overweight/obesity (7.4%). Southern Province and Kigali City had the highest prevalence of thinness (20% and 19%, respectively). Boys were thinner (18.7%) than girls (10.5 %).
In adults, the prevalence of overweight/obese was higher (17.5%) than that of underweight (13.7%). 68.3% were mildly underweight,18.7% moderate and 13% severe. prevalence of overweight was higher among women (22.1%) than men (10.3%). By residence, Kigali city had the highest number of overweight (30.1%) and the lowest prevalence of underweight (8.1%). only 38.8% of them had acceptable food consumption score, while 19.5% had borderline and the majority (40.7%) had poor food consumption score. This went hand in hand with their low dietary diversity: only 7%had good dietary diversity and more than half (64.4%) had low diet diversity.
Conclusions: Very poor food consumption score among PLHIV and low dietary diversity is predominant among PLHIV indicating worse coping strategies. The emergence of obesity among PLHIV in urban areas calls for specific investigations and interventions.

THPEE692

Curated "meet-ups" to engage online men at risk of HIV in a service delivery program in Jakarta, Indonesia

A. Noegroho[1], S. Samba[2], B. Eveslage[3], C. Francis[1], A. Human[4]
[1]FHI 360, Jakarta, Indonesia, [2]N/A, Jakarta, Indonesia, [3]FHI 360, Phnom Penh, Cambodia, [4]FHI 360 Indonesia, Jakarta, Indonesia

Background: Putting mega cities like Jakarta on the "fast-track" to end HIV requires reaching key populations (KP) in the online settings where they are present. However, in going online, HIV programs reach new sub-populations whose voice may not be represented by status quo community partners. How, then, will HIV programs engage the voice of online KP in Jakarta?
Description: In August 2017, the USAID- and PEPFAR-supported LINKAGES program in Jakarta began integrating the voice of online men at risk of HIV into its online outreach approach. Program staff engaged in relevant online social networks, then approached and eventually met potential representatives of the online, at-risk community in Jakarta in-person to ease into sensitive topics of sexuality, sex, and HIV. LINKAGES formed a community advisory team ("team" henceforth) including men at risk of HIV in Jakarta with distinctive backgrounds such as a social media influencer, openly HIV positive stylist, doctor, lawyer, LGBT advocate,

and other expat-scene oriented community members. In December 2017, the team was convened and a "meet-up" was hosted at a trendy co-working space in South Jakarta for the dual purpose of advising LINKAGES' online outreach activities and facilitating insightful dialogue with stakeholders.

Lessons learned: Young program staff active on social media were necessary to identify initial community representatives, who then successfully engaged additional suitable representatives of the online at-risk community in Jakarta. It took time to follow and engage these representatives on social media and meet in-person, ensuring suitable fit between the team and representative. The team curated meaningful and safe "meet-ups" by facilitating representatives' input into the team's terms of reference and the program committing to finance relevant activities/events led by team members.

Conclusions/Next steps: LINKAGES hosts quarterly meet-ups for representatives to review and advise the program's online outreach strategies, tools, and communications. Through these meet-ups, several representatives now lead new program activities including generating demand for Pre-Exposure Prophylaxis (PrEP) and engaging a broader range of social media influencers. The program continues to document its experience of meaningfully engaging online men at risk of HIV in Jakarta and outcomes on uptake of HIV services among this population.

THPEE693

Barriers in access to treatment, care and support services for people living with HIV in Bangladesh

H. Akter, M.S. Alam
Ashar Alo Society, Management, Dhaka, Bangladesh

Background: Recently Treatment, Care and Support (TCT) services for people living with HIV (PLHIV) in Bangladesh has been shifted from NGO led service delivery to government hospital without sufficient preparation and transition plan. As a result, PLHIV are facing huge barriers for getting TCT services from hospitals. The aim of this study is to establish levels of access to treatment, care and support services of PLHIV. The study findings will be used to inform the relevant policy makers to reduce barriers in access to services.

Methods: It was a cross-sectional study based on face-to-face interviews conducted during October to November 2017. HIV treatment-related issues such as access to pre-ART care, ART, ART adherence, treatment literacy, Attitude of health care providers (HCP) etc were the core issues of this study. A total of 200 PLHIVs over 18 years, recruited through community groups and hospitals, sampling based on quotas regarding geographic distribution, age, gender. A simple questionnaire was developed containing the basic demographic information. After interview, data was cleaned and inputted in SPSS software for analysis.

Results: The study included 50% men 45% women and 05% TG; mean age 36 years, 65% rural and 35% urban. By self categorization of perceived HIV vulnerability, majority (41 percents) were international migrant workers, followed by wife of migrant workers (33 percent). It was reported that CD4 cell count was done only 30 percent and no viral load test was done in the last year. Average duration to reach ART center is 4±3.2 hours. Plus, PLHIV are to wait 04 hours at ART center for receiving ART from hospital. HIV Treatment Literacy level was found poor. No medicine is provided from hospital for opportunistic infection and 72% did not buy prescribed medicines due to costs. Almost all the respondent doesn't have any insurance coverage or home based care facilities. Treatment delay was found higher (92.9%) among the respondents considering test and treat.

Conclusions: Regarding access to TCT, the study identified specific systemic barriers compared to general population. These call for structural solutions, such as strengthening of hospital system and increasing access to health insurance for PLHIV.

THPEE694

Ending AIDS: Harmonising the role of adolescents and young people living with HIV (A/YPLHIV) networks in Africa

H.S. Soeters[1], J. Alesi[1,2,3], N. Westerhof[2], G. Caswell[4], K. Kintu[5], L. Essink[2], C. Ninahazwe[3], A. Ronan[1], L. Hatane[1]
[1]Paediatric-Adolescent Treatment Africa, Cape Town, South Africa, [2]Aidsfonds, Amsterdam, Netherlands, [3]The Global Network of YPLHIV, Amsterdam, Netherlands, [4]International HIV/AIDS Alliance, Cape Town, South Africa, [5]African Young Positives Network, Kampala, Uganda

Background: Despite increasing attention and interest in meaningful youth participation in the HIV response, limited investment is made into youth leadership and developing youth-led structures. Networks of adolescents and young people living with HIV (A/YPLHIV) face challenges in securing the requisite capacity, experience and resources to fulfil their mandate and contribute as equal and influential partners in the response. Efforts to better engage A/YPLHIV networks are often poorly coordinated, ad hoc, tokenistic and focused on delivery of short-term activities.

Description: To build capacity of A/YPLHIV networks and harmonise advocacy efforts, an informal partnership was established between Aidsfonds, International HIV/AIDS Alliance, Paediatric-Adolescent Treatment Africa (PATA), African Young Positives Network (AY+) and the Global Network of YPLHIV (Y+). Through their projects in sub-Saharan Africa (GUSO, PITCH, P2Z, READY), partners coordinated information sharing and advocacy initiatives, and held a regional A/YPLHIV networks meeting in April 2017, to build and link networks for a stronger and expanded youth-led response. Baseline capacity self-assessments were completed by 13 A/YPLHIV networks from 12 countries (Burundi, Kenya, Malawi, Mozambique, Nigeria, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe).

Lessons learned: Self-assessment data has contributed to better understanding A/YPLHIV network perspectives, capacity gaps and challenges, and resulted in improved coordination and resource pooling to address them. Table 1 highlights that capacity varies between networks and across benchmarks. Based on these outcomes, network capacity development plans have been integrated, supported and funded through each partners' projects. Preliminary findings show progress in certain areas of development, such as A/YPLHIV network registration. The regional meeting resulted in joint network and advocacy commitments, with peer-to-peer learning and support.

Benchmarks	Poor	Average	Good	Excellent
Strategic, financial and annual operating plans in place	4 (30.7%)	3 (23.1%)	3 (23.1%)	3 (23.1%)
Monthly payroll for staff	4 (30.7%)	4 (30.7%)	2 (15.4%)	3 (23.1%)
Opportunities for professional development of staff and volunteers	1 (7.7%)	4 (30.7%)	5 (38.5%)	3 (23.1%)
Successful proposal applications in the last year	3 (23.1%)	2 (15.4%)	3 (23.1%)	5 (38.5%)
M&E system for internal and external activity reporting in place	2 (15.4%)	4 (30.7%)	6 (46.1%)	1 (7.7%)

[Table 1: A/YPLHIV networks self-assessment ratings across various organisational benchmarks (n=13)]

Conclusions/Next steps: A/YPLHIV networks in sub-Saharan Africa demonstrate varying degrees of organisational infrastructure, capacity and experience. Capacity self-assessment can mask the fragile situation of networks, yet emphasise the importance of capacitating youth-led structures beyond short-term activities. Joint regional coordination and implementation of capacity strengthening strategies are urgently needed to ensure meaningful engagement and mentoring of youth-led structures. For A/YPLHIV networks to meaningfully contribute to the HIV response, it is critical that we reframe how we work together, with funding investments being longer-term and aligned with clear organisational assessments and development strategies.

THPEE695

Peer navigators develop mobile application for enhancing HIV knowledge in the fight against stigma among youths in Western Kenya

S.B. Nga'Zi[1,2], B. Kwendo[3], E. Apondi[4], C. McAteer[5]
[1]Academic Model Providing Access to Healthcare (AMPATH), Rafiki Clinic, Eldoret, Kenya, [2]Aids Clinical Trial Group (ACTG), Moi University Clinical Research Center, Eldoret, Kenya, [3]Academic Model Providing Access to Healthcare (AMPATH), Peer Mentor, Eldoret, Kenya, [4]Academic Model Providing Access to Healthcare (AMPATH), Care Program Leadership, Eldoret, Kenya, [5]Academic Model Providing Access to Healthcare (AMPATH), Department of Pediatrics, Eldoret, United States

Background: The number of young people in sub-Saharan Africa using smart phones is increasing, and most of them use mobile applications to get information and news. Mobile platforms can also provide information and autonomy for the user to engage in the information when needed, as well as marketing and personalized communication. A mobile platform targeted at improving HIV knowledge among youth in sub-Saharan Africa could provide needed information, even to those not currently accessing HIV services.

Description: ""HIVFactSheet" is a youth-friendly mobile application, developed in western Kenya that can be downloaded from Google Play store. Once installed in an Android mobile device, the app works offline to provide access to multi-media educational components on: HIV prevention, HIV testing, General HIV knowledge, Antiretroviral Therapy, Adherence, Disclosure, and CD4 count. Some of the application content including short films and narratives were developed within an NIH-funded study to develop a counseling intervention to improve HIV disclosure. The mobile application was developed by two peer navigators in the AMPATH system in western Kenya, who provides mentorship, advocacy, and connection to HIV services. The HIVFactSheet application includes a portal where young people were able to call text or email, a counselor who offered counseling to them and referred them to clinics for further support whenever needed.

Lessons learned: Since the launch on 1st December 2017, 322 young people have accessed comprehensive HIV information using the HIV-FactSheet application. 62 counseling services was offered, while 28 referrals were made in various clinics. Lessons learned through the development and implementation of this app is that HIV factual information is key in enhancing positive living and eliminating stigma & discrimination among young people. It also facilitates informed decision-making and enables community members to understand HIV better, potentially improving testing and reducing stigma. Youth development of this resource enhanced both cultural relevance and appropriateness for the youth population.

Conclusions/Next steps: The use of mobile platforms tailored to youth in sub-Saharan Africa can help us improve access to comprehensive HIV information and bridge the gap for access to resources and care, which can be utilized by youth and other key populations.

THPEE696

Healthcare workers' and patients' experiences during implementation of the Fast Track model: Piloting differentiated ART service delivery in Zambia

L. Jere[1], C. Cheelo[1], M. Mukumbwa-Mwenechanya[1], C. Mwamba[1], S. Nkwemu[1], A. Sharma[1], C. Bolton[1], S. Topp[2], W. Mutale[3]
[1]CIDRZ, CommART, Lusaka, Zambia, [2]CIDRZ/James Cook University, CommART, Vienna, Australia, [3]CIDRZ/UNZA, CommART, Lusaka, Zambia

Background: Fast Track (FT) is an accelerated drug pick-up model where stable HIV positive patients are given three rather than one month of ART supply through a dedicated treatment room. FT was piloted in two primary health centres in Lusaka, Zambia, to explore feasibility and effectiveness in improving patient retention.
We sought to understand the experiences of health care workers (HCW) and patients after approximately six months of implementation to identify needed improvements or midcourse changes.

Methods: From January-March 2017, we conducted an exploratory qualitative study using six Focus Group Discussions (FGDs) with patients and eight In-depth interviews (IDIs) with HCW's to collect data on their lived experiences with the FT model. All interviews and discussions were audio-recorded using a voice recorder and transcribed into English. Thematic analysis was conducted using Nvivo 11.

Results: Both HCW and patients viewed FT as having the ability to decongest the clinic by spacing ART pick-ups and reducing time spent in the clinic by providing dedicated services. The latter was reported as particularly attractive to both patients and HCWs who expressed concerns regarding patient wait times under routine care. However, patients requested that all other services such as measuring weight and blood pressure be incorporated into the dedicated service room. They also complained about long wait times during clinical visits because clinicians did not appreciate the fact that the patients had come early to the FT room. HCWs emphasized the importance of orientation and information dissemination to bring all HCWs at the facilities on board, foster a sense of ownership and to avoid patient perceptions of staff favouritism or nepotism that may negatively impact patient-provider relations. HCWs further expressed concern regarding the time allocated for adherence support during the patient pharmacy visits as the focus was only on drug pick-up.

Conclusions: Overall, the FT model was reported to be highly applicable and acceptable. The segregation of other services (e.g., weight) and clinical reviews still being offered under routine conditions made the model less attractive. A dedicated FT day may be more efficient and equitable than mixed FT and routine services.

THPEE697

The reality of "Universal Test and Treat" strategy for clients tested in the community: Measuring the linkage to care time frames and its impact on the implementation of UTT

S. Bokolo[1], M. Mntambo[2]
[1]Aids Foundation of South Africa, HIV Prevention Programmes, Johannesburg, South Africa, [2]AIDS Foundation of South Africa, HIV Prevention, Durban, South Africa

Background: South Africa adopted the UNAIDS Universal Test and Treat strategy in September 2016 aimed at broadening ART initiation for HIV positive clients. The UTT strategy supports the UNAIDS 90-90-90 target to be reached by 2020 which are the basis for many HIV prevention programmes implemented in South Africa.

Description: Community testing reaches a wide-range of clients in community spaces that they occupy. A number of testing strategies have been employed by Aids Foundation of South Africa as a community testing organisation, including door-to-door, wellness days, testing of indexed clients and others. This testing happens outside of fixed health facilities. Targeted clients are children aged 0-19 years, consent for children < 12 years is obtained from the parent/guardian of the child. Children receiving an HIV positive test are referred to the facility for ART initiation. Linkages are made with local facilities to receive clients coming from the community for ART initiation. Within 5 days of referral, a follow-up visit is conducted to assess the linkage status. Subsequent follow-up visits depend on the outcome of the initial visit until successful linkage to ART is confirmed.

Lessons learned: The linkage to care rate for the programme was at 90.6%, in line with 90-90-90 targets. An investigation was done to ascertain the period of time it took to link clients for ART initiation. On average it took a referred client 8 days to be initiated on ART at a health facility. This varied between 5 and 53 days. Based on this data, we emphasised timely follow-ups and providing continuous counselling to encourage clients to visit facilities after HIV diagnosis.

Conclusions/Next steps: Measuring the period from HIV diagnosis to HIV initiation sheds light on the effectiveness of UTT implementation for clients tested in the community. While, the UTT strategy aims to put clients on ART after they receive an HIV positive result. The reality for clients tested in community is different, it takes an average of 8 days for clients to be initiated on ART according to the programmes data.

THPEE698

The effectiveness of different pediatric HIV testing approaches in reaching the first 90 in Lesotho

K. Sindelar[1], J. Joseph[2], C. Maponga[3]
[1]Clinton Health Access Initiative, Pediatric HIV, Maseru, Lesotho, [2]Clinton Health Access Initiative, Applied Analytics, Denver, United States, [3]Clinton Health Access Initiative, Maseru, Lesotho

Background: With expanding pediatric HIV programs in Lesotho, significantly more children (0-14 years) have been diagnosed and linked to care, making case finding increasingly challenging. Community-based testing strategies were implemented to find children who weren't receiving health services at facilities and therefore not accessing conventional testing touchpoints. In a resource limited setting, it's crucial to understand the most effective approaches in achieving the first-90.

Methods: Five testing approaches were examined from October 2015 to September 2017 in two districts of Lesotho to understand the most effective strategies, measured through three metrics - testing volumes, identifications, and yields over time. **Facility testing** (FT) data were summarized from PEPFAR's data warehouse. **Mobile outreach clinics** (MOC), **household index testing** (HIT), **sidewalk tent testing** (STT), and **door-to-door testing** (D2D) data were collected through routine paper-based reporting.

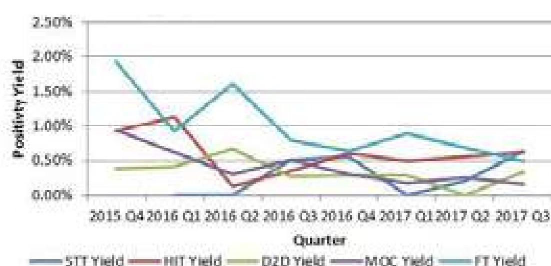
Results: Figure 1 shows FT accounted for 74.72% of pediatric tests and 86.03% of identifications. MOCs tested and identified the highest number of children among the community-based approaches, 11.76% and 6.55%, respectively. The non-targeted approach of D2D tested over 8% of children but had the lowest yield, 0.32%. Conversely, the targeted strategy of HIT had the highest yield among community approaches at 0.67%, but tested 2.96% of children.D2D tested 8.43% and identified 3.68%; HIT tested 2.96% and identified 2.64%; and STT tested 2.13% and identified 1.09%. Yields, when examined over time (Figure 2), show MOCs and FT experienced the greatest relative decrease in yields between the first and last quarter, 74.26% and 83.22% respectively.

Conclusions: In Lesotho, pediatric HIV identifications are rare, making each diagnosis significant. The approaches offering integrated services at fixed locations - FT and MOC - had the highest testing volumes and accounted for >90% of all identifications; however, experienced the largest drop in yields. A targeted approach like HIT had a more consistent yet still low yield, but tested fewer than the other household-based approach of D2D.

It is recommended that FT remain the backbone of pediatric testing programs, coupled with community-based opportunities that provide integrated services. As yields significantly decrease with static approaches, household-based approaches must be introduced to fully close the gap and reach the first-90.

Approach	Pediatric Test Volumes	% of Pediatric Tests Among All Approaches	Pediatric HIV+ Identifications	% of Pediatric Identifications Among All Approaches	Overall Positivity Yield
Sidewalk Tent Testing (STT)	4,977	2.13%	19	1.09%	0.38%
Household Index Testing (HIT)	6,911	2.96%	46	2.64%	0.67%
Door-to-door (D2D)	19,700	8.43%	64	3.68%	0.32%
Mobile Outreach Clinics (MOC)	27,481	11.76%	114	6.55%	0.41%
Facility Testing (FT)	174,598	74.72%	1,497	86.03%	0.86%

[Figure 1: The volumes, proportional percentages, and positivity yields of all pediatric tests and identifications among 5 HIV testing approaches.]



[Figure 2: The volumes, proportional percentages, and positivity yields of all pediatric tests and identifications among 5 HIV testing approaches.]

THPEE699

Lessons learned in implementing China Aids Fund for non-governmenetal organizations

S. Sha[1], J. Li[1], W. Yang[1], J. Jin[1], G. Zhang[2], M. Li[1], W. Yang[1], P. Wang[1]
[1]Chinese Preventive Medicine Association, Beijing, China, [2]National Center for AIDS/STD Control and Prevention, China Center for Disease Control and Prevention, Beijing, China

Background: In 2015, approved by the State Council, National Health and Family Planning Commission, Ministry of Civil Affairs and Finance of the People's Republic of China jointly established the national-level public welfare fund - CHINA AIDS FUND FOR NON-GOVERNMENETAL ORGANIZATIONS (CAFNGO). It raises money from government, enterprises and other lawful ways to support NGOs to expand the intervention and testing coverage of key populations and services for PLHIV. The establishment of CAFNGO reflects the strong commitment of Government to support NGOs involvement in AIDS response, and is a fundamental step fast tracking 90-90-90 and intervention targets of national AIDS strategy 2016-2020.

Description: In 2016-2017, CAFNGO funded $10 million to support NGOs in 31 provinces to provide outreach, HIV testing and referral services for key groups (FSW, MSM, DU). CDCs provide technical support and CAFNGO Management Committee Office manages funding allocation and implementation, and organizes capacity building activities for NGOs.

In two years, NGOs provided outreach and interventions among key populations for over 2.43 million person-times. More than 580,000 people received HIV testing services with more than 16,000 positive confirmed. The number of positive cases detected by CAFNGO in 2016 accounted for 40% of the national cases in the same period, while confirmed HIV cases among MSM by CAFNGO made up 49.4% of the total HIV cases nationwide in the same period.

Lessons learned: NGOs have been playing an irreplaceable role in expanding HIV testing among key populations. CAFNGO is the innovation of social governance system in public health system, while guidance and support from local administrative departments and public health institutes for NGOs development and involvement in AIDS response are insufficient. Management mechanism and capacity of NGOs are major challenges for CAFNGO to more effectively contribute to national AIDS response.

Conclusions/Next steps: CAFNGO provides an unique platform for NGOs to participate in national AIDS response and is widely recognized by the society and community. Furthermore, CAFNGO needs to optimize working mechanism to enlarge the engagement of NGOs in social governance for AIDS response at all levels, deepen the multi-sectoral communication and cooperation, promote the release of related policies and encourage the whole societies' participation.

THPEE700

Chikurubi maximum prison: Good practice to support the implementation and scale-up of differentiated ART delivery for key populations living in prisons and correctional facilities

T. Ponde
Voluntary Service Overseas, Health, Harare, Zimbabwe

Background: Prison populations have high incidence of HIV and TB[i] whilst access to health services including TB treatment and Antiretroviral Therapy (ART) is often overlooked and improvements, not well documented.

Chikurubi Maximum is the largest prison in Zimbabwe averaging 2600 inmates, many classified high risk with long sentences. 17% of the prison population is HIV+ and in dire need for HIV health services and peer support.

[i] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3006347/

Description: Access to HIV information at Chikurubi is through differentiated peer service delivery, an approach that simplifies and adapts HIV services to better serve the needs of inmates living with or at risk of acquiring HIV. Through this approach, 178 peer educators have been trained.

Seven support groups, have provided psycho-social support, coping mechanisms to manage TB/HIV, poor living conditions, and stresses of separation from family.
Lessons learned: This approach results in risk reduction of STIs, TB, HIV and AIDS transmission for inmates through prevention, ART adherence, care and support, increased knowledge, attitudes and behaviour change.
Formal training and informal peer-to-peer interactions, have reached over 90% of inmates with 27062 referrals made to the prison hospital in 2017 (2250 referrals per month). ART adherence improved from 50% in June 2015 to almost 100% in February 2017. The prison recorded significant reduction in prisoner deaths from 50 in 2015 to 8 in 2017, attributed mainly to improved ART adherence, improved awareness, peer support and role of support groups.
Unique to this approach, is how peer educators support bedridden inmates through cell based care; bed baths, feeding sick peers, administering prescribed medication and offer counseling support and ART adherence.
Conclusions/Next steps: These activities have enhanced accountability from the prison system and empowered inmates to demand quality health services from the prison authorities. This model has enhanced inclusion for highly excluded populations contributing to HIV global targets.

THPEE701

Leveraging a community-led HIV testing approach to reach female sex workers in the geographic areas uncovered by the national program in India

P. Mugundu Ramien[1], S. Dandu[2], R. Bandi[2], D. Damara[2], A.K. Reddy[1], G. Shreenivas[1], B. George[1], J.J. Baishya[3]
[1]FHI 360, LINKAGES Project, New Delhi, India, [2]FHI 360, LINKAGES Project, Vijayawada, India, [3]USAID, Project Management Specialist (HIV/AIDS), New Delhi, India

Background: The Indian HIV prevention program offers a package of prevention services to key populations (KP) through well-structured 'targeted intervention' (TI) facilities run by non-governmental organizations. TI are established in a geographic area for a stipulated number of KPs. Areas with more geographically dispersed or fewer KP tend to be uncovered by the TI. The TI program reports a 0.11-0.66% HIV case-finding rate. The USAID- and PEPFAR-supported LINKAGES project in India piloted a peer-led model to reach female sex workers (FSW) in a geographic pocket not covered by the national program.
Description: During November-December 2017, eight adjoining sub-district units unreached by the TI program in high HIV prevalence East Godavari district of India were targeted. A community-based organization (CBO) led by FSWs was engaged as lead partner. Consulting with the CBO leaders, a small team of peer mobilisers (to identify peers), a peer navigator (to link FSWs detected HIV positive to treatment) and a community coordinator was formed and nominally compensated for their time. HIV testing kits were procured from the government testing centre. FSWs were provided with prevention education and offered HIV testing at a community-convenient site and time. A lab technician was hired to mentor and monitor the HIV testing performed by the peer mobilizers.
Lessons learned: Of the 219 FSWs mobilized and provided HIV counselling and testing services, 42 (19.2%) were identified HIV-positive. Of those detected positive, 17 were linked to ART by December, although the peer navigation is on-going. The majority of the FSWs mobilized by peers belonged to the 25-29 age group. In addition, nine out of the 15 sexual partners tested were detected HIV positive. By leveraging the existing CBO and government systems, the piloted model argues for its sustainability.
Conclusions/Next steps: The pilot demonstrated high case detection rate among FSWs who otherwise would not have been reached by the national TI program. It may imply that the 'right population' was targeted with 'right approach'. We advocate with the national program to integrate community-based testing approaches, engaging the community proactively, to improve the efficiency of TIs in reaching KPs in unreached geographical pockets to achieve the 90-90-90 targets.

THPEE702

A sustainable MSM-led HIV prevention, care and treatment service provision model in Vietnam

N. Anh Ngoc[1], L. Minh Thanh[1], O. Banos[2], N. Tuong An[1], H. Phuong[1], N. Thi Thu Vu[3,4]
[1]G-link Vietnam, Ho Chi Minh City, Vietnam, [2]Global Forum on MSM and HIV (MSMGF), Oakland, United States, [3]Institute of Preventive Medicine and Public Health, Hanoi Medical University, Hanoi, Vietnam, [4]Centre for Promotion of Advancement of Society (CPAS), Hanoi, Vietnam

Background: With 8.2% of HIV prevalence, Men who have sex with men (MSM) in Vietnam are disproportionately affected by HIV and their involvement in HIV interventions is limited. Worldwide, there is evidence MSM are actively involved in providing HIV services. In the context of donor transitions from direct funding to technical assistance support, a more effective and sustainable provision of HIV services for MSM is needed.
Description: Initially established as an MSM-led social enterprise in 2010 in Ho Chi Minh City, Vietnam, G-link has become a professional HIV service provider. G-link's budget includes self-raised funding and donor grants, including Global Fund, PEPFAR and MSMGF. In response to the emerging needs for an MSM-friendly-and-culturally-adapted services, G-link established a private clinic to provide a comprehensive HIV and STIs-related service package provided by MSM medical staff, including: innovative online HIV outreach, HIV rapid testing, STIs screening and treatment, PEP, PrEP, ART. To better serve the community, G-link has used the MSMIT tools to improve existing services offering more flexible service hours compared to those of public clinics; 24/7 hotline service; and subsidized cost policy to MSM with modest income. Recently, G-link has been nominated Hero Award by APCOM as a groundbreaking and innovative community clinic in the Asia and Pacific region.
Lessons learned: Our outcomes show our service model increases accessibility and sustainability of services for the historically marginalized MSM reluctant to access government clinics. G-link has proven its efficient use of donors' funding to establish holistic health services for MSM. In 2017, 7,900 MSM received HIV testing; 474 were referred to ARV treatment, 203 received ART at G-link clinic; 420 received PEP and 238 received PrEP. With database of 5,000 MSM, G-link manages to longitudinally follow up both HIV-negative and HIV-positive clients for HIV testing reminders, timely assistance with ART enrolment and adherence support.
Conclusions/Next steps: G-link is the first community-led healthcare provider in Vietnam and its proven success could be seen as a sustainable community-led HIV service provider in the region. With MSMGF's technical support, G-link is documenting its service model to be shared and replicated in Vietnam and in the Southeast Asia region.

THPEE703

Crowdsourcing to expand HIV testing services: A pragmatic, stepped wedge randomized controlled trial in China

J. Tucker[1,2,3], SESH Crowdsourcing Team
[1]UNC Project-China, Guangzhou, China, [2]LSHTM, London, United Kingdom, [3]SESH Global, Guangzhou, China

Background: HIV testing rates are suboptimal among many key populations. Crowdsourcing may be a useful tool to increase HIV testing. Crowdsourcing has many people solve a problem and then shares the solution with the public. This study used a stepped wedge cluster randomized controlled trial to evaluate a crowdsourced intervention to promote HIV testing among men who have sex with men (MSM) in China.
Methods: Public crowds developed the intervention through a national image contest, a regional strategy designathon, and local message contests. These three activities generated images, strategies, and messages, respectively, for the final intervention (Figure 1). A pragmatic stepped wedge cluster randomized controlled trial evaluated the crowdsourced intervention to promote HIV testing among MSM in eight Chinese cities over 12 months (ClinicalTrials.gov number, NCT02796963). MSM were recruited through Blued, a gay social networking mobile application. The

primary outcome was HIV testing in the past three months. Secondary outcomes included HIV self-testing, condomless sex, and WeChat (an instant messaging application) communications about HIV testing in the past three months. Generalized linear mixed models were used to analyze primary and secondary outcomes.
Results: Most of the 1381 MSM participants were ≤ 30-years-old (82%), unmarried (86%), and had a college degree or higher (65%). In intention-to-treat analysis, the odds of receiving an HIV test during the intervention periods was significantly higher than during the control periods (estimated odds ratio (OR)=1.67, 95% confidence interval (CI) 1.27-2.21). The proportion of individuals receiving an HIV test within a city was 8.9% (95% CI 2.2-15.5) greater during the intervention periods. There was no change in the secondary outcome of condomless sex. The intervention increased HIV self-testing (OR = 1.98, 95% CI 1.47-2.66, P< 0.001) and WeChat discussions about HIV testing (OR=1.73, 95% CI 1.34-2.23, P< 0.001). HIV self-testing rates were sustained following the immediate three-month period of the intervention.
Conclusions: A crowdsourced intervention was effective in promoting HIV testing among Chinese MSM. This study has implications for the scale-up of HIV testing services among MSM across low- and middle-income countries.

*[Figure 1. Steps in Intervention Development. *Exceptional defined by ranking after scores from three independent judges.]*

THPEE704

Improving retention of HIV positive clients in care by conducting real time follow up of clients using full time community health workers (CHWs): An experience of five districts in Western Uganda

I. Namuleme Ddumba[1], B. Kunihira[2], P. Ajuna[3], S. Amodot[4], A. Kekitiinwa[5], Rwenzori region
[1]Baylor College of Medicine Children's Foundation Uganda, Health Systems Strengthening, Kampala, Uganda, [2]Baylor College of Medicine Children's Foundation Uganda, Monitoring and Evaluation, Kampala, Uganda, [3]Baylor College Children's Foundation Uganda, Care and Treatment, Kampala, Uganda, [4]Baylor College of Medicine Children's Foundation Uganda, Community Services, Kampala, Uganda, [5]Baylor College of Medicine Children's Foundation Uganda, Executive Director, Kampala, Uganda

Background: Retention in care is an indicator of good adherence and a requirement for Viral suppression among people living with HIV on ART. poor retention remains a major hindrance to the attainment of the 90-90-90 goals in Uganda. The 12 months retention was low below the 90% target for 3/5 districts. The objective of this intervention was to improve the retention of clients in care using full time CHWs to conduct daily real time follow up of clients who miss clinic appointments.
Description: CHWs, a newly recruited cadre of support community staff were recruited and attached to health facilities providing ART in 5 scale up districts in western Uganda. CHWs updated the clinic appointments daily and developed lists of clients that had missed clinic appointments. This was different from the use of VHTS that work on a volunteer basis and conduct monthly follow up of clients.
Lessons learned: There was marked improvement in the retention of clients in all five districts. 4/5 districts registered retention above 90% and the fifth district improved from 85% to 89%. clients were more receptive to the CHWs who conducted the home visits because they had interacted with them at the health facility. The clients were not familiar with the VHTS were not regular at the health facility.
Conclusions/Next steps: The use of CHWS as full time recruited staff and attached to health facilities are able to conduct real time daily follow up of clients who miss appointments. The clients are more responsive to health workers with whom they have interacted with which reduces the likelihood of receiving wrong locator information.

[Retention rates for five districts of the Rwenzori region in Western Ugand for a period of 12 months]

THPEE705

Community/facility strategies to promote adherence to ART and VL awareness amongst PLHIV in Botswana

B.M. Morapedi, G. Morineau, J.M. Irige, B. Mantu, O. Sokwe, C. Lesedi, C. Pheko, K. Poloko
FHI 360, APC Botswana Project, Gaborone, Botswana

Background: The Advancing Partners and Communities (APC) project in Botswana funded by PEPFAR through USAID established a community HIV care program to support people living with HIV (PLHIV) to reach their treatment goal in a differentiated care model lead by community health workers (CHWs). Adherence is associated with efficacy of antiretroviral treatment (ART) whilst the viral load (VL) remains the marker for treatment success. In the era of 'Treat All' in Botswana, adherence counselling and awareness of importance of VL monitoring requires partnership between community and facilities.
Description: Health facilities provided trained CHWs with lists of PLHIV newly initiated on ART and defaulters for enrollment in community care. CHWs conducted home visits to enroll consenting PLHIV in community care and provided individual client assessments, adherence counselling and monitored clients' compliance to scheduled health checks including laboratory monitoring appointments with specific focus on VL monitoring. Home visits were repeated monthly or quarterly depending on clients' adherence to treatment.
Lessons learned: From October 2016 to September 2017, out of the 7,734 adults enrolled in community care, 7,462 (96%) self-reported adhering to ART in the past 30 days, 88 (1.1%) did not take pills and 184 (2.3%) missed pills frequently. 5,116 (69%) reported being virally suppressed, 1,401 (19%) had a detectable VL, and 1,217 (16%) did not know their VL. CHWs referred those without a documented VL in the last six months to facilities for VL measurement. All reporting adherence challenges were provided adherence counseling and followed-up monthly to evaluate progress.
Conclusions/Next steps: The limited proportion of self-reporting on viral suppression is a matter of concern. CHWs are adding value to health system by promoting viral load awareness as an indicator of treatment success rather than the CD4 count as it was the case in the old ART protocol. Joint facility and community efforts have proven to be necessary to promote ART adherence and sustained VL suppression. Task sharing ART monitoring between health workers and lay CHWs can help Botswana reach the UNAIDS 2nd and 3rd 90 targets.

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THPEE706

From blueprint to action: On track to Ending the Epidemic (ETE) by end of 2020 in New York State through policy and program changes and community engagement

J. Morne[1], D. Daskalakis[2], C. King[3], T. Wilder[4], V. Shubert[5]
[1]New York State Department of Health, AIDS Institute, Albany, United States, [2]New York City Department of Health and Mental Hygiene, Division of Disease Control, New York City, United States, [3]Housing Works, Inc, President and CEO, New York City, United States, [4]Mount Sinai Institute for Advanced Medicine, HIV/AIDS Education and Training, New York City, United States, [5]Housing Works, inc, Advisor on Policy and Research, New York City, United States

Background: In June 2014, Governor Andrew Cuomo committed to end AIDS as an epidemic in New York State (NYS). An ETE Blueprint was developed by a Governor-appointed Task Force, consisting of representatives from state and local governments and other stakeholders.
Description: The community engagement and transparency embedded in the NY ETE effort continues, and the gains are astounding. The number of people newly diagnosed with HIV in NYS has fallen to historic lows, proving that efforts to End the Epidemic are making a significant impact.
Lessons learned: One example of ETE program change is a rapid access to treatment pilot to ensure immediate access to antiretroviral therapy for persons newly diagnosed; the initial cohort of rapid access participants reached viral suppression in just 41 days. Access to pre-exposure prophylaxis, or PrEP, has been expanded through dedicated funding and programs resulting in 2,300 persons having been prescribed PrEP by PrEP Specialists, the number of Medicaid recipients taking PrEP increased fourfold between 2013 and 2015, and active enrollment in the NYS PrEP Assistance Program (PrEP-AP) for the most recent one-year period is 1,627. Recently developed clinical education tools to support medical providers offering PrEP have also contributed to increased PrEP uptake. Recent policy changes aim to ensure no population is left behind when accomplishing ETE goals. In 2016, NYS eliminated the existing upper age limit of 64 for purposes of offering routine HIV testing. State regulations were recently modified to enable minors to consent to HIV treatment, including preventive treatment. In 2016 NYC became the first jurisdiction in the world to ensure every low-income person with HIV who is homeless or unstably housed has access to publicly funded rental subsidies.
Conclusions/Next steps: ETE Implementation is having an impact in NYS. Workshop participants will be able to: discuss elements and implementation of ETE Blueprint recommendations; identify opportunities to inform global and country-level policy and programs; develop strategies to promote and support local initiatives to end AIDS. Data, policy, program presentation from City, State and Community representatives, with Q&A. A "fishbowl" brainstorming session will provide the opportunity to interact with NY ETE stakeholders, and discuss local efforts to end AIDS.

THPEE707

An innovative approach to HIV prevention: Equipping healthcare providers with knowledge, tools and empathy to provide inclusive, rights based and gender sensitive services to MSM and TG

T. Doan Thanh[1], O. Banos[2], L. Nguyen Thi Phuong Linh[1], T. Phung Ba[3], D. Luc Quach Binh[4]
[1]Lighthouse Social Enterprise, Ha Noi, Vietnam, [2]The Global Forum on MSM and HIV, Los Angeles, United States, [3]Lighthouse Social Enterprise, Ha noi, Vietnam, [4]Lighthouse Social Enterprise, Hanoi, Vietnam

Background: In Vietnam, HIV prevalence among men who have sex with men (MSM) is 8,2% and transgender people (TG) is 17% and is predicted to increase rapidly in the coming time. Besides, they are facing many challenges in accessing HIV/STI related services. According to the Vietnam Administration of HIV/AIDS control, only 41,3% MSM has used of HIV testing and 11,7% accessed STI screening in last three months. Our previous studies suggest stigma and discrimination by healthcare providers is one of the primary barriers to service access. To strengthen clinical capacity to friendlier services provision, Lighthouse evaluated the effect of an MSM and TG-led intervention to sensitize health care providers.
Description: The intervention, from October 2016 to December 2017 in the Nam Tu Liem district center in Hanoi, Viet Nam and in partnership with the MSMGF, included five steps:
(i) mapping of healthcare facilities popular among MSM and TG community;
(ii) training of the trainers for MSM and TG involved in the intervention;
(iii) conducting pre- and post-assessment of targeted and participating healthcare facilities, including client surveys, staff interview, and simulated patients;
(iv) trainings of healthcare providers based on identified needs and issues;
(v) providing a set of recommendations based on the assessments of the clinic.
Lessons learned: The clinic improved its quality of services provision, particularly in the domains of overall friendliness and counselling on gender and sexuality. A total of 11 healthcare providers were trained and improved their knowledge on gender and sexuality, counseling skills, and communication with MSM and TG. The healthcare facility focused on reaching MSM and TG on social media with our technical assisstant. Overall, client satisfaction increased from 3.6 (out of 5) to 4.1 (out of 5), and the number of MSM and TG using services has doubled.
Conclusions/Next steps: This intervention increased community demand for HIV-related services. It increased MSM&TG's satisfaction with services provided. Its effectiveness underscores the need for collaboration between MSM-led groups and public clinics and the modeling and implementation of adequate services for MSM and TG. While focused on a Vietnamese population, this intervention provides a model that can be implemented in other provinces and countries.

Delivering paediatric HIV services

THPEE708

Parental predictors to uptake of HIV testing among children and adolescents in the context of index case testing strategy in Cameroon

H.A. Yumo[1,2], J.J. Nforbewing Ndenkeh[1], R.A. Ajeh[1], I. Sieleunou[1,3], D. Nash[4], A. Kathryn[5,6], M. Beissner[7], T. Loescher[7], C. Kuaban[8]
[1]R4D International Foundation, Yaounde, Cameroon, [2]Ludwig Maximilian University, Center of International Health, Munich, Germany, [3]University of Montreal, School of Public Health, Montreal, Canada, [4]CUNY Graduate School of Public Health and Health Policy, New York, United States, [5]Albert Einstein College of Medicine, Department of Epidemiology & Population Health, New York, United States, [6]Montefiore Medical Center, New York, United States, [7]Ludwig-Maximilians-Universität München, Department of Infectious Diseases & Tropical Medicine, München, Germany, [8]University of Bamenda, Faculty of Health Sciences, Bamenda, Cameroon

Background: Targeting children born to people living with HIV/AIDS (PLHIV) for HIV testing also known as index case HIV testing is emerging as a priority strategy to reduce the current gap in pediatric and adolescents antiretroviral treatment coverage, especially in Sub-Saharan Africa. This study aimed at identifying parental factors associated with HIV testing uptake among children of PLHIV in Cameroon.
Methods: This was a cross sectional study conducted from June-December 2016 in two district hospitals (Abong-Mbang and Ndop) in Cameroon. During this period, socio-demographic information of PLHIV in care and consenting to participate in the study were collected using standardized questionnaires. In addition, they were invited to have their biological children aged 6 weeks - 19 years tested for HIV. Logistic regression was performed using SPSS and significance set at 5%.
Results: 645 parents were included in the study through whom 1438 children were enrolled for HIV testing. The parents were predominantly females (81.5%) and the age ranged from 17 to 59 years with a median of 35 years. 57.8% (373/645) of parents tested at least one child and 57.6%

(829/1438) of children enrolled were tested for HIV. Factors associated with HIV testing uptake among children included: female gender (OR=1.49; p=0.049), higher education level (OR=1.61, p< 0.0001), single parent (OR= 1.91; p< 0.0001), and student occupation (OR=3.62; p=0.001). When adjusting for confounders we found that female gender (aOR=1.79, p=0.023), age older than 40 years (aOR=1.47, p=0.013), higher education level (aOR=1.46; p< 0.0001) and single parents (aOR= 1.77; p< 0.0001), were parental predictors associated to HIV testing uptake among children and adolescents.
Conclusions: PLHIV of male gender, less than 40 years, less educated and married were less likely to test their children for HIV. This suggests the need to enhance HIV counselling and testing for children among these sub-groups, especially among males and married parents in order to optimize the outcome of the index case testing strategy among children and adolescents.

THPEE709

Reaching the second 90: Improving coverage of paediatric ART uptake and quality of care using a technical assistance strategy at 46 health facilities in Haiti: Results from EQUIP

E. Emmanuel[1], S. Magwaza[2], M. Leonard[1], M.L. Excellent[1], D. Lauture[1], F. Jean Louis[1], J.W. Domercant[1]
[1]EQUIP-MatCH, Pétion-Ville, Haiti, [2]EQUIP-MatCH, Durban, South Africa

Background: According to 2016 UNAIDS Report, Haiti's paediatric HIV treatment coverage was only 49%. Provider-initiated HIV testing and counselling (PITC) is necessary to identify HIV-infected children, and clinical skills and competencies are critical for their treatment. Despite roll-out of revised HIV treatment guidelines, PITC has not been consistently implemented and providers remain reluctant to initiate children on ART. Instead, children are transferred to facilities with onsite paediatrician. Only 13% of the facilities have a paediatrician and weak bi-directional referral systems. Therefore, health outcomes for these children are unknown.
Description: EQUIP-Haiti designed a technical assistance package to improve paediatric HIV clinical management. In April 2017, EQUIP provided 3 training sessions to 59 healthcare providers from 46 institutions on PITC, PCR testing, tracking of mother-infant care, management of HIV-infected children and shared best practices on linkage to treatment. Supportive mentorship visits were conducted post- training to assist healthcare providers on correct ARV dosing and preferred regimens for HIV-infected children. Moreover, EQUIP supported the facilities by providing job aids, M&E tools, and clinical stationery to ensure proper documentation and reporting of data. A social media forum was established after the trainings to allow real-time and continuous support for clinical paediatric HIV case management.
Lessons learned: The trainings and mentorships improved skills and confidence with an increased median score of 24% between pre and post-test, facilitated facility-community linkages, tracking and re-testing of infants and children. The establishment of a social media forum provided a real-time advisory portal to address provider questions on clinical management of HIV-infected children, drug management, data collection, documentation, and analysis. To date, 45 health care providers are actively using this forum. The linkage to care rate for children infected with HIV increased from 27% to 59% to 76% and 80% in Q1, Q2, Q3, and Q4, respectively.
Conclusions/Next steps: Bridging the knowledge-skills gap is one of the key challenges to be addressed for a sustainable upwards trajectory of paediatric ART initiation. EQUIP's successful training and technical assistance package can be rolled-out at other facilities in Haiti for capacity building and quality improvement of HIV paediatric care and treatment.

THPEE710

Keeping the next generation HIV free: Collaborative effort on scaling up of early infant diagnosis in Myanmar

T.H. Oo[1], S.M. Lwin[2], S. Hone[3], L.L. Kyaw[4], H.N. Oo[3]
[1]Clinton Health Access Initiative, Yangon, Myanmar, [2]UNICEF, Yangon, Myanmar, [3]National AIDS Program, Nay Pyi Taw, Myanmar, [4]National Health Laboratory, Yangon, Myanmar

Background: The prevention of Mother to Child Transmission (MTCT) of HIV program in Myanmar was facing challenges of scaling up the early HIV diagnosis (EID) for infants born to HIV infected pregnant women. According to National AIDS Program´s report, only 25% (558/2195) of HIV exposed infants received EID in 2014. The major drawback was being lack of proper tracking on follow-up testing and treatment services for HIV exposed infants.
Description: The Laboratory Information Management System (LIMS) for Early Infant Diagnosis was established with the collaborative effort of National AIDS Program, National Health Laboratory, Public Health Laboratory, UNICEF and CHAI in January 2015. The EID mentoring program was established at 28 AIDS/STD teams and 12 hospitals with high caseload to strengthen the follow-up mechanism and proper linkage for infant testing and prompt initiation of ART with the support of PLHIV volunteers and Basic Health Staff. In addition, 17 SMS printers and 23 mobile phones were set up to shorten the turnaround time of result delivery.
Lessons learned: From January 2015 to December 2017, there were 3,585 HIV exposed babies in the project areas, out of which, 3,269 (91%) received EID. 1,586 (44%) were tested before 2 months of their age; this result was an increase from 32% in 2015. There was a decrease in HIV DNA PCR positive rate from 9.8% in 2015 to 6.5% among tested HIV exposed babies in 2017. The percentage of HIV exposed babies tested positive and referred for ART initiation was 44% in 2015 and increased to 79% by the end of December 2017. However, the LIMS indicated that the average turnaround time of EID testing in 2017 was 38 days mainly due to the delay in sending Dried Blood Spot samples to central labs, the delay in arrival of reagents and the high turnover rate of laboratory staff.
Conclusions/Next steps: The point-of-care EID testing at local level and the proper supply planning for laboratory commodities should be established in order to reduce the turnaround time of EID testing. In addition, the collaborative effort of PMTCT stakeholders in Myanmar should be strengthened to achieve elimination of MTCT by 2025.

THPEE711

Building the capacity of health care workers and rural clinics to implement early infant diagnosis in Zimbabwe

R. Malaba, P. Ndlovu
World Education, Inc., Harare, Zimbabwe

Background: Availability of paediatric HIV testing and treatment services in Zimbabwe had long been limited to district health centres. In 2013, with a desire to change that, the Ministry of Health and Child Care (MoHCC) undertook an accreditation assessment to understand the existing human resource capacity, pharmacy supply chain management, laboratory services, monitoring and evaluation processes, and infrastructure for HIV diagnosis and treatment at rural clinics nationwide. This assessment identified factors affecting Early Infant Diagnosis (EID) in rural clinics, including a lack of health provider confidence in diagnosis and management for infants and low capacity to test and treat.
Description: The Bantwana Initiative's Expanded Integrated Management of Paediatric AIDS Care and Treatment Program (EIP) was designed to address critical gaps in rural health service delivery for improved paediatric HIV services across 17 underserved districts. Between 2014 and 2017, in consultation with MoHCC, the program introduced training and clinical mentorship to rural health providers on diagnosis and management of paediatric HIV, counselling, ART initiation, and retention in care. Supplemental offsite support from Roving Mentors, as well as through online platforms and learning visits to provincial hospitals was availed. The program addressed resource constraints within rural clin-

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ics by working with clinic staff on supply chain management, providing critical inputs (e.g., refrigerators for reagents, medicines), and introducing Results Based Financing to incentivize attainment of paediatric ART benchmarks. The program supported HIV testing for over 460,000 children; initiated 10,904 children onto ART; trained 217 nurses in advanced paediatric HIV management; and provided clinical mentorship to 170 clinical staff.

Lessons learned: On-the-job coaching and practical hands-on mentorship is effective in enhancing skills and confidence of primary level cadres in EID and initiation of HIV+ infants on ART. EID turnaround time in target districts was reduced from 12 to 2 weeks and specimen rejection rates reduced from 11% to 4%. To date, all 248 clinics supported by the program have graduated to ART initiation sites.

Conclusions/Next steps: The program has helped equip rural clinics with the capacity to respond to community HIV/AIDS needs through the introduction and scale-up of much needed comprehensive paediatric ART services previously provided only at district health facilities.

THPEE712

Understanding barriers and needed actions to improve HIV care for children in low income settings: Insights from five Ugandan districts

J. Rujumba[1], D. 't Hart[2], S. Ahumuza[3], R. Ochen[4], A. Tushabe[3], M. Musinguzi[2], TAFU Program Uganda
[1]*Makerere University, Paediatrics and Child Health, Kampala, Uganda,* [2]*Aidsfonds, Amsterdam, Netherlands,* [3]*Agency for Capacity Building, Kampala, Uganda,* [4]*Health Need Uganda, Soroti, Uganda*

Background: While Uganda has made remarkable progress in the fight against HIV, the delivery of treatment and care services for children living with HIV (CLHIV) remains a challenge. Treatment coverage for children 0-14 years living with HIV is estimated at 62%, far from realising universal treatment coverage. To address this gap, Aidsfonds and partners in Uganda are implementing a 2-year 'Towards an AIDS free generation in Uganda' program in five rural districts. To inform the program, we explored barriers and needed actions to improve HIV care for children.

Methods: Operational research was conducted in Soroti, Mubende, Mityana, Kyenjojo and Ntungamo Districts. Data were collected in August and December 2017, through 10 in-depth interviews (5 with CLHIV and 5 with their caregivers), 53 focus group discussions with CLHIV, village health teams, networks of people living with HIV, mothers in PMTCT, fathers, children in school and teachers. Seventy-nine key informant interviews with health workers and district leaders were conducted. Data were analyzed using content thematic approach.

Results: Stigma at home, in schools and communities; distant health facilities, delays at health facilities, stock out of drugs, lack of support groups for children, shortage of food and poverty makes access and adherence to treatment for children difficult. Phase out of HIV programs disrupted service provision and use. The major actions needed to improve care for CLHIV are: improving the quality of care at health facilities, strengthening linkages between health facility and community support structures, initiating support groups for children and empowering community resource persons especially expert clients to identify, refer, follow-up and support children. Supporting families to reduce stigma, meet food, education and other livelihood needs of children is key.

Conclusions: Study findings reveal the intersecting reality of stigma, distant and non-functional health facilities and vulnerabilities related to food insecurity and poverty as major barriers to children's access and retention into HIV care. Phase out of HIV programmes should be better coordinated to reduce the strain on health facility and community support systems. Strengthening community and lower level health care systems is critical in attaining universal treatment coverage for children living with HIV.

THPEE713

Lack of disclosure of HIV status and ART intake from pregnant women at delivery may jeopardize the optimal choice of PMTCT strategy. Preliminary results of the ANRS 12344-DIAVINA trial

G. Breton[1], A. Martin[2], O.H. Diallo[2], O.H. Diallo[3], S. Soumaoro[4], M. Cissé[5], Y. Koita[6], G. Peytavin[7], A. Montoyo[8], R. Becquet[9], P. Frange[10], C. Rouzioux[11], R. Tubiana[12]
[1]*SOLTHIS, Bagnolet, France,* [2]*SOLTHIS, Conakry, Guinea,* [3]*Fondation Espoir Guinée, Conakry, Guinea,* [4]*Hopital Ignace Deen, Conakry, Guinea,* [5]*CHU Donka, Conakry, Guinea,* [6]*PNPCSP, Conakry, Guinea,* [7]*CHU Bichat Claude Bernard, Paris, France,* [8]*ANRS, Paris, France,* [9]*Université de Bordeaux, INSERM UMR 1219, Bordeaux Population Health Research Center, Team IDLIC, Bordeaux, France,* [10]*CHU Necker Enfants Malades, EA 7327, Université Paris Descarte, Paris, France,* [11]*CHU Necker Enfant Malades, Paris, France,* [12]*CHU Pitié-Salpêtrière, Paris, France*

Background: Globally 45% of HIV-infected children are born in West and Central African countries where prevention of mother-to-child transmission (MTCT) programs are still limited. The last revision of WHO guidelines included a reinforced HIV preventive therapy for infants at high risk of acquiring HIV that needs to be further investigated in the field.

Methods: The ANRS 12344-DIAVINA trial investigates in Conakry, Guinea, the operability of a strategy combining reinforced preventive antiretroviral therapy (ART) in infants at high risk of MTCT (mother diagnosed with HIV at delivery or having received ART for <4 weeks before delivery) and early infant HIV diagnosis. We present here the proportion of pregnant women at high risk of MTCT and the results of maternal HIV-RNA performed at delivery.

Results: From February to December 2017, 5062 pregnant women were admitted for delivery at Ignace Deen hospital. HIV testing was offered to 5008 women (99%), of which 95% accepted it. Overall, 91 women were HIV-infected (1.9%), 42 (46%) had received ART for >4 weeks and 49 (54%) were at high risk of MTCT: 8 (9%) initiated ART < 4 weeks ago and 41 (45%) discovered their HIV infection at delivery. Among the 43 women included in the trial, HIV-RNA was performed at delivery in 40 patients. HIV-RNA was < 250 copies/ml in 21/40 (53%) women: 6/8 (75%) on ART for < 4 weeks and 15/32 (47%) with HIV diagnosed at delivery. Blood samples taken at delivery were retrospectively further investigated for the 10 first women with HIV-RNA < 250 copies/ml at delivery (4 on ART for < 4 weeks and 6 with HIV infection diagnosed at delivery): HIV-1 was confirmed by Western-Blot, HIV-RNA was confirmed < 250 copies/ml and ARVs were detected in plasma in all samples.

Conclusions: A significant proportion of women are at high risk of MTCT, however this risk can be overestimated by the lack of disclosure of HIV status and ART intake by some women to caregivers at delivery. A systematic measurement of maternal HIV viral load at the end of pregnancy seems crucial to adequately estimate the risk of MTCT and adapt the neonatal ARV prophylaxis.

THPEE714

Optimizing EID outcomes: A cluster-randomized efficacy trial of the HIV infant tracking system (HITSystem) in Kenya

S. Finocchario Kessler[1], C. Wexler[1], A.-L. Cheng[2], N. Nazir[3], R. Lwembe[4], M. Maloba[5], K. Goggin[2,6], M. Brown[1], S. Khamadi[4], T. Odeny[2,7], B. Gautney[8], HITSystem Study Team
[1]University of Kansas Medical Center, Family Medicine, Kansas City, United States, [2]University of Missouri-Kansas City, School of Medicine, Kansas City, United States, [3]University of Kansas Medical Center, Preventative Medicine, Kansas City, United States, [4]Kenya Medical Research Institute, Center for Virus Research, Nairobi, Kenya, [5]Global Health Innovations, Kisumu, Kenya, [6]Children's Mercy Hospital, Health Services and Outcomes Research, Kansas City, United States, [7]Kenya Medical Research Institute, Center for Microbiology Research, Nairobi, Kenya, [8]Global Health Innovations, Dallas, United States

Background: Outcomes for HIV-exposed infants (HEI) depend on the quality and efficiency of early infant diagnosis (EID) services.
In Kenya, we evaluated the impact of the HITSystem (system-level intervention linking EID stakeholders via e-alerts for providers and SMS for mothers of HEI) on key EID outcomes.
Methods: In this non-blinded, phased, cluster randomized controlled trial (NCT02072603), 6 hospitals matched on region, resource level, and volume were randomized to receive the HITSystem (n=3) or standard of care (SOC; n=3). Eligible participants (HIV+ women ≥18 years with HEI < 24 weeks) enrolled between February 2014 and December 2016 were followed to evaluate the primary outcome of complete EID; defined as receipt of all EID services through 18-months (HIV-uninfected infants) or ART initiation (HIV+ infants). HITSystem was hypothesized to improve retention, ART initiation, and results turnaround times (TAT) compared to SOC. Using a stepwise approach, we conducted separate multivariate logistic and Poisson regression analyses with intervention group, site volume, and significant covariates as fixed effects in the models. Bonferroni corrections for multiple comparisons were applied.
Results: Among 809 eligible HEI, data from 690 were analyzed (n=392 intervention, n=298 SOC); excluding 28 deaths and 91 documented transfers/moved. Median age at enrollment was 6.0 weeks; 50% were male. Infants enrolled in HITSystem were significantly more likely to receive complete EID services compared to controls (85.2% [.82-.89] vs. 61.02% [.55-.66], p< 0.008), including the following: receipt of OI prophylaxis (99.7% vs 89.6%), PCR results returned to hospital (100% vs 96.98%), mothers notified of result (98.9% vs 89.3%), re-testing among HIV-uninfected infants at 9-months (96.8% vs 91.1%) and 18-months (84.7% vs 69.3%), and ART initiation for HIV+ infants (100% vs. 72.7%). Mean results TAT (24.6 vs 49.2 days, p< 0.003) and mother notification (19.0 vs 29.8 days, p< 0.003) were faster at intervention sites. Receipt of initial HIV test was similar and time to ART was faster at SOC sites (median 68 vs. 51 days, p=0.045).
Conclusions: HITSystem significantly increased completion of EID services and reduced TAT for results and notification. Hindered by intervention settings requiring multiple adherence counseling sessions prior to initiation, time to ART was faster in SOC sites.

EID Variables	Intervention N=392 N (%), 95% CI	Control N=298 N (%), 95% CI	P value
OI prophylaxis	391 (99.74%), .98-1.0	267 (89.60%),.86-.93	.003
Initial DBS collected	392 (100%), 1.0-1.0	296 (99.33%), .98-1.0	.80
PCR result returned to hospital	392 (100%), 1.0-1.0	289 (96.98%), .95-.98	.004
Mother notified of result	388 (98.98%), .98-1.0	266 (89.26%), .86-.93	<.001
HIV+ infants started on ART	21 (100%), 1.0-1.0	8 (72.73%), .46-.99	.08
Retested at 9M	360 (96.77%), .95-.98	265 (91.07%), .88-.94	.013
Retested at 18M	315 (84.68%), .81-.88	201 (69.31%), .64-.75	<.001
Complete EID	**334(85.2%), .82-.89**	**180(61.02%), .55-.66**	<.001
*Bonferroni calculations applied to p values to adjust for multiple testing			

[Impact of the HITSystem on Complete EID Services]

THPEE715

Predictors of timely ART initiation among HIV-positive infants in Kenya

C. Wexler[1], N. Nazir[1], B. Gautney[2], M. Brown[1], M. Maloba[2], K. Goggin[3,4], S. Finocchario-Kessler[5]
[1]University of Kansas Medical Center, Kansas City, United States, [2]Global Health Innovations, Dallas, United States, [3]Children's Mercy Hospital, Health Services and Outcomes Research, Kansas City, United States, [4]University of Missouri-Kansas City, Kansas City, United States, [5]University of Kansas Medical Center, Family Medicine, Kansas City, United States

Background: Early initiation of ART (before 12 weeks of age) among HIV-infected infants reduces infant mortality by 76% and slows disease progression. Both the World Health Organization and Kenyan National Guidelines recommend immediate ART initiation for all HIV-infected infants; however, inefficiencies in early infant diagnosis prevents timely ART initiation among HIV-infected Kenyan infants. This study assesses timing of ART initiation and predictors of timely ART initiation among HIV-infected Kenyan infants.
Methods: We retrospectively reviewed data from 96 infants identified as HIV-infected between January, 2013 and December, 2017 at 6 Kenyan government hospitals. The primary outcomes were:
(1) infant receipt of ART by 12 weeks of age and;
(2) immediate ART initiation (within 3 days of maternal notification of the infant's positive test result).
We assessed bivariate and multivariate predictors of ART initiation by 12 weeks of age.
Results: Among 96 HIV-infected infants, 82 (85.4%) infants started ART. Average infant age at ART initiation was 19.3 weeks and average time from mother notification of a positive result to ART initiation was 22.5 days.
Of the 82 infants that started ART, only 17 (20.7%) initiated ART by 12 weeks of age. Even when diagnosed early (<7 weeks), more than half (57.9%) failed to initiated ART by 12 weeks of age.
Of the 78 infants with recorded dates of mother notification and infant ART initiation, only 30 (38.5%) received ART within 3 days. In multivariable logistic regression analyses, infants tested <7 weeks of age and those who initiated ART within 3 days of result notification were significantly more likely to initiate ART by 12 weeks of age (AOR 143.8 [6.1->999], p=0.002) and (AOR 20.1 [1.9-213.2], p=0.013), respectively.
Each additional week for results notification significantly reduced the odds of ART initiation by the 12 week target (AOR 0.39 (.21-.75), p=0.004).
Conclusions: Delays in initiation of ART compromise the benefits of life-saving ART for HIV-infected infants. These findings highlight the need for urgent engagement with key stakeholders (clinicians, patients/guardians, and policy makers) to ensure immediate initiation of ART for HIV-infected infants to significantly increase the proportion of HIV+ infants initiating ART by 12 weeks of age.

THPEE716

Evaluation of a comprehensive approach to close the paediatric HIV programme gap in Johannesburg, South Africa

C. Tait[1], K. Monchwe[1], T. Chiloane[1], M. Mabitsi[1], H.E. Struthers[1,2], J.A. McIntyre[1,3], R.P.H. Peters[1]
[1]Anova Health Institute, Johannesburg, South Africa, [2]University of Cape Town, Division of Infectious Diseases and HIV Medicine, Department of Medicine, Cape Town, South Africa, [3]University of Cape Town, School of Public Health & Family Medicine, Cape Town, South Africa

Background: Since the rollout of the South African HIV programme, the country has made tremendous progress in expanding paediatric treatment coverage. Despite this, considerable effort is required to ensure that all HIV-infected children are linked to treatment. The Paediatric and Adolescent Scale-up Project collaborative aimed to close this programme gap.
Description: We implemented a comprehensive approach of technical assistance and direct service delivery by roving teams to target children (< 15 years of age) missing from the HIV programme in sub-districts CDEG in Johannesburg Health District, between September 2015 and Decem-

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ber 2017. Interventions included case-finding strategies, data driven linkage to care support, paediatric case management strengthening and data systems improvement. Routine operational and programme data were collected and analysed.

Lessons learned: Over a two-year period, a total of 84097 children were tested for HIV at facilities in the supported sub-districts; 2317 (2.8%) of whom tested HIV-positive. 69.6% (n=58544) of the total tests were in under-five children, and 51.4% (n=1192) of the positive tests were in this age group. Project implementation resulted in a significant increase in testing uptake (from 1050 to 3504/month; p< 0.001) and number of children testing positive (from 61 to 96/month; p< 0.001); test positivity rate dropped from 4.0% to 2.3% (p< 0.05). The absolute number of children initiated on ART remained in a similar range, at around 800 per year, illustrating reduction in linkage to care. Despite intensive efforts, programme retention rate decreased over time with one-year loss to follow-up increasing from 18% to 21% overall, but 27% in under-fives; one-year viral suppression rate also decreased from 72% to 56%.

Conclusions/Next steps: Our comprehensive model has successfully enhanced scale-up of paediatric HIV testing and case finding in regions CDEG of Johannesburg over time, although other factors could also have played a role. The high rate of loss to follow-up and low rate of viral suppression warrant attention, especially in children under 5. In order to close the paediatric HIV programme gap, focus of effort should shift from case finding strategies to strengthening the quality of care and psychosocial adherence support to dramatically improve linkage and retention in care.

THPEE717

Evaluation of PMTCT program performance using HIV exposed infants final outcomes in eight districts of mid-western Uganda

E. Mugisa[1], D.J. Birungi[2], D. Damba[3], A.S. Lutaaya[3], A. Kekitiinwa[4]
[1]Baylor-Uganda, PMTCT, Kampala, Uganda, [2]Baylor-Uganda, HIV Prevention, Kampala, Uganda, [3]Baylor-Uganda, Monitoring and Evaluation, Kampala, Uganda, [4]Baylor-Uganda, Research, Kampala, Uganda

Background: The Uganda AIDS Control Program with support from the Centres for Disease Control and Prevention (CDC) and Implementing partners began implementation of HIV Exposed Infant (HEI) birth cohort monitoring in April 2016. Using the birth month and year, each exposed infant is followed up longitudinally for a recommended period of 18 months. At every visit, HEI receives comprehensive clinical care including HIV testing, growth monitoring and Cotrimoxazole prophylaxis. This study evaluates performance of Prevention of Mother to Child Transmission of HIV (PMTCT) programs using HEI final outcomes.

Description: We conducted a retrospective data review of final outcomes for HEI that turned 18 months of age using monthly final outcomes reports from 126 health facilities in eight districts of western Uganda. At the end of the follow up period, HEI received a final HIV test if they previously tested HIV negative or if previously tested HIV positive-they continue receiving antiretroviral treatment. HEI not active in care are documented as: lost, transferred out or died before 18 months of age.

Lessons learned: A total 4484 HIV exposed infants were registered in the birth cohort of January to December 2015. Eighteen months later, 81% (3653/4484) received HIV testing services within the recommended two months of age. 76% (3429/4484) completed 18 months follow up and were discharged HIV negative while 3% (136/4484) tested HIV positive and 95% of positive infants were initiated on lifelong antiretroviral therapy. 2.5% (111/4484) died, 9% (397/4484) were lost to follow and 11% (513/4484) were transferred to other health facilities before the recommended 18 months of age. 2.2% (100/4484) of HEI were active in care at 18 months but not tested for HIV.

Conclusions/Next steps: In predominantly breastfeeding populations, the proportion of HEI that tested HIV positive at 18 months of age was less than the World Health Organization PMTCT target of < 5%. Given that Mother to Child Transmission of HIV is a key PMTCT outcome indicator; the above HEI final outcomes indicators are useful in evaluating effectiveness of PMTCT in resource limited settings.

THPEE718

Factors affecting formal education of children living with HIV in Coastal Kenya: Findings from a qualitative inquiry

A. Shamsudin[1], J. Kwatampora[2]
[1]AIDS Healthcare Foundation - Kenya, Mombasa, Kenya, [2]AIDS Healthcare Foundation - Kenya, Nairobi, Kenya

Background: The HIV pandemic has had a profound negative impact on the education sector globally and in Kenya. HIV infected children living in sub-Saharan Africa have been disproportionately affected in terms of their academic progression and achievement. With over 1.5 million people living with HIV (PLWH) in the country, Kenya has the fourth largest HIV epidemic globally. Of these PLWH, close to 100,000 are children aged 15 years and below. The objective of this study was to explore factors that affect the formal education of children living with HIV (CLWH) in Coastal Kenya.

Methods: A qualitative study design using the phenomenological approach was employed. In-depth interviews and focused group discussions were conducted with 42 caregivers and school teachers of CLWH in Mombasa, Mtwapa and Kilifi towns of Coastal Kenya. The study participants were recruited through purposeful and snowball sampling. Data were collected between November and December 2017 and subjected to thematic content analysis. Ethical considerations were observed in accordance with the principles of the Declaration of Helsinki.

Results: The major themes identified were: (i) Socioeconomic difficulties in skipped-generation households where children orphaned by HIV had to drop out of schools and become breadwinners for their siblings and aging grandparents. (ii) Stigma and discrimination because of the children's HIV status affected their access to formal education. (iii) Absenteeism from school because of prolonged illness and frequent clinic visits prevented CLWH from doing well in school. (iv) The psychological impact of HIV on children leading to fear, depression, anxiety, hopelessness, and self-guilt affected their academic performance.

Conclusions: Access to quality education is a fundamental right of all children and it should continue to be an important agenda of all Public Health interventions targeting CLWH. Further research is needed to elicit perspectives among population segments not sampled in this study.

THPEE719

A move towards targeted case-finding: A comparison of HIV testing modalities implemented by two unfinished business clusters

A. Mntambo[1], S. Bokolo[2], T. Kunene[3], S. Phakathi[4], T. Naidu[4]
[1]Aids Foundation of South Africa, HIV Prevention, Pietermaritzburg, South Africa, [2]Aids Foundation of South Africa, Durban, South Africa, [3]Aids Foundation of South Africa, Pietermaritzburg, South Africa, [4]Zoë-Life, Durban, South Africa

Background: UNAIDS 90-90-90 targets set country goals for HIV case finding, ART initiation and retention in care. Based on recent evidence, there has been shift from general testing to targeted approach of HIV case-finding. To increase efficiency of HIV testing services, new approaches are being adopted to identify priority populations. This analysis seeks to explore differences in testing yields from different testing modalities, at a community level.

Description: Data on HIV testing strategies were collected from two districts of KwaZulu Natal, one peri-urban and one predominantly rural community. Strategies for finding HIV positive children 18months - 19years included: adult index client tracing, targeted door-to-door testing and wellness days targeted at high risk areas. This analysis includes data collected over a period of seven months. The different testing modalities were tried out in the different sites and recording of the data under the appropriate testing modalities was done.

Lessons learned: HIV testing yields differed between the two clusters, and between testing strategies. Door-to-door testing, which has over the years been a main strategy in the community, initially showed a higher yield (7.0% in May 2017) in the peri-urban community where hot spots and informal settlements were targeted. However, this yield reduced af-

ter six months, reaching 1.0% by Nov 2017. This reduction was thought to result from team exhausting households with individuals at higher risk, in the area. In the predominantly rural community, adult index tracing showed slightly higher yield. Index testing yield started picking slowly but soon increased in August to reach 7.0%, far exceeding the other strategies. Wellness days held in both peri-urban and rural communities showed low yields compared to the other strategies.
Conclusions/Next steps: A blanket approach in adopting HIV testing modalities cannot be applied, as different settings have different modalities that yield higher positivity. Both index tracing and targeted door-to-door approaches could produce higher yield, if implemented in the correct context.

THPEE720

Improvements in pediatric HIV case identification across 17 health facilities in Lagos, Nigeria: A quality improvement collaborative approach

O. Olatoregun[1], B. Banigbe[1], K. Njoku[2], P. Okonkwo[1], T. Jolayemi[1], R. Olaitan[1], O. Eberendu[1], E. Aiyenigba[2], R. Boccanera[3], D. Ikeda[4], B. Agins[4]
[1]AIDS Prevention Initiative Nigeria (APIN), Abuja, Nigeria, [2]IHI, Boston, United States, [3]Health Resources and Services Administration, Rockville, United States, [4]HEALTHQUAL - UCSF, San Francisco, United States

Background: Over 300,000 children (<15 years) are estimated to be living with HIV in Nigeria, yet less than 15% are receiving antiretroviral therapy (ART). Despite national recommendations to offer HIV testing to pediatric patients of unknown HIV status with high suspicion of infection, testing coverage among these patients remains low, indicating suboptimal uptake of these recommendations.
Description: AIDS Prevention Initiative Nigeria (APIN) partnered with HEALTHQUAL at the University of California, San Francisco to implement a quality improvement collaborative (QIC) with the aim of improving pediatric HIV case identification in high-yield service delivery points across 17 primary and tertiary health facilities in Lagos State. Facility-level training, guidance, and coaching on quality improvement (QI) methods were provided by APIN with technical support and mentorship from HEALTHQUAL and improvement advisors from the Institute for Healthcare Improvement. Performance measurement data on HIV testing rate and yield were reported on a fortnightly basis, with facilities conducting root cause analyses, process mapping, and rapid-cycle PDSAs to devise interventions based on analyses of performance data. Teams from participating sites were convened on a routine basis to present implementation plans and compare progress.
Lessons learned: In the first quarter of QIC implementation, testing coverage of eligible pediatric patients increased by 27% compared to baseline. Among 16,146 children who received HIV testing services in the QIC's first quarter, 69 (0.43%) were newly identified as HIV-positive, representing a 36% increase in the number of newly diagnosed children compared to baseline. Change ideas adopted by facilities to improve case identification included intensified index case finding, training of healthcare workers on HIV testing services and optimal documentation, and screening of all children using a validated screening tool (Bandason et al. 2016). QIC implementation is ongoing as of February 2018.
Conclusions/Next steps: Implementation of a QIC led to improvements in case identification of HIV-infected children in Lagos State, and to the compilation of evidence-based interventions ("a change package") that will be spread to APIN-supported facilities in Benue State in 2018.

THPEE721

Reaching the unreached HIV positive children with quality care & treatment through telemedicine: An innovative pilot initiative

M.V. Manglani[1], Y. Gabhale[1], M.M. Lala[1], S. Balakrishnan[2], K. Bhuyan[2], B.B. Rewari[3], P. Singh[4], I. Kundan[4], M.S. Setia[5]
[1]The Pediatric Center of Excellence for HIV Care, Lokamanya Tilak Municipal Medical College & General Hospital, Department of Pediatrics, Mumbai, India, [2]UNICEF, Mumbai, India, [3]NACO, New Delhi, India, [4]Maharashtra State AIDS Control Society, Mumbai, India, [5]The Pediatric Center of Excellence for HIV Care, Lokamanya Tilak Municipal Medical College & General Hospital, Epidemiology, Mumbai, India

Background: The study was designed to compare the outcomes in Children Living with HIV/AIDS [CLHA] receiving care & treatment from ART centres linked to Pediatric Center of Excellence for HIV Care through telemedicine versus those that are not linked and to determine if the initiative has improved the quality of care in the linked ART Centers compared to the non-linked ART Centers.
Methods: A retrospective analysis of 5411 children upto 18 years of age, from 31 Telemedicine Linked [19 Linked-regular (≥12 video-conference sessions) and 12 Linked-irregular (≤12 video-conference sessions)] centres and 28 Non-Linked centres in the state of Maharashtra, India. We compared CLHA alive on Pre-ART/ ART, lost to follow-up (LFU) on Pre-ART/ ART; death during the Pre-ART/ ART, eligible but not initiated on ART; baseline CD4 counts (actual and number missing), latest CD4 counts, and regular visits between these three types of centres.
Results: Of the total children, 3676 (68%) were on ART and 1735 (32%) were in the Pre-ART group. In the Pre-ART group, the proportion of children alive was high in the Linked-regular centres compared with Linked-irregular centres, and Non-Linked Centres (79% vs 76% vs 70%, p=0.001) and proportion of children who were LFU was lower in Linked centres (regular and irregular) compared with Non-Linked centres (6% vs 5% vs 8%, p=0.09). In the ART group, the baseline CD4 counts were missing in a significantly lower proportion of children in the Linked-regular centres compared with Linked-irregular centres and Non-Linked centres (6% vs. 11% vs. 7%, p< 0.05), and the latest CD4 counts were missing in a significantly lower proportion in the Linked-regular centres compared with Linked-irregular centres and Non-Linked centres (12% vs. 31% vs. 30%, p< 0.001). Comparison between three groups is in Table 1.
Conclusions: Our study showed that the centers linked through regular telemedicine performed better in terms of patient care & treatment - higher proportion of CLHA alive and fewer LFUs. Overall, this pilot project of Telemedicine for Pediatric HIV has proved to be acceptable, feasible, and effective in improving the quality of care for children living with HIV across the state of Maharashtra.

	All Centers	Non-Linked Centers	Linked-irregular Centers	Linked-regular Centers	p value
Total CLHA	5411 [100%]	2608 [100%]	1365 [100%]	1438 [100%]	
Alive	4073 [75%]	1977 [76%]	973 [71%]	1123 [78%]	<0.001
Lost-to-follow-up	300 [6%]	130 [5%]	105 [8%]	65 [5%]	<0.001
Dead	230 [4%]	100 [4%]	56 [4%]	74 [5%]	0.13
Baseline CD4 missing	248 [5%]	107 [4%]	83 [6%]	58 [4%]	0.009
Latest CD4 missing	1035 [19%]	554 [21%]	352 [26%]	129 [9%]	<0.001
Baseline CD4 count Median (IQR)	408 (209-765)	415 (213-765)	386 (179-748)	420 (217-771)	0.009
Latest CD4 count Median (IQR)	486 (267-801)	493 (268-834)	449.5 (242-791)	497.5 (295-776)	0.01

[Table 1: Comparison of select parameters in 5411 CLHA in Telemedicine Linked-regular, Linked-irregular & Non-Linked ART centres in Maharashtra, India]

Approaches to minimising loss in the prevention/treatment cascade

THPEE722

High rates of successful tracing and re-engagement in HIV care using Expert Clients in Malawi

E. Chikuse[1], K. Phiri[1], P. Kalande[1], K. Dovel[1,2], M. Sarena[1], A. Schooley[1,2], EQUIP Innovations for Health
[1]Partners in Hope, Lilongwe, Malawi, [2]University of California, Los Angeles, Division of Infectious Diseases, Los Angeles, United States

Background: Tracing and re-engaging HIV-positive clients who have difficulty staying in care is a growing challenge for the health system in Malawi. Partners in Hope, an EQUIP partner, introduced Expert Clients (ECs), who are HIV-positive volunteers from the local community, to assist in client tracing and follow-up.
Methods: Between October - December 2017, ECs received a 2-day training on client tracking tools and strategies for re-engaging HIV-positive clients in care. Facility data clerks reviewed medical records at 69 EQUIP supported health facilities and generated lists of clients with one or more criteria for tracking (defined as: defaulted from ART; missed ART appointment, high viral load; new positive but not initiated ART; or HIV-positive infants). Clients from the list were assigned to ECs for tracing and follow-up through phone calls, SMS, or home visits. Tracing outcomes were documented by ECs on a standardized client follow-up form. Client follow-up forms were reviewed to determine the proportion of clients traced, outcomes and re-engagement in care.
Results: 12,008 clients met one or more criteria for tracing, with nearly half of clients missing an ART appointment (Table). 9,685 (80.7%) of clients were traced and 6,698 (69.1%) of those traced re-engaged in care. Defaulters and HIV-positive clients who never initiated ART were least likely to return to care (48.9% and 51.4%, respectively). Reasons for not re-engaging in care included death, undocumented transfer to another health facility, or unwilling to come back to care.
Conclusions: We were able to reach a high proportion of clients in need of tracing through the use of EC volunteers who were familiar with the local community. In order for countries to meet the 90/90/90 goals interventions for retaining clients in care are needed. This study demonstrates one low-cost solution. Based on the lower proportion of re-initiates, new strategies for re-engaging clients who default or never initiate ART may be warranted. Additional work is needed to identify methods to reduce lost-to-follow-up and to ensure that clients who re-engage in care receive additional support to avoid future loss-to-follow-up. Additional comparison studies including costing evaluations should be conducted.

Classification	# Out of Care	# Traced	Returned to Care (of those traced)
Defaulters	3437 (28.6%)	2646 (77%)	1317 (49.8%)
Missed appointments	5651 (47%)	4689 (83%)	3635 (77.5%)
Clients with high VL	1642 (13.6%	1358 (83%	1083 (79.7%)
New Diagnosis without ART initiation	1201 (10%)	923 (76.8%)	618 (51.4%)
HIV Positive Infant	77 (0.6%)	69 (90%)	45 (65.2%)
Total	12,008	9685	6698

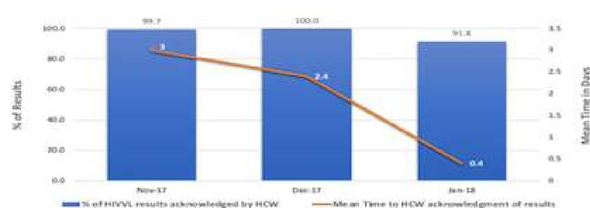
[Table. Description of clients in need of tracing and tracing outcomes by criteria type (n=12,008)]

THPEE723

Improving the efficiency and timeliness of healthcare workers to manage HIV viral load and EID patients through a digital result reporting platform

N. Gous[1,2], F. Chirwa[2], J. Chikonda[3], J. Takle[2], A. Schooley[3,4]
[1]SystemOne, Johannesburg, South Africa, [2]SystemOne, Springfield, United States, [3]Partners in Hope, Lilongwe, Malawi, [4]David Geffen School of Medicine at the University of California, Los Angeles, United States

Background: As HIV antiretroviral (ART) programs scale, paper-based reporting of centralized HIV viral load (HIVVL) and early infant diagnostic (EID) results are adding strain on overburdened clinics, leading to delays in clinical outcomes due to lost/misplaced results and difficulties in scheduling patient return appointments. In Malawi, 650 ART sites manage over 600,000 HIV-positive patients. Healthcare workers (HCW) are faced with increasing workloads and few tools to improve efficiency of patient management.
A platform was developed to improve timeliness of HIVVL/EID result delivery, data management and patient care by increasing the efficiency of HCW to act on results compared with paper reporting.
Methods: Aspect Reporter™(SystemOne) is a self-contained, solar-powered clinical device that receives digital HIVVL and EID results from the laboratory using an Android-based tablet. It allows HCW's to review, acknowledge, search, quickly identify flagged results, and receive alerts. Reporter was piloted in 12 clinics in Malawi to assess: time and reliability of digital result delivery;% of results acknowledged and time to acknowledgement; and user acceptance (questionnaire).
Results: November 2017-January 2018: Mean time to delivery of results using paper (22 days; n=487) versus Reporter (1.4 days;n=1,742)(P< 0.001); 5% of paper results reported missing in register; no results on missing Reporter.
Of 653 results delivered to Reporter in November 99.7% were acknowledged; December 100% (604/604) acknowledged; January 92% (445/485) acknowledged; Mean time for HCW acknowledgement of results declined from 3 days to 0.4days (Figure 1). Manual review of clinic register showed that 52% of results received on Reporter were transcribed into the VL register. Questionnaire (n=11 HCW);91% logged onto Reporter daily;89% found result lookup easier than manual paper review;82% reported it assisted with work;100% satisfied with design.
Conclusions: Reporter allowed HCW's to remotely confirm delivery of results, access and identify abnormal results within a significantly shortened TAT compared to paper reporting. Usage was high, indicating easy integration with workflow but no increase in proportion of results entered into the VL register. This indicated that updating the register is an additional burden to HCW. Providing an end-to-end solution (additional fields in Reporter for all steps in cascade) would increase utility and lower effort of HCW.



[Y axis shows the percentage of digital HIVVL results acknowledged on Reporter by HCW; secondary Y axis shows the mean time in days to acknowledgement]

THPEE724

Progress towards elimination of new HIV infections in Oyo State, Nigeria, through prevention of mother to child transmission of HIV

O. Ayinde[1], B. Ladi Akinyemi[2], O. Ogunsola[2]
[1]Ministry of Health, Public Health, Ibadan, Oyo State, Nigeria, [2]APIN Public Health Initiative in Nigeria, Ibadan, Oyo State, Nigeria

Background: The global community has set an ambitious target in agreement with the Sustainable Development Goals of "virtual elimination" of pediatric HIV. This appears feasible, due to new advances in health policies. Efforts have been made to prevent mother-to-child transmission (PMTCT) of HIV in sub-Saharan Africa. Nigeria still has the second highest burden in PMTCT. Little evidence has been published on eliminating MTCT of HIV, in Nigeria. This study seeks to analyze PMTCT implementation progress, towards elimination of HIV infections among children. in Oyo State, Nigeria.

Methods: A cross sectional retrospective study was carried out. A 5-year (2012 to 2016), data, was collected from all PMTCT facilities in Oyo State. The study population included all pregnant women who utilized ANC and PMTCT services during the study period. Data collected was analyzed, using SPSS version 20.

Results: PMTCT facilities increased from 9 in 2012, to 176 in 2016. A total of 486,677 (56,951 in 2012 and 109,221 in 2016), pregnant women, aged16 to 44 years, (mean, 26.6 ± 5 years) attended ANC. Women tested for HIV at ANC increased significantly, (t = 8.502; CI = 95%; $P<0.05$), from 55,666 in 2012, to 104,551, at the end of 2016. During every first ANC visit, women had 86.6% likelihood of getting tested for HIV (r = 1:0.866; $P<0.05$). The HIV positivity rate decreased from 1572 (2.28%) to 1,475 (1.40%), at $P<0.05$. Positive women treated increased from 1053 (67%), to 1,235 (83.73%). Early Infant Diagnosis (EID) services showed that HIV Exposed Infants (HEI), placed on ARVs increased significantly from 416 (26%) to 768 (52%), significant at $P<0.05$. The increase was significantly influenced by the number of HIV positive women receiving ARV, by 90.8% (F = 29.76; R^2 = 0.908; $P<0.05$. HEI who had Cotrimoxazole prophylaxis increased by 39% (from 478 to 783) and first DNA PCR by 31% (from727 to 1055).

Conclusions: In conclusion, there was progress towards elimination of new HIV infections among children. Further studies are recommended to determine how best to reach children with effective services in the state, to eliminate MTCT of HIV in line with UNAIDS (2016), Start-Free, Stay-Free, AIDS-Free Framework.

THPEE725

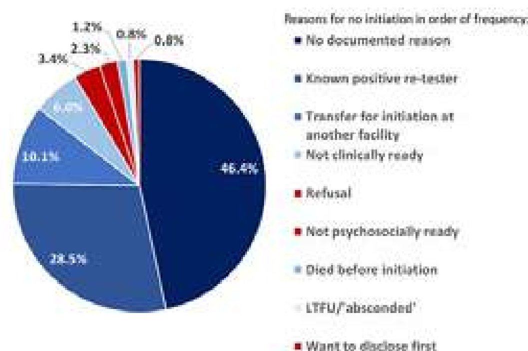
Are you ready? Patient readiness for ART in treat all era, Zimbabwe

K. Webb, V. Chitiyo, N. Tungwarara, S. Page-Mtongwiza, T. Maphosa, P. Nesara, B. Engelsmann
Organization for Public Health Interventions and Development (OPHID), Operational Research, Harare, Zimbabwe

Background: Failure to link to treatment following HIV positive diagnosis accounts for greatest leakages across the HIV care cascade. With an adult prevalence of 14.6%, linkage to HIV treatment is a key performance indicator in Zimbabwe's HIV Care and Treatment Program. However, aggregate data precludes routine reporting of reasons clients fail to initiate ART after diagnosis. Our objective was to establish the reasons for failure to start ART among clients newly testing HIV positive.

Description: We conducted a retrospective cohort analysis of routinely collected facility data among clients testing HIV positive from Oct-Dec 2017 at 7 purposively selected health facilities in 5 Districts of Zimbabwe. Selected facilities had < 85% linkage of new HIV positive clients to ART initiation in aggregate program data. Client characteristics, ART initiation, and reasons for no ART initiation were entered into MS Access and analysed using STATAV12. A facility survey of perceived facilitators and barriers to patient readiness for ART was conducted with health care workers and PLHIV to identify key operational themes.

Lessons learned: Among 894 patients diagnosed HIV positive, 29.3%(n=262) had no documented ART initiation. There was no reason documented for 46.4% (n=124) of clients not initiated. The most commonly documented reason for no ART initiation was client subsequently identified as already on ART with known HIV positive status during pre-ART counselling 29.0% (n=76). 'Not ready' factors (psychosocial, disclosure or refusal) accounted for 6.5% (17/262) of documented reasons for failure to link to ART.



[Reasons for failure to initiate ART following HIV positive test result Sept-Dec 2017 (N=262)]

Men were more likely than women to have not started ART due to existing opportunistic infections or TB treatment/investigations (13.3% vs. 2.3%; p= 0.0021). Enhanced pre- and post-test counselling, assisted problem solving and more 'take away' information were key themes among interventions to enhance patient preparedness for early ART.

Conclusions/Next steps: 'Patient readiness' factors were infrequently cited reasons for failure to start ART following HIV positive diagnosis. High proportion of undocumented reasons for failure to link, has resulted in programmatic actions including weekly identification of unlinked clients and active follow-up for return to care and outcome documentation. Future research should identify cost-effective interventions to strengthen testing-treatment linkages in routine public health settings.

THPEE726

Patients' satisfaction with HIV care providers in public health facilities in Lusaka - a study of patients who were lost-to-follow-up from HIV care and treatment

N. Mukamba[1], O.N. Chilyabanyama[1], S.R. Schwartz[2], L.K. Beres[2], S. Simbeza[1], K. Sikombe[1], N. Padian[3], C.B. Holmes[4], I. Sikazwe[1], E.H. Geng[5], Better Info Study Group
[1]Centre for Infectious Disease Research in Zambia (CIDRZ), Lusaka, Zambia, [2]John Hopkins University, Baltimore, United States, [3]University of California, Berkeley, United States, [4]Georgetown University, Washington DC, United States, [5]University of California, San Fracisco, United States

Background: In North America and Europe,health systems routinely survey patient satisfaction in order to improve health services.Despite widespread problems with retention of HIV patients in Africa in HIV care,assessments of patient perspective as a basis for improvement activities remain rare.We assessed satisfaction among patients previously lost-to-follow up from HIV care in Zambia and associations with re-engagement in care at a new facility.

Methods: Lost patients (>90 days late for last visit) identified through electronic medical record review were randomly sampled and intensively sought in Lusaka province.We used a structured 9-item questionnaire to measure patients' satisfaction with their healthcare providers,adapted from Adult Primary Care Questionnaire,previously validated in the US. Internal consistency across items was assessed with Cronbach's alpha. Exploratory and confirmatory factor analysis was used to assess tool performance and develop a satisfaction score subsequently used in logistic regression to model association between patient satisfaction and care status.The satisfaction score was a summation of responses to all 9 items on 5-point Likert scale (range: 9-45).A score >27 indicated satisfaction while ≤27 indicated dissatisfaction.

Results: Of patients contacted in person (n=615), 402 completed the satisfaction scale; overall among the 402, 57% (n=228) were out-of-care, while 43% (n=174) were in-care. The Cronbach's coefficient alpha for patient satisfaction scale was 0.98. Results indicated a high overall satisfaction of 76% (n=306) with healthcare providers. However, there were

higher levels of dissatisfaction with regard to time that healthcare providers spent with patients (37%) and carefully listened to them (29%).After adjusting for age, gender, facility type and CD4 count, satisfaction with healthcare providers was associated with higher odds of being in care (adjusted odds ratio: 2.95 [95% CI:1.58, 5.50], p< 0.01).Re-engagement at a new facility was 23% among those with low satisfaction and 48% among those with higher satisfaction.

Conclusions: An existing patient satisfaction scale from US exhibited construct validity in Zambia. Among lost patients,those expressing satisfaction were about twice more likely to have re-engaged in care even in an environment where structural (e.g. transport costs) and psychosocial barriers (e.g. stigma) are common. HIV services may want to routinely measure satisfaction to improve performance of HIV care and services in Africa.

THPEE727

Determining denominator - national effort to firm data on Lost to Follow up (LFU) on treatment for optimization of resources

R. Chauhan[1], M. Bamrotiya[2], R.S. Gupta[2], S. R M[1], P. Kumar[3], G. Pandey[1], S. Chakraborty[1], B. Bhagwan Ubarhande[1], V. Arumugam[1], R. Huidrom[3], U. Chawla[3], S. Mehta[3]
[1]India HIV/AIDS Alliance, Strategic Information, New Delhi, India, [2]National AIDS Control Organization, Care and Support Treatment, New Delhi, India, [3]India HIV/AIDS Alliance, Program and Policy, New Delhi, India

Background: Lost to follow up (LFU) on treatment is universal problem which most countries cannot resolve. India has an estimated 2.1 million people living with HIV, of which 1.2 million are registered and on ART. As per NACO data, 493,300 are LFU for treatment. Vihaan care and support programme that partners with NACO promises to bring the LFU cases back to treatment. However, there was a challenge in sharing the LFU list with outreach workers with traceable address. As principle recipient, India HIV/AIDS Alliance carried out collaborative intensive LFU drive with national, state and treatment units across the country between March 2017 to December 2017 to firm up the traceable LFU clients and bring back to the treatment for improved health outcome.

Methods: 437,774 LFU clients' line lists (till December 2017) were collected from 537 ARTCs. Collected line lists were transferred to standardized uniform formats and checked the quality in terms of completeness and accuracy at central level. Duplications and unclean data was removed. Cleaned line lists were shared with CSCs for tracing LFU clients and update the current status. During this validation process, ARTC documents and CSC records were reviewed and updated including the current status of client details. After data verification and validation, the updated LFU lists were collected back and analyzed to firm up the traceable clients.

Results: Out of the 437,774, 79.2% were contacted by CSCs. Of which, 12.2% were definite outcome (including brought back, death or transfer); 46.1% (201,781) with indefinite outcome (migrated or incorrect address); and the remaining 42% of the clients need focused intervention to link back to the treatment. The list now became half than the original which looked manageable. The list has been shared with respective CSCs to continue follow up and ensure re-link to treatment.

Conclusions: Effective collaboration between government and civil society led in firming up and re-link for higher retention in treatment. It took courage from government to clean up data, investment from NGO to invest in the process and hard work by the community outreach workers who actually was able to spend time and efforts with people who really needed them.

THPEE728

Early linkage to care by index patient design at large scale - experience from Vihaan care and support programme India

P. Kumar
India HIV AIDS ALLIANCE, Programme, New Delhi, India

Background: India HIV/AIDS Alliance and its partners implements the Global Fund supported Vihaan programme across India through 361 care and support centres (CSCs) complementing the national treatment programme. It promotes early HIV diagnosis and linkages to treatment service for sexual partners and family members of PLHIV. Vihaan works closely with national Integrated Counselling and Testing Centres (ICTCs) and antiretroviral therapy (ART) centres. Outreach workers from PLHIV community through home visits motivates family members for HIV testing by counselling on importance of early testing.

Methods: CSC report on HIV testing and linkages to ART centre of sexual partners and family members reported in management information system from CSCs between January to September 2017 was reviewed and analysed. Health parameter (CD4) were analysed for clients linked by CSC to ART centres and compared with state average CD4 of the PLHIV registered in the same period (between January to September 2017) at ART centre to measure early linkage.

Results: Among total 232,956 sexual partners and family members of PLHIV registered with Vihaan programme, 13,068 are eligible for HIV testing (6%). Among eligible clients, 7,209 (55%) got their HIV test done, received their report and 164 of them found positive, which accounts for 2% positivity (nationally positivity is <1% as per ICTC data). Descriptive analyses found that median CD4 of Vihaan linked PLHIV is higher (404 cells/mm^3) than the national CD4 average of those registered in the same period (254 cells/mm^3).

Conclusions: Focused intervention amongst family members of PLHIV who are most at risk of acquiring HIV through a peer led outreach and treatment literacy approach is effective for early detection and linkages with treatment. While India's public health system is working effectively, community-based models are essential to support the health and well-being of PLHIV and ensure successful HIV control across the country.

THPEE729

How a mobile HIV testing service in South Africa uses a centralised call centre to strengthen linkage to care among newly-diagnosed HIV positive clients

K. Pahl, B. Forgrieve, S. Stafford
Shout-it-Now, Tokai, South Africa

Background: In service to South Africa's 90-90-90 goals, Shout-it-Now (S-N) provides a community-based mobile HIV testing service (HTS) that has engaged more than one million clients since 2007, of whom 64,650 have been identified as HIV+. Linking community diagnosed HIV+ clients to care is a global challenge, and S-N has strived to minimize attrition from the "first 90" to the "second 90" through an iterative design of its linkage to care (LTC) services.

Description: From 2007-2011, S-N provided a standard LTC service for newly-diagnosed HIV+ clients comprised of onsite post-test counseling and a referral letter to a local clinic. Seeking improvements in its LTC rate, in 2012 S-N launched a multi-layered LTC process that utilized re-trained test site Counselors to immediately support clients, Community Liaisons to build stronger referral relationships with local clinics, and Care Coordinators (CCs) to provide free, 24-hour telephonic LTC support from a centralized Call Centre. Daily, a list of newly identified HIV+ individuals is automatically uploaded by S-N's integrated database to the Call Centre. Within 48 hours of an HIV diagnosis, a CC from the Call Centre contacts clients to commence a LTC support process.

CCs continue weekly telephonic contact with clients until they self-report a visit to a clinic for HIV treatment. In 2016 the Call Centre was further enhanced by the appointment of a dedicated manager, the hiring of additional CCs, and the training of all CCs in Motivational Interviewing.

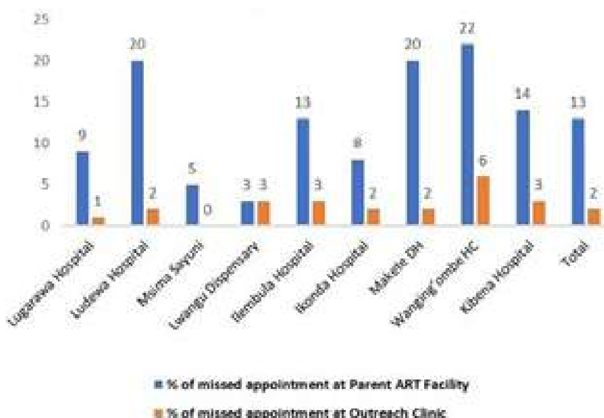
Lessons learned: Between 2007-2011, S-N's basic LTC service linked an average 37% of HIV+ clients to care. The revamped LTC program launched in 2012 resulted in an annual 51% LTC rate, and this approach incrementally improved to 61% by the end of 2015. Further Call Centre enhancements in 2016 improved S-N's LTC rate to 86% by 2017. Overall, slightly more females (79%) were linked to care than males (75%).
Conclusions/Next steps: At an average cost per client LTC of about $12.50, a mixed approach of onsite counselling and Call Centre delivered support provides a successful model for scaling up more robust LTC efforts for other community-based HTS programmes.

THPEE730

Decentralization of ARV refill in Njombe region, Tanzania; USAID Boresha Afya Southern Zone strategy towards reaching the 'hard-to-reach' patients

E. Okechukwu[1], J. Gamaliel[1], S. Msuka[1], E. Mlacha[2], B. Christian[3], M. Njozi[2], A. Ikonje[2], M. Ndile[2], J. Bisimba[4], P. Swai[4], M. Njelekela[2]
[1]Family Health International (FHI 360), Global Health, Dar es Salaam, Tanzania, United Republic of, [2]Deloitte Consulting Limited, Dar es Salaam, Tanzania, United Republic of, [3]Management and Development for Health, Dar es Salaam, Tanzania, United Republic of, [4]US Agency for International Development, Dar es Salaam, Tanzania, United Republic of

Background: Successful Antiretroviral therapy (ART) depends critically on good medication adherence, which in turn depends on regular ARV refill and retention on treatment. Since ART is lifelong, this need to be sustainable by the clients. Distance and transportation costs to the health facility are known barriers. In this study, USAID Boresha Afya Southern Zone program evaluated decentralized ARV outreach strategy implemented in 'hard-to-reach' areas in Njombe Region, Tanzania.
Description: The program proactively tracks 'missed appointments' and document tracking outcome. Analysis of these data from nine ART facilities in Njombe Region revealed that distance to the facility and cost of transportation were the major factors. The 'returned clients' were counselled and re-assessed. Using their addresses, all patients who were categorized as 'stable on ART' were mapped and assigned to Dispensaries serving as ´Community ARV Refill Centers´ in the communities closer to their homes. A team of healthcare providers (Adherence Counselors and Clinicians) from the ART facilities conducted monthly ARV refill outreach on designated days at these Dispensaries. The clients were evaluated using the national tools and those with additional need were referred to the 'parent' ART facility. Six months (May-November 2017) data on the missed appointments and ARV pick up rate in both centers were analyzed and compared using STATA 15.1.
Lessons learned: Overall, 13,762 and 1,585 ART clients were served at ART health facilities and Dispensaries respectively. The mean percentage of missed appointment at ART health facilities was 12.6 (7.3-18.0) while for Dispensaries was 2.4(1.1-3.7). This result shows a significant difference in missed appointments between patients served at both centers, 10.2 (5.4-15) p=0.001. Also, using ARV refill rate as a proxy for adherence; good medication adherence was observed among those served at the Dispensaries (98%) compared to those served at the ART facility (87%).



[Comparison of Missed Appointment at 'Parent ART' Facilities and Outreach Clinics, May - November 2017]

Conclusions/Next steps: Decentralization of ARV refill for stable patients significantly reduces 'miss appointments'; thus, improves patient adherence. This reduces clinic congestion, provider workload and overall patients' waiting time at both facilities. Programs should continue to use service delivery data to develop suitable patient-tailored local interventions to respond to emerging clients' needs.

THPEE731

High linkage and retention in HIV treatment among men who have sex with men receiving health navigation services in Guatemala City

N. Farach[1], E. Noj[2], M. Anton[3], R. Calderon[2], S. Northbrook[1], R. Mendizabal-Burastero[2]
[1]Centers for Disease Control and Prevention (CDC), Division of Global HIV and Tuberculosis, Central America Regional Office, Guatemala City, Guatemala, [2]Universidad del Valle de Guatemala, Guatemala City, Guatemala, [3]Ministerio de Salud Publica, Guatemala City, Guatemala

Background: Men who have sex with men (MSM) have a high HIV prevalence in Guatemala City and face multiple barriers to health, including suboptimal linkage and retention in HIV treatment. We implemented a health navigator model in three government-run clinics offering HIV testing and counseling to MSM in Guatemala City to increase adherence to treatment among individuals newly diagnosed with HIV.
Description: The model included three distinct phases: HIV result acceptance, linkage to care, and retention and adherence to treatment. Individuals newly diagnosed with HIV were offered health navigation services on the same day they were diagnosed. Consenting individuals discussed their preferences regarding HIV treatment access and social support with the assigned navigator. Navigators worked with patients to establish a date for their first medical appointment or create a follow-up plan if the patient was not emotionally ready. In the subsequent 6 months, navigators followed up via phone calls or visits to check on patient's medical and emotional status and their experience receiving clinical care. Navigators engaged with HIV reference hospital clinical staff to ensure patients received a clinical evaluation, had laboratory tests conducted (including HIV viral load and CD4 count), and received prophylactic treatment for opportunistic infections. When requested, navigators assisted patient disclosure of HIV status to their social network, partner referral to HIV testing, and linkage to social support programs.
Lessons learned: From October 2016 to September 2017, 264 individuals were newly diagnosed with HIV at participating sites. Of these, 95% consented to navigation services, 92% were linked to ART clinics within a median of 3 days (IQR 1-6.5), and 85% were retained in treatment at 6 months, compared to the national average of 56% for both linkage and retention. Navigators frequently provided emotional support in non-working hours. For optimal results, navigator workload should not exceed 20 newly diagnosed and 40 follow-up clients per month.
Conclusions/Next steps: The Ministry of Health could integrate navigation into its HIV service portfolio and expand the model to additional HIV testing sites in high burden areas. Strategies to hone navigator's emotional support skills, promote assisted partner notification, and maintain viral suppression among navigated patients should be considered.

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THPEE732

Bridging communication gap in HIV treatment programs through Closed user group (CUG) mobile technology: Approach to HIV patient monitoring and referrals services on the strengthening integrated delivery of HIV/AIDS services project

O. Yemisi Bolanle[1], O. Agbaje[1], I. Utuk[1], C. Momah[1], C. Agbakwuru[2], E. James[3], O. Olayemi[1], H. Khamofu[4], S. Raj Pandey[1]
[1]FHI 360, Program Management, Garki, Nigeria, [2]FHI 360, Monitoring and Evaluation, Abuja, Nigeria, [3]United States Agency for International Development (USAID) Nigeria, Abuja, Nigeria, [4]FHI 360, Prevention Care and Treatment, Garki, Nigeria

Background: Timely and complete referrals for HIV clients in need of care within health facilities, facility-community and inter facility is crucial in closing the gaps for HIV care. Monitoring, tracking and routine interaction with HIV clients by health workers and case managers has been proven to reduce leakages in treatment cascades and improve retention in care.
However, most health facilities in Nigeria are challenged by the non-existence of communication infrastructure or resources required to facilitate timely tracking and completion of referrals for HIV positive clients. The USAID-funded Strengthening integrated delivery of HIV/AIDS services (SIDHAS) project implemented the provision of closed user group (CUG) mobile technology as a strategy to closing the gap.
Description: SIDHAS procured 2,606 mobile phones and lines, distributed to 785 health facilities, laboratories and 28 community based organizations across 13 states in Nigeria. Mobile networks were distributed according to the strength of network available in the locale. The CUG allowed health workers providing HIV care and treatment services to call each other within the network with zero charges and to follow up HIV clients referred within service delivery points and those referred to other health facilities to ensure complete referrals. A desk review was conducted on the CUG directory and communication logs for 4 states between June - December 2017.
Lessons learned: Review of the phone directory and call logs shows evidence of inter and intra facility communications, therefore contributing to improved referral and linkage rate from 39% to 74% within the period for some states. Data collected from 4 states also showed about 2240 defaulters returned within the period compared to 785 that returned to care before the CUG implementation. Overall, Improvement in completion rates for referrals and tracking and provision of adherence support to HIV clients was recorded.
Conclusions/Next steps: Given the results demonstrated by removing communication barriers and bridging the gap through CUG innovation, expanding CUG distribution to support groups in communities can be explored to reducing stigma and closing communication gaps amongst infected individuals.

Getting policies into practice

THPEE733

Time to first viral load testing among HIV positive pregnant women initiated on Option B+ at 5 government clinics in Kampala

P. Atuhaire[1], F. Matovu[1,2], D. Guwattude[2]
[1]Makerere University - Johns Hopkins University Research Collaboration, Kampala, Uganda, [2]Makerere University College of Health Sciences, School of Public Health, Kampala, Uganda

Background: Timely viral load (VL) testing is critical in the care of Human Immunodeficiency Virus (HIV) infected pregnant women in order to measure treatment success and assure elimination of mother-to-child transmission (eMTCT) of HIV to unborn children. Though the World Health Organization (WHO) recommends Time to First Viral Load (TFVL) testing as 6 months post initiation of Anti-retroviral therapy (ART), this is not always logistically feasible in resource-limited settings. We sought to establish the TFVL testing and associated patient factors at five eMTCT clinics in Kampala, Uganda.
Methods: We extracted clinical and VL test data from maternal ART records of a retrospective cohort of HIV infected ART naïve pregnant women who initiated Option B+ between 01 January 2015 and 31 Dec 2015. The data were verified against laboratory VL registers. TFVL (in months) was calculated based on the time difference between date of ART initiation and that of first VL test. Descriptive and Cox regression analyses of data up to 30 Sep 2017 (33 months later) were done.
Results: Based on the electronic data base master list, 622/913 (68%) records were successfully retrieved. The rest (32%) were misplaced. Through the 33 months review period, 174/622 (27.9%), 23/622 (3.7%), and 1/622 (0.16%) respectively were lost to follow-up, transferred out, and died. Of 424 women retained in care, 182/424 (43%) had at least one VL result post ART initiation, 30/424 (7%) had a second VL, while 242/424 (57%) had no VL performed. At six, nine, and twelve months; only 8/424 (1.9%), 47/424 (11.1%), and 96/424 (22.6%) had VL testing performed respectively. The median TFVL testing was 6 months (95 CI 5.02-6.98) beyond the recommended time point. Across the five clinics; age, number of previous pregnancies, baseline CD4 cell count, WHO clinical stage, and adherence at 6 months were not statistically significant.
Conclusions: A dismal 1.9% rate of achieving WHO recommended TFVL testing, with a median TFVL testing of six months beyond recommended time were observed. The non-association of patient factors to these observations and 32% missing records may suggest a serious need to review health system factors likely associated with these observations and their effective interventions.

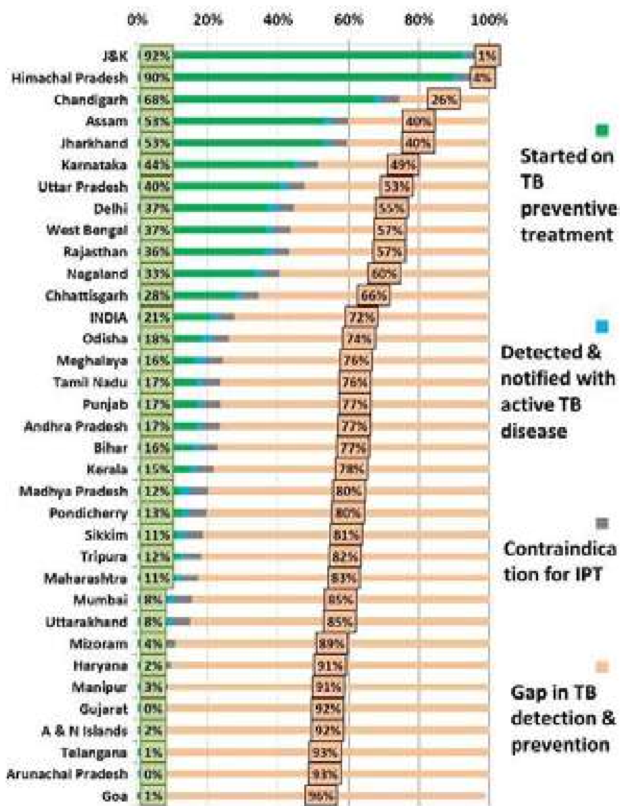
THPEE734

Status of provision of isoniazid preventive therapy for people living with HIV and lessons learnt from the challenges in the programmatic implementation and expansion in India

D. Balasubramanian[1], M. Gorla[2], R. Rao[2], N. Kumar[2], M. Bamrotiya[1], K.S. Sachdeva[1], R.S. Gupta[1], S.D. Khaparde[2], K.K. Rade[3]
[1]Ministry of Health & Family Welfare, National AIDS Control Organization, New Delhi, India, [2]Ministry of Health & Family Welfare, Central TB Division, New Delhi, India, [3]World Health Organization Country Office India, New Delhi, India

Background: Isoniazid Preventive Therapy (IPT) is one of the key interventions recommended by WHO to reduce the burden of TB in PLHIV. The initiative was launched by Ministry of Health, Government of India (GoI) on 01st December 2016. This article describes the progress from the policy decision, uptake of IPT and the programmatic challenges in its implementation.
The uptake of IPT across ART centres for 2017 was analysed using secondary program data & interaction with programme personal & health providers during meetings cum routine field visits.
Description: The IPT Implementation plan was approved in National Technical working group (NTWG) in August 2013 and the procurement of drugs were budgeted in New Funding Model Global Fund for AIDS Tuberculosis and Malaria (GFATM) Grant joint concept note for HIV/TB for 2014-17. The operational manual on IPT was approved in June 2016 and trainings of all ART centre staff were completed in September 2016. The GoI formally launched the initiative on 01st December 2016 for all ART centres in the country.
As of December 2017, all States/UTs except Arunachal Pradesh were implementing IPT services, with nearly 74% (392/533) ART centres having initiated patients. Among the 1.2 million eligible PLHIV, 21% (0.27 million) were initiated on IPT, with wide variation among the states ranging from 1% in Goa to 92% in Jammu & Kashmir. The gap in coverage of PLHIV by absolute numbers was highest in Maharashtra (0.18 million), followed by Andhra Pradesh (0.14 million).
Lessons learned: The slow uptake of IPT services in the ART centres was due to knowledge gaps in provision of IPT, non-availability of adequate quantities, especially Tablet Pyridoxine, and recommended dosage of drugs. Moreover there was incomplete documentation of cascade of patient's initiated on IPT. Capacity building on screening of

PLHIV, IPT eligibility and documentation was ensured during meetings and supervisory visits, permission was given to states to locally procure the non-available drugs and recommended dosages of Pyridoxine were modified based on local availability.



[State-wise coverage & gaps in TB preventive treatment for PLHIV]

Conclusions/Next steps: In order to fast-track initiation of PLHIV on IPT, an ongoing capacity building activity along with supportive supervisory visits and continuous availability of drugs may be undertaken.

THPEE735

Program science, program planning, and HIV/STD program practices in Miami, Florida, USA 2012-2018

W. Darrow
Florida International University, Health Promotion and Disease Prevention, Miami, United States

Background: At the National STD Prevention Conference held in Minneapolis, Minnesota, on March 12, 2012, the Associate Director for Science for the Division of STD Prevention at the Centers for Disease Control and Prevention (CDC) and her colleagues introduced “Program Science: A New Approach to STD Prevention Programs.” Program science with its “systems thinking” was proposed as “complementary” to traditional “linear thinking.” Importantly, “systems science” was offered as a vehicle to close the gap between interdisciplinary scientific research and program practice.
The purpose of our research was to evaluate the impact of the new “systems science” initiative on HIV/STD program planning and practices in Miami-Dade County, Florida, from 2012 to 2018.
Methods: Process evaluation was conducted by participant observation at publicly announced planning meetings of the Florida Department of Health and Ryan White Partnership, reviews of meeting notes and minutes, and studies of epidemiological reports, program updates, and other relevant documents distributed electronically or as photocopies. Content was reviewed for “program science,” “systems dynamics,” “network analysis,” “microsimulation” and other terms and phrases that local planners might have used to suggest the application of systems thinking and program science to the development of innovative HIV/STD prevention programs.

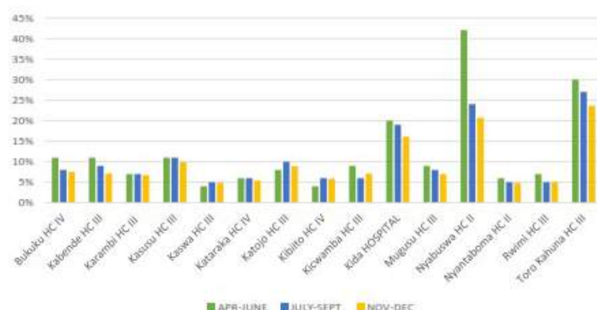
Results: The Miami-Dade HIV/AIDS Partnership Comprehensive Plan for 2012-2015, 2017-2021 Florida Department of Health Integrated Plan for HIV Prevention and Care, 2017 Mayor’s Task Force Final Report for “Getting 2 Zero-Miami,” and all other documents obtained and searched contained no reference to “program science” or to any of the concepts central to “systems thinking.” All HIV/STD planning documents produced from 2012 to 2018 in Miami-Dade County focused almost entirely on the goals of the 2010 and updated 2015 National HIV/AIDS Strategy.
Conclusions: The effort by CDC leadership to introduce program science into HIV/STD prevention planning and practices had no discernible impact in Miami-Dade County. The local program continued to select “high impact” biomedical interventions and supported enhanced pre-exposure and post-exposure prophylaxis, testing in non-traditional settings, linkage and retention in medical care. Future research must determine why HIV/STD programs adopt, ignore, or resist recommended changes for improving their theoretical methods, practical applications, and prevention services.

THPEE736

Role of onsite mentorship and coaching in reducing viral load sample rejection rates: A case study of Kabarole district in western Uganda

I. Namuleme Ddumba[1], I. Baganzi[2], P. Ajuna[3], P. Nahirya Ntege[4], P. Amuge[5], A. Kekitiinwa[6], Kabarole district
[1]*Baylor College of Medicine Children’s Foundation Uganda, Health Systems Strengthening, Kampala, Uganda,* [2]*Baylor College of Medicine Children’s Foundation Uganda, Monitoring and Evaluation, Kampala, Uganda,* [3]*Baylor College Children’s Foundation Uganda, Care and Treatment, Kampala, Uganda,* [4]*Baylor College of Medicine Children’s Foundation Uganda, Knowledge Management, Kampala, Uganda,* [5]*Baylor College of Medicine Childrens Foundation Uganda, Research, Kampala, Uganda,* [6]*Baylor College of Medicine Children’s Foundation Uganda, Executive Director, Kampala, Uganda*

Background: To attain the third 90 in line with the UNAIDS strategy, Uganda has scaled up the use of Viral load monitoring for all ART patients, however VL sample rejection remains one of the major hindrances to the achievement of VL coverage. Kabarole district registered a high rejection of VL samples at 43%. Poor quality of samples and incomplete filing of the VL requisition form were main causes for rejection. A project was started to assess the impact of quality improvement on reducing VL rejection rates through mentorship and coaching.
Methods: 15 sites with VL rejection rates above **5%** were selected for the project, a team of competent clinical mentors in VL monitoring were identified, paired and assigned to the 15 health facilities. 5 teams each comprising of a clinician and a laboratory technician were used to mentor each site was for 3 days. The onsite mentorship process involved each team working the health workers in the HIV clinics. Coaching was done for skills in phlebotomy and filing in of the VL requisition form. Each facility received 4 rounds of mentorship quarterly for 9 months. Data on VL sample rejection rates were monitored using the national VL system and reviewed quarterly for 9 months.



[Viral load sample rejection rates in targeted sites of Kabarole district]

Results: There was a decline in the rejection of VL samples from 43% to 3%. The decline was different across the 15 health facilities and was gradual over time. Health workers were more competent in sample collection and VL requisition. Non laboratory health care workers were able

to do DBS phlebotomy which reduced client waiting time. An increase in the rejection rates was observed when new staff attempted to do DBS VL phlebotomy for the first time, this improved with coaching and mentorship.
Conclusions: Mentorship and coaching is critical to building skill and capacity in the collection of VL samples using DBS and filing of the sample requisition VL form. Follow up of is critical to the effectiveness of the mentorship and acquisition of skill to address the capacity gaps of newly enrolled staff.

THPEE737

Guidelines on the go: Evaluation of clinical cards for New York State medical providers

J. Steinke[1], B. Levandowski[2], I. Rivera[2], N. Harris Tolson[1], T. Wilder[3]
[1]Mount Sinai Institute for Advanced Medicine, New York, United States, [2]University of Rochester Medical Center, Rochester, United States, [3]Mount Sinai Institute for Advanced Medicine, HIV/AIDS Education and Training, New York, United States

Background: New York State (NYS) clinical guidelines exist online to assist clinicians in delivering quality HIV and hepatitis C (HCV) screening and prevention. Clinical cards disseminate guidelines and policy information through a concise and portable reference. The NYS Department of Health AIDS Institute Clinical Education Initiative (CEI) has developed clinical cards on post-exposure prophylaxis (PEP), pre-exposure prophylaxis (PrEP), and HCV testing. These double-sided cards provide clinically relevant information on regimens, screening protocols, lab tests, and monitoring. These cards are free, can be ordered online, and are distributed at statewide training events.
Methods: A REDCap survey was launched on September 5, 2017 and closed on October 20, 2017. Comprised of quantitative and qualitative questions, it was sent to individuals who ordered clinical cards and via CEI's regular marketing channels (e-blasts, social media). Univariate and bivariate statistics were conducted using Stata v.15.
Results: 118 people completed the survey. The majority had ordered clinical cards (77%) with the rest obtaining them through other means (e.g., training events). Respondents could order more than one card; 89% ordered PrEP, 82% ordered PEP, and 61% ordered HCV testing. Of those ordering the cards, the majority ordered them for clinicians in their health agency (54%), communities (28%), medical society (6%), or for themselves as clinicians (35%) (note: they could choose more than one response). Of clinician respondents who have at least one card, between 68-82% found each card "very or extremely useful". Between 41-64% used the cards at least monthly. Between 77-91% reported they were "very" or "extremely likely" to recommend the clinical cards to other NYS clinicians. Positive qualitative feedback was grouped into the following categories: helpful resource and reminder, convenient and easy to use, concise, and informative. Suggestions for improvement include increasing the print size and updating the cards.
Conclusions: As NYS moves toward ending the AIDS epidemic and eliminating HCV, it is critical that clinicians have PEP, PrEP, and HCV information easily available. Next steps include updating the PrEP card, assessing and addressing gaps in geographic distribution, and developing new clinical card content.

THPEE738

Lessons learnt from delivering Pre-Exposure Prophylaxis (PrEP) to vulnerable populations at high risk of HIV infection in the public health sector in Brazil

E. Zucchi[1], L. Ferguson[2], D. Ferraz[3], T. Alencar[4], T. Pinheiro[5], D. Estevam[6], R. Munhoz[6], A. Grangeiro[5], Combine! Study Team
[1]Universidade Católica de Santos, Graduate Program on Collective Health, Santos, Brazil, [2]University of Southern California, Program on Global Health & Human Rights, Los Angeles, United States, [3]Fundação Oswaldo Cruz, Brasilia, Brazil, [4]Ministry of Health, Department of STI, AIDS and Hepatitis, Brasilia, Brazil, [5]Universidade de São Paulo, Department of Preventive Medicine, São Paulo, Brazil, [6]São Paulo State Department of Health, Centro de Referência e Treinamento em DST/Aids, São Paulo, Brazil

Background: Making PrEP delivery compatible with the diverse organizational structures of health services and realities of most vulnerable populations so as to scale-up PrEP to universal coverage has been a global challenge. We analyzed PrEP uptake and aspects of service organization over the first year of PrEP implementation in the Combine! Study in Brazil.
Description: Combine! is a pragmatic clinical trial on the effectiveness of post-exposure prophylaxis (PEP) for consensual sexual activity, combination HIV prevention and PrEP. PrEP delivery began in Nov 2016 in five public HIV clinics in southeastern, northeastern, and southern regions in Brazil.
Lessons learned: By December 2017, 526 participants were taking PrEP. Participants had a high risk of HIV infection: in the previous six months, 25% had been treated for an STI, 40% had 10-49 sexual partners, 10% had engaged in sex work, and 53% had used PEP. Most participants were males (96.5%), homosexual (93.4%), white (63.7%), and had high education (59.7%). Retention was high (90%), and no participants became infected after starting PrEP. Three HIV-negative individuals got infected between triage and first medical consultation. As a result of insufficient staffing, services were sometimes interrupted/delayed due to providers' vacation and doctors' limited schedule. Health workers reported resistance to providing PrEP, citing fears of side effects, perceived superior efficacy and safety of other prevention methods, and lack of time. Duplication of procedures by different providers occurred in complex facilities offering a wide range of services. In services focused on HIV treatment, counsellors were not available while voluntary counselling and testing services struggled with timely drug safety checks and patient follow-up. All services had frequent difficulties enrolling new patients.
Conclusions/Next steps: Simplified protocols with fewer initial and follow-up procedures would help increase uptake of PrEP. Additional, complementary strategies required include: promoting access to PrEP for vulnerable populations and populations at high risk of HIV infection; routinizing the offer of PrEP in HIV services; ensuring access to follow-up; and increasing the number of health workers trained in and confident to deliver PrEP. These lessons are equally applicable to other countries offering PrEP as part of combination HIV prevention services.

THPEE739

Time to antiretroviral therapy initiation under universal test and treat strategy in Swaziland: A stepped-wedge implementation trial

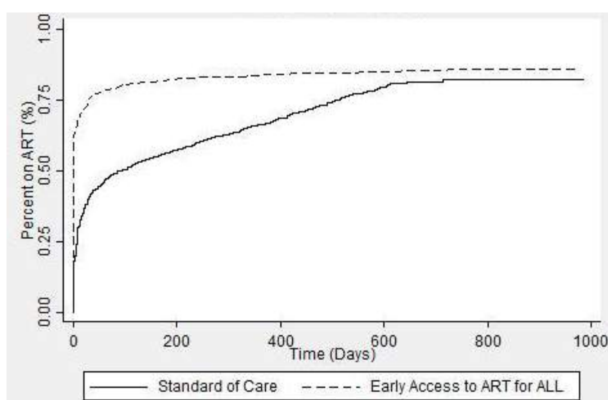
S. Khan[1], F. Walsh[2], D. Spiegelman[3], S. Mazibuko[4], M. Pasi[4], C. Lejeune[1], V. Okello[4], T. Bärnighausen[3,5]
[1]Clinton Health Access Initiative (CHAI), Mbabane, Swaziland, [2]Clinton Health Access Initiative (CHAI), Boston, United States, [3]Harvard T.H. Chan School of Public Health, Boston, United States, [4]Ministry of Health, Mbabane, Swaziland, [5]Heidelberg Institute of Public Health, University of Heidelberg, Heidelberg, Germany

Background: In 2015, the World Health Organization (WHO) released guidelines that removed all limitations on eligibility for antiretroviral therapy (ART) and recommended that countries offer ART to anyone infected with HIV upon diagnosis. However, no study so far had examined the changes in time to ART initiation with the adoption of a Universal Test and Treat (UTT) strategy in a "real world" setting under a public health sector.

Methods: We conducted a stepped-wedge implementation trial in 14 health facilities in Swaziland's public health sector. Clinics were paired and each pair was randomly assigned to transition at four month interval from the current standard of care (SOC) (2013 guidelines) to UTT, or intervention, on pre-specified start dates. All ART-naïve 18 years or older clients, who are not pregnant or breastfeeding were eligible to enroll in the study. This secondary analysis presents the time to ART initiation under SOC versus UTT. The analysis was conducted using survival analysis with time-varying exposure.

Results: Between September 2014 to August 2017, 3405 eligible clients were enrolled in the study. Sixty-two percent of clients were female and 36% were between 30-40 years old. Sixty-one percent (95% CI: 59-63) of UTT clients and 16% (95% CI: 15-18) of SOC clients initiated ART on the same day, while 70% (95% CI: 68-72) and 33% (95% CI: 31-35) in two weeks, respectively. In multivariable Cox proportional-hazards regression model, time to ART initiation was two times shorter under UTT (HR 2.13 (95% CI: 1.99-2.29)) than SOC, while age, sex and CD4 were not significantly associated.

Conclusions: Adoption of UTT was associated with shorter time to ART initiation in Swaziland's public health sector. The results suggest acceptability of the clients to initiate ART under UTT. However, there still remain outstanding questions on long-term retention and viral suppression of clients initiating under UTT strategy to achieve the long-term health benefits.



[Time to ART initiation for clients under Standard of Care (SOC) and Universal Test and Treat (UTT)]

THPEE740

Assessment of barriers towards achieving the 3rd 90: Experiences from Midlands province in Zimbabwe

T.T. Fusire[1], C. Chikanda[2], M. Sibanda[3], F. Chirowa[4], B. Chirwa[5], C. Ajayi[6]
[1]Khethimpilo Aids Free Living, Programs, Harare, Zimbabwe, [2]EQUIP Innovation for Health, Johannesburg, South Africa, [3]Khethimpilo Aids Free Living, Programs, Bulawayo, Zimbabwe, [4]Khethimpilo Aids Free Living, MER, Harare, Zimbabwe, [5]Khethimpilo Aids Free Living, Harare, Zimbabwe, [6]USAID Zimbabwe, Harare, Zimbabwe

Background: The Zimbabwe HIV Viral Load Scale-up Plan provides a road map to guide viral load (VL) testing scale-up from 3% in 2015 to a target of 90% by 2018. Approximately 62% of people living with HIV were receiving ART in 2015 in Zimbabwe. The Technical Duty Yonder, (TDY), a joint team from supporting partners assessed the facilities' systems in trying to achieve the 3rd 90. The aim of the assessment was to identify gaps and barriers in VL testing scale up in Midlands and to recommend efficient context appropriate strategies according to the national guidelines.

Description: An assessment of the afferent and efferent loops for VL testing to identify facility gaps and barriers for efficient VL testing scale up was conducted in 2 facilities in Midlands Province of Zimbabwe, in November 2016. Key informant interviews were conducted with with key personnel at each facility, observations and review of registers and patient notes was conducted, including ART registers, VL testing registers and patient ART books.

Lessons learned: Only 5 out of 27 nurses in one facility were trained on VL monitoring. The nurses were not trained in switching to second-line ART in cases of treatment failure. The facilities had a VL suppression rate of 87%. However, there was no structured communication system of recalling patients with unsuppressed VLs. Approximately 3% of the samples processed were rejected due to insufficient sample collection. Frequent use of VL consumables for other laboratory tests resulted in commodity shortages.

Conclusions/Next steps: Adressing the gaps and barriers identified is expected to lead to an increase in VL uptake in line with the global targets of having 90% of clients on ART being virologically suppressed. There was need to facilitate training of primary health care nurses on VL monitoring. The training of nurses would also include second line treatment management. There was need to facilitate mobile health service communication between facilities and clients when results are ready for collection to ensure timely collection. The laboratory consumables supply chain system needed to be strengthened to avoid misuse of laboratory commodities in the facilities.

THPEE741

Understanding the impact of policies for delivering universal antiretroviral therapy on the health workforce in Tanzania and Malawi: Evidence from repeated health facility surveys from 2013-2017 and qualitative interviews

J. Songo[1], F. Hasan[2], E. McLean[3], A. Dube[4], S. Vyas[5], T. Kalua[6], E. Geubbels[2], A. Crampin[1], A. Wringe[7], J. Todd[8], J. Renju[5]
[1]Malawi Epidemiology and Intervention Research Unit, Lilongwe, Malawi, [2]Ifakara Health Institute, Dar es Salaam, Tanzania, United Republic of, [3]London School of Hygine and Tropical Medicine, Lilongwe, Malawi, [4]Malawi Epidemiology and Intervention Research Unit, Karonga, Malawi, [5]London School of Hygine and Tropical Medicine, Moshi, Tanzania, United Republic of, [6]Malawi Ministry of Health, Lilongwe, Malawi, [7]London School of Hygine and Tropical Medicine, London, United Kingdom, [8]London School of Hygine and Tropical Medicine, Mwanza, Tanzania, United Republic of

Background: Policies for universal antiretroviral therapy (ART) may negatively impact on the health workforce in African settings if task-shifting and training efforts are outpaced by growing patient numbers and evolving guidelines. Our study examines the impacts of universal ART policies on the health workforce in Malawi and Tanzania from 2013-2017.

Methods: Three rounds of facility surveys were conducted (2013, 2015, 2017) in health facilities serving the populations of rural demographic surveillance sites in Malawi (n=5) and Tanzania (n=10). Data were collected on HIV counseling and testing (HCT), ART and prevention of mother-to-child transmission (PMTCT) services. In-depth interviews were conducted with HIV providers to understand their experiences of offering care in the context of changing ART guidelines. Interview transcripts were coded and analyzed thematically.

Results: In both sites, increasing patient numbers in HCT, PMTCT and ART services were not always met with corresponding increases in providers. This resulted in progressively higher patient loads per HCT provider in both sites, and a nearly 4-fold increase in patient load for ART providers in Tanzania between 2013 and 2017 (Figure 1). The cadre mix of providers varied by site and changed over time, with a higher and growing proportion of lower cadre staff in Malawi (Figure 1). Overall, a higher proportion of HCT providers reported undergoing refresher training compared to PMTCT or ART providers (Table 1). The proportion of PMTCT providers undergoing refresher training peaked in 2013 in Malawi and 2015 in Tanzania, following Option B+ implementation.

Providers in both sites reported that high patient loads and insufficient training hampered the quality of care. Furthermore, training was more often described as being „on the job" in Tanzania, which some providers felt hindered their learning. In Malawi, the introduction of lay counsellors eased the workload of HCT providers, but challenges included their integration within clinics.

Conclusions: Although increasing patient numbers in both settings bodes well for achieving the first two 90 targets, the quality of care may be undermined by increased workloads for many providers. Task-shifting strategies are helping to address workload concerns in Malawi but should be carefully monitored to ensure effective implementation.

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	Malawi(n=5)			Tanzania (n=10)		
	round 1	round 2	round 3	round 1	round 2	round 3
Attended training in HTC within past 2 years	90%	100%	44%	100%	51%	27%
Attended training in PMTCT within the past 2 years	62%	29%	45%	36%	87%	22%
Attended training in ART within the past 2 years	35%	85%	69%	13%	22%	52%

[Table 1: Proportion of providers receiving refresher training in past 2 years by site, HIV service and facility survey round]

	Chilumba-Malawi (n=5)			Ifakara-Tanzania (n=10)		
Indicator	Round 1	Round 2	Round 3	Round 1	Round 2	Round 3
Total number by round and site	70	60	44	94	65	192
All Health workers by cadre						
Doctors	0	0	0	5	9	14
Average across facilities [range]	0[0-0]	0[0-0]	0[0-0]	0.5 [1-5]	0.8[0-9]	1.5[0-8]
Clinical officers/assistant medical officers	5	11	2	11	2	29
Average across facilities [range]	1[0-2]	0.4[0-4]	0.8[0-1]	1 [0-4]	0.2[0-1]	2.6[0-7]
Registered nurses and midwives	16	17	7	22	11	33
Average across facilities [range]	3.2[0-8]	3.4 [0-8]	1.6[0-5]	2 [0-7]	1.0[0-4]	3.0[0-8]
Nursing assistants/aides/non-registered nurses	0	0	9	16	8	42
Average across facilities [range]	0[0-0]	0[0-0]	3 [0-3]	1.5 [0-7]	0.7[0-5]	3.8[0-13]
Counsellors (including lay)	13	15	17	1	4	5
Average across facilities [range]	2.6[0-4]	0.8[0-6]	1.2[0-8]	0.1[0-1	0.4[0-4]	0.5[0-4]
Laboratory staff / phlebotomists	1	3	2	3	7	20
Average across facilities [range]	0.2[0-1]	0.2[0-1]	0.2[0-1]	0.3[0-2]	0.6[0-6]	1.8[0-9]
Pharmacists / drug dispensers]	4	3	1	5	2	13
Average across facilities [range]	0.8[0-2	0.4[0-2]	0.4[0-1]	0.5[0-3]	0.2[0-1]	1.2[0-10]
Community / outreach workers	28	8	6	18	4	20
Average across facilities [range]	5.6[0-11]	2.2[0-5]	2[0-4]	1.6[0-5]	0.4[0-2]	1.8[0-10]
HMIS, IT staff and computer specialists	3	3	0	13	18	16
Average across facilities [range]	0.6[0-2]	0.4[0.2]	0.4[0-0]	1.2[0-7]	1.6[0-1]	1.5[0-5]
Health workers by HIV service**						
HTC	21	20	27	26	77	104
Average [range]	4 [1-11]	4 [2-8]	5 [3-9]	3 [0-8]	8 [3-15]	10 [5-23]
PMTCT	21	24	31	59	47	50
Average [range]	4 [1-8]	5 [3-8]	6 [3-11]	6 [3-12]	5 [2-13]	5 [2-12]
ART	43	26	42	38	46	50
Average [range]	9 [2-15]	5 [3-8]	8 [2-17]	4 [2-9]	5 [3-9]	5 [2-10]
Average patient visits per provider per month						
HTC	21	20	27	26	77	104
Number of patients in the last month	405	538	1453	288	1585	3270
Average patient visits per provider per month	19	27	54	11	21	31
PMTCT	21	24	31	59	47	50
Number of patients in the last month	NA*	NA*	NA*	NA*	953	514
Average patient visits per provider per month	NA*	NA*	NA*	NA*	20	10
ART	43	26	42	38	46	50
Number of patients in the last month	2815	1833	2442	2142	5713	10286
Average patient visits per provider per month	65	71	58	56	124	206

* Data forthcoming
** Individual health workers could provide more than one type of service

[Figure 1: Description of health workers by service, cadre and patient loads by survey round and country]

THPEE742

Implementation of the action plan for health sector response to HIV for WHO European Region: Early results from EECA and non-EU/EEA countries

E. Vovc, M. Mansfield, A. Stengaard, M. Dara
WHO Regional Office for Europe, Copenhagen, Denmark

Background: The Action plan for the health sector response to HIV in the WHO European Region, accompanied by a resolution, was officially adopted at the 66th session of the WHO Regional Committee for Europe in September 2016. It advocates for an urgent and accelerated health sector response to HIV epidemic; promotes comprehensive combination prevention, a "treat all" approach, and asks Member States to define and deliver an essential package of HIV services, to be included in the national health benefit package, which are patient-centred, accessible, integrated and focused particularly on key populations in a manner appropriate to the local context.

Methods: An evaluation questionnaire was developed prior to and disseminated at the regional consultation of HIV programme managers of eastern Europe and central Asia (EECA) and non-EU/EEA countries based on actions stipulated in the Action plan structured around five strategic directions: information for focused action; interventions for impact; delivering for equity; financing for sustainability; and innovation for acceleration. The questionnaire assessed the alignment of current national policies with the the regional WHO Action plan.

Results: 15 countries participated in the National HIV Programme managers meeting of EECA and non-EU/EEA countries in September 2017 and completed the questionnaire. The self-reported data showed that most of the actions and interventions recommended by the regional Action plan are integrated into the national strategies. Major gaps included lower level of integration of: needles and syringes exchange programmes in prisons (27%), PrEP for populations at substantial risk (33%), HIV testing by lay providers (33%) and HIV self-testing (20%). An essential comprehensive package of HIV services integrated into the national health benefits is defined by national strategies in 60% of countries.

Conclusions: Regional policy uptake is overall adequate on most of the actions per the results of this early assessment of countries' progress. However, particular attention is required to improve NSP in prisons settings and PrEP. Provision of HIV testing by lay providers and HIV self-testing are areas to which WHO may consider increasing advocacy and policy review activities. Integrating the essential comprehensive package of HIV services into the national health benefits package is essential to reach the 90-90-90 targets.

Policy intervention stipulated in the Action plan on health sector response to HIV in the WHO European Region	% of countries aligning with an indicated action from the Action plan, self-reported as of 09/2017, EECA and non-EU/EEA
National HIV strategy defines an essential comprehensive package of HIV services is integrated into the national health benefits package	60%
National HIV strategy prioritizes community-based HIV service provision	60%
National strategy includes needle and syringe exchange programmes in prisons	27%
National strategy includes opioid substitution therapy programmes in prisons	60%
National strategy includes pre-exposure prophylaxis (PrEP) for populations at substantial risk of HIV	33%
National strategy promotes early congenital syphilis diagnosis of infants and immediate treatment for all infants diagnosed with congenital syphilis	53%
National strategy promotes HIV testing conducted by trained lay service providers	33%
National strategy promotes HIV self-testing	20%
National strategy encourages innovative financing in the HIV response	67%

[Gaps in aligning national strategies to WHO policy]

Systems serving underserved populations

THPEE743

Control and treatment of tuberculosis among migrants in Almaty City, Kazakhstan

U. Lukpanova[1], Y. Lukpanov[1], Z. Sapiyeva[2], K. Zhorayeva[3]
[1]Zabota, Almaty, Kazakhstan, [2]NTP, Almaty, Kazakhstan, [3]AIDS Foundation East-West in Kazakhstan, Almaty, Kazakhstan

Background: Almaty is the largest city in Kazakhstan, due to this, it has the biggest amount of the migrants. The city has one of the highest rates of TB/HIV cases in the country. Along with the external migrants, a vulnerable group for tuberculosis cases is internal migrants, who often change their place of residence, don't have registration in the public hospital and, therefore, don't have free access to free medical care. The unregulated legal status, lack of documents, labor exploitation do not allow migrants to seek medical care at the proper time. Medical staff of the public hospitals shows stigma towards them.

Description: NGO "Zabota" created effective partnership between the TB service, PHC and NGOs, aimed at increasing the access of labor migrants to the diagnosis and treatment of tuberculosis, HIV testing, reducing stigma and discrimination towards migrants on behalf of the medical staff.

Lessons learned: Within the project, preventive fluorographic examinations of migrants are carried out in the places of their accumulation - markets, construction sites, the Center for the Adaptation of people

without a place of residence. At the same time, 186 people of the medical staff of public hospitals and 101 employers of the migrants were trained on the questions of "TB/HIV" and "stigma and discrimination". The results of the successful work served as a basis for creating a mechanism for cooperation between NGOs and state bodies. In 2017, for the first time, the Almaty City Health Department provided 2 state social orders for carrying out activities for the prevention of tuberculosis and HIV infection among migrants.
Conclusions/Next steps: 27806 migrants were informed about tuberculosis, of which 85% were external migrants. It was revealed and given assistance in organizing the treatment of 9 internal migrants who did not have registration, documents, a certain place of residence, and had other social problems. All migrants are recieveing the proper legal consultations. The NGO will continue work towards building an effective system for redirecting migrants to obtain the necessary medical and legal assistance, inform employers and representatives of local authorities about the rights of migrants and the rights to detect and treat TB/HIV.

THPEE744

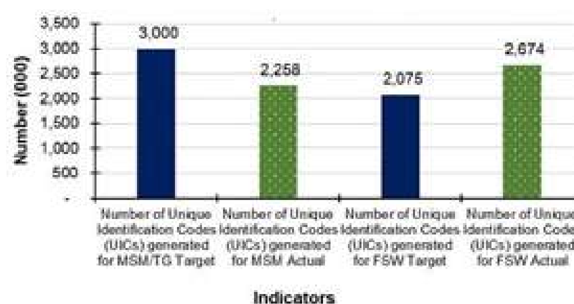
Scaling-up HIV testing, treatment, care and support for men who have sex with men, transgender and sex workers in Liberia

I. Sempungu[1], E.Z. Addy[2]
[1]Stop AIDS in Liberia, Monitoring and Evaluation, Monrovia, Liberia, [2]Stop AIDS in Liberia, Programs, Monrovia, Liberia

Background: In Liberia, HIV prevalence rate among (15-49) age group is 2.1%. Among the key population however, it is 19.8% among men who have sex with men (MSM), 9.8% among female sex workers (FSWs), and 5% among People Who Inject Drugs (PWID). Limited access to HIV testing, treatment, and care services; stigmatization; are major contributing factors.
Description: Stop AIDS in Liberia (SAIL) implemented a project titled: HIV Prevention, Care, and Support for the Key Population, People Living with HIV, and the General Population. Funding was provided by the Global Fund against AIDS, Tuberculosis, and Malaria (GFATM), and Population Services International (PSI) Liberia. Between July 2016 and December 2017, the project trained MSM, Transgender (TG), and FSW as peer educators to: register project participants using Unique Identification codes (UICS); disseminate HIV and STI information, distribute condoms and lubes, organize question and answer HIV/STI community-based support group meetings; and link project participants to health facilities for HIV and STI testing and treatment. On the other hand, 3 drop in centers (DICs) were established to provide: STI diagnosis and treatment; HIV counseling and Testing; TB symptomatic screening; ART enrollment and referral; and Legal and psycho-social support.
Lessons learned: An approximate of 2,258 out of 3,000 targeted MSM/TGs, and 2,674 out of 2,075 targeted FSWs were registered using Unique Identification Codes. About 1,387 MSM/TG tested for HIV, (4.5%) were HIV positive, and 46 were enrolled into antiretroviral therapy (ART). Similarly, 532 FSWs tested for HIV, (11%) were HIV positive, and none was enrolled into (ART). Service linkages with seven (7) government health facilities across Liberia got established, and key stakeholders including 97 police personnel (29 female), 60 religious leaders (24 female), and 62 medical practitioners (10 female) were trained in human rights advocacy for the key population.
Conclusions/Next steps: An integrated approach promoted access to HCT and SRHR services for the key population, and enabled client tracing through UICS. HIV stigma is however, still high affecting disclosure and ART enrollment. We need to improve on documentation of project outcomes for evidence-based advocacy, and involve other key population groups such as, people who inject drugs (PWID) in HIV programming.

Indicator	Number
Number of MSM and TG that received an HIV test during the reporting period & know their results	1,387
Number of FSW that received an HIV test during the reporting period & know their results	532
Total	1,919

[Access to HIV counselling and Testing (July 2016-December 2017)]



[MSM/TG and SW enrolled into Key Population Project (July 2016 to December 2017)]

THPEE745

Reaching the rural in Uganda: A cluster-randomised exploration of community health entrepreneurs' impact on sexual and reproductive health

R.A.J. Borst[1], M.O. Kok[1,2], I. Jonker[3], D. Muhangi[4]
[1]Erasmus University Rotterdam, Erasmus School of Health Policy & Management (Health Care Governance), Rotterdam, Netherlands, [2]Amsterdam Public Health, Vrije Universiteit Amsterdam, Health Sciences, Amsterdam, Netherlands, [3]Vrije Universiteit Amsterdam, Health Sciences, Amsterdam, Netherlands, [4]Makerere University, Social Work and Social Administration, Kampala, Uganda

Background: The international health community aims to reach universal health coverage by 2030. Recent reports, however, hint at access to sexual and reproductive health services being far from universal; holding especially true for rural, hard-to-reach areas. A proposed solution is organising primary care through community health entrepreneurship. Community health entrepreneurship is a sustainable approach to reach underserved populations by harnessing the entrepreneurial skills of existing community health workers.
This study provides a first evaluation of the impact of the 'Healthy Entrepreneurs' social enterprise model. This model may be key in HIV prevention by proactively ensuring rural populations access to the knowledge and means required for increasing and sustaining sexual and reproductive health.
Methods: The study was conducted using tablet-based surveys in a cluster-randomised cross-sectional cohort study. The sample entailed household members from 25 villages in a rural West-Ugandan district. The association between four validated sexual and reproductive health outcome indicators and exposure to community health entrepreneurship was assessed using wealth-adjusted mixed-effects logistic regression models.
Results: Data were obtained from 1202 household members who volunteered to participate (83% female). Table 1 shows the wealth-adjusted odds ratios per indicator. The results show that household members who lived in areas where community health entrepreneurs were active had both higher odds on currently using modern contraception and having knowledge of modern contraceptive methods, sexually transmitted infections, and the symptoms of sexually transmitted infections.

Indicator	Males (n=203)	Females (n=999)
1. Knowledge of modern contraceptive methods	6.49 (2.46; 17.17)	8.24 (2.56; 26.47)
2. Current use of modern contraceptive methods	1.63 (0.60; 4.40)	2.12 (1.35; 3.33)
3. Knowledge of sexually transmitted infections	2.04 (1.01; 4.12)	1.81 (1.08; 3.03)
4. Knowledge of symptoms of sexually transmitted infections	3.58 (1.86; 6.87)	1.63 (1.02; 2.60)
*** For exposed:unexposed, adjusted for International Wealth Index (IWI)**		

[Table 1. Adjusted odds ratios (ORA) with 95% confidence interval per key indicator]*

Conclusions: Household members in areas where community health entrepreneurs were active had higher odds on using modern contraceptives and had more knowledge of modern contraceptive methods, sexually transmitted infections, and symptoms of sexually transmitted infections.

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This study thus provides evidence of the key role that community health entrepreneurship has in preventing HIV infection and transmission by guaranteeing underserved populations access to sexual and reproductive health products, services, and knowledge.

THPEE746

Medicycles: Using micro-financed motorcycle taxis and cost-sharing to ensure continuity of care in difficult-to-reach Ugandan villages

K. Gibbons
Health Access Connect, Kampala, Uganda

Background: HIV service providers are using models of "differentiated care" to target key populations with interventions that are suited to their contexts. One key population in Uganda is fishing communities where HIV prevalence rates have been documented to be as high as 35%. Many of these communities are over 5km/3miles from the nearest health facility and have high ART default rates.

Description: Health Access Connect (HAC) is a Ugandan NGO that has been implementing the Medicycles program since August 2015. ***Monthly, one-day comprehensive health outreach clinics*** are set up in remote villages in the Lake Victoria region with high HIV prevalence. The HAC model has three components:

1) Partner health facilities identify villages to target, and then use HAC **micro-financed motorcycle or boat taxis** to transport staff and supplies to remote villages.

2) During the **monthly one-day outreach clinics**, 3-to-5 health workers provide comprehensive health services, including HIV testing, ART, maternal & child healthcare, vaccinations, and essential health services.

3) **Community oversight and cost-sharing** is achieved through community mobilization by Community Health Workers (CHWs) as well as patient contribution of $0.55 to cover transportation expenses ($22-28/day).

Between August 2015 and December 2017, over 3,900 patients (57.3% female, 42.7% male, 31.6% under 18yo) were served, including distributing ART to 1,945 clients in 10 remote villages with an average of 50.6 patients/clinic.*

**Reporting data are for patient services distributed. Many patients are repeats.*

Lessons learned:

- Microfinance helps to lower cost while providing quality services.
- HAC originally used community groups to coordinate clinics and found using CHWs for community mobilization improves attendance and coordination.
- Coordination with district and facility health leadership is critical to ensuring continuity and quality of care.
- Targeted outreach clinics increase numbers of clients accessing HIV testing (90#1), receiving treatment (90#2), and suppressing viral load (90#3), thus contributing towards Uganda's pursuit of 90-90-90 by 2020.

Conclusions/Next steps: The HAC model emphasizes providing transportation and cost sharing to provide continuity of care to difficult-to-reach populations. Expansion to villages in the districts of Kalangala, Masaka, and Rakai District has demonstrated that the model can be adapted to many contexts.

THPEE747

Main adverse reactions motivating the substitution of Dolutegravir in antiretroviral therapy regimens in Brazil

C.J.B. Batista, R.G. Corrêa, K. Sakita, J.C. Monteiro, A.S. Benzaken
Ministry of Health, STI/AIDS and Viral Hepatitis, Brasilia, Brazil

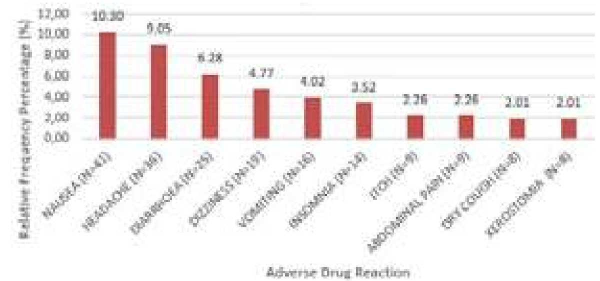
Background: The Brazilian AIDS policy has included the free distribution of antiretroviral drugs since 1996, and since 1997, the government has conducted the logistic management of these drugs and patient clinical monitoring through the Medication Logistics Control System (SICLOM), with online access nationwide. In this context, the Ministry of Health started, in 2017, the distribution of the antiretroviral drug Dolutegravir (DTG) 50mg to all people living with HIV who start first line Antiretroviral Therapy (ART), as well as for third-line in substitution to Raltegraveir 400 mg. Although DTG is seen as having better tolerability levels and lower possibility of causing adverse reactions, there is the need to continuously evaluate the safety profile of the drug in the population. In order to assess the safety profile of DTG in Brazil, an active pharmacovigilance project was implemented, consisting of interviews and online questionnaires made available by SICLOM. This study proposes to study the main reactions that motivated the substitution of this drug and the frequency percentage of each one in active pharmacovigilance project.

Methods: SICLOM's database was used to verify the list of patients who had DGT substituted in their therapy regimens due to adverse reactions in the period between April and December 2017. Based on this list, the 10 main adverse reactions were identified as well as the percentage frequency of each one.

Results: Out of the 72,032 people on DTG in Brazil, 149 (0.20%) had their therapy regimens changed due to adverse reactions - demographic data can be observed in Table 1. 398 adverse reactions were reported and the main and most frequent ones are shown in Figure 1.

Characteristic	Male (n = 86)	Female (n = 63)	Total (n = 149)
Age, years			
Median	44	45	45
Mean	45	46	45
Race/color			
White/yellow	47 (59%)	32 (41%)	79
Black/brown	25 (58%)	18 (42%)	43
Indigenous	0	1 (100%)	1
Unknwon	14 (54%)	12 (46%)	26

[Table 1 - Demographic data of patients who changed antiretroviral therapy due adverse reactions to Dolutegravir, Brazil.]



[Figure 1: Main adverse reactions that motivated the substitution of DTG in therapy regimens in Brazil.]

Conclusions: Data indicate that the most of the adverse reactions that motivated the discontinuation of DTG in Brazil are described in the package leaflet. Nausea, diarrhea, and headaches are the most frequent (>10%); dizziness, insomnia, vomiting and abdominal pain are commonly associated with the use of Dolutegravir (1 to 10%); and hypersensitivity presents lower frequency and are considered unusual (0.1 to 1%). This finding, however, corroborates the more consolidated knowledge of the medicinal product and, therefore, for greater patient safety.

THPEE748

Health4All: A technology-enabled, locally relevant campaign to reduce stigma and discrimination against key populations

K. Pedersen[1], K. Stratten[2]
[1]*IntraHealth International, Chapel Hill, United States,* [2]*IntraHealth International, Programs, Chapel Hill, United States*

Background: Key populations (KP) disproportionately impacted by HIV (including men who have sex with men, transgender populations, sex workers, and people who inject drugs) report stigma and discrimination (S&D) from health workers as significant barriers to seeking or continuing HIV care and support.

Description: IntraHealth International, a key partner in the USAID- and PEPFAR-supported LINKAGES project led by FHI 360, supports the Health4All campaign designed to both champion and ensure stigma-

free, rights-based, and high-quality KP services and support. Developed to be flexible and meet local needs, components of Health4All include:
1) Locally relevant trainings of health workers with KP participation to address stigmatizing and discriminatory attitudes and KP clinical competencies;
2) Technology-enabled self-assessments by health workers and service quality surveys from KP clients who visited, or wanted to visit, facilities—called the SMS Service Quality Monitoring System (SMS²), and;
3) Ongoing health worker, facility, and community support efforts—partially informed by SMS² data—to reduce S&D. Since 2016, 15 countries in Africa, Asia, and the Caribbean have implemented at least one Health4All component.
Lessons learned: Pre/post-test evaluation findings from training activities, now conducted in 12 countries, suggest the trainings consistently improved participants HIV- and S&D-related knowledge and attitudes. Lessons learned from trainings include the need to identify trainees carefully, support active KP engagement, and carefully plan post-training support. An important enhancement has been to focus on the needs of young KP and KP who engage in multiple high-risk behaviors. Monitoring of SMS² data after the training supports strong links among communities, health workers trained through Health4All, and program stakeholders to target post-training follow up.
Conclusions/Next steps: Our experiences suggest the importance of ensuring the S&D- and KP-friendly trainings are included in both health worker pre-service training programs and larger HIV service delivery improvement efforts. All health workers that interface with KPs, including clinic security guards and receptionists, must be sensitized to and able to offer KP-friendly support. In addition, the use of ongoing S&D self-assessments by health workers to complement trainings and KP assessments using SMS² can prompt targeted action by HIV program implementers.

THPEE749

Lessons from implementing SKILLZ for life: A sport-based HIV and life skills programme for youth with intellectual disabilities in Namibia, Nigeria, and South Africa

N. Mutongizo[1], R. Banciu[1], S. Miller[1], K. Hughes[2], S. Oboh[3]
[1]Grassroot Soccer, Inc., Norwich, United States, [2]Special Olympics International, Washington, DC, United States, [3]Special Olympics Nigeria, Lagos, Nigeria

Background: SKILLZ for Life (SfL) equips youth with intellectual disabilities (YWID) with HIV and life-skills information. YWID are especially vulnerable to HIV infection[1], and findings from this evaluation suggest they are often excluded from HIV education programmes. Special Olympics (SO) and Grassroot Soccer (GRS) implemented SfL in Namibia, Nigeria and South Africa (SA).
The intended outcomes of SfL are increased HIV knowledge, malaria / HIV testing, self-esteem, knowledge of sexual rights and improved attitudes towards health services.
Description: SfL consists of six, 60-minute sports-based sessions and a graduation, coupled with a voluntary counselling and HTS event. Sessions are delivered in schools or camps by trained "Coaches", to YWID ("Athletes") and participants without intellectual disabilities ("Partners"). Athletes and Partners are paired-up in a "buddy-system" and learn about HIV prevention, support each other to lead healthy lifestyles and identify abuse. SfL was implemented in Namibia (2009-2012), Nigeria and SA (since 2014 and 2016).
Lessons learned: A 2015 external evaluation[2] showed that SfL largely accomplished its objectives, determining positive change in the knowledge, attitudes and communication on HIV of its participants. A 2017/18 process evaluation included interviews and focus groups with staff, coaches, parents and teachers, to assess its scalability. It concluded that SfL can be successfully scaled, once certain conditions are met that are delineated below.

THEMES	RECOMMENDATIONS
Set-up, resources and capacity needed	1. Consider the higher initial program set-up phase burden (capacity building and staff-structure, written guidelines for policies and procedures); 2. Ensure adequate, long-term funding (+/-5 years); 3. Optimum community sensitization, stakeholder (including government institutions) engagement and show-casing for smooth implementation.
Curriculum content	1. Ensure rigorous curriculum adaptations and field-testing; 2. Simplify curriculum and reduce the number of key messages; 3. Remove abstract activities with symbolism; 4. Use repetition as a way to ensure learning; 5. Emphasize sensory learning by using context-appropriate visuals
Delivery model	1. Use sports for dual benefits (engagement and fitness); 2. Carefully consider the Partner-Athlete ratio; 3. Use of events such as Family Health Forums as a way to engage parents and community members.
M&E	1. Use images to assess change in knowledge and attitudes among Athletes, instead of words. 2. Pre/post test insufficient to assess change in knowledge and attitudes
Training	1. Train coaches, parents and teachers on working with YWID.

[Table 1. Summary Themes and Lessons Learned]

Conclusions/Next steps: SfL has been shown to benefit YWID and their families. The lessons learned indicate that SfL, requires significantly more investment of human and financial resources in sensitisation, training and ongoing oversight. The findings in Table 1 provide viable next steps to scale scale-up SfL, and for other organizations that implement programmes for YWID.
References:
[1] Aderemi, T. et al., 2013, *Differences in HIV knowledge and sexual practices of learners with intellectual disabilities and non-disabled learners in Nigeria*
[2] Akinwale, O.P. (PhD), 2016, *Evaluation of SKILLZ for Life project of Special Olympics Nigeria for youth with intellectual disabilities in Lagos state, Nigeria. Final Report.*

THPEE750

Implementation of a comprehensive HIV and stimulant prevention intervention with Cambodian female entertainment and sex workers reduces sexual and drug risk and addresses multiple vulnerabilities

K. Page[1], A. Carrico[2], E. Stein[3], J. Evans[4], M. Sokunny[5], S. Ngak[5], C. Sophal[6], Y. Neak[7], C. McCulloch[4], L. Maher[8]
[1]University of New Mexico Health Sciences Center, Internal Medicine, Albuquerque, United States, [2]University of Miami, Public Health Sciences and Psycholog, Miami, United States, [3]University of California, Global Health, San Francisco, United States, [4]University of California, Epidemiology and Biostatistics, San Francisco, United States, [5]FHI 360 Cambodia, Phnom Penh, Cambodia, [6]Kingdom of Cambodia MInistry of Health, Mental Health, Phnom Penh, Cambodia, [7]Cambodia National Authority for Combatting Drugs, Phnom Penh, Cambodia, [8]Kirby Institute, University of New South Wales, Sydney, Australia

Background: Comprehensive HIV prevention targeting female entertainment and sex workers (FESW) in Cambodia is needed due to syndemic risk for HIV, including sexual risk, widespread use of amphetamine-type stimulants (ATS), and poverty. Using an implementation science approach, we delivered multi-level interventions to FESW to decrease ATS use and improve health and social vulnerabilities within HIV risk reduction.
Methods: The Cambodia Integrated HIV and Drug Prevention Implementation (CIPI) trial used a cluster randomized stepped-wedge design to test effectiveness of a multi-level intervention to reduce HIV and ATS risk in 10 provinces. CIPI leveraged an existing HIV prevention platform for FESW -SMARTGirl -as an innovative cross-sectoral cross approach to jointly tackle the multiple vulnerabilities experienced by FESW. CIPI added a conditional cash transfer with cognitive-behavioral aftercare (CCT+AC) intervention to reduce ATS use among women identified with ATS use disorder.
A microenterprise opportunity that included a 3-day financial literacy training was offered to ATS-free women, including those who successfully completed CCT-+AC. 1198 enrolled women were surveyed pre-intervention. Co-primary outcomes were assessed in 600 FESW purposively targeted at 6-month intervals over an 18-month follow-up,

including: 1) number of sexual partners (past 3 months); and 2) positive urine toxicology results for ATS (ATS Tox+). Secondary outcomes included alcohol use, reproductive health, psychological distress, and income.
Results: Relative to baseline, at 6 months, participants had 60% lower odds of ATS Tox+ (AOR=0.40; 95%CI=0.25-0.65; p< 0.001). At 12 months, FESW reported 50% fewer sexual partners (ARR=0.50; 95%CI=0.25-0.95; p=0.035). Women had significantly lower odds of testing positive for alcohol disorder at 6 and 12 months, and 57% and 79% lower odds clinically significant psychological distress. Reproductive health visits declined at all visits. Women did not report reductions in monthly income at any time, despite reporting fewer sex partners and reduced ATS use (p's>0.14).
Conclusions: Findings support the robust, short-term effectiveness of the sequentially delivered CCT+AC and microenterprise interventions for optimizing HIV prevention for Cambodian FESW. Further implementation-science research is needed to inform the scale up and improve the durability of this comprehensive approach to reduce HIV risk and address syndemic vulnerabilities of women and girls engaged in sex work in Asia.

	Recent No. of sexual partners (1)	ATS+ Urine Screen	Problematic Alcohol use (2)	Recent Reproductive Health Visit (1)	Psychological Distress (3)	Monthly Income
Follow up	ARR (95% CI)	AOR (95% CI)	ARR (95% CI)	AOR (95% CI)	AOR (95% CI)	ARR (95% CI)
6 months	0.65 (0.38 - 1.11)	0.40 (0.25 - 0.65)*	0.39 (0.25, 0.62)*	0.59 (0.38, 0.91)*	0.43 (0.22, 0.83)*	1.12 (0.91 - 1.39)
12 months	0.50 (0.25 - 0.95)*	0.58 (0.30 - 1.14)	0.25 (0.12, 0.55)*	0.37 (0.17, 0.77)*	0.21 (0.07, 0.64)*	1.21 (0.94 - 1.56)
18 months	0.45 (0.18 - 1.14)	0.44 (0.18 - 1.07)	0.35 (0.12, 1.06)	0.20 (0.10, 0.86)*	0.26 (0.05, 1.18)	1.08 (0.79 - 1.49)

* p<0.05; (1) recent = past 3 months; (2) Alcohol use disorder measure using WHO Alcohol, Smoking and Substance Involvement Screening Test (ASSIST); (3) Psychological distress measured using Kessler Psychological Distress Scale (K10)

[Primary and secondary outcomes of CIPI (Intent-to-treat analyses using baseline parameter estimates from the enrolled population (N = 1,198))]

THPEE751

Scalability of *SKILLZ for Life:* A sports-based behaviour change HIV/AIDS and Malaria programme for young people with intellectual disabilities

N. Mutongwizo[1], R. Banciu[1], S. Oboh[2], S. Miller[1], K. Hughes[3]
[1]Grassroot Soccer, Inc., Norwich, United States, [2]Special Olympics Nigeria, Lagos, Nigeria, [3]Special Olympics International, Washington, DC, United States

Background: While HIV prevalence is relatively low in Nigeria (3.4%), it is second only to South Africa in the number of people living with HIV (PLHIV) at 3.2 million (UNAIDS, 2016). To contribute to the prevention response in both countries, SKILLZ for Life (SfL) was designed for youth with intellectual disabilities (ID) aged 8-30, to increase health-seeking behaviors and facilitate access to and uptake of malaria and HIV services. SfL consists of a sports-based behaviour change programme comprised of six, 60-minute sessions and a graduation. Special Olympics implemented SfL in Nigeria and South Africa in partnership with Grassroot Soccer (GRS). An internal evaluation was conducted from June 2017 - January 2018 to ascertain whether SfL is scalable in other geographies.
Methods: A mixed-methods design was utilised, incorporating ten in-depth interviews (IDIs); 7 focus group discussions (FGDs); 3 observations; and quantitative surveys. For the qualitative methods, respondents were purposively selected from Special Olympics program staff in Nigeria and South Africa, Grassroot Soccer staff, Coaches delivering SfL in Nigeria, teachers, and parents. IDIs, FGDs, and observation visits were conducted both in-person and via Skype. Qualitative data were analysed using Nvivo10, while quantitative data measuring changes in participants' knowledge, behaviour and attitudes in Nigeria and South Africa programmes were analysed in R and significance was assessed using Wilcoxon Signed Rank Test (n= 1,932).
Results: Evaluation findings point to scalability and expansion possibilities of SfL due to positive programme outcomes and strategic programme components such as visual resources and GRS Culture. Pre/post survey results from SO Nigeria show significant positive change from baseline to endline as seen in Table 1. Evaluation respondents stated the specific conditions that must be met for scale include curriculum adaptation to local context and training community stakeholders with the intention of sustaining health behaviour outcomes.

Pre/Post Outcome Analysis	Baseline	Endline	% Change	P Value*
HIV Stigma: Have you ever talked to anyone about HIV (i.e. prevention, treatment, or transmission) outside of the SKILLZ for Life Program?	39%	66%	69%	<0.001
HIV Transmission: Which of these can protect you from HIV?	36%	59%	64%	0.035
HIV Transmission: Which of these CANNOT spread HIV?	41%	49%	18%	0.494
Malaria: Which of these can spread malaria?	79%	90%	14%	0.683
Malaria: Which of these can protect you from malaria?	65%	87%	33%	<0.001
Malaria: Who can give you the best malaria medicine?	70%	93%	34%	0.079
Identifying Abuse: Would you tell someone if you were touched in a way you did not like?	57%	76%	35%	0.001

*[Table 1: SKILLZ for Life Special Olympics Nigeria Pre/Post Outcome Analysis. *Assessed via Wilcoxon signed rank test (n=92)]*

Conclusions: Based on this study, the evaluators deem SfL scalable. The program has been very effective at changing knowledge and behaviours around HIV and malaria, reducing community stigma around ID and is considered a success story for how to engage youth with intellectual disabilities in behaviour change communication and stigma reduction programs.

THPEE752

Increasing HIV screening, diagnosis, and treatment in a large Zambian correctional facility: Interim results from a prison-focused universal test and treat program

S. Hatwiinda[1], H. Smith[1], M. Nanyangwe[1], P. Chilembo[1], M. Siyambango[1], L. Kashela[1], C. Yenga[1], A. Kayuni[1], C. Moonga[1], M. Muyoyeta[1], C. Chisela[2], Y. Lungu[2], S. Reid[3,4], S. Topp[3,5], M. Herce[3,6]
[1]Centre for Infectious Disease Research in Zambia, Lusaka, Zambia, [2]Zambia Correctional Service, Ministry of Home Affairs, Government of the Republic of Zambia, Kabwe, Zambia, [3]Centre of Infectious Disease Research in Zambia, Lusaka, Zambia, [4]University of Alabama at Birmingham, Division of Infectious Diseases, Department of Medicine, Birmingham, United States, [5]James Cook University, College of Public Health, Medical & Veterinary Sciences, Townsville, Australia, [6]University of North Carolina at Chapel Hill, Division of Infectious Diseases, Department of Medicine, Chapel Hill, United States

Background: We conducted an interim impact evaluation of a universal test and treat (UTT) program implemented with the Zambian Ministry of Health (MOH) and Correctional Service (ZCS) within a large Zambian correctional facility, Lusaka Central.
Methods: Applying RE-AIM, we evaluated reach, effectiveness, adoption, implementation and maintenance of a UTT program using routine and prospective data collected over the program period spanning 1st July 2016—30th June 2017. We compared RE-AIM measures between the program period and the year prior to UTT introduction (1st June 2015 - 30th July 2016).
Results:
Reach: During the program period, the total cumulative inmate population, including the static population plus all new admissions, was 6,850. Of these, we offered HIV testing services (HTS) to 3,419 (n/N=3,419/6,850, 49.9%). HTS reach was significantly higher in the program versus baseline period (n/N=714/7,355, 9.7%) (p< 0.001).
Effectiveness: 92.3% (n/N=3,157/3,417) of inmates offered HTS accepted testing. Significantly more newly HIV-diagnosed inmates initiated ART over the UTT program period (n/N=327/416, 78.6%) compared to the 12 months prior (n/N=110/187, 58.8%) (p< 0.001).
Adoption: HIV treatment was fragmented by release and transfer procedures uncoordinated with health services, resulting in 41.0% (n/N=134/327) of newly ART-initiated inmates being released or transferred

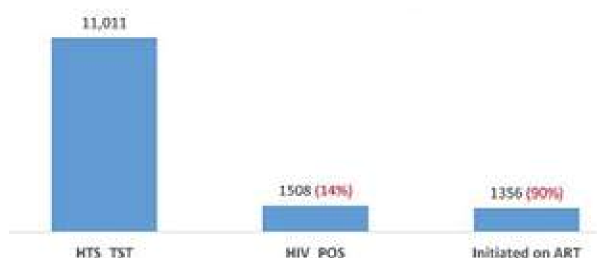
during the program period. 46.3% (n/N=62/134) of inmates who were released or transferred did so within the first three months of initiating ART.
Implementation: HTS uptake (92.3%) exceeded our program target (75%) and 90.0% (n/N=294/327) of newly diagnosed HIV-positive inmates started ART within 1 day, meeting our same-day ART target.
Maintenance: A key obstacle to maintenance was high turnover of corrections officers and lay and professional health workers initially trained on UTT. During the program period, we re-trained 80 inmate peer educators and cell captains over 3 sessions after initially training 55. We also re-trained 48 staff from ZCS and MOH over 4 sessions, after first training 24.
Conclusions: We achieved high uptake and fidelity of HTS and same-day ART, as well as improved HIV service reach and effectiveness within Lusaka Central. Long-term UTT maintenance may be threatened by limited staffing and resourcing of the prison health system, and uncoordinated transfer and release for inmates newly starting ART.

THPEE753

Partnering with correctional authorities to improve access to HIV prevention and linkage to antiretroviral therapy for prisoners in Zambia

T. Malebe[1], M. Phiri[1], A. Malumo[1], K. Stratten[2]
[1]IntraHealth International, Lusaka, Zambia, [2]IntraHealth International, Chapel Hill, United States

Background: Estimated global HIV prevalence among prisoners is 3%. In some settings, HIV prevalence in prisons is 15 times higher than in the general adult population according to the World Health Organization. This situation increases the risk of HIV transmission between inmates and to sexual partners after inmates are released from prison. However, access to HIV prevention, treatment and care programs is often lacking in correctional services due to limited resources. In Zambia, with CDC funding, IntraHealth International implements a comprehensive HIV prevention and treatment program in partnership with correctional service authorities in three selected correctional facilities in Southern and Western provinces.
Description: In partnership with prison authorities and District Medical Offices, IntraHealth has trained correctional officers and selected inmates as lay providers (LPs) to deliver HIV testing services (HTS) in correctional facilities. The training also equips them with knowledge and skills to provide HIV information, education and screening for sexually transmitted infections (STIs) and tuberculosis (TB). Positive health, dignity and prevention packages and supportive care services are provided by LPs to inmates who test positive. Trained LPs provide escorted referrals for same-day ART initiation in the prison clinics.
Lessons learned: The district coordinators engaged with prison authorities to facilitate the implementation of HIV interventions at correctional services, which has increased access to testing, care and treatment services for inmates and prison workers. From October 2014-November 2017, a total of 11,011 inmates were tested; 1,508 (14%) were HIV-positive and 1,356 (90%) of those were initiated on ART. LPs also screened HIV-positive clients for TB resulting in 1,187 (78%) presumptive cases out of which 623 (52%) were confirmed for TB and commenced treatment. The LP/peer approach has increased access to HIV testing and TB screening services to all inmates, who are now motivated to test for HIV and start treatment if found positive within the prison.
Conclusions/Next steps: These interventions will be expanded to more correctional services in Zambia and offer a model for replication in other settings.



[2014-2017 Inmate HTS and Linkage to Treatment]

THPEE754

Virtual communities of practice effectively support providers attending to underserved populations in settings with high HIV burden in Africa and Asia

B.B. Struminger[1], S. Arora[1], S. Zalud-Cerrato[1], J. Lehmer[1], L. Bikinesi[2], N. Hamunime[2], D. Naitore[3], R. Issayeva[4], Z. Trumova[5], A. Deryabina[5], F. Tsiouris[6], G. Taasi[7], S. Bakengana[8], R. Pati[9], L. Tison[9], C. Roscoe[10], J. Wright[11], J. Scott[12], K. Unruh[12], B. Wood[12]
[1]University of New Mexico Health Sciences Center, ECHO Institute, Albuquerque, United States, [2]Ministry of Health and Social Services of Namibia, Directorate of Special Programmes, Subdivision HIV and STIs Control, Windhoek, Namibia, [3]ICAP at Columbia University Kenya, Nairobi, Kenya, [4]Kazakh Medical University for Continuous Education, Almaty, Kazakhstan, [5]ICAP Columbia University Central Asia, Almaty, Kazakhstan, [6]ICAP Columbia University, New York, United States, [7]Ministry of Health Uganda, Kampala, Uganda, [8]Uganda Virus Research Institute, Entebbe, Uganda, [9]The U.S. Centers for Disease Control and Prevention, Atlanta, United States, [10]The U.S. Centers for Disease Control and Prevention in Namibia, Windhoek, Namibia, [11]The U.S. Centers for Disease Control and Prevention Central Asia, Almaty, Kazakhstan, [12]University of Washington, Seattle, United States

Background: Project ECHO® (Extension for Community Health Outcomes) HIV tele-mentoring programs aim to bring best practice HIV care to underserved populations worldwide. These virtual communities of practice expand access to HIV expert support, strengthen workforce capacity, improve provider satisfaction, and reduce isolation.
Description: Namibia, Kenya, Cote d'Ivoire, Tanzania, Kazakhstan, and Kyrgyzstan have adapted and implemented HIV care and treatment ECHO programs over the last two years connecting hundreds of HIV doctors, nurses, and other cadres. Tanzania and Uganda conduct ECHO programs to improve HIV rapid testing for several hundred testers with no lab training at a dozen sites combined. National experts connect with the local sites for weekly 60 to 90 minute sessions that include a short didactic presentation and case discussions. The laboratory programs use the video capability for hands-on demonstrations. Curricula cover a wide range of HIV and quality improvement topics based on the national guidelines of each country. Programs are monitored by surveys, pre- and post-knowledge tests, and focus group discussions.
Lessons learned: Implementation of the ECHO model has improved the knowledge, skills, and confidence of HIV providers and non-laboratory testers working in low-resource settings with high HIV burden in Africa and Asia. Use of video-conferencing to leverage local expertise supports local ownership and provides a cost-effective method for training providers. Participants reported feeling less isolated in comparison to the time before attending ECHO sessions and they gained access to continuing professional development credits without having to travel to trainings. The IT infrastructure sufficiently supports good quality video conferencing through cellular, satellite, or fiber optic internet connections. Programs innovate by using anonymous polls during the video-conference to engage participants and text messaging programs like WhatsApp to engage participants asynchronously. Additional HIV ECHO programs are in development in several more African countries, Asia and Latin America.
Conclusions/Next steps: Successful implementation of the ECHO model to strengthen HIV programs in seven countries supported by Ministries of Health, academic institutions, laboratories, and foundations improves access to high quality, cost-effective HIV care in low resource settings. Accelerated dissemination of national guidelines and best practices helps countries build the workforce needed to attain epidemic control of HIV.

THPEE755

Adaptation, implementation and evaluation of a tele-mentoring program for the Namibian HIV health workforce

L. Bikinesi[1], N. Hamunime[1], A. Mengistu[1], T. Mekonen[1], C. Roscoe[2], N. Shoopala[2], S. Sawadogo[2], S. Agolory[2], G. Mutandi[2], V. Garises[3], L. Tison[4], R. Pati[4], E. Rodriguez[4], T. Ellerbrock[4], L. Brandt[5], N. Forster[5], J. Scott[6], B. Wood[6], K. Unruh[6], S. Arora[7], M. Iandiorio[7], S. Kalishman[7], S. Zalud-Cerrato[7], J. Lehmer[7], C. Ramers[7], B. Struminger[7], G. O'Bryan[8], G. O'Malley[8]
[1]Namibia Ministry of Health and Social Services, Directorate of Special Programs, Windhoek, Namibia, [2]U.S. Centers for Disease Control and Prevention, Windhoek, Namibia, [3]Namibia Institute of Pathology, Windhoek, Namibia, [4]U.S. Centers for Disease Control and Prevention, Atlanta, United States, [5]International Training and Education Center for Health, Windhoek, Namibia, [6]University of Washington, Division of Allergy and Infectious Diseases, Department of Medicine, Seattle, United States, [7]University of New Mexico Health Sciences Center, ECHO Institute, Albuquerque, United States, [8]International Training and Education Center for Health, Seattle, United States

Background: Namibia experiences critical shortages of healthcare workers caring for the 14% of the adult population living with HIV. In 2015, the Namibia Ministry of Health and Social Services (MoHSS) adapted, piloted and evaluated a tele-mentoring platform for case-based learning in virtual communities of practice called Project ECHO® (Extension for Community Health Outcomes) to address challenges in HIV care. Goals of this first ECHO adaptation in Africa included assessing feasibility and acceptability, strengthening workforce capacity, improving provider satisfaction, and reducing isolation.
Description: Best practices for adapting an evidence-based HIV ECHO program were applied, a 9-month curriculum was developed, and Continuing Professional Development (CPD) accreditation obtained.
A virtual community of practice using weekly video-teleconference sessions with didactic training and patient case presentations was established; participants included national experts, regional clinical mentors, doctors, nurses, pharmacists, laboratorians, and health assistants. Between 50 and 120 individuals participated per session, learning from didactics and de-identified patient case discussions. A mixed-methods assessment of the first 34 sessions included process evaluation, pre/post questionnaires (knowledge, satisfaction, self-efficacy, CPD credits), qualitative interviews, and focus group discussions.
Lessons learned: To optimize ECHO in Namibia, MoHSS adapted a model that included leveraging of centralized and decentralized Ministry leadership and expertise, rotating session facilitation, disseminating new guidelines (e.g. PrEP, community adherence clubs, etc.), and empowering lower-level cadres to differentiate aspects of HIV care that could be task-shifted. Over 50% of participants are nurses. During the pilot, knowledge of clinical HIV improved 17.8% overall and 22.3% for nurses ($p < 0.01$). Self-reported clinical professional satisfaction increased 30%. Most participants (66%) reported reduced professional isolation, and 57% reported improved access to CPD credits. Following the pilot, increased demand and popularity of ECHO led to expansion from 10 to 23 spoke sites.
Conclusions/Next steps: Namibia's HIV ECHO improved knowledge and provider satisfaction and has demonstrated the ability to adapt to evolving needs in an African context. MoHSS will increase ECHO to 36 sites and expand focus areas beyond HIV in 2018. This first successful ECHO implementation in Africa encountered minimal barriers and has catalyzed development of several additional ECHO programs across Africa and Central Asia.

THPEE756

Health system strengthening in rural Nigeria: Focus on HIV programmes

O.B. Onokala[1], G. Abiaziem[2], F. Oluwasina[3]
[1]AIDS Healthcare Foundation, Treatment, Abuja, Nigeria, [2]AIDS Healthcare Foundation, Treatment, Makurdi, Nigeria, [3]AIDS Healthcare Foundation, Monitoring and Evaluation, Abuja, Nigeria

Background: Some rural populations are often excluded in interventions against HIV/AIDS. In order to effectively reduce the global HIV burden, underserved rural communities need to be prioritized. Health System Strengthening (HSS) is pivotal for sustaining HIV programmes dedicated to reaching underserved communities. The study describes interventions made to strengthen health systems for HIV programmes in underserved rural communities in Nigeria.
Methods: The longitudinal cohort study was done at HIV treatment facilities in 24 randomly selected underserved communities in rural Nigeria. HIV programme interventions were designed to bridge specific gaps identified in health systems according to the World Health Organization-accepted core HSS functions. Human resources interventions incorporated trained local indigenes into community health systems. Health information was optimized by efficient monitoring and evaluation of health system data. Health governance interventions included engagement of community gate-keepers. Service delivery interventions included rural decentralization of Anti-Retroviral Therapy (ART), differentiated HIV care, standardization and integration of HIV services. Interventions for health finance and availability of medicines involved private-public partnerships. The pre- and post-intervention assessment of HSS functions were done in October 2012 and October 2017 respectively. Chi-square was applied as inferential statistics; $P < 0.05$ indicated statistical significance.
Results: Interventions increased HIV services from 10% pre-intervention to 80% post-intervention. The interventions increased HIV treatment facilities from 7 (pre-intervention) to 63 post-intervention. Subsequently, the cumulative number of adult ART patients increased from 2,393 pre-intervention to 10,609 post-intervention, while the cumulative number of pediatric ART patients increased from 104 pre-intervention to 817 post-intervention. Optimization of human resources for health improved the quality of patient care from 30% pre-intervention to 90% post-intervention. Health information system strengthening enabled efficient monitoring and evaluation of HIV services and outcomes. Interventions in health governance ensured sustenance of HIV services to displaced persons at 3 facilities affected by rural conflict within the period. The private-public partnership enabled pooling of resources to eliminate user fees at the facilities.
Conclusions: The interventions significantly improved core HSS functions in human resources for health; health finance; health governance; health information; medicines; and service delivery. The interventions are recommended for strengthening health systems for HIV programmes in underserved rural communities in Nigeria.

THPEE757

Reaching underserved populations living with HCV: Pairing treatment with intensive navigation to improve adherence and completion of HCV treatment during and after incarceration in San Francisco Jails

M. Yoshida[1], J. Hilton[2], L. Pratt[1], S. Aggarwal[1], J. McDonald[1], S. Halliwill[1], A. Luetkemeyer[3]
[1]San Francisco Department of Public Health, Jail Health Services, San Francisco, United States, [2]University of California, Epidemiology & Biostatistics, San Francisco, United States, [3]University of California, Medicine, San Francisco, United States

Background: The availability of all oral HCV regimens creates an important opportunity to cure HCV in the most vulnerable populations, including incarcerated patients who are highly impacted by this disease, yet have substantial barriers to initiating treatment both during and after incarceration. San Francisco Jail Health Services assessed the feasibility of initiating HCV treatment during incarceration, coupled with intensive, short-term case management to promote adherence, treatment completion, and linkage to care post-discharge.

Methods: Between 3/2017 and 12/2017, HCV-positive patients incarcerated in the San Francisco County Jail were enrolled and given 12 weeks of 100 mg velpatasvir/400 mg sofosbuvir (Epclusa®), plus intensive navigation if discharged before treatment completion. The primary objective was to achieve ³70% sustained virologic response after completing treatment (SVR12) among inmates initiating HCV treatment.
Results: 100 participants enrolled; median age, 39(range, 23-67); male, 84%; Hispanic ethnicity, 10%; race: White 50%, African-American 26%, and multiracial/other 14%. Prior incarceration 95%, HCV treatment-naïve 96%, APRI of ≥1 suggesting F4 fibrosis 13%, HIV co-infected 6%, and self-reported history of IDU 86%. HCV genotypes: GT1 81%, GT2 6%, GT3 10%, and 3 without GT available.
As of January 2018, 70 completed treatment (27 completed following release), 10 remain on treatment (7 on treatment following release), 16 prematurely discontinued treatment following release, 3 discontinued due to reported side effects, 1 participant spontaneously cleared prior to starting study therapy. 50 participants were still on HCV treatment at time of release, with a median treatment remaining of 4.6 weeks (range, 0.43-11.14 weeks). Among 70 who completed treatment, 35 attained SVR12 to date. Of those who reached the SVR12 time point, 37/51 (72.5%) attained SVR12, including 2 who prematurely discontinued treatment. Complete treatment and SVR12 data will be presented.
Conclusions: Initiation of HCV treatment in jail is an effective approach to reach this high-risk population, with 78.7%(70/89) able to complete a full 12 weeks of therapy thus far, despite half being released during treatment, and over 70% with SVR12 to date. Jail-based HCV treatment initiation should be paired with short-term intensive case management services post-release given the high risk for premature treatment discontinuation.

THPEE758

The Grantee as an essential public health service manager in collaborative governance for care and treatment of target populations

J. Agbodzakey
Nova Southeastern University, H.W. Huizenga College of Business and Entrepreneurship, Fort Lauderdale, United States

Background: This study utilizes the emergent collaborative governance framework to examine ongoing HIV/AIDS care and treatment efforts by two Eligible Metropolitan Areas (EMAs) in South Florida with the Grantee as a critical variable in health service delivery and management. The purpose is to ascertain the Grantee's role as it relates to helping engage infected and affected populations, service providers, and non-elected community leaders in collaborative governance for collective problem solving as part of national measures to fulfill established legislative intents.
Methods: The study relies on a qualitative methodology, specifically, in-depth interviews, extensive observations and review of documents to generate needed data for analysis and interpretation. Thirty-one (31) key leaders and members (including three Grantees) of the health services planning councils at both EMAs were interviewed in 2016-2017. Furthermore, the interview data was complemented by observation of forty (40) various committees and general meetings in 2013-2014, and various relevant documents (minutes, reports, integrated plans etc.) were reviewed. The data was coded and analyzed in compliance with qualitative research protocols, which helped to derive relevant concepts and themes for interpretation purposes.
Results: The results reveal the Grantee's pivotal role in judicious resource allocation for various service categories to enhance care and treatment of HIV/AIDS infected and affected, effective management of existing human and service network capacity, strategic engagement of core groups in the collaborative process, and responsiveness to key county/community, state, and federal stakeholders as it relates to established performance expectations.
Conclusions: The findings accentuate viability of collaborative governance framework in addressing a complex problem, which in this case is the HIV/AIDS conundrum with the Grantee serving as an essential public service manager to promote effective service delivery to target populations and to ensure sustainable resource management. It is apparent that collaborative governance involving affected populations, service providers, and non-elected community leaders enhances health equity in terms of care and treatment. Understanding the contributions and impacts of Grantees' in all twenty-four (24) EMAs in the U.S. and its territory, which is the next phase of this research will foster creative and comprehensive narrative on care and treatment system and attendant implications for policy, research and praxis.

THPEE759

Barriers to delivering HIV treatment services to internally displaced persons in Nigeria

R.C. Abah, I. Atta, C. Ojeonu
National Agency for the Control of Aids Nigeria, Abuja, Nigeria

Background: There are over 2.1 million internally displaced persons (IDPs), representing more than 300,000 households in various parts of northern Nigeria. It is necessary to ensure that most of the IDPs, having stayed in temporary shelters under pressure, and may have been exposure to risky behaviour, have access to medical services. This will assist many IDPs to know their general health status including HIV. Identifying the barriers to delivering HIV services to internally displaced persons will improve efficiency and effectiveness of interventions.
Methods: A review of secondary data sources of HIV interventions and IDP management in parts of Nigeria between 2016 and 2017 was reviewed. Using qualitative deductive approach and quantitative statistical analysis, relevant information on the population, demographic structure, health status, and available services, and challenges were clearly summarized and presented.
Results: The IDPs were identified in Adamawa, Bauchi, Benue, Borno, Gombe, Taraba, Yobe, Nasarawa, Plateau, Kaduna, Kano, Zamfara states. The total number of IDPs identified was 2,066,783 (344,564 households). A total of 1, 777, 434 (86%) IDPs are in host communities with relation and friends while 14% (289,350) are located in camp sites around these states. A total of 1,136, 731 (55%) of the IDPs are Children and 53% of all IDPs are females. A total of 24, 216 IDPs in camps lack access to Health services, and over 70% of IDPs outside camps lack access to health services such as HIV testing, treatment services, and PMTCT. Barriers identified included inadequate health commodities, weak management structure for temporary shelters, corrupt practices by some camp officials, the dwindling economy of states, weak central coordination, local human resource gaps, continued insurgent attacks along supply routes, inadequate information of interventions by local authorities, poor community sensitization.
Conclusions: Nigeria has witnessed a sustained number of IDPs mainly due to conflicts. Barriers to HIV services for non-camp IDPs can be bridged by community consultation, building capacity and incentivising community health workers for door-to-door sensitisation, and leveraging on polio vaccination volunteers. Distribution of commodities can be safer using established routes and security escort, helicopter drop-offs, and the proximity hub and spoke model to reduce travel over long distances.

THPEE760

Assessment of an enhanced linkage to care model: Promising results from a pilot project in two New York City HIV clinics

Y. Salazar[1], C. Ferraris[2], J. Fefer[3], D. Nurutdinaova[3]
[1]*Waterbury Hospital, Infectious Diseases, Waterbury, United States,* [2]*St Lukes Mount Sinai West Hosptial, Infectious Diseases, New York, United States,* [3]*St Lukes Mount Sinai West, Infectious Diseases, New York, United States*

Background: Linking HIV positive individuals to care and initiating ARVs not only has individual and clinical implications but also reduces HIV transmission rates. Despite the need to quickly engage newly-diagnosed persons in care, data show that only about 72% have that receipt of care with even less being retained and prescribed ARVs. More data are needed from clinical settings in the real-world to identify and scale-up successful models in HIV care cascade.

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Methods: Newly diagnosed patient data was obtained through a retrospective chart review of Electronic Medical Records (EMR) at two outpatient HIV care sites in New York City within a 1-year period. In this analysis, risk factors, socio-demographics, linkage to care, prescribing of antiretrovirals (ARVs) were analyzed. During this period an expedited linkage to care model was implemented to ensure an initial medical assessment to newly diagnosed individuals within 72 hours. This model included the designation of a linkage to care specialist within the clinical team, and a rapid course through wraparound and medical services.
Results: From April of 2015 to April of 2016, the study team identified a total of 21 patients who were referred to care with a new HIV diagnosis. All 21 patients were connected to HIV services within the clinical setting. The median age was 32 (range) years, 90% were male, and 71% were Hispanic/Black.
The main risk factor for HIV acquisition was MSM (90%) while 42% of all patients were co-infected with other sexually transmitted infections at the time of HIV diagnosis. 52% of the sample reported prior or current use of recreational drugs, the most common being cannabinoids and amphetamines.
Of the sample, 90% presented to care with no health coverage. There was a median of 9 days (range) between the HIV diagnosis and initial visit to the HIV clinic. While the majority of patients had multiple visits over a 12 months period, 33% were lost to follow-up.
Conclusions: This expedited model was successful in a real-world clinical setting in demonstrating high rates of linkage to care and ARV initiation among key populations despite preexisting limitations in health coverage, and high rates of underlying substance use.

THPEE761

Cascade model of mentorship for mixed cadre HIV prevention outreach teams to enhance health services among female sex workers in East Central Uganda, process, achievements, lessons and conclusions

J. Muhumuza[1], J. Mugweri[2], P. Odeke[2], S. Kiirya[2], A. Muhwezi[2], N. Tumwesigye[2], HIV-Prevention Team
[1]University Research Co., LLC, HIV Prevention, Kampala, Uganda, [2]University Research Co., LLC, Kampala, Uganda

Background: To achieve the fast track initiatives to end HIV/AIDS by 2030, World Health Organization and international community recommends accelerated technical and programmatic innovations. However, in sub Saharan Africa, particularly in Uganda, despite many governmental and non-governmental HIV Prevention interventions designed to increase health service uptake among key populations (Female sex workers (FSWs), Men having sex with men, people living with HIV etc), outcome results remain sub-optimal.
USAID's RHITES-EC project under University Research co. LLC (URC); implemented HIV prevention interventions targeting FSWs through a cascade model of mentor-ship for mixed local cadre staff using outreaches. Though it was successful, little is known about the process and what characteristics of HIV Prevention outreach teams are essential for effective delivery of services among FSWs.
Description: HIV Prevalence in East central Uganda reduced from 5.8% in 2011 to 4.7% in 2017, however, the AIDS Assessment report 2017, indicated that high HIV positivity rates still existed among key populations with FSWs most affected. The project scaled up HIV prevention interventions targeting FSW between June to September 2017 prioritizing on-job mentor-ship of mixed cadre staff at all levels on the HIV Prevention minimum package followed by mentorships for HIV prevention outreach teams composed of FSW peers, Bio-medical staff, and community social workers. Contrary, previous HIV prevention programs relied only on medical staff from health facilities and Community Health workers (CHW) to mobilize FSWs.
Lessons learned: The number of female sex workers reached increased from 5.9% (n=311) in June to 72.4% (n=3828) in September 2017 with an HIV positivity rate of 8.0%. Linkage to care for new HIV positives increased from 55.2% in June to 78.7% in September 2017 among other services. The increase in services uptake was due to change in working with acceptable demand creation agents coupled with well supported mixed professionals at the supply end.

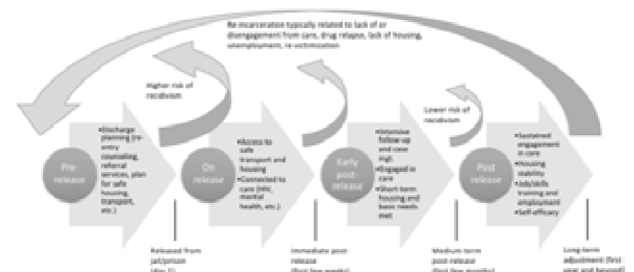
Conclusions/Next steps: The cascade model of mentorship for mixed cadres proved to be successful in improving health services uptake among FSWs; specific issues related to demand creation approaches, Human resources diversification and on-job support were highlighted for scale up and inform future HIV Prevention framework strategies.

THPEE762

A conceptual model for linking and transitioning previously incarcerated women with HIV in the US South to clinical and social services to support post-release adjustment

C. Sprague[1,2,3], M.L. Scanlon[1], S. Brown[1,4], B. Radhakrishnan[1], D.W. Pantalone[5,6]
[1]University of Massachusetts Boston, Department of Conflict Resolution, Human Security & Global Governance, Boston, United States, [2]University of Massachusetts Boston, Department of Nursing, Boston, United States, [3]University of the Witwatersrand, Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [4]Boston University, Department of Health Sciences, Sargent College of Rehabilitation and Health Sciences, Boston, United States, [5]University of Massachusetts Boston, Department of Psychology, Boston, United States, [6]The Fenway Institute, Fenway Health, Boston, United States

Background: Due to the disproportionate burden of HIV among incarcerated, socially-marginalized populations in the US and globally, jails and prisons are key sites for HIV service delivery. While the numbers of incarcerated women are growing, women remain under-researched. Moreover, recidivism remains high, which may reflect unmet mental health and social service needs for this population, especially post-release. Little published research has investigated this possibility directly, however. The study objective was to investigate unmet mental health and social service needs of previously incarcerated HIV-positive women in the US South, specifically Alabama.
Methods: We collected data from three sources for triangulation purposes, using semi-structured, in-depth qualitative interviews with: (1) 25 previously incarcerated HIV-positive women participants in two cities; and (2) 16 key informants who provide health and social services to the study population; combined with (3) service availability mapping. We analyzed the data using conventional content analysis. We grouped codes into categories and organized them by stage: pre-release, on-release and post-release. We conducted multiple, independent coding passes, then cross-checked and verified the emerging themes across the main categories and against the original transcripts. Final themes, and a novel conceptual framework, emerged iteratively.
Results: Participants reported particular unmet needs, captured in four findings by stage:
(1) *Pre-release*: discharge planning and linkage to support services to successfully manage high-risk environments were absent, demonstrating the importance of removing women from triggers (harmful environments);
(2) *On-release:* services were concentrated among few community-based organizations that secured participants' trust and linked them to mental health and social services;
(3) *Early-post-release:* mental health and substance abuse treatment during re-entry were essential to avoid relapse;
(4) *Long-term-post-release*: social support was crucial in fostering post-release adjustment, revealing the interplay between types of services and support, longer-term.



[Figure 1. Conceptual model for linking and transitioning previously incarcerated women living with HIV to clinical and social services]

Conclusions: Safe, stable housing support, substance abuse treatment, human connection, restoration of dignity and love were central to women's wellness. This emphasizes the need for more comprehensive and gender-responsive services to support this underserved, socially-marginalized population. We propose an original conceptual model (Fig. 1), with key steps to establish continuous linkage to services for previously incarcerated women—to address unmet needs and support women´s long-term post-release adjustment.

Evidence on making task shifting work

THPEE763
Task shifting for point-of-care early infant diagnosis testing: Comparison of error rates between nurses and specialized laboratory trained personnel

F.M. Simmonds[1], A. Chadambuka[2], B. Mutede[2], A. Mahomva[2], J. Cohn[3]
[1]*Elizabeth Glaser Pediatric AIDS Foundation, Harare, Zimbabwe,* [2]*Elizabeth Glaser Pediatric AIDS Foundation, Technical, Harare, Zimbabwe,* [3]*Elizabeth Glaser Pediatric AIDS Foundation, Geneva, Switzerland*

Background: Point-of-care (POC) early infant diagnosis (EID) of HIV allows for sample analysis at peripheral health facility. Unlike conventional testing that requires specialized laboratory personnel, POC EID is nearfully automated and may be operated by non-specialized laboratory personnel. POC EID technologies include internal error controls that detect user errors. High rates of error may suggest inadequate user capacity. To decentralize POC EID, task-shifting to cadres such as nurses is important. We used data from a POC EID project in Zimbabwe to compare the error rates and result return to caregivers for samples run on a POC EID technology (Alere q HIV 1/2 Detect) between nurses and lab personnel (MLSc/Techs) to assess user competence.
Methods: All ten sites in Zimbabwe providing POC EID for routine clinical use were enrolled. Two sites are operated by MLSc/Techs, six by nurses, and two by both cadres. Data from December 2016 to June 2017 were reviewed. Error rates were downloaded from each POC EID machine and exported to excel to analyze errors by type of operator. Turnaround time (TAT) from sample collection to issuing of results to caregiver was extracted from the EID test request form and uploaded into an Excel-based database for analysis.

Error Category	Testing Cadre	Error Rate	P-Value
General Errors	MLSc/Techs	7.69%	**0.36**
General Errors	Nurse	9.24%	
End User Errors	MLSc/Techs	5.22%	**0.38**
End User Errors	Nurse	6.41%	

[Table 1: Comparison of error rates in the use Alere Q platform for POC EID by type of operator in Zimbabwe, 2017]

[Figure 1: Error rates by type of operator over the data collection period]

Results: A total of 1,847 tests were conducted by 45 testers (12 MLSc/Techs and 33 nurses), including 165 errors. Overall error rate was 8.93% (7.69% vs. 9.24%, for MLSc/Techs and nurses, respectively, p=0.36). User error rate was 6.17% (5.22% vs. 6.41%, for MLSc/Techs and nurses, respectively, p=0.38). There was no statistical difference between error rates for MLSc/Techs and for nurses. Over time, both cadres' error rates decreased. 98.75% of results were issued to clients versus 98.92% for MLSc/Techs and nurses, respectively. Overall median TAT was same day (Q_1=0.5, Q_3=2). Tests processed by MLSc/Techs had a TAT of one day (Q_1=0.5, Q_3=3.5) versus same day (Q_1=0.5, Q_3=2.5) for nurses.
Conclusions: Similar error rates and TATs between nurses and lab-tech-operators suggest that non-specialized laboratory trained personnel can perform POC EID equally well as specialized laboratory personnel. Nurse-operated POC EID testing will ensure decentralization and timely return of test results without compromising the quality of testing.

THPEE764
Expert clients are associated with improved client tracing among HIV-positive adults who struggle to engage in ART under Test and Treat in Malawi

K. Phiri[1], P.C. Kalande[1], M. Mphande[1], E. Chikuse[2], M. Samuko[2], K. Dovel[1,3], EQUIP-Innovations for Health
[1]*Partners in Hope Malawi, Implementation Science, Lilongwe, Malawi,* [2]*Partners in Hope Malawi, Care and Treatment, Lilongwe, Malawi,* [3]*University of California, Division of Infectious Diseases, Los Angeles, United States*

Background: Tracing is an important strategy for promoting ART retention and re-engaging clients into HIV care. However, tracing activities are difficult and time-consuming. The most efficient models for tracing are still unclear. As part of a larger study to examine the impact of the new universal treatment policy (Test and Treat) in Malawi, we examined the effectiveness of client tracing using two cadres: expert clients (ECs; HIV-positive client volunteers), and Health Surveillance Assistants (HSAs; community health workers in Malawi).
Methods: Study staff reviewed medical records at 4 rural sites to identify clients who failed to take-up ART (did not return for their 4-week appointment or non-initiates), and clients who initiated ART but poorly engaged in care (^{3}14 days late for an ART appointment). From November 2016 - May 2017, HSAs traced identified clients to encourage re-engagement in care. HSAs are community health workers primarily responsible for child immunization, disease surveillance, and tracing activities. Expert clients were introduced to sites in May 2017. Expert clients are HIV-positive community volunteers who successfully engage in care and are responsible for assisting with ART appointments, promoting demand-creation for HIV-testing, and client tracing. From June 2017 onward, ECs became the primary cadre responsible for HIV-related tracing. We collected anonymized medical records between November 2016-September 2017 to determine the proportion of clients successfully traced over time. Wilcoxon ranksum tests were conducted to determine if a greater proportion of clients were traced after the introduction of ECs.
Results: A total of 205 and 127 clients were given to HSAs and ECs, respectively. HSAs successfully traced 41% of clients versus 62% by ECs, resulting in a 51% increase with the introduction of ECs (p< 0.01) (Table).

Facility	Type of facility	ART cohort size	Number of HSAs	Number of ECs	Number of clients given to HSAs for tracing	n (%) of clients successfully traced by HSAs	Number of Clients given to ECs for tracing	n (%) of clients successfully traced by ECs	p-value*
Facility 1	Rural Cham	1430	30	4	41	21 (51%)	32	23 (71%)	0.08
Facility 2	Rural hospital	1431	56	8	89	27 (30%)	47	24 (51%)	0.02
Facility 3	Rural Health centre	603	37	4	49	25 (51%)	13	7 (54%)	0.86
Facility 4	Rural Health centre	177	32	4	26	11 (42%)	35	25 (71%)	0.02
Males traced	-	-	-	-	82	38 (46%)	56	36 (64%)	0.04
Females traced	-	-	-	-	123	46 (37%)	71	43 (60%)	0.002
Total	-		155	20	205	84 (41%)	127	79 (62%)	<0.001

[Facility characteristics and successful tracing outcomes using Health Surveillance Assistants versus Expert Clients in four facilities in Malawi]

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Similar improvements were seen across gender: HSAs traced 46% of males and 37% of females compared to 64% of males and 60% of females by ECs.
Conclusions: The introduction of expert clients is an effective way to improve successful tracing of HIV-positive clients. Future cost-benefit-analyses are needed to guide decision making about integrating a new cadre of ECs across the HIV service delivery system.

THPEE765

Acceptability and effectiveness of lay provider HIV testing among key populations in Vietnam: Results from an intervention evaluation

B. Vu Ngoc[1], K. Green[1], H. Phan Thi Thu[2], M. Tran Hung[3], H. Ngo Van[1], S. Vo Hai[1], T. Ngo Minh[4], A. Doan Hong[1], A. Bao[1], L. Dang Hong[3], G. Ha Thi Tra[1]
[1]PATH, Mekong Regional Program, Hanoi, Vietnam, [2]Ministry of Health, Vietnam Administration for HIV/AIDS Control, Hanoi, Vietnam, [3]Center for Creative Initiatives in Health and Population, Hanoi, Vietnam, [4]U.S. Agency for International Development, Office of Health, Hanoi, Vietnam

Background: Achieving the first 90 of the 90-90-90 HIV target depends upon successfully reaching undiagnosed people. To meet this goal, Vietnam implemented lay provider HIV testing services (HTS), using the "test for triage" approach through community-based organizations and village health workers. However, local acceptability and effectiveness of this new approach are unknown.
Methods: We conducted operations research involving a cross-sectional survey and analysis of routine program data in two cities of Hanoi and Ho Chi Minh City and two rural mountainous provinces of Nghe An and Dien Bien from October 2015 - September 2017. Acceptability of lay provider HTS was defined as proportion of first-time HIV testers, and effectiveness was measured by HIV positivity and antiretroviral therapy (ART) initiation rates. Univariate and multivariate analyses were used to determine lay provider HTS preference and factors associated with that preference.
Results: Among 1,230 lay provider HTS clients recruited for a face-to-face interview in the survey, 74% belonged to key populations, including people who inject drugs, men who have sex with men, and female sex workers. Most clients (67%) reported being first-time testers, and the majority (87.5%) preferred lay provider HTS over facility-based HTS. Multivariate analysis found that clients who were from urban areas, i.e. Hanoi (OR = 2.89, 95% CI 1.01-8.29) or Ho Chi Minh City (OR = 2.96, 95% CI 1.28-6.85) and had a university or higher education (OR = 1.84, 95% CI 1.00-3.38) were more likely to prefer lay provider HTS. Lay provider HTS yielded a higher HIV positivity rate (4.1%) compared to facility-based HTS (1.6%) and had a high ART initiation rate (91%).
Conclusions: Our findings suggest that lay provider HTS is a highly acceptable approach to reach first-time testers and can be effective at reaching undiagnosed people in Vietnam. This will be a critical addition to accelerating achievement of the 90-90-90 target.

THPEE766

Task shifting and mobile technology for HIV drug-drug interaction screening in Uganda

K. Seden[1,2], D. Kiiza[2], E. Laker[2], J.W. Arinaitwe[2], C. Waitt[1,2,3], M. Lamorde[2], S. Khoo[1,3]
[1]University of Liverpool, Liverpool, United Kingdom, [2]Infectious Diseases Institute, Makerere University, Kampala, Uganda, [3]Royal Liverpool University Hospital, Liverpool, United Kingdom

Background: Drug-drug interactions (DDIs) in patients taking antiretrovirals (ARVs) are prevalent globally (14-41%), though types of interaction and ability to manage DDIs differ between settings. Data from Uganda show a prevalence of clinically significant DDIs (CSDDIs) of 18.9%. However, assessing DDIs through prescription review alone may underestimate burden. We report on both the prevalence of DDIs in Ugandan outpatients taking ARVs using screening of complete medication history, and on prescriber acceptability and clinical utility of a novel medication safety feedback loop.
Methods: As part of an ongoing longitudinal study (SAPU), trained pharmacy technicians at two diverse clinics obtained detailed medication histories using patient report, clinical notes and prescriptions. Prescribed and purchased medicines from any source were included. Information was transferred via secure mobile upload with tablet devices to an ARV information resource (AIDS Treatment Information Centre), who screened for DDIs using www.hiv-druginterctions.org, and generated medication safety feedback for prescribers. Prescribers documented at baseline whether they were aware of DDIs for each patient. At the next patient clinic visit, prescribers assessed acceptability and clinical utility of the medication safety feedback via anonymous questionnaire.
Results: Of 300 patients, 296(98.7%) had ≥1 potential DDI, with 610 potential DDIs detected. Of these, 119(19.5%) were CSDDIs, affecting 83(27.6%, 95%CI 22.7-33.1%) of all patients. At the baseline visit prior to DDI screening, prescribers reported being aware of only 6(5%) CSDDIs. For 249(83%) of the 300 patients, prescribers gave feedback on the medication safety report. Prescribers reported that DDI checks provided new information in 152(61%) cases. Prescribers changed their clinical management for 199(56.1%) DDIs, as a result of the medication safety report. DDI screening saved prescribers time in 164(65.9%) cases and added benefit in 179(71.9%, 95%CI 65.9-77.4%) cases. A full-time pharmacy technician and pharmacist could screen >3000 Ugandan patients in 12 months, at a cost of 7500 USD
Conclusions: The novel DDI screening and feedback loop was feasible, acceptable to prescribers and added benefit in >70% of cases. DDI screening using patient interview showed CSDDI prevalence ~10% higher than observed with prescription review alone. Longitudinal follow up will inform whether the DDI feedback loop can improve patient outcomes and demonstrate cost-benefit.

THPEE767

Can oral fluid based rapid HIV test facilitated by Frontline health workers provide a feasible option for screening among pregnant women in rural India?

S. Khan[1], P. Sharma[1], J. Behera[1], P. Verma Shivkumar[2], S. Mehra[3]
[1]MAMTA- Health Institute for Mother and Child, Research & Evidence Building, New Delhi, India, [2]Mahatma Gandhi Institute fo Medical Sciences, Obstetrics and Gynecology, Wardha, India, [3]MAMTA- Health Institute for Mother and Child, New Delhi, India

Background: The importance of knowing HIV status is a key strategy for HIV response and development of effective treatment services. Evidence suggest that introduction of rapid oral based non-invasive HIV testing in community settings is a feasible approach for reaching the vulnerable populations. Shifting the task of HIV testing services aided by FLWs have potential for increased coverage and uptake of HIV screening among pregnant women. Hence, the current study explored the feasibility and acceptability of rapid oral fluid-based HIV testing using the OraQuick® kits conducted by frontline workers (FLWs) among pregnant women living in rural districts of India.
Methods: A feasibility study, using cross sectional design was conducted among 900 pregnant women from two rural districts of India, who consented to be screened for HIV using OraQuick® HIV test. The screening was assisted by trained FLWs and subsequently, participants were sent to the existing government system for confirmatory HIV testing. Information was gathered through a structured questionnaire on the acceptability of oral fluid based HIV testing from 479 pregnant women, on their availability and willingness to participate. The descriptive statistics was used to analyze the quantitative data. Thematic content analysis was used to analyze the qualitative in-depth interviews.
Results: Of the 947 pregnant women who were offered to get screened for HIV using OraQuick® saliva based test, 95% (n=900) accepted to undergo the test. Of the total 479 pregnant women interviewed, 91.2% liked the OraQuick® kit for HIV screening. The key motivators of accepting the test are easy procedure (43%), non-invasiveness (29%) and quick access to results (18%). Of the total, 900 pregnant women screened by rapid HIV test- OraQuick®, nine women were found to be HIV positive, which later corresponded with confirmatory test results. Qualitative data provided further insights into the FLWs to understand their views regarding the current situation on HIV testing as well as the services available to the pregnant women.

Conclusions: With an urgent need to improve access to HIV screening at the grass root level, an oral based HIV rapid testing mechanism can provide a reasonable solution for improving early detection of HIV among the under-served pregnant women.

Systems to deliver effective, long term chronic care

THPEE768

Predictors of controlled CD4 count and blood pressure in an integrated chronic disease management model in a rural South African setting

S. Ameh[1,2,3], K. Klipstein-Grobusch[4], K. Kahn[3], S. Tollman[3], F. Gómez-Olivé[3]
[1]University of Calabar, Community Medicine, Calabar, Nigeria, [2]Harvard University, Global Health and Population, Boston, United States, [3]University of the Witwatersrand, Medical Research Council/Wits University Rural Public Health and Health Transitions Research Unit (Agincourt), Johannesburg, South Africa, [4]University Medical Center, Julius Global Health, Julius Center for Health Sciences and Primary Care, Utrecht, Netherlands

Background: South Africa is undergoing an epidemiological transition with a dual burden of chronic communicable and non-communicable diseases. A pilot Integrated Chronic Disease Management (ICDM) model was initiated in 2011 by South Africa´s National Department of Health in selected primary health care (PHC) facilities. The aim of the ICDM model is to leverage an established HIV treatment programme for non-communicable diseases (NCDs) for better health outcomes of patients with chronic diseases.

This study determined predictors of controlled CD4 count and blood pressure (BP) in hypertension and HIV patients receiving antihypertension medication and antiretroviral drugs, respectively in PHC facilities in the Bushbuckridge sub-district of Mpumalanga province, South Africa.

Methods: This was a panel study to assess the effectiveness of the ICDM model in controlling patients' CD4 count and BP. Patients ≥ 18 years were recruited through a three-step sampling process into the ICDM model facilities (n=435) and comparison facilities (n=443) in the Bushbuckridge sub-district. Health outcome data (BP and CD4 counts) for each patient were retrieved from health facility records over 30 months (January 2011 to June 2013). Control of BP and CD4 counts were defined as BP < 140/90 mmHg and CD4 counts >350 cells/mm³, respectively. Multilevel logistic regression analyses were conducted to determine predictors of controlled CD4 count and controlled hypertension. Data were analysed using Stata 14 statistical software.

Results: The odds of controlling CD4 count were increased by reception of care at the ICDM model facilities (OR=4.05, 95% CI: 2.77-5.92), but decreased by male gender (OR=0.52, 95% CI: 0.34-0.80). The odds of controlling hypertension were higher with increasing age: 40-49 years (OR=6.02, 95% CI: 2.07-17.57); 50-59 years (OR=23.17, 95% CI: 7.46-72.16); ≥ 60 years (OR=77.48, 95% CI: 25.03-82.26), but decreased by male gender (OR=0.38, 95% CI: 0.21-0.69).

Conclusions: Application of the ICDM model appeared effective in controlling patients' CD4 counts, but not their BP; hence, the HIV programme should be more extensively leveraged for hypertension treatment in health facilities in the study setting. Health education programmes to improve HIV treatment outcomes should focus on males. Hypertension educational programmes should target younger males in the study setting.

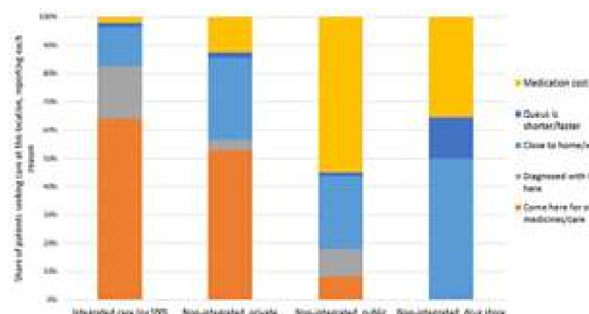
THPEE769

Substantial hypertension care-seeking costs for patients on ART in Malawi: A survey of patients receiving treatment for HIV at an integrated care site

C. Moucheraud[1], M. Hing[2], J. Seleman[3], K. Phiri[3], F. Chibwana[3], D. Kahn[2], A. Schooley[2,3], A. Moses[3], R. Hoffman[2], EQUIP Innovation for Health
[1]University of California, Fielding School of Public Health, Los Angeles, United States, [2]University of California, David Geffen School of Medicine, Los Angeles, United States, [3]Partners in Hope, Lilongwe, Malawi

Background: There is mounting evidence about the clinical and epidemiological connections between HIV and non-communicable diseases like hypertension — yet little is known about the health care experiences of patients with both conditions, particularly in high dual-burden settings where health systems may be ill-equipped to effectively and efficiently provide ongoing care for multiple conditions. This study aimed to quantify the costs of care-seeking for people receiving treatment for both HIV and hypertension in Malawi.

Methods: Data were collected at an urban, PEPFAR-USAID supported HIV treatment site in Malawi that also provides hypertension care, but charges for antihypertensive medicines (ART is provided for free). Adult patients on ART who were taking at least one antihypertensive were invited to participate in a survey. Data were collected between June and December 2017. Questions included experiences with hypertension care including locations and frequencies of visits, and costs of refills (direct medicine and transport costs, as well as indirect costs such as lost wages).



[Reported reasons for care-seeking at different locations]

		Integrated care (n=100)	Non-integrated care (n=98)	p-value for t-test of difference
HTN medicine expenditures	Zero annual expenditure on HTN medicines, % (n)	6.0% (6)	33.3% (33)	< 0.001
	Among those with HTN medicine expenditure: Annual mean (range)	$20.80 (2.52-86.52)	$23.55 (4.20-92.40)	0.24
Refill visit transportation	Zero annual expenditure on refill visit transportation, % (n)	n/a	48.5% (48)	.
	Among those with transport expenditure: Annual mean (range)	.	$6.15 (1.28-28.39)	.
Refill visit lost wages	Zero annual lost wages due to refill visit, % (n)	n/a	53.1% (52)	.
	Among those with lost wages: Annual mean (range)	.	$106.45 (3.41-851.67)	.
Total HTN careseeking costs*	Zero annual HTN careseeking expenditure/costs, % (n)	6.0% (6)	6.1% (6)	0.99
	Among those with any expenditure/cost: Annual mean (range)	$20.80 (2.52-86.52)	$90.28 (1.70-871.83)	< 0.001

These are marginal costs: for people receiving integrated care, "total costs" represents the additional buden of HTN treatment, i.e., the medicines (since transport, lost wages and other costs would be expended regardless for the HIV visit).

[Hypertension (HTN) medicine refill costs (US$)]

Results: There were 199 survey respondents, of whom 65% were female. The median age was 53, and median duration on hypertension treatment was 4 years. On average, patients reported taking 2 antihypertensive medicines, and making 8-9 refill visits each year. Half of respondents (50.3%) received integrated hypertension-ART care (i.e., medicines refilled simultaneously) at the study site. Among non-integrated patients,

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the most common refill locations were drug shops and public-sector health facilities (37% and 32%, respectively) - most often selected due to cost and convenience (Figure 1). Patients receiving non-integrated care reported paying approximately 4 times more each year for their antihypertensive refill visits ($90 versus $21/year for patients with integrated care) (Table 1). No significant sex differences were found for refill patterns or costs in this study population.

Conclusions: We found substantial access barriers - including expensive medicines and high transaction costs - in this population of patients with hypertension who receive free ART care in Malawi. Despite the lower cost of integrated care, half of respondents opted to go elsewhere for antihypertensives. More research is needed to understand patient preferences for non-communicable disease care, and to study efficient and cost-effective care models.

THPEE770

Evaluating the impact of community-based adherence clubs on the clinical outcomes amongst ART patients in the Cape Winelands district of Western Cape Province of South Africa

S.-A. Meehan[1], D. Wademan[1], G. Hoddinott[1], R. Holtman[2], N. Grobbelaar[3], J. Kruger[2], L. Maschilla[4], B. Yang[1], V. Naidoo[1], P. Bock[1], C. Gunst[4]
[1]*Stellenbosch University, Desmond Tutu TB Centre, Department of Paediatrics and Child Health, Cape Town, South Africa,* [2]*Western Cape Government, Department of Health, Cape Town, South Africa,* [3]*ANOVA Health Institute, Cape Winelands Health District, South Africa,* [4]*Western Cape Government, Department of Health, Cape Winelands District and Drakenstein sub-District, South Africa*

Background: South Africa has 7.1 million individuals living with HIV. Implementing WHO recommendation for lifelong ART regardless of CD4 count for all HIV positive individuals, has resulted in increasing numbers of individuals on ART and increased client burden at health facilities. One consequence has been worse clinical outcomes. Referring stable HIV positive individuals to adherence clubs (differentiated model of care) is one strategy to manage increased numbers of HIV-positive individuals. This study aimed to evaluate the impact of adherence clubs on the clinical outcomes amongst ART patients.

Methods: This retrospective cohort study was conducted in one high HIV burdened health facility in the Cape Winelands district, South Africa. It included individuals aged ≥18 years, who started ART between January 2014 and December 2015. Routine data was extracted from electronic datasets for analysis. Participants were followed up until December 2016. Descriptive statistics and multivariate analysis was used to determine viral load suppression, factors associated with referral to a club and loss to follow up (LTFU).

Results: 465 individuals were included in the study. At baseline, the majority (64.3%) were women, median age was 32 years and median baseline CD4 count was 375cells/µL. Overall, 184 (39.6%) of participants had a viral load reported, of which 162 (88%) were virally suppressed. Median time to referral to the adherence club was 14.1 months (IQR 9.9-19.1). Individuals with baseline CD4 > 500 (aHR =1.86, 95% CI 1.13-3.08) and women pregnant at initiation of ART (aHR =1.70, 95% CI 1.07-2.68) were more likely to be referred to an AD club. LTFU over time was lower in individuals referred to adherence clubs (P=0.002) compared to those who remained in the health facility.

Conclusions: Participants were more likely to be retained in care if referred to an adherence club. This suggests that health workers are referring the correct clients to clubs (more stable patients as per guidelines). Although the large proportion of missing data regarding viral load reporting needs further investigation, viral load suppression remained high for those reported. Adherence clubs are one strategy to manage increasing numbers of HIV-positive individuals outside of healthcare facilities.

THPEE771

Implementing community-based adherence clubs for stable HIV-infected patients in South Africa. Lessons learned from patient and health worker experiences

S.-A. Meehan[1], D. Wademan[1], G. Hoddinott[1], R. Holtman[2], N. Grobbelaar[3], J. Kruger[2], M. Leonard[4], B. Yang[1], V. Naidoo[1], P. Bock[1], C. Gunst[4]
[1]*Stellenbosch University, Desmond Tutu TB Centre, Department of Paediatrics and Child Health, Cape Town, South Africa,* [2]*Western Cape Government, Department of Health, Cape Town, South Africa,* [3]*ANOVA Health Institute, Cape Winelands Health District, South Africa,* [4]*Western Cape Government, Department of Health, Cape Winelands District and Drakenstein Sub-District, South Africa*

Background: South Africa has the largest burden of HIV globally; 7.1 million people living with HIV, 3.9 million on ART. Implementation of the WHO guidelines; offering ART to everyone living with HIV, has resulted in increased burden on health facilities with longer patient waiting times. Referring stable HIV positive individuals to community-based adherence clubs is one strategy to manage increased numbers of HIV-positive individuals. This study aimed to generate lessons learned on the implementation of community-based adherence clubs from patient and health worker perspectives.

Description: The Cape-Winelands Health district (South Africa) have implemented community-based adherence clubs (outside of health facilities) since 2012 according to department of health guidelines. 'Clubs' are supported by non-governmental organizations. Stable HIV-positive patients are referred to clubs to collect pre-packed medication, but return to the health facility for a clinical visit every six months. This study enrolled 59 patients and 20 health workers from two 'clubs'. An electronic self-administered questionnaire comprising closed- and open-ended questions was used to collect data. Descriptive statistics and thematic analysis was used to analyse data.

Lessons learned: The majority of participants reported that 'clubs' are best led by counselors, should have ≥20 patients and take place in a community hall or church.

From the patient perspective, 'clubs' (Table 1):
· provide group identity (not alone in living with HIV)
· are empowering (motivated to stay adherent)
· are less time consuming (short queues)

From the health worker perspective, 'clubs':
· are effective at decongesting health facilities
· reduce the burden of work for facility staff
· empower health workers to tailor their support to individual needs

Health workers highlighted that 'clubs' are labour intensive and teamwork between stakeholders is critical. Good communication between NGO and facility personnel is vital when dealing with challenges e.g. individual patient non-compliance or non-collection of medication.

	Club A (n=37)				Club B (n=22)			
Being part of a community-based adherence club	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)
... reduces the hassle of being on ART	13 (35.14)	12 (32.43)	3 (8.11)	9 (24.32)	12 (54.55)	7 (31.82)	1 (4.55)	2 (9.09)
...is something I enjoy	29 (78.38)	5 (13.51)	2 (5.41)	1 (2.7)	17 (77.27)	4 (18.18)	1 (4.55)	0 (0)
...offers me meaningful social support	28 (75.68)	8 (21.62)	1 (2.7)	0 (0)	14 (63.64)	6 (27.27)	2 (9.09)	0 (0)
...reminds me that I am not alone in living with HIV	30 (81.08)	7 (18.92)	0 (0)	0 (0)	16 (72.73)	6 (27.27)	0 (0)	0 (0)
...empowers me to motivate others to test for HIV	22 (59.46)	14 (37.84)	1 (2.7)	0 (0)	16 (72.73)	6 (27.27)	0 (0)	0 (0)
...empowers me to motivate others to stay adherent	25 (67.57)	12 (32.43)	0 (0)	0 (0)	16 (72.73)	6 (27.27)	0 (0)	0 (0)
...is better than going to the clinic every month	24 (64.86)	9 (24.32)	4 (10.81)	0 (0)	14 (63.64)	7 (31.82)	1 (4.55)	0 (0)
Overall is a good way to deliver high quality services for people living with HIV	23 (62.16)	14 (37.84)	0 (0)	0 (0)	11 (50.0)	10 (45.45)	0 (0)	1 (4.55)

[Patient experiences of community-based adherence clubs in Winelands district, Western Cape Province, South Africa]

Conclusions/Next steps: Community-based adherence clubs are a good way to deliver high quality health services for people living with HIV. Implementation of 'clubs' is not simple. Optimal functioning is reli-

ant on strong co-ordination of a multidisciplinary team with clear roles and responsibilities with standardized strategies that are specific to the needs and resources of the community.

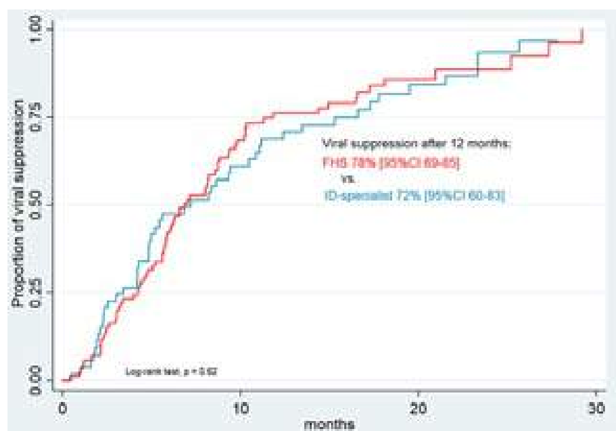
THPEE772

Decentralization of antiretroviral therapy to the family health strategy: Effectiveness of a new delivery strategy for HIV care in Rio de Janeiro, Brazil

R. Castro[1,2], M. Ribeiro-Alves[1], L. Lauria[3], R. Polari[3], P. Santos[4], S. Manzi[5], R.G. Correa[6], A.C.G. Ferreira[1], S.W. Cardoso[1], B. Grinzstejn[1], V.G. Veloso[1], Rede de Políticas Públicas e Modelo de Atenção à Saúde - PMA Fiocruz Network
[1]Fundação Oswaldo Cruz, Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro, Brazil, [2]Universidade Federal do Estado do Rio de Janeiro, Instituto de Saúde Coletiva, Rio de Janeiro, Brazil, [3]Secretaria Municipal de Saúde, Coordenação de Área Programática 2.1, Rio de Janeiro, Brazil, [4]Secretaria Municipal de Saúde, Coordenação de Área Programática 3.3, Rio de Janeiro, Brazil, [5]University of Exeter Medical School, National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care South West, Exeter, United Kingdom, [6]Ministério da Saúde, Departamento de Vigilância Prevenção e Controle das IST, do HIV/Aids e das Hepatites Virais, Brasília, Brazil

Background: In Brazil, antiretroviral therapy (ART) has been historically prescribed by infectious diseases (ID) specialists. In 2014, a new strategy was implemented in the city of Rio de Janeiro to decentralize HIV-care from specialized care to the family health strategy (FHS) in primary care units. HIV-specialists and activists do not fully agree with this decentralized approach. This study aimed to compare the effectiveness of the two ART delivery strategies (FHS versus ID-specialists-based) in primary care units of Rio de Janeiro.

Methods: All adult individuals initiating ART between 2014-2016 in any primary care unit of two administrative regions in Rio de Janeiro were included. Electronic medical records were retrospectively reviewed to (1) check patient eligibility; (2) assess the implemented HIV-care strategy (FHS or ID-specialist-based); and, (3) collect patient data. Lymphocytes CD4+ T cell counts, HIV-1 viral loads (VL), and ART dispensation longitudinal information was retrieved from SISCEL and SICLOM (Brazilian Ministry of Health´s information systems developed to monitor laboratory tests and control the logistic of ART delivery, respectively). Kaplan-Meier survival curves and Cox Proportional-Hazard models were employed, considering the time until viral suppression as the outcome.



[Kaplan-Meier viral suppression estimates by ART delivery strategy in Rio de Janeiro, Brazil]

	aHR (95% CI)	p-value
	age in years	
30-49 vs. <30	1.10 (0.72 - 1.69)	0.63
>= 50 vs. <30	1.87 (1.06 - 3.30)	**<0.05**
	baseline CD4+ T cell counts	
200-500 vs. <200	1.32 (0.81 - 2.16)	0.26
>500 vs. <200	1.70 (1.04 - 2.78)	**<0.05**
	ART delivery strategy	
FHS vs. ID-specialist	0.94 (0.64 - 1.38)	0.75

[Adjusted hazard ratios (aHR) of multivariate Cox Proportional-Hazard model with viral suppression as outcome in Rio de Janeiro, Brazil]

Results: Overall, 421 HIV-1-infected individuals were included, 211 (50.1%) had ART prescribed by the ID-specialist-based strategy and 210 (49.9%) by FHS. Mean age (SD) was 36.6 (13.1) and 35.3 (10.8); males were 135 (64.0%) and 152 (72.4%); black or mixed race/ethnicity individuals were 119 (56.4%) and 142 (67.6%), considering ID-specialist and FHS-based strategies, respectively. The log-fold-change of HIV-1 VL before and after ART was not different between strategies. Log-rank test of Kaplan-Meier estimated average time to viral-suppression between strategies was not significant. Viral suppression adjusted hazard-ratios (95% confidence intervals) [aHR (95% CI)] estimated after a multivariate Cox Proportional-Hazard model fitting were not significant between ART delivery strategies, aHR: 0.94 (0.64-1.38), but were significant between age >= 50 and < 30 years, aHR: 1.87 (1.06-3.30), and baseline CD4 > 500 and < 200, aHR: 1.70 (1.04-2.78).

Conclusions: In real-world settings of primary care units in Rio de Janeiro, FHS and ID-specialist-based ART delivery strategies did not have different virologic outcomes. This finding supports the ongoing process of decentralization of HIV-care.

THPEE773

Certification of HIV-care to improve structural and process components in 25 HIV treatment centres in the Netherlands

J. Branger[1], W. Kortmann[1], A. Vollaard[1], G. ter Beest[2], M. van der Valk[1]
[1]Dutch Society of HIV Treating Physicians (NVHB), Amsterdam, Netherlands, [2]Dutch Society of Nursing Professionals HIV (V&VN), Amsterdam, Netherlands

Background: In the Netherlands, anonymized patient data collected in a national monitoring system provide data on the cascade of care and health outcomes. The medical care for HIV infected patients is concentrated in 26 HIV treatment centres (HIV-tc). In order to measure and improve the quality of care, the Dutch society of HIV treating physicians (NVHB) decided in 2015 to implement a mandatory nationwide certification programme for HIV-tc.

Methods: Up to now twenty five out of 26 Dutch HIV-tc have been audited by an independent external certification organisation (DNV) in a period of three years (2015-2017) to obtain a HKZ certificate. Quality indicators were described by the NVHB. The audit was performed by an independent external audit leader (DNV), together with an infectious diseases medical specialist and a HIV-nurse who had been trained as auditors. After one year, centres were re-audited to verify whether shortcomings had been addressed.

Results: Thirteen indicators of procedural content and 5 of medical content were evaluated (table 1). Concerning the 5 medical quality indicators, all HIV-tc met the medical criteria. In contrast, procedural criteria were partially met. Especially describing and yearly evaluating goals for improvement of HIV care using a plan-do-check-act (PDCA) cycle was present in a minority of HIV-tc (6/25; 24%). Results did not differ between large, small, academic or non academic treatment centres. Recertification one year later showed a robust improvement in meeting certification criteria (18/21; 86%).

quality indicator	criteria met by % HIV-tc (N=25) at audit	criteria met by % HIV-tc (N=25) at re-audit
mission and vision HIV-tc described	88	100
concrete goals described	24	90
organisational structure HIV-tc described	100	100
job and tasks physicians and nurses HIV-tc described	80	100
regular multidisciplinary consultation present	100	100
≥90% HIV-RNA < 400 cp/ml after 6 mo of cART	100	100
yearly evaluation all quality indicators by HIV-tc	28	86
improvements in response to evaluating yearly indicators using PDCA	24	90
symptomatic client seen within 5 working days as recorded	96	100

[Table 1.percentage of Dutch HIV-tc that met 18 different quality criteria as evaluated at a certification audit and a re-audit one year later]

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Conclusions: All HIV treatment centres provide the required clinical care shown by an external certification programme. Self-evaluation using procedural indicators such as planning and evaluating measures to improve quality of care were largely not met at start of the program. The certification program helped to promote clinical organisation as witnessed by near universal improvements in process indicators in 1 year.

THPEE774

Community HIV care and treatment for female sex workers in Ethiopia: Successful service provision through drop in centers

S. Ejigu[1], E. Workalemahu[2], I. Lemma[3], G. Mamo[2]
[1]Population Services International (PSI), MULU/MARPs, Addis Ababa, Ethiopia, [2]PSI, MULU/MARPs, Addis Ababa, Ethiopia, [3]PSI, Addis Ababa, Ethiopia

Background: Female sex workers in Ethiopia are disproportionately affected by HIV, with a prevalence of 23% (national MARPs survey, 2013, EPHI), compared to a national prevalence of 1.2% (EPHI-2017 national estimates). Linkage to treatment and early ART initiation remains a challenge; only 72% of HIV positive patients are put on treatment.
These challenges are magnified among FSW, who face additional barriers to treatment such as stigma and discrimination, and have initiation rates as low as 26%.
Description: To improve uptake of ART among FSW living with HIV, the USAID-funded MULU/MARPs project began offering ART in 25 FSW-friendly drop-in-centers (DICs) in October, 2016. DICs are safe hubs for FSW located in hot-spots, and providing integrated behavioural and clinical services including peer support in a "one-stop-shop" format.. Along with friendly staffs, these social and integrated clinical services make the DICs friendly, and were hypothesized to reduce the barriers to ART uptake among FSWs.
Lessons learned: In the 12 months prior to the roll-out of DIC-based ART delivery, 573 HIV positive female sex workers were identified, of which 510 (89%) were successfully linked to treatment at public health facilities but only 133 (26%) patients were initiated on ART.
Between ART roll-out in October 2016 and December 2017, total of 1282 FSWs were identified and out of these 1232 (96%) were linked to treatment at DIC. Including those who are referred from other testing sites A total of 1,612 FSW were enrolled to care, of which 42 (2.6%) transferred out. From the remaining 1570 patients and 1,506 (96%) started treatment immediately at 25 DICs. Among the 305 patients with viral load test results available, 92% had VL < 1000 copies/ml. 12 month retention rate is 92%.
Conclusions/Next steps: Providing community ART service at DICs tailored to the needs of FSWs improves linkage, initiation to treatment and viral suppression compared to referral to public health facilities. These improvements contribute to progress in achieving the second and third 90s in Ethiopia.
Convenient, confidential, and FSW-friendly services such as those offered in the DICs are a successful strategy for implementing community ART service provision.

Integrating mental health and wellness in HIV programming

THPEE775

Barriers and facilitators to implementation of trauma-informed care services at a large, urban HIV treatment center in the Southern United States

A. Kalokhe[1], K. Piper[2], C. Riddick[2], J. Lucas[2], J. Schiff[3], B. Getachew[2], C. Escoffery[2], J. Sales[2]
[1]Emory University, Rollins School of Public Health, Global Health, Atlanta, United States, [2]Emory University, Rollins School of Public Health, Behavioral Sciences and Health Education, Atlanta, United States, [3]Emory University, School of Medicine, Atlanta, United States

Background: The high prevalence of trauma and its negative impact on health and health-promoting behaviors in HIV-infected populations underscore the need for tailored, integrated trauma screening and management within HIV services ("trauma-informed care" or TIC) to improve retention, adherence to therapy, and overall physical and mental well-being. Little is known about provider and staff attitudes towards implementation of TIC in HIV services.
Methods: To gather information on the current level of TIC services and barriers and facilitators to enhancing TIC delivery, survey assessments (N=31) and in-depth interviews (N=19) were conducted with staff and providers, between March-August 2017, at a large urban HIV treatment center that serves a largely uninsured, low-socioeconomic population in the southern US. The assessment included 8 items on current TIC services. On a scale of 0-3 (strongly disagree to strongly agree), mean item scores ≥2 indicated strong consensus about the availability of this service and mean item scores < 2 indicated consensus on its absence. Interviews were coded using NVivo.
Results: Staff scored ≥2 for 8/8 survey items, indicating high perceived availability of TIC services, while providers scored < 2 for 5/8 survey items, indicating perceived gaps in current TIC services (see Table).
Interviews highlighted the availability of several trauma-related services, including counselling, support groups, and educational courses, but also described the lack of an overarching TIC framework at the center. Providers and staff received little to no training on how to understand, recognize, and respond to patient-reported trauma.
Further, providers and staff supported implementation of organization-wide TIC procedures and employee trainings to improve the delivery of services to patients with trauma histories, and believed the center had capacity to provide TIC, but were concerned time and resource constraints could hinder implementation.
Other concerns voiced by providers included personal discomfort with discussing trauma, limited knowledge regarding support service offerings, and skill deficiencies in responding to trauma.

Availability of TIC Services Survey Items	Provider (N=14) Mean	Staff (N=17) Mean
1. The center provides opportunities for care coordination for services not provided within that organization.	1.7	2.5
2. The center educates patients about traumatic stress and triggers.	0.9	2.3
3. The center has access to a clinician with expertise in trauma and trauma-related interventions (on-staff or available for regular consultation).	1.7	2.5
4. The center provides opportunities for patients to receive a variety of services (e.g., housing, employment, legal and educational advocacy, and health, mental health and substance abuse services).	2.4	2.6
. When mental health services are needed (i.e. individual therapy, group therapy and/or family therapy), the center refers patients to counseling.	2.4	2.6
6. The center provides opportunities for patients to express themselves in creative or nonverbal ways (i.e. art, theater, dance, movement, music).	2.1	2.3
7. Written safety plans (i.e. what a patient and staff members will do if the patient feels threatened by another person outside of the center) are incorporated into patients' individual goals and plans.	0.9	2.3
8. Each patient has an individualized written crisis prevention plan (i.e. for how to help manage stress and feel supported) which includes a list of triggers, strategies and responses which are helpful and those that are not helpful and a list of persons the patient can go to for support.	0.8	2.1

[Table 1.]

Conclusions: This comprehensive assessment revealed strong staff and provider support for strengthening TIC within HIV treatment services. Future implementation efforts should address service gaps, overcome identified barriers to TIC, and equip staff and providers with the knowledge and skills to better respond patients' trauma needs.

THPEE776

Empowerment is a key factor in wellness and healing for women living with HIV who have experienced lifetime trauma

C. Dawson-Rose[1], Y.P. Cuca[1], M. Shumway[2], N. Khanna[3], K. Davis[4], J. Cocohoba[4], E.L. Machtinger[4]
[1]University of California, School of Nursing, San Francisco, United States, [2]University of California, Department of Psychiatry, San Francisco, United States, [3]University of California, San Francisco, United States, [4]University of California, School of Medicine, San Francisco, United States

Background: Lifetime trauma (child abuse, gender based violence, poverty, racism, and other forms of structural violence) can drive women's risk for acquiring HIV, and for poor health outcomes among women living with HIV (WLHIV), even in the setting of viral suppression. As part of a project to integrate a response to trauma and promote healing for WLHIV, we conducted an exploratory analysis to identify factors that may be amenable to interventions to improve the lives of WLHIV who have experienced trauma.
Methods: We enrolled 104 WLHIV in a prospective study and measured structural and demographic factors (Adverse Childhood Experiences, trauma history, housing, and food insecurity); factors that could change with intervention (PTSD, anxiety and depression symptoms, prescribed and illicit substance use, stigma, and empowerment), and biological outcomes-abstracted from medical record (viral load). Focusing on two main outcomes of interest (quality of life/wellness and undetectable viral load), we conducted hierarchical regression analyses in two blocks: structural/demographic factors and factors amenable to intervention.
Results: Almost all (97%) participants had experienced trauma. Women with higher empowerment scores had significantly better quality of life (coef 5.71, 95% CI 1.68, 9.76, p=0.006), while those with higher depression scores had significantly worse quality of life (coef -0.70, 95% CI -0.89, -0.51, p< 0.0001). White women (AOR 15.5; 95% CI 1.5, 165.6, p=0.02) and women with stable housing (AOR 7.4; 95% CI 1.7, 31.5, p=0.01) were significantly more likely to have an undetectable VL, while women with higher stigma (AOR 0.3; 95% CI 0.1, 0.8, p=0.01) and with positive drug abuse screens (AOR 0.4; 95% CI 0.2, 0.8, p=0.008) were significantly less likely to have an undetectable viral load.
Conclusions: These data suggest that integrating trauma-informed approaches that increase empowerment and reduce depression symptoms could improve quality of life and wellness for WLHIV. While having an undetectable viral load is significantly affected by structural factors such as race and stable housing, it may also be amenable to change through clinical interventions that address substance use and stigma. Implementing trauma-informed primary care may help HIV clinics better address factors such as stigma, substance use, depression, and empowerment for WLHIV.

THPEE777

How does disclosure of parental HIV impact children in sub-Saharan Africa?

M. Lightfoot[1], G. Kumalo-Sakutukwa[2], L. Pollack[2], A. Chingono[3]
[1]University of California, San Francisco, Medicine, San Francisco, United States, [2]UCSF, San Francisco, United States, [3]University of Zimbabwe, Harare, Zimbabwe

Background: In Western countries, children who do not know their parent's HIV positive status experienced increased problem behaviors and negative mood over time. However, the robustness of the finding between disclosure and family outcomes has not been established in sub-Saharan Africa where the largest number of families living with HIV resides. This study examines the mental health and risk outcomes for the children in these families.
Methods: A total of 332 families were recruited from 18 medical and ARV clinics in rural Zimbabwe. Families included one HIV positive primary guardian and one child 10 - 17 years of age who is unaware of the parent's HIV states. Families were randomized to receive an intervention that encouraged disclosure or control group. Parent and child completed culturally appropriate surveys in their local language that included emotional distress, depression, anxiety, family relationships, and risk behaviors at baseline, 3-, 6-, 12- and 18-months. Using mixed effects regression models, we compared family outcomes for all families in which a parent disclosed their status by the 3-month follow-up to families where disclosure did not occur.
Results: Parents were mostly biological parent (76%; 18% were grandparent), were a mean age of 43.64 years (SD = 9.99), 80% female, mostly married (55%) or widowed (35%), with a mean of 2.83 children (SD = 1.32). Children were 54% boys and a mean age of 12.73 (SD = 1.89). At 3 months, 71% of intervention and 29% of control parents had disclosed their HIV status. Children who were disclosed to reported significantly fewer delinquent behaviors and more family openness. For parents who disclosed, they reported significantly higher social support, lower mental health symptoms, lower distress, lower anxiety, and lower depression.
Conclusions: Parental disclosure appears to be a healthy choice for families with adolescent children. Disclosure likely provides opportunity for children to support their parent's health care needs and supports a climate of open discussions within the family. Unlike prior studies, children who are unaware of their parent's HIV status do not report high levels of mental health problems, negative externalizing behaviors or risky sexual and substance use behaviors.

THPEE778

Impact of male involvement beyond PMTCT: Male partner practical support improves maternal mental health in rural Zimbabwe

L. Comrie-Thomson[1,2,3], Z. Kapamurandu[4], P. Wata[4], B. Madzima[5], J. Davis[1,2], M.-A. Nicholas[1], D. Patel[4], S. Luchters[1,2,6], K. Webb[4]
[1]Burnet Institute, Melbourne, Australia, [2]Monash University, Department of Epidemiology and Preventive Medicine, Melbourne, Australia, [3]Ghent University, Department of Obstetrics and Gynecology, Ghent, Belgium, [4]Organization for Public Health Interventions and Development, Harare, Zimbabwe, [5]Ministry of Health and Child Care, Government of Republic of Zimbabwe, Harare, Zimbabwe, [6]Ghent University, International Centre for Reproductive Health (ICRH), Department of Obstetrics and Gynecology, Ghent, Belgium

Background: Zimbabwe has an HIV prevalence among women in antenatal care of 16.1% and HIV is the leading cause of maternal death. Male partner involvement during pregnancy is associated with improved PMTCT uptake and outcomes. While there is evidence that male involvement is associated with improved maternal mental health, this is rarely a focus of male involvement strategies. Our objective was to examine the influence of male partner practical support upon maternal mental health outcomes.
Methods: A cross-sectional baseline survey was conducted June-August 2016 for a community-based health program in rural Mutasa District, Zimbabwe. Trained non-clinical female enumerators administered the survey in eight health facility catchments with women who had given birth in the previous six months. The questionnaire included a Shona-language Edinburgh Postnatal Depression Scale (EPDS), previously validated in Zimbabwe, and questions about male partner practical support during pregnancy, birth and after birth. Survey data was analysed with Stata 13.0, adjusted for clustering effects.
Results: Among 459 women enumerated, mean age was 25.5 years and mean number of children 2.4. Using the validated EPDS cut-off of 11, 28.8% (95%CI:24.6-32.9) of women reported symptoms of clinically significant depression and anxiety, while 18.7% (95%CI:14.0-23.4) reported thoughts of self-harm. Mean EPDS score was 7.6 (95%CI:7.1-8.2) out of 30. Across the items of male partner practical support assessed, there was no difference in level of support provided to HIV positive and HIV negative women.
However, multiple items of practical support from male partners including assistance with food preparation, household chores, and childcare were significantly associated with improved maternal mental health out-

comes related to postnatal depression and anxiety, and recent suicidal ideation among all women (Table 1).
Conclusions: Male involvement in maternal and child health is increasingly recommended as a PMTCT strategy in high prevalence settings, with a focus on increasing couples' uptake of HIV testing during pregnancy. We demonstrate that among vulnerable, rural women in a high prevalence setting, male involvement also improves mental health outcomes. Investment into programs that meaningfully engage men in maternal, newborn and child health, including PMTCT, can benefit maternal mental health as well as HIV outcomes.

Male partner support item	Clinically significant symptoms of depression and anxiety, OR (95% CI)	Recent suicidal ideation, OR (95% CI)
Helped to obtain or prepare special foods in pregnancy	0.61 (0.45, 0.83)**	0.45 (0.27, 0.75)**
Encouraged woman to rest in pregnancy	0.45 (0.32, 0.66)**	0.30 (0.19, 0.48)**
Accompanied woman to ANC clinic	0.69 (0.45, 1.06)	0.75 (0.46, 1.23)
Accompanied woman to place of birth	0.56 (0.29, 1.06)	0.69 (0.39, 1.23)
Financial support for birth	0.34 (0.19, 0.59)**	0.21 (0.12, 0.34)**
Assists with bathing, dressing, holding or playing with the baby	0.67 (0.47, 0.95)*	0.54 (0.37, 0.78)**
Assists with household chores	0.61 (0.44, 0.85)**	0.45 (0.33, 0.62)**
Encourages breastfeeding	0.63 (0.44, 0.90)*	0.37 (0.21, 0.68)**
* Significant at p<0.05 ** Significant at p<0.01		

[Table 1. Association between male partner practical support and maternal mental health]

Partnerships involving donors, NGOs, and government

THPEE779

Lahore first MSM organization get recognition with National AIDS control program of MSM issues in HIV epidemic

S.R.H. Tirmizi[1,2], A. Apcom[3]
[1]*Dostana Male Health Society, Program Monitoring and Evaluation, Lahore, Pakistan,* [2]*Dareecha Male Health Society, Rawalpindi, Pakistan,* [3]*APCOM, Equity Dignity & Social Justice, Bangkok, Thailand*

Background: Homosexuality is breach of Law and Illegal in Pakistan. If some male is engaged in male to male sex can result up to 100 lashes, and imprisonment up to 10 years. MSM/Gay are hidden. Extremely stigmatized in Pakistan. Up till now there are very few HIV prevention programs for MSM in Pakistan and there is no recognition on National and Provincial levels of MSM people.as a result in recent IBBS report the HIV infection among MSM sex workers is 3.2%.
Description: Under Global funds R9 south Asia regional project developed Dostana in 2012. Dostana is the first community based organization in Lahore Pakistan providing Technical, institutional support for improving health and human rights of MSM in Lahore Punjab. And providing HIV testing services, Behavior change communication and STI diagnosis and treatment in Lahore for MSM community. Dostana provides a strong platform for MSM population in Lahore through advocacy with Government bodies like Punjab AIDS control program, National AIDS control program in their HIV response. Dostana Male Health Society registered more than 35,000 MSM since July-2012, and distributed more than 550,000 condoms & Lubricants and tested HIV MSM more than 9000 and Diagnosed & Treated more than 6400 cases of sexually transmitted infections in community led Clinic, Organized training´s and trained more than 75 health care providers during 2016 & 2017.and been a part of with GOVT to propose community based testing and prevention of HIV programs in Pakistan in National concept note.
Lessons learned: Working with MSM population in Lahore Pakistan is a difficult & challenging task, Dostana staff in office and field work has been harassed, discriminated and beaten by the public by police and other people. Several times Dostana office is raided by police.
Conclusions/Next steps: Dostana provide services via personal networks in MSM community and referrals.by advocating with National AIDS control program and Provincial AIDS control program & Civil society Dostana will be able to provide more suitable environment for MSM population to learn more about HIV, sexual health and human rights issues in Islamic republic of Pakistan by doing reduce the impact of HIV.

THPEE780

Innovative grant governance mechanism: Civil society ensuring transparency & accountability

J.C. Gomes[1], J. Waters[2], I. Cruickshank[3], M. de Bruin[4]
[1]*Caribbean Vulnerable Communities Coalition, Management, Kingston, Jamaica,* [2]*Caribbean Vulnerable Communities, Programmes, Santo Domingo, Dominican Republic,* [3]*Caribbean Vulnerable Communities, Administration and Finance, Kingston, Jamaica,* [4]*University of the West Indies HIV/AIDS Response Programme, Kingston, Jamaica*

Background: In 2016 the Global Fund (GF) approved a Concept Note by Caribbean Civil Society (CSO) partners led by Caribbean Vulnerable Communities (CVC). As a regional organization CVC was not required by the GF to establish a Regional Coordinating Mechanism (RCM) for grant oversight, however, CVC did set up a Technical Advisory Group (TAG), and empowered it to function as an RCM to ensure accountability.
The TAG was designed to embody "the core principles of good governance" of the GF and to "ensure participation of multiple stakeholders". The TAG governance manual was developed to conform with GF guidelines for CCMs. Members include regional KP networks, CSO and academic partners, PANCAP representing the governments of the region, and UN Agencies.
Description: With its funding approved in the grant, the TAG became operational in February 2017, electing a Chair and Vice-Chair, developing and approving a Governance Manual and nominating members. CVC Board's approved the manual, the selection of officers and confirmed the TAG's legal status as a Sub-Committee of CVC's Board.
The TAG has organized itself into different working groups including a Transition Working Group overseeing a responsible transition of PR from UNDP to a regional CSO entity. An Oversight and Monitoring Committee ensures accountability for all grant related activities from the PR and SRs. The CSO and regional network TAG members have made significant input into meetings and have worked hard to ensure that GF principles are brought to bear on the delivery and oversight of the grant.
Lessons learned: The TAG's role as primary accountability mechanism to which the Principal Recipient (PR) would report faced stiff initial resistance from the PR, the UNDP. With support from the GF FPM, the grant owners and TAG members insisted on recognition of its accountability role, and the TAG's inclusion in decision making for the grant is now accepted by the PR.
Conclusions/Next steps: The TAG is currently overseeing the first proposed transition of a PR from an International Development Partner to an indigenous Caribbean CSO. We believe that the TAG could serve as an innovative, effective and sustainable model of grant governance, ensuring oversight and accountability for regional grants.

THPEE781

Towards resilient health systems through government centred partnerships using a culture change model: A paradigm shift in the Malawi southern region

C. Mupure[1], N. Nyathi[1], R. Chivaka[1], D. Midiani[2]
[1]*Spark Health, Cape Town, South Africa,* [2]*Malawian Ministry of Health, HIV and AIDS Department, Lilongwe, Malawi*

Background: The Malawi public healthcare landscape is characterised by a multiplicity of challenges, chief being the high burden of disease, high attrition of skilled healthcare professionals, ill-equipped leadership at district and zonal levels and increased pressure on limited resources. Focus of interventions has been mainly biomedical, with little emphasis placed on developing public sector managers' leadership and management capabilities.

Malawi Ministry of Health responded to the disappointing and unsustainable results of an exclusive focus on biomedical and technical skills interventions, by partnering with Spark Health to co-design and implement a culture change program in the Southern region which leveraged existing implementing partners.
Description: A transformational leadership didactic session introduced managers to team based, collaborative problem-solving based on systematic root case analysis, and data driven decision-making. Culture change was developed through rigorous on-the-job mentorship sessions. Quarterly meetings were held to foster accountability and encourage cross fertilization of ideas.
Through this partnership in Malawi South, Spark Health demonstrated that culture change through cultivating transformational leadership competencies results in significant improvements in health outcomes. Early infant diagnosis of HIV at 2 months increased from 25.1% (Q1 2016) to 72.4% (Q3-2017) while diagnosis at 24 months increased from 58.8% (Q1 2016) to 70.6% (Q3-2017). Vertical transmission of HIV at 12 months was reduced from 4.1% (Q1 2016) to 2.6% (Q3 2017).
Lessons learned: Strengthening the healthcare system to produce measurable and sustainable results requires:
· Human asset development that shifts emphasis from hard skills (technical) to the so-called soft skills (human)
· Shifting mind-sets from deficit to asset based thinking
· A recognition that healthcare professionals are the most important asset in the system
· A culture for creative use of existing resources given the resource-constrained Africa governments
· The culture of 'home-grown' innovations that are based on people's way of life.
Conclusions/Next steps: The Malawi Ministry of Health is working towards full coverage of the Spark Health philosophy in the country by introducing the new way of thinking in the remaining Northern region.

THPEE782

Redefining partnership: The importance of coordination in HIV implementation programs

J. Mwangi, J. McCutcheon, C. Barbo, E. Easley, F. Harris
JSI Research & Training Institute, Inc. (JSI), Boston, United States

Background: When determining whether to bid on an HIV program, organizations consider factors such as feasibility and scope alignment with their mission. Organizations often overlook the appropriateness and sustainability of their approach, likelihood of buy-in, and resources necessary to coordinate effectively within existing national structures.
Description: Under the US Department of State/PEPFAR-funded DREAMS Innovation Challenge Funds Manager grant, JSI Research & Training Institute, Inc. (JSI) supports 46 implementing partners (IPs) across ten African countries to decrease vulnerability of adolescent girls and young women to HIV. JSI has learned several lessons about the importance of prioritizing local, national, and international stakeholder coordination as a key determinant of programmatic success. JSI´s practical experience in HIV programming, stakeholder management, and system strengthening has value for donors, implementers, and other stakeholders.
Lessons learned: JSI found several areas to be critical for success of IPs working in these countries. Key considerations will be identified related to: priorities of various sectors and levels of government; donor landscape and priorities; existing local IPs (public, private, NGO); and formal and informal referral systems. Our multi-country experience enables us to present comparisons and contrasts across and within countries. Specific lessons that should be considered include the need to share work plans and budgets with national, and often subnational governments; regularly participate and contribute to technical forums and annual country operating plans; and report into existing government and donor reporting systems, requiring IP indicators to be established to meet donor, government and IP specifications. For example, in Kenya, where the governance system is devolved, reporting and attendance at coordination meetings is required both at national level and in every county that DREAMS was operating; whereas the IPs in Uganda report into one platform which is accessible to national and regional governments.
Conclusions/Next steps: This presentation will illustrate the ongoing evolution from donor- and IP -focused approaches, to ones centered on beneficiary needs and filling gaps in existing country systems. The information will be useful in rethinking what partnerships mean and building more sustainable and effective models.

THPEE783

Providers in private practices are indispensable to achieving the targets for triple 90 in HIV epidemic control: Experiences from Private Health Sector Project in Ethiopia

A.G. Woldegiorgis[1], P. Mitiku[1], E. Gezahen[1], T. Tasew[1], G. Habte[1], A. Mekonnen[1], A. Nuru[1], M. Teferi[1], M. Eshetu[1], M. Tilaye[2], Y. Vartanova[3]
[1]Abt Associates Inc, Private Health Sector Project in Ethiopia, Addis Ababa, Ethiopia, [2]USAID, Ethiiopia Mission, Addis Ababa, Ethiopia, [3]Abt Associates, Cambridge, United States

Background: In Ethiopia, only 60% of people living with HIV (PLWH) know their HIV status and 62% of PLWH are receiving anti-retroviral treatment (ART). To address these gaps and achieve UNAIDS 90-90-90 targets, the government is implementing a catch-up initiative. To support this initiative, the USAID-funded Private Health Sector Project (PHSP) is engaging private health facilities to deliver quality affordable HIV services in seven regions throughout Ethiopia using Public-Private Mix (PPM) approaches. The purpose of this review is to share experiences and outcomes in scaling up HIV services in private health facilities over the past year.
Description: PHSP provides technical assistance, including training, mentoring, supportive supervision, quality assurance including monthly performance monitoring, and ensuring supply of commodities and tools to 242 private health facilities. 75/242 of the facilities provide ART and 167/242 of the facilities refer diagnosed HIV clients to facilities where ART is provided.
Lessons learned: From October 2016 to September 2017, the facilities provided HIV Testing Service (HTS) to 270,274 (59.1% female) people and identified 7,233 (56.1% female) new HIV clients. The HIV positivity was 2.7% (2.5% in female vs 2.9% in male, $p < 0.0001$). The contribution of PITC, VCT, PMTCT, and TB to HTS were 58%, 32%, 10% and 1%, respectively. The HIV positivity was 3% from PITC, 2.5% from VCT, 1.1% ANC/PMTCT, and 13.2% from TB. HIV positivity by age categories were 2% (< 15yr), 1% (15-24 yr), 3.4% (25-49 yr.) and 4.1% (>=50 yr.). Only 25.8%, (1,864/7,233) HIV-infected clients were initiated on ART and the rest (74.2%) were referred to public health facilities. PHSP introduced a linkage confirmation mechanism to help providers confirm linkage to ART through telephone calls to clients and health facility staff or by receiving written referral feedback. This strategy improved the linkage confirmation rate from 54% at the end of September 2016 to 89% by September 2017.
Conclusions/Next steps: Based on these findings, engaging private health facilities is essential to achieve 90-90-90 targets to reach HIV epidemic control. Furthermore, the high positivity rate indicates that high-risk populations may prefer private health services and requires further analysis to better understand preferences for accessing HIV care and treatment.

THPEE784

In-service biomedical training in Kenya: Upskilling technicians on lab equipment critical to the HIV clinical cascade

S. Goldfrank[1], P. Anyango[2], W. Arneson[3], V. Freeman[3]
[1]American International Health Alliance, Washington, United States, [2]American International Health Alliance, Nairobi, Kenya, [3]University of Texas Medical Branch, Galveston, United States

Background: Kenya has a national HIV prevalence rate of 5.6% with prevalence in select counties as high as 24.8%. Kenya's network of 2,500+ public health labs plays a key role in the country's efforts to address HIV/AIDS. Most Kenyan biomedical engineers and technicians (biomeds) lack capacity to conduct routine equipment maintenance and repair, which impedes accuracy of lab diagnostic services necessary for effec-

tive HIV/AIDS care and treatment. Limited workforce capacity also hinders the country's efforts to increase its number of accredited labs and their diagnostic capabilities.
Description: American International Health Alliance (AIHA), the Kenya Ministry of Health's (MOH) National Public Health Laboratory Services (NPHLS), and the University of Texas Medical Branch are implementing an in-service training program designed to upskill biomeds in equipment maintenance and repair targeting laboratory equipment supporting HIV diagnostics. With support from President's Emergency Plan for AIDS Relief (PEPFAR) and U.S. Centers for Disease Control and Prevention in Kenya, the project focuses on NPHLS labs and 17 county/sub-county facilities in 10 high HIV burden counties. AIHA trained 19 biomeds and 6 TOTs to step down training to new counties as the project expands to ensure sustainability and increased local capacity.
Lessons learned: In 2017, NPHLS conducted a rapid response intervention (RRI) to prepare 43 labs for accreditation. Biomeds trained in the initial project counties performed routine servicing and verification of 385 pieces of equipment in labs, a function formerly outsourced at high cost. At the beginning of the RRI, 24 labs scored ≤1star rating using the WHO SLIPTA checklist; at the end of the RRI process, 18 advanced to ≥2 star rating. At the beginning of the RRI, only 7 target labs were at ≥3 star rating, but at the end of the RRI 12 labs scored ≥3 star rating with a big component on equipment management.
Conclusions/Next steps: Biomeds play a vital role in Kenya's sustainable approach toward attaining laboratory accreditation and reaching global 90-90-90 targets. This comprehensive program has built Kenya's lab capacity, decreased costs, increased quality of labs across the country, and can be readily replicated in other countries.

THPEE785

Nutrition status of PLHIV in drought-affected regions of Kenya

M. Josephine Muthoni[1], C. Ouma[2], M. Mumma[3]
[1]UN World Food Programme, VAM, Nairobi, Kenya, [2]UN WFP, Nairobi, Kenya, [3]UN World Food Programme Regional Bureau Nairobi, Nutrition, Nairobi, Kenya

Background: With Kenya classified as a UNAIDS fast track country and with the fourth largest HIV burden globally, progress has been made in reversing the HIV trend in Kenya but new HIV infection still occurs among young people and key populations. HIV response in ASAL areas remains a concern due to the paucity of information on the impact of drought-related shocks on PLHIV. Gaps persist in the prevention of mother to child transmission, antiretroviral treatment coverage, coverage, distribution of health facilities and personnel. The study aimed to establish the effects of drought on nutrition and wellbeing of PLHIV.
Methods: A mixed methods research approach was used in data collection Kilifi, Kitui, and Turkana. Three comprehensive care clinics (CCCs) from each county were selected as the entry point. The study population comprised of children aged 2 to 14 years and adult men and women. the sample size was 424 for each county. The levels of malnutrition were assessed using BMI and Z scores. Data analysis was conducted using SPSS v24.
Results: Global and Severe Acute Malnutrition were 24.3% and 8.3% respectively. underweight and stunting was 35.4% and 45.8% respectively. A significant change was observed in nutritional status of children from enrolment to the present. The mean (SD) stunting Z score increased from -1.34 (2.09) to -1.75 (2.12); underweight reduced from -1.73 (1.46) to -1.60 (1.40) while wasting mean Z score reduced from -1.37 (1.86) to -0.83 (1.81). Prevalence of underweight in children aged 2-14 years was 25%. BMI for age score was -1.4 (1.6). Prevalence of underweight in adults was 30.2%. More males (41.7%) were underweight compared to females (26.1%).
Conclusions: Acute Malnutrition is highly prevalent among PLHIV in drought-affected semi-arid and arid lands. Programmatic gaps in nutrition and food support between humanitarian and HIV sectors exist. Family food support in PLHIV households should be planned for and costed as part of HIV programming during a drought in ASAL areas. The CCCs should mimic the humanitarian response during drought to achieve treatment goals for PLHIV.

THPEE786

CheckME™: An integrative Smartphone app for HIV/STI prevention and sexual health promotion tailored for MSM in Portugal

C. Farinha[1], R. Freitas[1], L.M. Carvalho Rocha[1,2]
[1]GAT - Grupo de Ativistas em Tratamentos, CheckpointLX, Lisbon, Portugal, [2]Coalition PLUS Community-Based Research Laboratory, Paris, France

Background: Smartphone apps for HIV/STI prevention in MSM are promising yet scarce, hence the recommendation from ECDC to its development and use. CheckME™ is an app tailored for MSM in Portugal, including for PLHIV, and aims to increase their sexual health literacy and health-seeking behavior.
Description: CheckME™ integrate services such sexual health info, HIV risk self-assessment tool, HIV/STI prevention and harm reduction services map, health-related checkups reminders, sexual partners record, partner notification and venues map. It was developed by GAT in partnership with AHF and Coalition Plus with the support of the Directorate-General of Health. Critical steps: MSM-led project, focus groups to assess acceptability and added value services, benchmarking of related apps, content development linking health professionals and peers, app for both iOS and Android Smartphone´s system, MSM app ß-testers group and marketing plan connecting community and institutional partnerships.
Lessons learned: From July to December 2017, CheckME™ counted 4303 downloads. It can promote health information-seeking behavior (310 did an HIV risk self-assessment) and health-seeking behavior (456 click in the prevention map to call testing/harm reduction sites) and it offer an acceptable venue to store sexual health self-management data (169 used the calendar for medical appointments and/or medication).
Conclusions/Next steps: CheckME™ followed existing recommendations and acceptability data, promoted community participation and partnerships. CheckME shows potential for high uptake in the MSM community, and the wide array of functionalities makes it an easily accessible prevention, personal health monitoring and health connection tool. Community involvement in the design of the app facilitates uptake by providing a mix of health related functions and community suggested functionalities, and should be considered when developing similar tools. Continuous feedback will allow the app to maintain its relevance and foster further adoption by the community.

THPEE787

Building effective partnerships to achieve the 90-90-90 treatment targets: Lessons in advocacy from Uganda

M. Dombo[1], W. Kidega[1], K. Gray[2], J. Gaberu[3]
[1]PATH, Kampala, Uganda, [2]PATH, Washington, D.C., United States, [3]PATH, Advocacy for Better Health, Kampala, Uganda

Background: Uganda was one of the first countries to register significant achievements against the HIV/AIDS epidemic—but there are still thousands of new infections each year. The 90-90-90 treatment targets provide a framework for realizing the Presidential Commitment to end HIV/AIDS by 2030, yet gaps in human resources for health (HRH) and inadequate funding threaten progress. USAID Advocacy for Better Health (ABH), implemented by PATH and Initiatives Inc., has built successful partnerships to advocate for increased domestic financing and retention of skilled workers—both essential in meeting 90-90-90 targets.
Description: In 2017, the Ministry of Finance proposed a 30% cut to the national health budget. ABH convened more than 20 civil society partners to highlight expected impacts on service delivery, develop a position paper, and host discussions with the Parliamentary Committee on Health. With the support of Parliament, cuts were averted. ABH has also forged partnerships to protect the health workforce. Advocates realized the HRH gap—estimated at 25,000—would be exacerbated if government failed to absorb 2,000 PEPFAR-contracted staff into public service. ABH and IntraHealth convened six government ministries, Parliamentarians, hospital directors, donors, and civil society organizations to form a

multi-sectoral task force, chaired by the Ministry of Health (MOH). The task force completed a detailed analysis of PEPFAR staff and developed a roadmap for absorption, to which the MOH committed.
Lessons learned: Through partnership, ABH has turned policymakers into champions. The project has spent significant time cultivating relationships with Parliamentary caucuses and committees and has become a trusted source on health issues. ABH also provides platforms for civil society and people living with HIV to engage in national-level policy conversations, whose voices can galvanize policymakers. Finally, complex policy problems often require action from a number of government ministries. ABH was able to accelerate HRH solutions by establishing a coordinating mechanism and facilitating joint planning.
Conclusions/Next steps: The partnerships advanced by ABH demonstrate the importance of demand-side interventions—namely advocacy and accountability efforts—in addition to service delivery. Both are required to realize the goal of an AIDS-free Uganda. ABH will continue to work with partners and champions to hold government accountable for meeting 90-90-90 treatment targets.

THPEE788

Effectiveness of synergy of HIV prevention and National Hepatitis C Elimination programs in Georgia

M. Gogia[1], K. Stvilia[2], K. Kutateladze[1], I. Khonelidze[3], G. Jikia[1], A. Asatiani[3]
[1]Georgian Harm Reduction Network, Tbilisi, Georgia, [2]National Center for Disease Control and Public Health, HIV Managment, Tbilisi, Georgia, [3]National Center for Disease Control and Public Health, Tbilisi, Georgia

Background: HIV and HCV remain significant public health challenges in Georgia. The most affected risk groups for both infections are PWIDs. Prevalence of HCV in PWIDs that varies between 50-92% illustrates high magnitude of the problem. HCV screening was accessible in harm reduction program since 2006, but due to high cost the treatment was not affordable, especially for key populations. Accordingly no diagnostic and linkage to care services existed in harm reduction program. Government with support of Gilead Pharma and CDC Atlanta started National HCV elimination program in 2015. Strict drug policy represented additional barrier for the program.
Description: In order to react proactively towards its new role for the hepatitis C elimination, GHRN has developed new targeted interventions which were aligned with HIV prevention interventions supported by the GFATM HIV program. The emphasis was placed on increased HIV/HCV tandem screening of PWID population through expanding outreach capacities of the program. For avoiding stigma and self-stigma factors HCV testing was offered to general population as well. Mobile ambulatories expanded the program coverage to 55 cities allowing testing of additional 7,536 PWIDs in 2017. Case managers that were mostly people living with viral hepatitis were ensuring linkage of screening positive PWIDs to HCV treatment sites.
Lessons learned: New model practices allowed 2 times increasing the number of PWIDs tested for HCV in 2016 (26,025) in comparison to 2014 (12,410). 42.6% of testing was conducted through outreach testing by mobile ambulatories. 10,926 PWIDs were referred to HCV treatment sites, HCV education module was included to existing Peer Driven educational program, flyers and brochures about HCV were delivered. At harm reduction sites more emphasize was done on increasing HCV disease awareness, delivering free RNA diagnostic and treatment adherence support.
Conclusions/Next steps: Capacities of the harm reduction programs can effectively be used for early detection, linkage to treatment services for HCV positive PWIDs. Strong Integration between HCV and HIV programs ensures cost-effectiveness of both interventions. Unified screening and treatment databases are critical for success of the elimination program. Besides, initiation of HCV national program enabled initiation dialogue with Police officials to smooth attitude to harm reduction program.

THPEE789

Methadone maintenance therapy uptake, retention, and linkage for people who inject drugs transitioning from prison to the community in Kyrgyzstan: Evaluation of a national program

C. Bachireddy[1], A. Kurmanalieva[2], L. Azbel[3], N. Shumskaia[4], J. Rozanova[5], J. P. Meyer[5], F. Altice[5]
[1]National Clinician Scholar Program, Veterans Affairs Medical Center, University of Pennsylvania, Philadelphia, United States, [2]AFEW Kyrgyzstan, Research Department, Bishkek, Kyrgyzstan, [3]London School of Hygiene & Tropical Medicine, London, United Kingdom, [4]AIDS Foundation East - West in the Kyrgyz Republic, Chairperson, Bishkek, Kyrgyzstan, [5]Yale University School of Medicine, New Haven, United States

Background: In Eastern Europe and Central Asia (EECA) the HIV epidemic is accelerating, fueled by people who inject drugs (PWID) and concentrated in prisons. In Kyrgyzstan, 35% of prisoners are PWID, and 10% have HIV. Kyrgyzstan was the first country in EECA to provide methadone maintenance therapy (MMT) in prisons for HIV prevention. Official criteria for MMT prescription in prisons were: being 18yo+, having an opioid dependence diagnosis (consistently having ≥ 3 ICD10 symptoms like injection marks, opioids in urine during the previous year), and willing to participate. We assessed this program for: 1) MMT uptake and retention in prison; and 2) linkage to MMT upon release.
Description: Patients initiating MMT must be ≥18 years and opioid dependent. De-identified administrative data for PWID in Kyrgyzstan who had ever initiated MMT in prison from 2008-2014 were analyzed for MMT dosing, and correlates of linkage to community MMT post-release (for those who were released to the community).
Lessons learned: From 2008-2014, 916 prisoners initiated MMT. At end-of-year 2014, 19% (498) of the estimated (by biobehavioral survey) 2,670 prisoners PWID (before/during prison) were receiving MMT. Most MMT clients were men (97%) in their late 30s (Mean=38 years). Mean daily maximum (72mg) and last (43mg) MMT dose was low with mean treatment duration=8 months. Almost half (46%) discontinued prison MMT voluntarily or because they violated the MMT contract in-prison. Over the six years of observation, 22% (n=198) of prison MMT participants were released from prison, of whom 26% (n=52) and an additional 30% (n=59) linked to community MMT within 7 days and 90 days, respectively. Pre-release MMT dose ≥80mL/day was an independent correlate of linking to community MMT post-release (aOR=1.9; 95%CI=1.1-3.3).
Conclusions/Next steps: In the only evaluation of MMT within prison in EECA, MMT coverage and retention on treatment should be increased for HIV prevention needs with considerable room for improvement. Interventions to increase coverage should include behavioral interventions like screening, brief intervention and immediate treatment (modified SBIRT) with MMT to improve uptake (i.e., acceptability) and quality prescribing of higher MMT doses to improve retention, especially to ensure better continuity of treatment and HIV prevention post-release.

Public-private partnerships

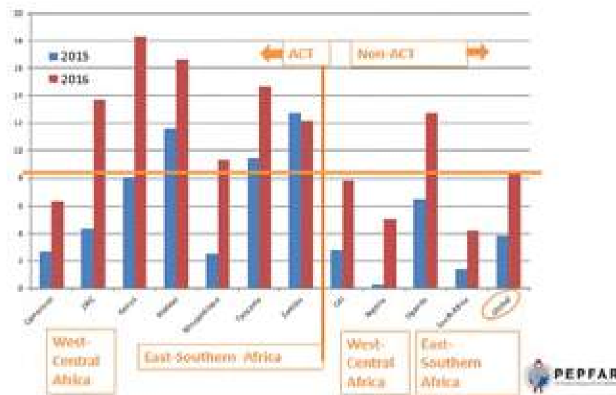
THPEE790

Role of partnership in the Accelerating Children's HIV/AIDS Treatment (ACT) initiative

L. Marks[1], J. Robinson[2], K. Harrison[3]
[1]Office of U.S. Global AIDS Coordinator and Health Diplomacy, Washington, United States, [2]Children's Investment Fund Foundation (UK) (CIFF), London, United Kingdom, [3]Avert, Brighton, United Kingdom

Background: Partnership between funders plays a vital role in tackling the AIDS epidemic. But how do partnerships form, how is value leveraged and maximized, and how can partnerships achieve policy change? These questions will be explored through the specific example of the Accelerating Children's HIV/AIDS Treatment Initiative (ACT), an ambitious public private partnership which successfully scaled up access to pediatric treatment in nine African countries over two-years.

Description: The abstract considers how the PEPFAR/CIFF partnership formed, and the differing styles and contributions both organizations brought to the ACT Initiative. ACT enabled 561,000 children to receive ART, Pediatric ART coverage increased by 10% or more from 2014-2015 in most of the ACT countries, and PEPFAR now supports nearly 1.1 million children on ART globally. The partnership also influenced policy at the global and national level. The abstract reflects on whether working in partnership was more or less effective than independent funding, with some reflections on the values and challenges of collaboration.
Lessons learned: Both PEPFAR and CIFF entered the ACT partnership with the belief that they could achieve more by working together than by working alone. Part of the success of ACT achieving results over an expedited time frame was achievable precisely because of joint planning and collaboration between the partners. Not only did this partnership demonstrate programmatic results; it also justified that the value proposition of working in partnership superseded the transaction costs. As a result of working in partnership, PEPFAR and CIFF were able to reach more pediatric patients in a quicker manner, better grounded in technical learnings across partners, and with greater chance of long-term systemic change.
Conclusions/Next steps: Partnerships clearly bring a combination of challenges and opportunities. Wise funders will work together to clarify the type of partnership they want to engage in, and will undertake a robust cost-benefit analysis before collaborating. They must be prepared to invest additional time and funding to service the partnership itself. The ambition of the ACT initiative, and the commitment of both funders and all their partners, led to broader gains than might have been expected, with global improvements in pediatric ART coverage and policy changes.



[Increment in % ART coverage (from 2014)]

THPEE791

Dating app and HIV - making possible an international partnership within the Brazilian government

J.G. Netto[1], J.A. Paz Paz[1], D. Callisto[1], V. Araujo Rocha[2], A. Schwartz Benzaken[1]
[1]*Ministry of Health of Brazil, STI, AIDS and Viral Hepatites, Brasilia, Brazil,* [2]*Global e-Network of People Living with HIV, Brasilia, Brazil*

Background: The Ministry of Health of Brazil (MoH) was contacted by the international dating app Hornet, focused on gay, bisexual, and other men who have sex with men (MSM), and this initiative resulted in the Close Certo project - a no-costs partnership during Rio2016 (Olympics and Paralympics games), that included UNAIDS and UNESCO also. Along with the reached goals, many lessons from this were left in terms of how to make an international partnership with dating apps possible.
Description: The project involved 18 young gay men volunteers. They labeled their online profiles on Hornet to chat on HIV prevention, diagnosis and treatment - some of them opened up their serostatus. MoH remotely coordinated all meetings with Hornet and volunteers through Skype, WhatsApp Messenger and chats that often occurred late night. It also provoked a discussion within the volunteers on news fields and forms for activism. For the Brazilian MoH, it was an unprecedented international partnership, and provoked an internal discussion in depth in different hierarchical levels.
Lessons learned: The volunteer's autonomy was discussed in depth in the MoH, for example, whether the volunteers should meet the users in person, as global Hornet users do. Hornet supported a more flexible approach, with more autonomy.
Similar experiences with governments had not involved online chat and it was not necessary to sign a term of partnership, as the Brazilian policy demanded. Around 1,000 messages were exchanged and the most common subjects was PrEP, PEP, testing and life after HIV diagnosis.
This experience created an "e-health culture" within the MoH, and made possible to develop ongoing projects. A working group is currently discussing eHealth strategies to support PrEP as a public policy.
Conclusions/Next steps: eHealth strategies can be part of international partnerships with governments, international organizations and civil society activists; however, the traditional way in which partnerships are usually developed in governments need to be updated to follow the new trends in tech partnerships.
UN organizations played a crucial role: they raised the voice against prejudice when the project was criticized for being focused on gay, bisexual and MSM, under an approach that the government was not able to.

THPEE792

Increasing the pool of health workers available for HIV care and treatment services in Kenya through sustainable financing—the Afya Elimu Fund

P. Milo[1], I. Wanyoike[1], J. Gachari[2]
[1]*IntraHealth International, Nairobi, Kenya,* [2]*Higher Education Loans Board, Nairobi, Kenya*

Background: Kenya has a health workforce-to-population ratio of 1.3:1000, far below the World Health Organization recommendation. Access to training fees is a challenge for qualified high school students interested in pursuing medical education. For many families in Kenya, the USD 4,280 required for a nursing diploma program is beyond reach.
Description: In 2013, USAID, through IntraHealth International, and in partnership with the Ministry of Health (MOH), Higher Education Loans Board, and the private sector, established the Afya Elimu Fund (AEF). AEF is a revolving fund that offers tuition fee loans (4% interest rate, compared to 14% for commercial loans) to health professional students, including critical cadres for HIV services. Loan eligibility criteria consider student's family income, orphaned status, gender, disability status, and county of origin (e.g., hardship; high HIV disease burden). A technical working group spearheading AEF implementation and an oversight committee chaired by MOH enhance operational efficiency and prudent governance. Resource mobilization strategies and appropriate financial management systems are in place to raise funds as well as monitor fund performance.
Lessons learned: As of December 2017, 12,607 beneficiaries (51% female) that include nurses, clinicians, medical laboratory technologists, pharmacists and health records officers, had accessed tuition fee loans from 47 counties. 10,359 (82%) of beneficiaries were from 27 high HIV-burden counties. 4,105 beneficiaries have graduated and were available for employment, of which 776 [18.9%] (F-52%; M-48%) are employed in public, private and faith-based health facilities that offer HIV services including testing and counseling, care and treatment, prevention of mother-to-child transmission and laboratory investigation.

[Afya Elimu Fund resource mobilization per academic year 2013-2017]

USAID has provided USD 3.492 million, while resource mobilization efforts from private corporations, national and county governments have raised an additional USD 5.237M, for a total of USD 8.729M in the fund. AEF fundraising strategies targeting private sector and government ensure alignment with shared values and corporate social responsibility initiatives. Stakeholder buy-in was critical in setting up AEF as a vehicle for medical education financing.
Conclusions/Next steps: AEF is positioned to increase medical education access through sustainable public-private partnership financing, thereby increasing the number of graduating health workers for HIV services in Kenya.

THPEE793

Creating open public-private forums can ensure the success of private sector HIV/AIDS service delivery in Côte d´Ivoire

A. Kouakou[1], S. Hefner[2]
[1]Abt Associates, Abidjan, Cote D'Ivoire, [2]Abt Associates, Rockville, United States

Background: With a generalized HIV epidemic and total adult (15-49 years) prevalence rate of 2.7%, Côte d´Ivoire contends with one of the highest HIV prevalence rates in West Africa. Although the private health sector accounts for 40% of total health care service provision (EU 2008), there has been limited public-private collaboration in national HIV policy development and coordination of health activities. Strengthening the private sector's ability to deliver quality HIV and ART services could be a powerful way to accelerate the national HIV response.
Description: From 2013 to present the Strengthening Health Outcomes through the Private Sector (SHOPS) and then the Private Sector Health Project (PSHP) worked with a broad range of public and private partners to advance multi-sectoral collaboration in Côte d'Ivoire's HIV response. Nationally, SHOPS worked with government and private sector umbrella bodies to agree upon and formalize the legal and regulatory permissions required for the private sector to offer HIV care and treatment in accordance with national policy. At the district level, the projects established 12 public-private HIV and AIDS fora involving 150 private clinics in 16 health districts.
Lessons learned: By creating an open forum for stakeholders the projects established a strong legal, regulatory, and operational platform for private health sector provision of HIV and AIDS services. In 2013 the Minister of Health released a memo allowing private health clinics to offer government-provided ARVs for free to their clients, for a truly multisectoral HIV response. SHOPS created and PSHP supports a public-private steering committee that regularly discusses service provision challenges and opportunities. District-level fora operationalized these new permissions and now support 150 clinics in regularly reporting their data into the district and national HMIS, a first for the private sector. The private and public sectors are willing to collaborate, however a neutral outside facilitator needs to steward the process and support all stakeholders in taking joint action to achieve HIV and AIDS priorities.
Conclusions/Next steps: PSHP will scale the public-private fora approach to additional high-prevalence districts. With sustainability in mind, PSHP has begun building ACPCI's technical and managerial capacity to ensure private sector clinics will be supported after PSHP ends in 2020.

THPEE794

Collaborative efforts for improving TB services: A case of PS Kenya in Nyanza region of Kenya, private sector

C. Kanari
Population Services Kenya, HIV/TB, Nairobi, Kenya

Background: Despite evidence that close to 50% of the Kenyan population, including those from the poorest quintile, seek health services in private facilities (Marek et al 2005), only 18% and 8.2% of private providers provide TB diagnostic and treatment services respectively (NTLD, 2011). Key bottlenecks to increasing case detection in the small-medium private sector include ; low capacity of providers to screen TB patients; inadequate infrastructure with poorly ventilated facilities; lack of lab facilities; and low motivation due to the additional effort and resources needed to manage TB patients. With funding from TB Reach, PS Kenya targeted to increase TB case finding and management in private clinics. Nyanza has the highest number of notified TB cases in the country (21,185 cases in 2009) largely driven by a high HIV/AIDS prevalence of 15% (KAIS 2014) but coincidentally lower than average notification rates 325/100,000 against a national average of 338/100,000. One main challenge in the program was the insistence by MOH that TB services in the private sector should be offered for free, as they received drugs and some lab commodities from the government. Providers argued they needed to charge a service fee to cover their time and overheads. In addition, MoH claimed that private providers are only motivated by money and often have poor quality services due to minimal oversight from the MoH.
Description: Health care providers and laboratory staff from 48 health facilities underwent training on early case detection and management in collaboration with MOH and follow up was done via joint support supervision and mentorship. Community engagement was with community health volunteers both for demand creation of TB services, community screening and referral to health facilities and community follow up including defaulter tracing.
Lessons learned: There was an increased 53% private health facilities accredited by the MOH to carry out TB services.
Conclusions/Next steps: In TB service provision it is imperative to collaborate with all health care providers including private sector providers. There is however need to Advocate for policy reviews to support delivery of TB services through the private sector especially around cost of services will be important for continued sustainable provider involvement.

THPEE795

How to make men test early for HIV?

S.M. Afsar, S. Olney
ILO, Geneva, Switzerland

Background: According to the UNAIDS report 2017 - Blind Spot - health systems are failing to reach men.
There is limited HIV testing/treatment coverage amongst men even in developed countries. There is a need to look into the low health seeking behaviour for men and create synergies between health and labour sector.
Description: Out of 4 million workers who took the HIV test from July 2013 to December 2016 under the ILO's global voluntary counselling and testing for workers (VCT@WORK) Initiative, nearly 70% were men. Carefully crafted strategies addressed the reasons that stop men from visiting the health facilities.
The main reasons stopping workers to go for HIV testing were: stigma and discrimination (fear of losing the job in case they were found HIV positive); low risk perception/ lack of information about testing facilities; and the opportunity costs of accessing the services (a daily wage worker may end up losing at least half a day's wage due to travel and waiting time even if the testing is free).
VCT@WORK was implemented within the framework of human rights - in workplaces which had a HIV workplace policy in place. Emphasis was given on dissemination of the policy and reassuring messages by the management as well as union leaders. Communication was built around "the benefits of testing early"; and HIV testing services were taken to workers in order to reduce the opportunity cost for workers. The Initiaive focussed on selected economic sector such as mining, transport, construction, and tourism which engage a high number of mobile and migrant workers.
Lessons learned:
- Workplaces have a huge potential of enhancing access to health information and HIV-TB services to men. This calls for building synergies between the health and labour sector.
- VCT@WORK facilitated results-based public-private partnerships and resulted in covering hard- to- reach groups such as mobile and migrant workers.

- A conducive policy environment needs to be created and gender norms need to be addressed for the success of the initiative.

Conclusions/Next steps:

- Dissemination of good practices and lessons learned under the VCT@WOPK in order to scale up the initiative.
- Pre-test the idea of self-testing with the involvement of trade unions.

THPEE796

Utilizing helpline toll free to support KVP on HIV prevention, testing and treatment - Tanzania case

E. Ndakidemi[1,2], P. Masika[1], B. Luvanda[1], B. Mpora[2]
[1]Tanzania Youth Alliance, Dar es Salaam, Tanzania, United Republic of, [2]Ministry of Health, Community Development, Gender, Elderly and Children, National AIDS Control Program (NACP), Dar es Salaam, Tanzania, United Republic of

Background: Tanzania data shows that the proportion of female and male population groups with comprehensive knowledge about HIV transmission and prevention is 42% for female and 50% for male. Social or cultural norms, stigma and lack of appropriate information remain the challenge that prevents the uptake of treatment and prevention services posing a challenge in reaching 90-90-90 goal. The growing use of mobile phones and text messaging in Tanzania encouraged TAYOA to develop helpline toll free to increase HIV/AIDS knowledge and service uptake. Currently helpline supports core components of HIV/AIDS including counseling and testing, prevention and treatment. The main target are Key and Vulnerable population especially young people and key population.

Description: Helpline is a toll free is a national service providing HIV/AIDS related information including referral to services. The services can be accessed country wide with the support of all mobile companies in Tanzania. Airtime cost is covered by mobile companies to make it free for callers. The free helpline operates from noon to midnight, with 16 lines with trained counselors, it also have an interactive voice response (IVR) that operates 24/7, a referral database with facilities per ward, a cheat sheet to support counselors with guidelines updates. Counselors are trained as per national guidelines and all information in the helpline is approved by the ministry of health. Helpline receive an average of 2000 calls per day, with an average of 300 people speaking directly to the counselors and other listening to IVR.

Lessons learned: 93% of all callers concerted for their information to be recorded, among those 71% of all callers were male. Common subjects includes ART including adherence (29%), Sexual reproductive health information for people living with HIV (18%) Care and support for people who are living with HIV (9%), Counseling and testing (9%), myths and misconception (9%) and PMTCT (4%). 47% are repeated callers, 37% callers reported to seek services after talking to a counselor

Conclusions/Next steps: Helpline is useful source of HIV related information among key and vulnerable population with limited access to health services. NGOs and profit companies can work together to fight HIV.

THPEE797

We "BELIEVE" in responsible community engagement: Overview of structure and outcomes in the BELIEVE collaboratory for HIV cure research at the GWU Milken Institute School of Public Health, Washington, DC

C. Boone[1,2], A.T. Young[1,3], J. Fenech[1], M. Magnus[4], A. Castel[4], D. Nixon[5], R.B. Jones[5], R. Furler[5], R. Strange[1], R. Swanda[1], T.J. Villa[1], E. Sarkodie[1], T. Howard[1], E. Rodriguez Estrada[1], A. Ceranto[1], D. Barros[1]
[1]The George Washington University, BELIEVE Collaboratory for HIV Cure Research, Milken Institute School of Public Health, Washington, United States, [2]The George Washington University, Department of Psychology, Applied Social Psychology Program, Washington, United States, [3]Executive Director - Community Education Group, Washington, United States, [4]The George Washington University, Milken Institute School of Public Health, Department of Epidemiology and Biostatistics, Washington, United States, [5]The George Washington University, School of Medicine and Health Sciences, Washington, United States

Background: In 2011, the National Institute of Allergy and Infectious Diseases at the National Institutes of Health sponsored a five-year program designed to facilitate public- and private-sector collaborative cure research. The Martin Delaney Collaboratory (MDC): Towards an HIV-1 Cure supports emerging curative strategies across key areas of basic and clinical research. As part of this work, in 2016, the NIH funded the "Bench to Bed Enhanced Lymphocyte Infusions to Engineer Viral Eradication" (BELIEVE) Collaboratory site. BELIEVE includes twenty-two collaborating institutions from Brazil, Canada, Mexico, and the U.S.

Methods: Robust community engagement is integral to implementing cure research protocols. This presentation will focus on details of BELIEVE's community engagement efforts, focusing on:

(a) Community Advisory Board (CAB) member recruitment, developing infrastructure for incorporating international partnerships, and organizing annual meetings to build capacity and develop scientific literacy;

(b) integrating input from ongoing community stakeholder appraisals of research protocols;

(c) launching a global survey assessing knowledge, attitudes, and perceptions among seropositive and seronegative people about cure research; and

(d) collaboration with other MDC sites to address ethical and regulatory considerations of developing cellular and genetic therapies toward a functional and/or sterilizing cure.

Results: Complex, novel HIV cure strategies constitute an extraordinary case of research which merits efforts that transcend traditional cooperative structures, that involve more than methodological bench-to-bedside investigation, and more than merely creating a CAB. Educational activities that raise awareness and explain cure research require leveraging networks and grassroots collaboration expertise of BELIEVE's community engagement partners. Successful implementation of cure research requires intentional and extensive collaborations among basic and sociobehavioral scientists; global communities of persons living with HIV and their caretakers; people at highest risk for contracting HIV; clinicians, government, health agencies, and private partners.

Conclusions: Rather than being disconnected from its base communities, BELIEVE has established a global coordinated community with real-time connectivity between stakeholders, ensuring they are effectively engaged throughout discovery, development, and diffusion of ultimately produced therapies. Next steps include ongoing explanation of HIV cure research, harnessing unique opportunities to increase cure awareness and reduce mistrust among communities that may be early testers of innovative cure strategies.

THPEE798

Integrating public-private partnerships in development of youth friendly service in Thailand

W. Pumpradit[1,2,3], V. Danthamrongkul[4], K. Pongpirul[5], P. Srisoontornthai[6], P. Wienrawee[6]
[1]Bumrungrad, Bangkok, Thailand, [2]Bangkok Health Hub, Bangkok, Thailand, [3]PATH, Thailand, Bangkok, Thailand, [4]Chulalongkorn University, Bangkok, Thailand, [5]Bumrungrad Hospital, Bangkok, Thailand, [6]Path2Health Foundation, Bangkok, Thailand

Background: Given escalating sexual health threats and a lack of youth friendly service, we initiated a model of the voucher scheme, community based youth friendly sexual health service in Bangkok since 2007. In addition to a service provider network composed of city community health centers, private clinics, mobile clinic, and private pharmacies in Bangkok metropolitan area, demand promotion strategies including "online clinic" were also introduced. The program aimed to identify features which are able to promote the uptake of sexual health service by youth and to evaluate the utilization of our program.
Description: Focus group discussions were conducted on general youth in 10 schools and 10 Young Key Affected Population (YKAP) groups e.g. MSM, TG, and CSW. Analysis of the service registry during July 2008 December 2010 was performed. Approval from Society for AntiAIDS danger and Life Quality Development for the evaluation was obtained the confidentiality of all study participants was strictly protected. Thematic content analysis and descriptive statistics were used to analyze qualitative and qualitative findings, respectively.
Lessons learned: Findings from the focus group discussions suggested that youth friendly service must be confidential, stigma free, respectful, comprehensive, convenient, free of charge, and with tailor-made promotional strategies. At program inception, 9 city health centers, 13 private clinics, 1 mobile clinic, and 100 private pharmacies joined our program. A total of 17,299 clients (46.11% were younger than 24 years) used the clinics (23,450 visits) during the study period. Of 7,978 youths, 49.56% were female, and 26.50% were still in school. The ratio of a number of youths who utilized private clinics vs city health centers were approximately 40:60. Some challenges encountered during the program implementation were shared.
Conclusions/Next steps: Youth friendly service carefully designed based on inputs from selected youth groups and services provided by a network of public-private providers was well utilized.

THPEE799

Private sector opportunities to deliver oral PrEP to women

K. Muther[1], N. Bhavaraju[2], L. Bernicker[2], P. Jeckonia[3], I. Mahaka[4], S. Mullick[5], E. Gardiner[6], C. Saade[7], K. Torjesen[7]
[1]Last Mile Health, Boston, United States, [2]FSG, Washington DC, United States, [3]LVCT Health, Nairobi, Kenya, [4]Pangaea Zimbabwe AIDS Trust, Harare, Zimbabwe, [5]Wits Reproductive Health and HIV Institute, Johannesburg, South Africa, [6]AVAC, New York, United States, [7]FHI 360, Durham, United States

Background: Introduction of oral PrEP in Africa has primarily focused on public sector delivery channels. However, a significant number of women and girls at risk for HIV access health services through the private sector. Rapid market assessments can help governments, donors and implementers quickly understand opportunities and considerations for private sector oral PrEP delivery.
Description: We analyzed existing publications, HIV incidence and health services utilization data, and conducted 30 interviews with implementers, donors and policy experts in Kenya, South Africa and Zimbabwe. We developed a framework to prioritize delivery channels based on accessibility and capacity factors.
Lessons learned: Private sector healthcare is widely used by women and girls at risk for HIV driven by convenience, quality, confidentiality and the ability to consistently see a single provider. Utilization is highest in urban areas where HIV incidence is high. Using contraceptive price as a benchmark, private sector healthcare clients may be able to afford an oral PrEP price of ~$5.50/month.
Four private delivery channels were identified for potential delivery of oral PrEP:
· Private doctors due to affordability, reach and capacity to deliver confidential, quality care consistently over time with the same individual.
· Social franchises/NGOs due to their ability to reach lower-income women with high-quality, subsidized care.
· Faith Based Organizations due to their ability to reach rural populations in some countries.
· University clinics due to extensive HIV testing and family planning services for difficult-to-reach populations.
Cost, prescription and testing requirements for oral PrEP likely limit near-term efforts in pharmacies to information dissemination. A mix of private and public channels could reach populations that would otherwise be missed and provide greater confidentiality and privacy. Potential challenges to private sector delivery include limited ability to track patients, affordability and lack of provider HIV specialization.
Conclusions/Next steps: Market assessments of Kenya, South Africa and Zimbabwe found that many women access, prefer and can afford private services. Private sector delivery could help channel public sector resources to those who cannot pay. Governments, donors and implementers should consider a portfolio of private sector channels to expand oral PrEP access and should explore cost-sharing public-private partnerships.

THPEE800

Increased HIV testing and case finding in diverse clinical settings targeting young men who have sex with men in Bali

H. Luis[1], N. Adnyana[2], S. Wignall[1]
[1]Bali Peduli, Denpasar, Indonesia, [2]Sayan Ubud II Government Health Center, Ubud, Bali, Indonesia

Background: Indonesia is one of the few countries in the Asia Pacific region where HIV infections continue to rise. Among MSM in Indonesia, the rates of HIV have increased from 5.35% in 2007 to 25.8% in 2015, with HIV prevalence reaching 36 % among MSM in Bali.
HIV testing and care services in Indonesia have barriers such as cost, inconvenient clinic hours, stigma, confidentiality, discriminatory from health care workers, unsupportive cultural and religious values.
Description: Integrated clinical services for predominantly young MSM Bali were developed in a physician's private practice and in a government health facility. Services provided are free included HIV rapid tests with confirmation, syphilis testing, simple lab for rectal and urethral samples, hemoglobin, blood chemistry, CD4 testing, viral load and PCR for chlamydia/gonorrhea (Xpert). HIV+ clients initiated ART on the same week (Rapid ART). An SMS reminder system supported adherence and follow-up testing for negatives. Staff were trained to provide non-judgmental services regardless of sexual orientation/practices. Clients were encouraged to refer friends to the clinic and services were marketed through websites and social media.
Lessons learned: Clinic attendance remains high with over 200 new predominantly young MSM clients testing monthly. From September 2011 to December 2017, 11,115 patients enrolled with 33,895 visits (include follow up visits) documented. 12,333 clients were tested HIV, of which 1,140 were diagnosed HIV+ (9.24%). 891 patients were started on ARV. Total 9,667 Syphilis serological screening test were performed, 679 (7.02%) were early syphilis & 221 (2.28%) were latent syphilis. 2,827 cases of other STIs were diagnosed and treated. Most clients reported attending via peer and friend referrals, not through a paid peer outreach worker.
Conclusions/Next steps: Free, friendly, efficient, one-stop services can create demand and attract high numbers of young MSM, even in settings where social and religious norms are not conducive to overt community mobilization. Demand-generating characteristics were shown to be successful in a variety of clinical settings such as a private doctor's clinic and a government health facility. Such settings can provide youth-friendly MSM services by following a recipe of stigma-free and convenient services coupled with cost-efficient peer referral and use of social media.

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Partnerships across HIV and other vertical programmes, e.g., tuberculosis, sexually transmitted infections, drug treatment, family planning

THPEE801

Corrections to community care: An innovate partnership to ensure HIV linkage to care and viral suppression for incarcerated individuals in New York state prisons

R. Cook[1], C. Koenigsmann[2], C. Marra[2], R. Riordan[2], B. de Leon-Stevens[1]
[1]New York State Department of Health, AIDS Institute, Albany, United States, [2]New York State Department of Corrections and Community Supervision, Albany, United States

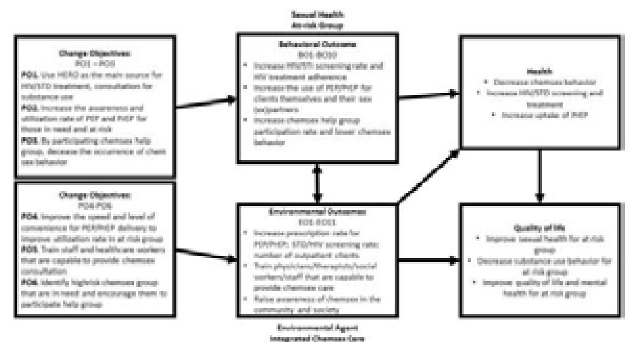
Background: The NYS Department of Health (DOH) and NYS Department of Corrections and Community Supervision (DOCCS) Corrections to Community Care model offers a public health opportunity to proactively engage incarcerated individuals and provide education, facilitate HIV testing and disclosure of HIV status, and support continuous care for individuals living with HIV both during incarceration and following community reentry.
Moreover, it serves as a pathway to assist incarcerated individuals living with HIV as they prepare to transition into the community and support positive health outcomes and self-sufficiency. They gain the knowledge and skills necessary to effectively self-manage and navigate the full continuum of HIV care and support that is available in the correctional facility and, once released/discharged, in the community.
Description: Incarcerated individuals and individuals being released from correctional settings who are living with HIV are offered increased access to care to improve the overall coordination of health and support services including behavioral health services, health care coverage, social and support services such as housing, substance use treatment, education, mentoring and employment assistance programs, with services and interventions being provided using comprehensive systems navigation in a client-centered manner. Individuals are screened for eligibility, given a readiness and comprehensive behavioral risk and needs intake assessment and then enrolled into an individual-level, multi-session service. A Linkage Action Plan is developed with every enrolled individual that includes appointments to medical care, entitlements, housing arrangements, an HIV/STD/HCV risk reduction plan, and goal setting worksheets to build self-sufficiency.
Lessons learned: Incarcerated individuals and reentrants who are living with HIV experienced improved continuity of care when additional support, coaching and resources are provided that empowers them to disclose their HIV status, engage in medical care and treatment, and achieve and maintain viral suppression.
Conclusions/Next steps: Outcome tracking methods include the completion of client linkage reports that compile referral source, engagement in care, release dates, treatment adherence and viral suppression for each client. Next steps include annual reviews of the reports to guide future service delivery, track viral suppression and retention in care successes, and improve referral and linkage processes for incarcerated and formerly incarcerated persons living with HIV.

THPEE802

An integrated chemsex care and HIV prevention service in Taiwan: The HERO healing, empowerment, recovery of ChemSex model

C. Strong[1], A.-C. Chung[2,3], W.-S. Li[3,4], C.-Y. Pan[5], Y.-J. Chang Chien[5], H.-J. Wu[1], S.-T. Hsu[3,6], N.-Y. Ko[1,2,7], HERO-Taiwan
[1]National Cheng Kung University, Department of Public Health, Tainan, Taiwan, Province of China, [2]Taiwan Love and Hope Association, Kaohsiung, Taiwan, Province of China, [3]Healing, Empowerment, Recovery of ChemSex Health Center, Kaohsiung, Taiwan, Province of China, [4]Kaohsiung Chang Gung Memorial Hospital, Division of Infectious Diseases, Department of Internal Medicine, Kaohsiung, Taiwan, Province of China, [5]Kaohsiung City Government, Division of Disease Control, Department of Health, Kaohsiung, Taiwan, Province of China, [6]Kaohsiung Municipal Kai-Syuan Psychiatric Hospital, Department of Psychiatry, Kaohsiung, Taiwan, Province of China, [7]National Cheng Kung University, Department of Nursing, Tainan, Taiwan, Province of China

Background: The rising trend of combining use of recreational drugs during sex (ChemSex) in Taiwan has become a critical contributor in the HIV epidemic. The existing health care model that tackles substance abuse, sexual health and HIV prevention independently is no longer desirable. A model of integrated health services that simultaneously addresses these health issues and provides a safe environment for people under the influence of ChemSex may effectively improve HIV prevention and quality of life.
Description: We established HERO integrated service (Healing, Empowerment, Recovery of ChemSex) in Southern Taiwan in 2017 to cope with ChemSex epidemic and sexual health problems for at risk population, inspired by the 56 Dean Street model in London. The main services HERO provided include HIV/STI testing and rapid link to treatment, consultation and prescription for pre-exposure prophylaxis (PrEP), and ChemSex support group. To evaluate the effectiveness of the integrated service, we developed an evaluation plan based on the logic model of change at both individual and health service levels. Clients visited the service were asked to fill out an online survey after providing consent. Administrative data were collected to measure changes toward the expected program goals.
Lessons learned: Since HERO opened in November 25 in 2017, there has been 65 clients visited, while 93.8% used HIV screening service, 7.7% received PrEP consultation and 10.8% joined ChemSex support group. The average age was 29.0 years and the majority were males (87.8%) and self-identified as homosexual or bisexual (83.1%). Among all, 38.5% reported having ChemSex in the past month, 23.1% scored moderate anxiety or higher and 6.2% scored moderate depression or higher. Out of five people receiving PrEP consultation, 60% started using PrEP. For the ChemSex support group, 28.6% set their goal to be abstinent, 28.6% would like to stop using substance temporarily and 42.9% not sure what their goals were.
Conclusions/Next steps: HERO as the first integrated service for sexual health in Asia, our experiences and evaluation will provide insight on the development and implementation of integrated health care model for HIV and ChemSex prevention for people under the influence of drugs that engaged in HIV/STI transmission risk behavior.



[Evaluation plan for HERO based on the logic model of change]

THPEE803

Increasing HIV case identification and linkage to antiretroviral therapy through nutrition screening: Lessons learned from the Cote d'Ivoire nutrition and community-facility linkages activity

A. Rurangwa[1,2], E. Kouassi[3], D. N'Dabian[3]
[1]FHI 360, Global Health, Nutrition and Population, Washington DC, United States, [2]FHI 360, Food and Nutrition Technical Assistance Project, Washington, DC, United States, [3]FHI 360 Cote d'Ivoire, Food and Nutrition Technical Assistance, Abidjan, Cote D'Ivoire

Background: Increasing HIV case identification and linkage to antiretroviral therapy through nutrition screening: Lessons learned from the Cote d'Ivoire Nutrition and Community-Facility Linkages Activity.
Description: FANTA led the establishment of partnerships between service providers at 11 health facilities, and 8 social centers and 14 community-based organizations (CBOs), which provide services to orphans and vulnerable children and their caregivers in 8 districts around Abidjan. Health workers screened clients seeking psychosocial support at social centers and CBOs for nutritional status using mid-upper arm circumference. Individuals identified with moderate- or severe-acute malnutrition were referred to a health facility, Nutrition focal points were assigned at each location, registries and forms were developed to facilitate and document referrals between locations. HIV seropositive clients were managed through a case management system, followed for malnutrition treatment, and enrolled in HIV treatment and other support services. A client list, HIV patient appointment schedules and care plans were shared among service providers who communicated to ensure clients received services. Clients lost to follow up were contacted by phone or home visit and counseled to re-engage in care.
Lessons learned: Malnutrition can signal the presence of an HIV infection. Between January 2015 and December 2017, 25,000 clients received psychosocial support at the social centers and community-based organizations, 42% of whom (10,493) were screened for malnutrition. Among those screened, 11% (1,144) had moderate- or severe- acute malnutrition and referred to the health facility. Of those referred, 49% (563) were tested for HIV; 63% (354) of those tested were HIV-positive. 98% of the HIV-positive individuals were initiated on antiretroviral therapy. 116 HIV seropositive individuals lost to follow up were re-engaged in care. The integration of NACS and HIV care delivery and the facility and community partnerships developed through the NCFLA increased HIV case identification and facilitated enrollment into the HIV services, including ART initiation, adherence and retention counseling.
Conclusions/Next steps: NACS services and partnerships developed through the NCFLA in Cote d'Ivoire provided a new gateway to HIV case identification and enrollment into the HIV treatment cascade. Integrated service delivery and context-appropriate community-facility linkages are recommended as part of the response to end the HIV epidemic by 2030.

THPEE805

Early retention in a newly established Medically-Assisted Therapy Clinic in Kenya

D. Naitore[1], A. Ngulu[1], K. Ndede[1], A. Howard[2], M. Mugambi[3], H. Musyoki[3], D. Onyango[4], J. Otieno[5], M. Hawken[1], R. Fayorsey[2], E. Abrams[2]
[1]Columbia University, Mailman School of Public Health, ICAP-Kenya, Nairobi, Kenya, [2]ICAP at Columbia University, Program, New York, United States, [3]National AIDS and STI Control Programme, Ministry of Health, Kenya, Key Populations, Nairobi, Kenya, [4]Kisumu County, Health Department, Kisumu, Kenya, [5]Jaramogi Oginga Odinga Teaching and Referal Hospital, Health Department, Kisumu, Kenya

Background: It is estimated there are 18,347 people who inject drugs (PWID) in Kenya, of whom approximately 1,000 live in the Nyanza region. The HIV prevalence amongst PWID is estimated to be 18%, which is three times that of the general population[1]. This epidemic is driven by unsafe drug injecting practices and risky sexual behaviour. Medically-Assisted Therapy (MAT) is the supervised use of methadone replacement therapy for PWID to treat drug addiction, and is an important risk reduction strategy for HIV.
Methods: In March 2017, a MAT clinic was established at the Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) in the Nyanza region, Kenya. The clinic adopted a one stop shop model offering integrated HIV, TB and methadone treatment services. Clients are referred from a community drop-in center and screened for suitability for MAT. The MAT clinic offers HIV testing and counseling, Hepatitis B and C screening, STI screening, psychosocial support, ART for those who are HIV-positive, and TB screening and treatment. Staff were trained on national guidelines and clinic standard operating procedures.
Results: During a 10-month period from March to December 2017, 83 adults were screened for eligibility and 70 eligible patients were identified and initiated on MAT. Among the 70 who initiated MAT, 7 (10%) were female and 63 (90%) were male. Ten (14%) tested HIV-positive of which 100% were initiated on ART, and 7 (10%) were Hepatitis B surface antigen positive. One client had MDR-tuberculosis and was started on directly-observed therapy. Amongst the 53 clients who were receiving MAT services for 6 months or more, the 6-month retention rate for methadone treatment was 79% (42/53).
Conclusions: ICAP successfully established the first MAT clinic, with integrated HIV services at JOOTRH in western Kenya. The majority of clients served were men, and initial retention rates in methadone treatment have been good. Going forward strategies to further increase clinic referrals and uptake of MAT services should be explored.

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Oral Abstract Sessions

FRAD01 Bound and gagged: Exposing the impact of the expanded Mexico City policy

FRAD0101

The Mexico City Policy and PEPFAR: Estimating the impact on NGOs and funding

K. Moss, J. Kates
Kaiser Family Foundation, Washington, United States

Background: In January 2017, President Trump reinstated and expanded the Mexico City Policy. In the past, it had required foreign non-governmental organizations (NGOs) to certify that they would not "perform or actively promote abortion as a method of family planning" using funds from any source as a condition for receiving U.S. family planning assistance. In a significant expansion, it now applies to almost all U.S. global health bilateral assistance, including PEPFAR. Among the many questions about the policy's impact is its effect on HIV programs and services. This study sought to estimate the number of NGO recipients of PEPFAR funding who could be subject to the policy as well as the amount of funding they receive.
Methods: We analyzed data from ForeignAssistance.gov over the most recent three-year period for which such data were available (FY 2013 - FY 2015) to identify NGO recipients of bilateral HIV assistance as a proxy for the current number of recipients. We also calculated the amount of funding they receive and number of countries they work in. We further stratified these countries by the legality of abortion.
Results: We identified 470 foreign NGO prime recipients of PEPFAR bilateral HIV funding, who received $873 million. In addition, we identified 274 U.S. NGO prime recipients, accounting for $5.5 billion, who would be required to ensure that any foreign NGO sub-recipients were in compliance. Overall, this funding supported programs in 61 countries. Of these, 36 allow for legal abortion in at least one case not permitted by the policy and 24 do not; one country was not classifiable. These estimates should be considered minimums since we were unable to identify NGO sub-recipients of HIV support, who represent a much greater number and are also affected by the policy.
Conclusions: The expansion of the Mexico City Policy to encompass almost all U.S. bilateral global health assistance, including PEPFAR, greatly extends its reach. While it is still too early to know its ultimate impact on the ground, our analysis indicates that the expanded policy will likely affect hundreds of NGO recipients of PEPFAR support.

FRAD0102

Understanding the global gag rule: How to sustain global health progress amidst the new U.S. policy environment

C. Cooney[1], T. Coenen[2], J. Rucks[3]
[1]*Planned Parenthood Federation of America, Washington, United States,* [2]*Rutgers, Utrecht, Netherlands,* [3]*PAI, Washington, United States*

Background: The global gag rule (also known as the Mexico City Policy) is affecting the global fight against HIV/AIDS on an unprecedented scale by directly applying to PEPFAR-funded programs for the first time ever.
Description: This session will provide conference participants a comprehensive review of the global gag rule, experiences with the policy, expert guidance for implementers, and advocacy opportunities. The presenters will offer a variety of perspectives from both policy experts and implementing organizations and will specifically focus on the expansion to U.S.-funded HIV/AIDS programs and the disproportionate impact the policy will have on women and girls and integrated service provision. Session co-sponsors include: amfAR, AVAC, Center for Health and Gender Equity (CHANGE), Marie Stopes International (MSI), PAI, Planned Parenthood Federation of America, Rutgers, and Stop AIDS Alliance.

Lessons learned: Under previous iterations of the global gag rule from 2001-2009, the policy resulted in a number of harmful impacts, including:
- USAID had to end condom shipments to Lesotho at a time when one in four women in the country was infected with HIV because the Lesotho Planned Parenthood Association, the primary conduit for condoms in the country, could no longer receive U.S. funding under the global gag rule; and
- Between 2002-2006 in Kenya, the global gag rule led to the termination of critical activities run by the Family Planning Association of Kenya and Marie Stopes International (MSI) Kenya—the leading providers of health care to people living in poor and rural communities in the country

This session will highlight these and other examples of the global gag rule's impact, with a focus on both historical and emerging evidence where HIV/AIDS programs and providers are seeing the impact of the policy.
Conclusions/Next steps: This comprehensive review of the global gag rule will provide new insight into the harmful impact of the policy on HIV/AIDS programs and engage participants in a dynamic discussion with policy and program experts on the impact of the policy and implications for future HIV/AIDS policy and programs.

FRAD0103

A model of dis-integration: Unpacking the impact of the global gag rule on HIV-SRHR linkages

L. Orza[1], L. Stackpool-Moore[2], E. Restoy[3], J. Davis[3]
[1]*International HIV/AIDS Alliance, Bridport, United Kingdom,* [2]*Watipa, London, United Kingdom,* [3]*International HIV/AIDS Alliance, Brighton, United Kingdom*

Background: The HIV community has expressed grave concern for what the expanded Global Gag Rule (GGR) could mean for the health and rights of people most affected by HIV. While the impact of the GGR on the provision of reproductive health services is beginning to be understood, little has been done to document the impact of the rule on communities most impacted by HIV, especially on HIV prevention. The International HIV/AIDS Alliance, with support from Sida, has undertaken research in Ethiopia and Zimbabwe to project the potential impact of the GGR on HIV and key population services, and on HIV-SRHR integration.
Methods: This is a mixed methods study combining desk research, statistical forecasting and community engagement (focus groups, stakeholder meetings and semi-structured interviews). It has involved the participation of civil society organizations - including those representing key populations - working on HIV, including through delivering a comprehensive, integrated SRHR agenda.
Results: Preliminary findings forecast that loss of funding to civil society partners implementing integrated HIV/SRHR programmes in all study sites will result in:
- Reduction in access to HIV prevention, testing and treatment services caused by the disintegration of HIV/SRHR services
- Denial of life-saving treatment and essential services to people living with HIV
- The health of people from key and vulnerable populations being jeopardised by restrictions to the package of services they can receive
- Fear that advocacy efforts to maintain or liberalise laws which allow access to safe abortion will be stifled due to confusion, uncertainty, and fragmentation of civil society; however, there is also evidence of civil society seeking creative opportunities for new advocacy collaborations

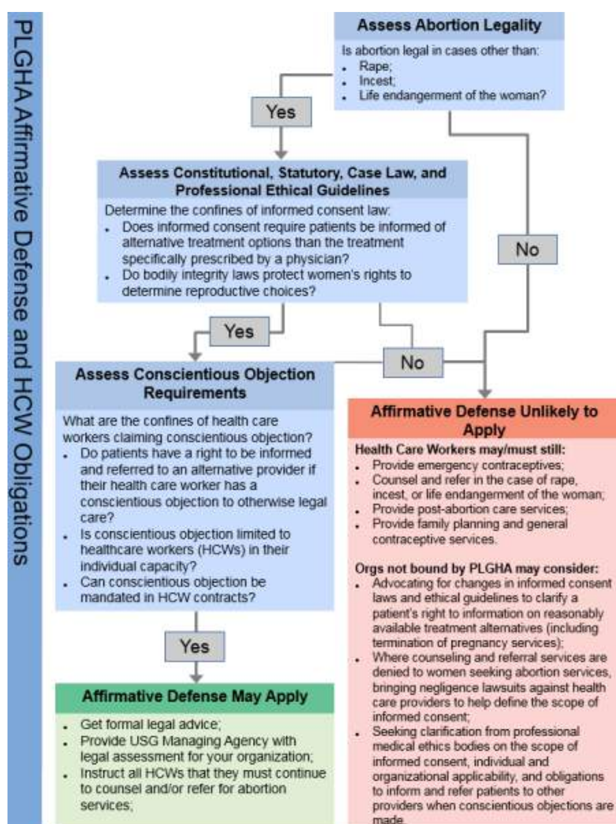
Conclusions: Non-GGR compliant HIV organizations implementing comprehensive integrated SRHR programming have lost tens of millions of dollars in funding. These translate into: cuts to prevention programming for key populations; denial of treatment to people living with HIV; the un-doing of decades of progress to integrate SRHR and HIV programmes, including for adolescents and young people; and a silencing of civil society on issues of individual choice, rights and agency. Despite additional barriers to accessing HIV and SRHR services, examples of community resilience, partnership, and solidarity were identified.

FRAD0104

Caught by ideology: HIV providers in the era of the protecting life in global health assistance policy (AKA Mexico City Policy)

B. Honermann[1], B. Roose-Snyder[2], T. Gonese[3], A. Sharp[1], J. Sherwood[1]
[1]amfAR, Public Policy Office, Washington, United States, [2]Center for Health and Gender Equity (CHANGE), Public Policy, Washington, United States, [3]Southern Africa Litigation Centre, Johannesburg, South Africa

Background: On 15 May, 2017, the US government formally announced the introduction of the Protecting Life in Global Health Assistance Policy (The Policy) - formerly known as the Mexico City Policy (MCP) or the Global Gag Rule (GGR). The Policy prohibits any foreign-NGO receiving Global Health Assistance funding to certify that it will not "perform or actively promote abortion as a method of family planning [...] or provide financial support to to any foreign-NGO that conducts such activities". This includes what an organization is able to do with non-USG funding. Distinct from the MCP, however, was a new affirmative defense against the Policy that states: "[...] in the event of a conflict between [the Policy] and an affirmative duty of a healthcare provider required under local law to provide counseling about and referrals for abortion [...], compliance with such law shall not trigger a violation of [the Policy]."
Description: The expansion of the Policy has significant implications for organizations delivering HIV services globally. For organizations funded for prevention of mother-to-child transmission services, community health worker engagement, and those with integrated family planning and HIV services - most of whom have no prior experience with the MCP - incorporating the Policy is legally complex and ethically dubious. We conducted a legal assessment of the applicability of the affirmative defense in several African countries.



[PLGHA Affirmative Defense and HCW Obligations]

Lessons learned: South Africa has particularly strong Constitutional protections for reproductive rights (sections 12(2)(a) and 27(1)(a)), strong informed consent requirements in the National Health Act and ethical guidelines, and robust case law that compel healthcare providers - including PEPFAR partners - to continue counseling about and referring for abortion services that cannot be circumvented by the Policy. Evaluations in Mozambique, Zambia, and Zimbabwe have found differing levels of protections.

Conclusions/Next steps: The legal and ethical obligations of HIV providers requires assessing the legal landscape in which they are operating and standing up for women's reproductive health choices. South Africa in particular has provided a template that advocates should utilize in pressing for legislation that enables healthcare providers to mitigate some of the substantial harms created by the Policy.

FRAD0105

The impact of the USG Policy Protecting Lives in Global Health Assistance (PLGHA) on Sida's SRHR-HIV partnerships

P. Engstrand[1], M. Hildebrand[2], S. Thomsen[3], Å. Andersson[4], M.-T. Bejarano[5]
[1]Sida, Lead Policy Specialist Health & SRHR, Stockholm, Sweden, [2]Embassy of Sweden / Lusaka, Regional SRHR Team, Lusaka, Zambia, [3]Sida, Senior Policy Advisor Health, Stockholm, Sweden, [4]Sida, Senior Programme Specialist, Health, Stockholm, Sweden, [5]Sida, Research Advisor, Stockholm, Sweden

Background: In January 2017, the USG reinstated the Mexico City Policy (MCP) expanding its scope beyond Family Planning Assistance to include US Global Health Assistance (US GHA). In short, MCP/PLGHA prohibits foreign NGOs receiving US GHA to perform or promote abortion, regardless of funding source. Subsequently, Sida adopted a position and guidance on MCP/PLGHA to assist staff to identify potential risks to Sida-supported SRHR programmes should partners decide to comply with MCP/PLGHA.
Description: Between August-September 2017, Sida undertook a portfolio assessment to understand the implications of MCP/PLGHA on 30 of Sida's NGO-partners receiving funding for SRHR incl. HIV. Data was analyzed using descriptive statistics and qualitative thematic analysis.
Lessons learned: One third of Sida's SRHR partners had ongoing US GHA agreements. Of those, two US based NGOs indicated intent to comply with MCP/PLGHA. Six Foreign NGOs choose not to comply with MCP/PLGHA; for these, US GHA contributed between 5 to 60 percent of their total budget. At least ten of Sida's partners had sub-grantees that received US GHA and were considering complying with MCP/PLGHA. In one case a national member association took over program implementation, and will not be required to comply with MCP/PLGHA. HIV organizations providing integrated SRH-HIV services including some level of counselling and referrals for safe abortion care, but that do not provide abortion services or advocacy, were for the first time affected by the expanded scope of the policy. The potential impact and loss of funding led to uncertainties and confusion for the sector which Sida has had to mitigate choosing various strategies including re-programming of agreements.
Conclusions/Next steps: The assessment found that the MCP/PLGHA may potentially cause disintegration of SRH-HIV services and systems, jeopardizing gains made in recent decades for comprehensive SHR-HIV services for adolescent girls and young women who are disproportionate at risk of HIV. MCP/PLGHA may also have a 'silencing effect' on broader SRHR policy reform linked to gender equality and the SDGs. Discontinuation of services compounds the vulnerability of those who are already left behind such as the poorest and marginalised people, people in rural areas, LGBT-communities and people living with HIV, adolescent girls and young women.

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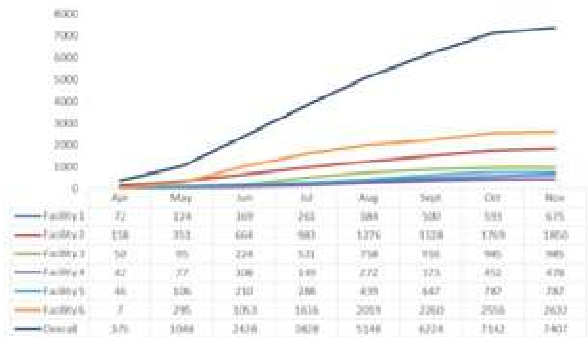
FRAE01 Differentiated treatment models

FRAE0101

Implementation of appointment spacing model of differentiated care in Ethiopia-successes and challenges

T. Assefa[1], Z. Melaku[1], W. Amdino[1], A. Abebe[2], M. Rabkin[3], K. Hartsough[3], R. Fayorsey[3]
[1]ICAP Ethiopia, Addis Ababa, Ethiopia, [2]Federal Ministry of Health, Disease Prevention and Control Directorate, Addis Ababa, Ethiopia, [3]Columbia University, Mailman School of Public Health, New York, United States

Background: There are over 420,645 people living with HIV on antiretroviral therapy (ART) in Ethiopia. This number is expected to increase by 30% with the adoption of Test and Treat by the Federal Ministry of Health (FMOH) in 2016. This poses a challenge to the Ethiopian health system, where shortage of clinical staff is a recurring problem.
Description: To address this issue, ICAP, in collaboration with the FMOH and the Centers for Disease Control and Prevention conducted a pilot of a differentiated service delivery (DSD) six-month appointment spacing model (ASM). ICAP established a technical working group on DSD and developed supplemental guidelines, monitoring framework, provider support tools, and training curriculum for regional and facility service providers. Six high-volume health facilities were included in an ASM pilot, which began in April 2017. Eligible non-pregnant adult patients (stable per World Health Organization criteria) were enrolled in the pilot, which included six- months medication supply, biannual clinical visit, annual viral load testing, psychosocial support, counseling, and encouragement to participate in peer support groups.
Lessons learned: Of the 24,657 clients that were currently on ART at the 6 pilot facilities, 12,649 clients (51%) were eligible for ASM, of whom 49% were enrolled by the 6th month of the pilot. Among the 51% who declined participation, the major reasons cited for refusal to participate in the ASM were fear of inadvertent disclosure due to having a large volume of medication and concerns regarding safety and storage of medication for prolonged periods at home. ASM has been scaled-up to 765 facilities, with 57,000 clients enrolled as of November 2017.
Conclusions/Next steps: Implementation of the ASM in the Ethiopian context demonstrated rapid enrollment of a large number of clients within a short period, and acceptance of the model by clients and service providers. Future work is needed to increase acceptance of ASM model and address common concerns cited by those who declined to take part in pilot. Additionally, work will be needed to evaluate retention on ART and healthcare worker and client satisfaction at 1.5 years on ASM.



[Cummulative ASM enrollment at the six pilot hospitals, Apr-Nov, 2017]

FRAE0102

Quick & cheaper: A comparison of patient costs and distance to access care through differentiated models of antiretroviral treatment delivery in Zimbabwe

F. Chirowa[1], N. Ngorima-Mabhena[1], O. Mugurungi[2], I. Mlingo[1], T. Makuve[1], B. Ndidzano[1], E. Tarowera[1], G. Fatti[3], A. Grimwood[3], S. Rosen[4]
[1]Khethimpilo, Harare, Zimbabwe, [2]Ministry of Health & Child Care, Aids and TB, Harare, Zimbabwe, [3]Khethimpilo, CapeTown, South Africa, [4]HE2RO, Johannesburg, South Africa

Background: .Patient transport costs are a significant barrier to accessing antiretroviral treatment (ART), particularly for those living in rural areas of sub-Saharan Africa. As part of a pragmatic cluster-randomized trial to assess the effectiveness of differentiated models of ART delivery for stable ART patients, we compared patient-level costs and travel distance for participants accessing ART at health facilities vs. participants expected to access ART in community ART refill groups (CARGs) in Zimbabwe.
Methods: Patient-level cost data of trial participants were collected at 26 health facilities in both urban and rural areas of five districts between July 2017 and December 2017, using a standardized questionnaire administered by study nurses. At 10 facilities, participants accessed ART directly from the facility, while for the remainder participants were patients in newly formed CARGs, which are groups of 6-12 participants who meet in the community for drug pick-up; patients in CARGs were asked their expectations in joining groups. The average visit cost of accessing care, mean travel distance and time spent per visit were compared. Costs included both direct costs and the opportunity cost of attending the appointment, both to the patient and an accompanying person.
Results: Amongst 473 respondents, 260 (55%) received ART at the health facility and 213 (45%) received ART in CARGs. CARG participants had a 89% shorter travel distance to the selected meeting place for a drug pick-up. (0.9 km; 95% CI: 0.8-1.0 km) compared to facility-based participants (8.4 km, 95% CI: 6.8-9.9 km); p< 0.00. The average visit cost for CARG participants is 69.5% lower than facility-based patients (US$1.24 vs. US$4.06, two-way respectively. Travel time to the drug pick up point is lower for CARG participants: 178 (91%) reported travel time for < 30 minutes, while 100% of facility-based patients travelled >30 minutes.
Conclusions: Collecting ART from CARGs has lower visit costs, and patients travel substantially shorter distances with reduced travel times to access care, compared to participants collecting ART from facilities. CARGs are a differentiated model of care offering important benefits to stable ART patients.

FRAE0103

Decentralizing and differentiating HIV care for men who have sex with men living with HIV in Guatemala City: Acceptability and retention in care

C. Barrington[1], M.I. Loya Montiel[2], S. Northbrook[3], J.K. Williams[4], J.P. Alvis[2], R. Santa Luce[2], K. Guzman Guerrera[2], R. Pinzon Meza[5], M.E. Anton Urbina[6], M.R. Calderon[2]
[1]University of North Carolina at Chapel Hill Gillings School of Global Public Health, Health Behavior, Durham, United States, [2]Universidad del Valle de Guatemala, Guatemala, Guatemala, [3]Centers for Disease Control, Guatemala, Guatemala, [4]Centers for Disease Control, Atlanta, United States, [5]Hospital Roosevelt, Guatemala, Guatemala, [6]Ministerio de Salud Publica y Asistencia Social, Programa Nacional de Prevención y Control de ITS, VIH y SIDA, Guatemala, Guatemala

Background: Centralized HIV care causes social, time, and cost burdens, which can threaten achieving optimal HIV clinical outcomes and well-being. We conducted the first decentralization pilot in Central America among men who have sex with men (MSM) living with HIV and assessed acceptability, retention in care, and satisfaction.
Methods: This is a longitudinal, intervention study with mixed-methods assessments at baseline, 6 months, and 12 months. We recruited participants consecutively from January to May 2017. Eligibility criteria included $\geq$18 years old, male, self-reported sex with men, diagnosed with HIV, enrolled in care for $\geq$one year without interruption, viral load $\leq$1000 copies/mL, and on first-line treatment. Eligible participants were offered the option to decentralize to one of 3 clinics with tailored services for

key populations (2 NGO and one governmental). Retention in care was defined as attending at least 3 quarterly appointments during 9 months of follow-up. Evaluation methods included socio-behavioral surveys, in-depth interviews, and clinical chart review. Thematic qualitative analysis and descriptive statistics were used to assess indicators and processes related to acceptability and retention in care.

Results: Nearly half (47%) of the 276 participants voluntarily decentralized while 53% opted to stay, with no significant differences between the two groups. Among those who decentralized, 51% (n=66) chose a gay health NGO, 41% (n=53) chose an NGO with a history of HIV prevention and care with key populations, and 8% (n=11) chose a governmental STI clinic. Motivators for decentralization included schedule, location, and type of organization. Only 1 participant opted to re-centralize due to schedule issues and 98% of decentralized participants were retained in care at the third clinic visit during study follow-up. Median duration of the decentralized consult was 30 minutes, compared to 4-5 hours at the centralized clinic. Over 90% of participants across the 3 clinics considered the care they received to be "excellent".

Conclusions: Decentralization to key population-friendly clinics with flexible schedules is acceptable and feasible for MSM. Retention was not negatively affected and participants were highly satisfied with the services provided in the decentralized clinics. These findings are informing policy and practice throughout Central America to differentiate care and improve quality.

FRAE0104

Urban adherence clubs in Zambia: Findings from model implementation

M. Roy[1], C. Bolton[2,3], I. Sikazwe[2], M. Mukumbwa-Mwenechanya[2], E. Efronson[2], P. Somwe[2], E. Kalunkumya[2], M. Lumpa[2], A. Sharma[2], J. Pry[2,4], N. Padian[5], E. Geng[1], C. Holmes[6,7]

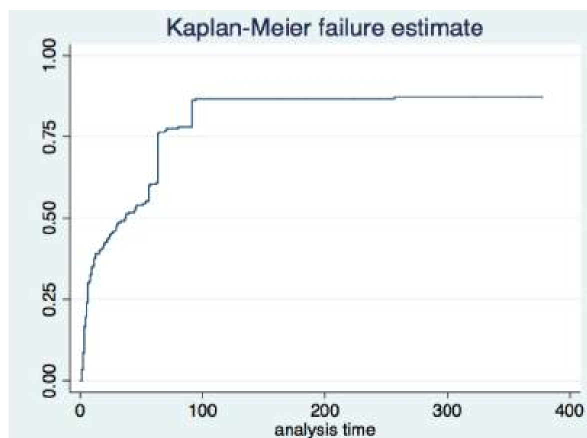
[1]University of California San Francisco, San Francisco, United States, [2]Centre for Infectious Disease Research in Zambia, Lusaka, Zambia, [3]University of Alabama, Birmingham, United States, [4]University of California Davis, Sacramento, United States, [5]University of California Berkeley, Berkeley, United States, [6]Georgetown University, Washington DC, United States, [7]Johns Hopkins University, Baltimore, United States

Background: The urban adherence club (UAC) model is a differentiated service delivery (DSD) model designed to improve on-time drug pickup and retention in HIV care through off-hours facility access and group drug distribution. Successes during scale-up in South Africa have been tempered by a recent report of high loss to follow-up and transfers back to facility-based care. We sought to characterize retention among patients enrolled in UACs at five urban health facilities in Zambia to evaluate model implementation outside of South Africa.

Methods: As part of a cluster randomized trial, a systematic sample of eligible patients (HIV+, on ART > 6 months, not acutely ill, CD4 >=200/µl) were enrolled in UACs between May 19 & July 29, 2016. Patients were scheduled for bimonthly group drug-pick up meetings in the first six months and every 3-month meetings thereafter. Clinical and pharmacy visit data were obtained through the existing electronic medical record. UAC meeting visit attendance, transfer-outs, and deaths were collected prospectively through October 31, 2017.

Results: Among 592 intervention patients, median age was 41 yrs (IQR: 35-48), 371 (63%) were female, median CD4 count was 411 /µl (IQR: 273 - 559), and median time on ART was 4.0 yrs (IQR: 2.0 -7.2). Out of 3,756 scheduled UAC visits, 685 (18%) were not attended. In 204 (30%) of the unattended visits, patients still obtained medication on the same day: either via a buddy (151(74%)) or same day drug-pick up at the facility outside of the UAC meeting (53 (26%)). Among the 481 (70%) unattended visits where patients did not receive same-day medication, cumulative incidence of drug-pick up after a missed UAC visit was 27% at 14 days and 32% at 28 days (Figure 1). At 12 months, cumulative incidence of treatment interruption (> 14 days late for drug pick-up) was 9.8%, transfer out of UAC was 6.8%, and death was 0.51%.

Conclusions: Group meetings were generally well-attended and in nearly one third of missed meetings patients accessed timely drug pick-up via other means. These findings suggest that group-based care is a viable model of care, although adaptation and patient-centeredness should be prioritized in DSD model implementation.



[Figure 1. Kaplan-Meier survival curve of time to drug pick-up after first unattended group visit]

FRAE0105

The impact of community delivery of antiretroviral therapy on viral load suppression: Findings from a pragmatic randomized non-inferiority trial in Dar es Salaam, Tanzania

J. Francis[1], P. Geldsetzer[2], N. Ulenga[1], D. Sando[2], I. Lema[1], E. Mboggo[1], M. Vaikath[2], S. Lwezaula[3], H. Koda[1], J. Hu[4], R. Noor[2,5,6], I. Olofin[2], W. Fawzi[2,5,7], G. Asmus[8], T. Bärnighausen[2,8,9]

[1]Management Development for Health, Dar es Salaam, Tanzania, United Republic of, [2]Harvard T.H. Chan School of Public Health, Global Health and Population, Boston, United States, [3]National AIDS Control Program, Dar es Salaam, Tanzania, United Republic of, [4]Duke University, School of Medicine, Durham, United States, [5]Harvard T.H. Chan School of Public Health, Department of Nutrition, Boston, United States, [6]Africa Academy for Public Health (AAPH), Dar es Salaam, Tanzania, United Republic of, [7]Harvard T.H. Chan School of Public Health, Department of Epidemiology, Boston, United States, [8]Institute of Public Health, Heidelberg University, Heidelberg, Germany, [9]Africa Health Research Institute, Mtubatuba, South Africa

Background: Delivering antiretroviral therapy (ART) to patients' homes and other meeting points in the community using community health workers (CHWs) could reduce patient volumes at healthcare facilities, improve ART adherence and retention, and decrease patients' out-of-pocket healthcare expenditures. This randomized trial in Dar es Salaam aimed to assess whether community delivery of ART is non-inferior to the standard of care in achieving viral suppression.

Methods: We randomized 48 healthcare facilities in Dar es Salaam to either the standard of care (facility-based ART care) or CHW-led ART community delivery. The CHW cadre is a long-standing public sector cadre in Dar es Salaam, called home-based carers. Patients had to be clinically stable on ART to be eligible for ART community delivery. The primary endpoint was the proportion of ART patients in viral failure (viral load >1,000 copies/ml) at the end of the study period. We fitted log-binomial models clustering standard errors at the facility level and computed p-values through randomization inference.

Results: We recruited 1,174 participants at intervention and 998 at control facilities. 521 participants received CHW-led ART community delivery. Mean follow-up was 321 days. 24.5% of participants in the intervention and 18.5% in the control arm were lost to follow-up. The risk ratio (RR) for viral failure in the intervention compared to the control arm was 0.91 (95% CI: 0.72 - 1.12). The p-value for the observed RR being below the margin of non-inferiority (RR=1.45) was < 0.001. Participants' healthcare expenditures over the last six months were not significantly different between intervention and control facilities.

Conclusions: Community delivery of ART by CHWs in Dar es Salaam did not result in inferior viral suppression compared to the standard of care. While ART community delivery did not reduce participants' healthcare expenditures by a substantial amount, it is likely to save ART patients substantial amounts of time and may improve long-term retention in care.

Late Breaker Oral Abstracts

TUAB01 Antiretroviral strategies

TUAB0106LB

Non-inferior efficacy of dolutegravir (DTG) plus lamivudine (3TC) versus DTG plus tenofovir/emtricitabine (TDF/FTC) fixed-dose combination in antiretroviral treatment-naïve adults with HIV-1 infection - 48-week results from the GEMINI studies

P. Cahn[1], J. Sierra Madero[2], J. Arribas[3], A. Antinori[4], R. Ortiz[5], A. Clarke[6], C.-C. Hung[7], J. Rockstroh[8], P.-M. Girard[9], C. Man[10], J. Sievers[11], A. Currie[12], M. Underwood[10], A. Tenorio[10], K. Pappa[10], B. Wynne[10], M. Gartland[10], M. Aboud[11], K. Smith[10]
[1]Fundación Huésped, Buenos Aires, Argentina, [2]Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Mexico City, Mexico, [3]Hospital La Paz, Madrid, Spain, [4]Istituto Nazionale per le Malattie Infettive Lazzaro Spallanzani, Rome, Italy, [5]Bliss Healthcare Services, Orlando, United States, [6]Royal Sussex County Hospital, Brighton, United Kingdom, [7]National Taiwan University Hospital, Taipei, Taiwan, Province of China, [8]Rheinische Friedrich-Wilhelms Universität, Bonn, Germany, [9]Hôpital Saint Antoine, Paris, France, [10]ViiV Healthcare, Research Triangle Park, United States, [11]ViiV Healthcare, Brentford, United Kingdom, [12]GlaxoSmithKline, Stockley Park, United Kingdom

Background: The requirement for life-long antiretroviral therapy of HIV infection has highlighted interest in 2-drug regimens (2DRs) to minimise cumulative drug exposure. DTG´s potency, safety and resistance barrier make it an optimal core agent for 2DRs while 3TC´s safety, tolerability and efficacy make it an attractive partner for initial HIV-1 treatment.
Methods: GEMINI-1 and GEMINI-2 are two identical global double-blind, multicentre Phase III studies evaluating efficacy and safety of DTG+3TC once daily in treatment-naïve HIV-1-infected adults with Screening HIV-1 RNA ≤500,000c/mL (ClinicalTrials.gov: NCT02831673/NCT02831764). Participants were randomised 1:1 (stratified by Screening plasma HIV-1 RNA and CD4+ cell count) to treatment with DTG+3TC or DTG+TDF/FTC. The primary endpoint is the proportion of participants with plasma HIV-1 RNA < 50c/mL at Week 48 (Snapshot algorithm).
Results: 714 and 719 adults were randomised and treated in GEMINI-1&2, respectively. Participants were well matched for demographic/baseline characteristics. Overall, 20% of participants had baseline HIV-1 RNA >100,000c/mL; median CD4+ was 432 cells/mm³. Based on a 10% non-inferiority margin, DTG+3TC was non-inferior to DTG+TDF/FTC at Week 48 in both GEMINI-1&2 and in the pooled analysis [Table]. Response rates in subjects with baseline HIV-1 RNA >100,000 c/mL were high and similar between arms. Across both studies, 6 participants on DTG+3TC and 4 on DTG+TDF/FTC met protocol-defined virologic withdrawal criteria through Week 48; none had treatment-emergent primary integrase-strand transfer inhibitor or NRTI resistance mutations. Overall rates of AEs were similar between arms, with low rates of withdrawals due to AEs for both DTG+3TC and DTG+TDF/FTC. More drug related AEs were reported with DTG+TDF/FTC. Post baseline changes in markers of bone and renal function favoured DTG+3TC through week 24.

		GEMINI-1	GEMINI-2	Pooled
Snapshot responders	DTG+3TC	320/356 (90%)	335/360 (93%)	655/716 (91%)
	DTG+TDF/FTC	332/358 (93%)	337/359 (94%)	669/717 (93%)
Adjusted Difference (95% CI)		-2.6 (-6.7, 1.5)	-0.7 (-4.3, 2.9)	-1.7 (-4.4, 1.1)

[Proportion of Participants with Plasma HIV-1 RNA <50 c/mL at Week 48: Snapshot Analysis - ITT-E population]

Conclusions: In GEMINI-1&2, DTG+3TC demonstrated non-inferior efficacy to DTG+TDF/FTC in treatment-naïve adults with Screening HIV-1 RNA ≤500,000c/mL at Week 48. Both regimens were well tolerated. Biomarkers of bone turnover and renal function favoured DTG+3TC. The results suggest DTG+3TC is an option for initial treatment of HIV-infected patients.

TUAB0107LB

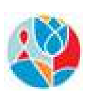
Non-inferior efficacy for darunavir/ritonavir 400/100 mg once daily versus lopinavir/ritonavir, for patients with HIV RNA below 50 copies/mL in South Africa: The 48-week WRHI 052 study

F. Venter[1], M. Moorhouse[1], S. Sokhela[1], E. Maharaj[1], G. Akpomiemie[1], B. Simmons[2], C. Serenata[1], A. Hill[3]
[1]University of Witwatersrand, WITS Reproductive Health and HIV Institute, Johannesburg, South Africa, [2]Imperial College, Faculty of Medicine, London, United Kingdom, [3]Liverpool University, Pharmacology, Liverpool, United Kingdom

Background: Darunavir/ritonavir (DRV/r) is the most widely recommended protease inhibitor in treatment guidelines. The approved dose of DRV/r is 800/100 mg once daily (QD) for patients with no PI resistance. In the POWER studies, patients treated with a lower dose - 400/100mg QD - showed similar reductions in HIV RNA to the standard dose, with consistent results shown in other pilot studies (DARULIGHT, DRV600). Reductions in the dose of DRV/r could improve safety and lower costs of mass treatment in low- and middle-income countries. Low cost generic DRV/r is becoming available in many countries as patents expire.
Methods: In this study in Johannesburg, South Africa, 300 patients previously stable on 2NRTI+LPV/r with HIV RNA < 50 copies/mL were randomised to 2NRTI+DRV/r 400/100 mg QD (n=148) or continued 2NRTI+LPV/r (n=152). Treatment success was defined as HIV RNA < 50 copies/mL at Week 48 (FDA snapshot). Treatment arms were compared using the new FDA non-inferiority (NI) margin of -4% for switch studies, using the Intent to Treat (ITT) population.
Results: Patients were 68% female and 99.7% Black, with mean age 42 years, CD4 count 621 cells/µL, body weight 72 kg. In the primary efficacy analysis, HIV RNA < 50 copies/mL by Week 48 (ITT) was 143/148 (96.7%) in the DRV/r arm versus 145/152 (95.4%) in the LPV/r arm (Difference = +1.2% (95% CI = -3.7% to +6.2%). Of the 12 patients with failure, 7 had low-level viraemia (50-199 copies/mL), 2 had transient high-level viraemia at Week 48 which resolved after adherence counselling; 3 had missing data. Summary safety data is shown in the table below.
Conclusions: In this study for patients with HIV RNA < 50 copies/mL at baseline, switching to 2NRTI+DRV/r 400/100 mg once daily showed non-inferior efficacy versus 2NRTI+LPV/r in the primary efficacy analysis (96% versus 95%), within the -4% FDA non-inferiority margin for switch studies. For stable patients, switching from LPV/r to DRV/r 400/100 QD would improve convenience and could lower long-term costs. New clinical trials are required to evaluate DRV/r 400/100 mg after first-line treatment failure, where this PI is most widely used.

Treatment arm	2NRTI + DRV/r	2NRTI + LPV/r
Sample size	148	152
HIV RNA <50 copies/mL	143 (96.7%)	145 (95.4%)
Grade 1-4 adverse events	101 (68.2%)	108 (71.1%)
Grade 3-4 adverse events	7 (4.7%)	5 (3.3%)
Serious adverse events	5 (3.4%)	4 (2.6%)
Discontinuation for adverse events	3 (2.0%)	0 (0.0%)

[WRHI 052 trial - 48 week results (n=300)]



TUAD03 Lost in transition: Challenges in domestic financing for HIV and human rights

TUAD0308LB

To give birth and die: The needs of HIV-positive mothers for retention in longer-term HIV care and treatment in Russia

E. Shastina[1,2], J. Godunova[3], A. Yakovleva[4], E. King[5], I. Evdokimova[3], N. Sukhova[3], E. Titina[6], D. Legchilova[7]
[1]The Association 'E.V.A.', Orenburg, Russian Federation, [2]Autonomous Nonprofit Organization for Prevention of Socially Significant Diseases 'New life', Orenburg, Russian Federation, [3]The Association 'E.V.A.', St. Petersburg, Russian Federation, [4]Sociological Institute of Russian Academy of Sciences, St. Petersburg, Russian Federation, [5]University of Michigan School of Public Health, Ann Arbor, United States, [6]The Association 'E.V.A.', Samara, Russian Federation, [7]The Association 'E.V.A.', Khanty-Mansi Autonomous Ddistrict, Russian Federation

Background: The feminization of the HIV epidemic continues in Russia. PMTCT offers the opportunity to engage women in treatment but Option B+ is not commonly accepted. Little is known about HIV care and treatment retention among women after pregnancy. Our research objective was to identify factors influencing postpartum retention in treatment in Russia.

Methods: We conducted mixed-methods, community-based participatory research in 7 regions across Russia. In phase one, we conducted in-depth interviews with WLHIV and service providers in order to explore and identify factors related to HIV care and treatment among HIV-positive mothers. In phase two, we administered a survey to 200 HIV-positive mothers in order to identify the most salient factors and measure the strength of their association with postpartum treatment. We triangulated study results across sites and sources to draw conclusions. WLHIV played an active role in study design, data collection and interpretation of findings.

Results: 1. The majority of women don't connect ARV with their own health but rather with the goal of PMTCT. Health care providers frequently hold the idea that ARV use is solely to protect the future child and don't encourage women's longer-term use.

2. Psychosocial support is devastatingly low. Lack of counseling has adverse effects on HIV treatment retention. Only 27% received post-test counseling. 80% of women not receiving pre-test counseling during pregnancy reported skipping doses or stopping ARVs postpartum.

3. Every third woman experienced a change in dosage or treatment plan. Taking pills twice daily and side effects were especially difficult postpartum. 25% lacked provider support when experiencing harsh side effects.

4. Single mothers, mothers afraid to disclose their serostatus, and mothers married to AIDS denialists are especially vulnerable to stopping treatment.

5. The majority of women expressed grave financial need -lacking money for food or housing. Financial hardship was associated with poor ARV adherence.

Conclusions: Programs to support HIV-positive mothers are needed across Russia that incorporate education on the benefits of ARV, emphasize valuing one's own health, promote skills (nutrition, lifestyle, sobriety), strengthen social support, and focus on families. Structural issues need to be addressed: including, economic opportunities and availability of quality ARVs.

TUAA02 Strategies for cure: Pitfalls, possibilities and promise

TUAA0202LB

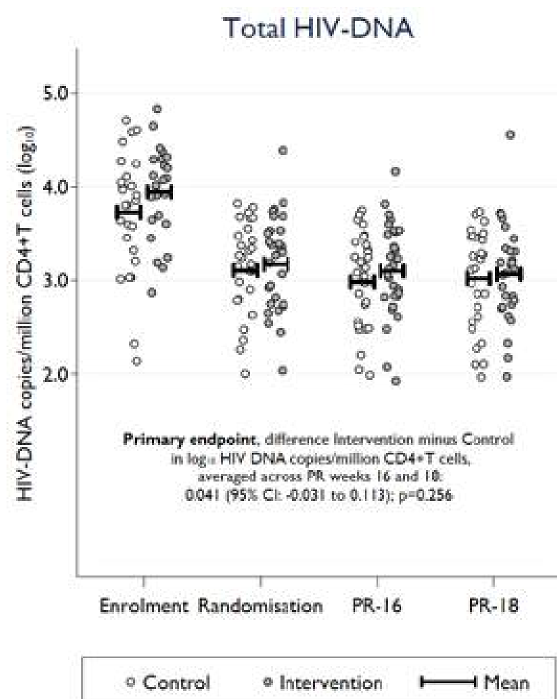
A randomised controlled trial comparing the impact of antiretroviral therapy (ART) with a 'Kick-and-Kill' approach to ART alone on HIV reservoirs in individuals with primary HIV infection (PHI); RIVER trial

S. Fidler[1], W. Stohr[2], M. Pace[3], L. Dorrell[3], A. Lever[4], S. Pett[2], S. Kinloch[5], J. Fox[6], A. Clarke[7], M. Nelson[8], M. Khan[9], A. Fun[4], D. Kelly[10], J. Kopycinski[3], M. Johnson[5], T. Hanke[3], H. Yang[3], B. Howell[11], S. Kaye[9], M. Wills[4], R. Barnard[11], A. Babiker[2], J. Frater[12],
On Behalf of the RIVER trial investigators
[1]Imperial College London, Medicine, London, United Kingdom, [2]University College London, MRC CTU, London, United Kingdom, [3]University of Oxford, NDM, Oxford, United Kingdom, [4]University of Cambridge, Cambridge, United Kingdom, [5]University College London, Royal Free Hospital, London, United Kingdom, [6]Kings College London, Guys & St Thomas Kings, London, United Kingdom, [7]Univeristy of Brighton, Medicine, Brighton, United Kingdom, [8]Chelsea & Westminster Hospital, Medicine, London, United Kingdom, [9]Imperial College London, London, United Kingdom, [10]Patient advocacy Alliance CIC, Manchester, United Kingdom, [11]Merck MSD, Pennsylvania, United States, [12]University of Oxford, Peter Medwar, Oxford, United Kingdom

Background: ART alone is unable to cure HIV because of an inaccessible pool of latently infected cells, the HIV reservoir. In the first randomised controlled trial (RCT) of a 'kick-and-kill' strategy, amongst participants with PHI on ART, we investigated the impact of HIV-specific T-cell vaccines and a latency reversing agent (vorinostat) on the HIV reservoir.

Methods: Individuals who started ART within 4 weeks of confirmed PHI diagnosis with suppressed plasma HIV-RNA were randomised to either ART plus vaccination with ChAdV63.HIVconsv prime < 1 week post-randomisation (PR) and MVA.HIVconsv boost (8 weeks later) followed by 10 doses of 400mg oral vorinostat taken every 3 days (intervention) or ART alone (control).

The two arms were compared for the primary outcome ($\log_{10}$ total HIV-DNA copies/million from CD4+ T-cells at weeks PR-16&18) using analysis of covariance adjusted for baseline level. Secondary endpoints included quantitative viral outgrowth measuring replication-competent HIV-1 reservoir at week PR-16, HIV-specific CD4+ and CD8+ T-cell responses by intracellular cytokine staining at weeks PR-9&12, histone acetylation pre&post vorinostat and adverse events.



[Figure of total HIV DNA by arm]

Results: 60 male participants were randomised at 6 UK sites (30 intervention, 30 control), with median: age 32 years, 26 weeks since ART start and CD4+ count 708 cells/mm³. All participants completed follow-up. There was no difference between the arms in the primary outcome (intervention versus control: 0.041 (95%CI -0.031, 0.113) log10 HIV-DNA copies/million CD4+ T-cells p=0.256), or in the proportion with undetectable viral outgrowth (0.42 (95% CI 0.13, 1.37) p=0.151) Participants with undetectable viral outgrowth had significantly lower total HIV-DNA. Participants in the intervention arm showed significantly higher HIV-specific CD4+ (IFNg/IL2/TNFa/CD154) and CD8+ (IFNg/TNFa) T-cell responses post vaccination than control. Histone acetylation increased 3.2-fold two hours post-vorinostat (p<0.001). There was no virological failure or intervention-related SAE. More clinical adverse events were reported in the intervention arm, all were mild/moderate.
Conclusions: In the first 'kick-and-kill' RCT in PHI, despite evidence of robust vaccine-induced HIV-specific T-cell immunity and vorinostat activity, there was no impact on measures of HIV reservoir compared to ART alone. Vaccination and vorinostat did not raise any safety concerns. Further analyses are ongoing to explore mechanisms to explain these findings.

TUAA0206LB

Evaluation of an antibody to Alpha4Beta7 in the control of SIV infection

M. Di Mascio[1], J.J. Lifson[2], S. Srinivasula[3], P. Degrange[4], B. Keele[2], Y. Wang[1], P. Lusso[1], M. Proschan[1], H.C. Lane[1], A.S. Fauci[1]
[1]National Institute of Allergy and Infectious Diseases, Bethesda, United States, [2]AIDS and Cancer Virus Program, Frederick National Laboratory for Cancer Research, Frederick, United States, [3]Leidos Biomedical Research, Inc, Frederick, United States, [4]Battelle/Charles River-Integrated Research Facility, NIAID Frederick, Frederick, United States

Background: It was recently reported that treatment with an antibody to the a4b7 integrin in rhesus macaques infected with SIVmac 239 having a stop codon in nef (SIVmac239nefstop) was associated with prolonged post-treatment suppression of viremia. The present study was undertaken to try to confirm and extend those observations.
Methods: Twenty-two Mamu-A001, Mamu-B008 and Mamu-B017 negative juvenile to adult Indian rhesus macaques (>4 kg or 3 yrs; mixed sex) were infected intravenously with 200 $TCID_{50}$ SIVmac239nefstop (courtesy F. Villinger). At 5 weeks post-infection (wpi), combination antiretroviral therapy (cART) was started with tenofovir, emtricitabine and L-870812. After 4 weeks of cART, animals received a total of 8 infusions every 3 weeks of primatized anti a4b7 antibody (n=12) or control antibody (n=10); cART was stopped at 18 wpi (after the fourth antibody infusion). Plasma SIV RNA levels had been monitored through at least 33 wpi at the time of abstract submission.
Results: Peak plasma SIV RNA levels averaged ~10^6 copies/ml in both groups. Sequencing confirmed the presence of the expected stop codon in nef in the challenge virus, with restoration to nef open by 5 wpi in all animals. Four weeks after cART initiation plasma SIV RNA levels were < 100 copies/ml in 10/12 experimental group animals and 10/10 controls. Three weeks following discontinuation of cART, plasma SIV RNA levels rose to above 100 copies/ml in 10/12 a4b7-treated animals and 8/10 controls. Fifteen weeks following cART interruption (33 wpi) mean plasma SIV RNA levels were ~ 10^4 copies/ml in both groups and not significantly different
Conclusions: In the present study, administration of an antibody to the a4b7 integrin in conjunction with short term cART was not associated with control of SIV replication following treatment cessation. Follow up studies to explore potential reasons for differences between the present findings and published results will focus on potential antidrug antibody responses and other possibilities.

TUAC02 It's raining men: Key statistics for engagement

TUAC0207LB

Integrated biological and behavioural surveillance (IBBS) survey among men who have sex with men in South Sudan

M. Solangon[1], K. Kriitmaa[2], S. Taher[1], V. Achut[3], A.J. Nyniyal[3], H.D. Awongo[4], G. Atillio[4], P. Moyo[5], P. Jasi[6]
[1]International Organization for Migration (IOM), Juba, South Sudan, [2]International Organization for Migration (IOM), Geneva, Switzerland, [3]Republic of South Sudan, Ministry of Health (MoH), Juba, South Sudan, [4]Republic of South Sudan, South Sudan HIV/AIDS Commission (SSAC), Juba, South Sudan, [5]Consultant, East London, South Africa, [6]International Organization for Migration (IOM), Dhaka, Bangladesh

Background: South Sudan has a 2.6% HIV prevalence rate and is regarded as low and generalized with pockets of high concentration among key populations (KPs). Female sex workers (FSW), their clients and men who have sex with men (MSM) account for 63% of new adult HIV infections. No research has been done to date on MSM risk behaviours, limiting development of evidence-based interventions. This first ever IBBS survey among MSM aimed at establishing HIV and syphilis prevalence and risk behaviours to better inform policy and programming.
Methods: The IBBS study was conducted in six sites in South Sudan. MSM is a criminalised behaviour in South Sudan, thus the study utilized non-probability sampling techniques including purposive and snowball sampling. Data collection methods used included electronic structured questionnaires, key informant interviews and focus group discussions. Respondents were tested for HIV and syphilis, using national testing algorithms.
Results: A total of 165 MSM participated in this survey. About 92% (n=152) were South Sudanese, and 87% (n=143) were under 28 years old. The HIV prevalence among MSM was 3.3% (N=152), higher than the 2.6% national average. The syphilis prevalence was also 3.3% (N=152). About 36% (n=59) of the MSM had a relationship with a female, which shows that sexual partners of MSM are not only same-sex but also heterosexual. About 26% (n=43) used condoms with non-regular partners every time and 12% (n=20) had a sexually transmitted infection (STI) during the past 12 months preceding the survey. Only 5% (n=8) had ever disclosed that they are MSM to health care workers, 22% (n=36) had avoided health services due to stigma and discrimination, while 26% (n=43) had access to HIV and AIDS programmes.
Conclusions: The preliminary results provide the first ever baseline data on the sexual behaviours, HIV and syphilis prevalence for MSM in South Sudan. Results show higher HIV prevalence than the national average, presence of high-risk sexual behaviours, limited access to tailored HIV and AIDS programmes and high levels of stigma and discrimination towards MSM. These findings illustrate the need to strengthen the country's policies and KP-focused interventions.

TUAC03 Diversities in delivery: PrEP from home to clinic

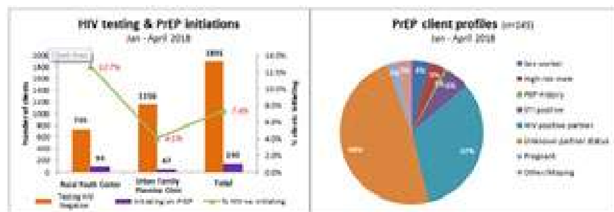
TUAC0307LB

Integrating oral HIV pre-exposure prophylaxis (PrEP) in a public family planning facility and youth center to inform national roll out in Zimbabwe

M.M. Gombe[1], Y. Mangwendeza[2], G. Ncube[3], N. Zwangobani[4], M. Prust[5], B. Cakouros[5], A. Svisva[2], A. Mangwiro[2], M. Murwira[4], A. Mkwamba[1], A. Erlwanger[2], 3DE CHAI
[1]Clinton Health Access Initiative, Demand Driven Evaluations for Decisions, Harare, Zimbabwe, [2]Clinton Health Access Initiative, Harare, Zimbabwe, [3]Ministry of Health and Child Care, HIV prevention, Harare, Zimbabwe, [4]Zimbabwe National Family Planning Council, Harare, Zimbabwe, [5]Clinton Health Access Initiative, Boston, United States

Background: There is limited information on the process of offering oral PrEP to the general at-risk population in resource-limited public sector settings globally. Programming has been limited to private sector demonstration projects targeting key populations. This study aims to provide operational guidance to the Zimbabwe Ministry of Health on national public sector integration of oral PrEP as part of combination HIV prevention.

Description: PrEP was piloted in an urban family planning clinic and a rural youth center, integrating it into existing HIV prevention and reproductive health services and activities. 150 HIV negative clients screened as being at high risk of HIV infection were offered PrEP between January and April 2018, primarily through provider initiative. Demand generation included group client education and in-facility posters and pamphlets; community leader sensitization was also conducted at the rural center. Semi-structured interviews on PrEP experiences were conducted with five healthcare workers (HCWs) and 37 clients who agreed to be followed up (7 decliners and 30 accepters).



[Graph showing percentage uptake of PrEP and risk status of clients]

Lessons learned: PrEP risk assessment can be integrated into existing routine family planning and HIV testing and counselling services. Differences in facility enrollment data and interviews with study participants indicate that HCW knowledge and attitudes, and client awareness, affect whether PrEP is offered and/or accepted. PrEP uptake is driven by partner's risky behaviour or positive HIV status; this did not vary by population group. Female uptake, retention and adherence is largely determined by family or partner support. Male PrEP clients were primarily in polygamous marriages where one wife is HIV positive. Male decliners prefer condoms. Females in sero-discordant marriages report decreased condom use after PrEP initiation. This is driven by their male HIV positive partners.

Conclusions/Next steps: PrEP demand generation strategies should address HCW knowledge and client awareness. National clinical training tools for HCWs should emphasize client education and counselling on PrEP as part of combination of HIV prevention options. The national HIV Communication Strategy should focus on increasing general awareness of how PrEP works in order to increase uptake and reduce stigma associated with use. Adjustments to national PrEP target-setting will be informed by study findings on PrEP uptake among those testing HIV negative.

TUAX01 AIDS 2018 Co-chairs' choice

WEAX0101LB

Engagement in methadone maintenance therapy associated with less time with plasma HIV-1 RNA viral load above 1500 copies/mL among a cohort of HIV-positive people who use drugs in Vancouver, Canada

B. Barker[1,2], C. Fairgrieve[1], K. Ahamad[1,3,4], T. Kerr[1,5], J. Shoveller[6], J. Montaner[5,7], E. Wood[1,5], M.-J. Milloy[1,5]
[1]BC Centre on Substance Use, Vancouver, Canada, [2]University of British Columbia, Interdisciplinary Studies Graduate Program, Vancouver, Canada, [3]Providence Health Care, Department of Family and Community Medicine, Vancouver, Canada, [4]University of British Columbia, Department of Family Medicine, Vancouver, Canada, [5]University of British Columbia, Department of Medicine, Division of AIDS, Vancouver, Canada, [6]University of British Columbia, School of Population and Public Health, Vancouver, Canada, [7]BC Centre for Excellence in HIV/AIDS, Vancouver, Canada

Background: It is well established that elevated plasma HIV-1 RNA viral load (VL) drives the risk of onward viral transmission. Despite being a key population living with HIV, people who inject drugs continue to experience individual, social and structural barriers in accessing and being retained in HIV treatment and care. In the present study, we sought to longitudinally examine the relationship between engagement in a low-threshold methadone maintenance therapy (MMT) program and amount of person-time with heightened HIV transmission risk (i.e., VL >1500 copies/mL plasma) among HIV-positive people who use drugs (PWUD).

Methods: Data were derived from the AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS), a community-recruited prospective cohort of HIV-positive PWUD in Vancouver, Canada. Longitudinal cohort data was confidentially linked to comprehensive HIV clinical monitoring records in a setting of universal no-cost HIV treatment and care. We used generalized estimating equation analyses to assess the impact of engagement in low-barrier MMT on the number of days with an HIV-1 RNA VL above 1500 c/mL in the previous 180 days.

Results: Between 5 December 2005 and 29 November 2017, 867 HIV-seropositive antiretroviral therapy-exposed PWUD were recruited and contributed 4531 person-years of observation time. Among these, 522 (60.2%) were engaged in MMT at least once during follow-up. In a multivariable model, periods of MMT were independently associated with fewer days with a VL above 1500 c/mL (Adjusted Rate Ratio=0.70, 95% Confidence Interval: 0.60-0.81), after controlling for demographics, drug use patterns, and CD4 count.

Conclusions: We observed that engagement in MMT was associated with significantly less person-time with a VL above 1500 copies/mL among a large and long running cohort of PWUD. These findings suggest that low-threshold MMT is an effective intervention in lowering the risk of onward viral transmission among this key population. Further, these findings demonstrate the important role of evidence-based addiction treatment in optimizing individual and community-level impacts of antiretroviral therapy among HIV positive patients with comorbid opioid dependence. Efforts to address barriers to the use and availability of MMT will likely improve HIV outcomes and reduce new infections among this population and should therefore be prioritized.

	Unadjusted Rate Ratio		Adjusted Rate Ratio	
Characteristic	RR (95% CI)	p-value	ARR (95% CI)	p-value
MMT	0.81 (0.69 – 0.96)	0.013	0.70 (0.60 – 0.81)	<0.001
Age (per year older)	0.96 (0.95 – 0.96)	<0.001	0.96 (0.95 – 0.97)	<0.001
Male sex	0.65 (0.54 – 0.77)	<0.001	0.75 (0.64 – 0.88)	0.001
Caucasian ethnicity	0.80 (0.67 – 0.95)	0.014		
Employed	0.76 (0.66 – 0.92)	0.003		
≥High school diploma	1.03 (0.86 – 1.23)	0.769		
Unstable housing	1.24 (1.06 – 1.44)	0.007		
Resides in DTES	1.33 (1.14 – 1.55)	<0.001	1.13 (0.98 – 1.30)	0.089
Daily cocaine use	1.27 (1.02 – 1.59)	0.034		
Daily crack-cocaine use	1.84 (1.60 – 2.12)	<0.001	1.34 (1.16 – 1.55)	<0.001
CD4 cells/mL (per 100 cells)	0.71 (0.68 – 0.75)	<0.001	0.73 (0.70 – 0.76)	<0.001
≥95% ART adherence	0.17 (0.15 – 0.19)	<0.001		

[illegible]

[Table 1. Generalized estimating equation analyses of factors associated with person-time exceeding an HIV-1 RNA viral load above 1500 copies/mL plasma among 867 antiretroviral therapy-exposed PWUD in Vancouver, Canada (2005 - 2007)]

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WEAX0102LB

Universal test and treat (UTT) versus standard of care for access to antiretroviral therapy in HIV clients: The MaxART stepped-wedge randomized controlled health systems trial in Swaziland

S. Khan[1], D. Spiegelman[2], F. Walsh[3], S. Mazibuko[4], M. Pasi[4], B. Chai[2], R. Reis[5,6,7], K. Mlambo[1], W. Delva[8,9,10], G. Khumalo[11], M. Zwane[12], Y. Fleming[13], E. Mafara[1], A. Hettema[1], C. Lejeune[1], T. Bärnighausen[2,14], V. Okello[4]

[1]Clinton Health Access Initiative (CHAI), Mbabane, Swaziland, [2]Harvard T.H. Chan School of Public Health, Boston, United States, [3]Clinton Health Access Initiative (CHAI), Boston, United States, [4]Ministry of Health, Mbabane, Swaziland, [5]Leiden University, Leiden University Medical Center, Leiden, Netherlands, [6]University of Amsterdam, Amsterdam Institute for Social Science, Amsterdam, Netherlands, [7]University of Cape Town, Children's Institute, Cape Town, South Africa, [8]Stellenbosch University, The South African Department of Science and Technology - National Research Foundation (DST-NRF) Centre of Excellence in Epidemiological Modelling and Analysis (SACEMA), Stellenbosch, South Africa, [9]Hasselt University, Center for Statistics, Diepenbeek, Belgium, [10]Ghent University, Ghent, Belgium, [11]Swaziland National Network of People Living with HIV/AIDS (SWANNEPHA), Mbabane, Swaziland, [12]SAfAIDS, Mbabane, Swaziland, [13]aidsfonds, Amsterdam, Netherlands, [14]Heidelberg Institute of Public Health, University of Heidelberg, Heidelberg, Germany

Background: The World Health Organization recommends offering antiretroviral treatment (ART) to all HIV-positive individuals regardless of CD4 count or disease stage, known as "universal test and treat" (UTT). However, the health systems effects of UTT implementation are unknown. We investigated the effect of UTT on retention and viral suppression in the world's first UTT implementation trial in a government-managed health system.

Methods: In this stepped-wedge randomized controlled trial, fourteen public sector health facilities in Swaziland were paired and randomly assigned to transition in four-month steps from implementing the current national standard of care (SoC) to providing ART under UTT. ART-naïve clients ≥ 18 years who were not pregnant or breastfeeding were eligible for enrollment. We used Cox proportional hazard models with censoring of follow-up at clinic transition to measure the effects of UTT on our two primary endpoints: retention and viral suppression after ART initiation. The trial is registered with clinicaltrials.gov (NCT02909218).

Results: Between September 2014 and August 2017, 3405 clients (62% women, median age 33 years (IQR:28-42)) were enrolled. Under SoC, 12-month retention and post ART initiation viral load suppression rates were 80% (95% CI): 77-83) and 4% (95% CI: 2-7), respectively, compared to 86% (95% CI: 83-88) and 79% (95% CI: 75-83) under UTT. 75% of clients were missing viral load at the 6-month time window following ART initiation; they were considered unsuppressed. Compared to SoC, UTT had a modest effect on retention (hazard ratio (HR) 1.60, 95% CI 1.15-2.21) and a large effect on viral suppression among those retained 6 months after ART initiation (HR: 14.51, 95% CI: 7.31-28.79) (Table 1). The UTT effect on the combined endpoint of retention and viral suppression was also substantial (HR 4.88, 95% CI 2.96-8.05).

Conclusions: Adopting UTT improves the performance of the health system in providing ART to people living with HIV. The observed improvement in retention and viral suppression, key indicators of ART success, provides an important co-benefit of UTT. Our results from this "real world" health systems trial strongly support the scale-up of UTT in Swaziland and countries with similar HIV epidemics and health systems.

Endpoint	Crude HR (95%CI)	p-value	Adjusted HR (95%CI)	p-value
Retention	1.60 (1.15-2.21)	0.005	1.94 (1.33-2.82)	0.0006
Viral suppression	14.51 (7.31-28.79)	<0.0001	22.08 (7.91-61.59)	<0.0001
Combined endpoint (retention and viral suppression)	4.88 (2.96-8.05)	<0.0001	6.90 (3.11-15.31)	<0.0001

[Primary endpoints for MaxART universal test and treat health systems trial]

WEAX0103LB

Men's HIV risk profiles in South African DREAMS sites: Using latent class analysis for more strategic, context-specific programming and evaluation

A. Gottert[1], C.J. Heck[2], S. Mathur[1], J. Pulerwitz[3]

[1]Population Council, HIV and AIDS Program, DREAMS IS, Washington, DC, United States, [2]Population Council, Poverty, Gender, and Youth Program, New York, United States, [3]Population Council, HIV and AIDS Program, Washington, DC, United States

Background: There is a critical need to reach high-risk men with HIV prevention, care, and treatment services. Latent class analysis (LCA) can generate context-specific profiles based on demographic, attitudinal, and behavioral indicators—which can then be used to refine program targets and assess service uptake.

Methods: From May to September 2017, we conducted surveys with 962 men ages 20-40 in informal settlements in Durban, South Africa where the DREAMS Partnership is being implemented. Using LCA, we identified classes based on sociodemographics, normative gender attitudes, and HIV risk behaviors. We then assessed associations between class membership and HIV service use.

INDICATORS	Younger moderate risk (35.8% of sample)	Younger high risk (24.7% of sample)	Older low risk (19.5% of sample)	Older high risk (20.1% of sample)	Full sample
Sociodemographic					
Age (mean)	22.5 years	27.2 years	29.5 years	35.9 years	27.7 years
Married/cohabiting	3.9%	7.5%	26.0%	35.7%	15.5%
Educ. (last compl.)					
Some second or less	16.5%	20.0%	24.9%	35.3%	22.8%
Secondary	51.3%	66.3%	60.1%	47.6%	56.0%
Tech college/Univ	32.2%	13.6%	15.0%	17.1%	21.2%
Occupation					
Unemployed	73.6%	21.4%	21.0%	15.5%	38.9%
Taxi/bus driver	11.4%	35.6%	31.3%	30.4%	25.0%
Fact./constr. worker	2.4%	12.3%	7.3%	11.2%	7.5%
Informal labor	1.3%	4.9%	10.9%	7.7%	5.3%
Service industry	3.5%	5.7%	10.4%	11.1%	6.9%
Sm. bus./entrep.	1.8%	9.2%	2.4%	8.2%	5.0%
Other occupation	6.1%	11.0%	16.7%	15.8%	11.3%
Normative gender attitudes					
Inequitable views toward gender norms[a]	25.3%	38.4%	6.9%	26.0%	51.8%
HIV risk behaviors					
# sexual partners in last yr					
0-1	27.8%	4.8%	57.7%	33.1%	29.0%
2-4	49.3%	53.3%	35.6%	47.2%	47.2%
5+	22.9%	41.9%	6.6%	19.7%	23.8%
Age diff w/ last 3 partners(mean)[b]					
Transactional relationships[c]	1.0 years	3.6 years	3.2 years	7.4 years	3.6 years
None	49.4%	6.8%	78.3%	48.6%	44.4%
Low-end	44.6%	75.9%	11.9%	31.7%	43.4%
High-end	6.0%	17.3%	9.8%	19.6%	12.3%
Hazardous drinking[d]	41.0%	72.0%	39.9%	58.5%	51.8%
HIV SERVICE UPTAKE, by latent class membership	**Younger moderate risk**	**Younger high risk**	**Older low risk**	**Older high risk**	**Overall p-value**[f]
Tested for HIV in last 12 months	74.7%	69.6%	67.4%	70.2%	>0.05
Received VMMC in last 5 years	42.6% (ref)	18.8%***	13.1%***	8.6%***	<0.001
HIV treatment literacy score (range 0-5)[e]	3.57	3.36**	3.70 (ref)	3.57	<0.01
Currently taking antiretroviral therapy (n=84)	90.1%	89.5%	94.7%	90.6%	>0.05

Fit statistics for this LCA model: AIC=22,122; BIC=22,478
[a]Measured by a 19-item Gender Equitable Men's (GEM) Scale (Cronbach's alpha=0.87), with binary cut-point at midpoint of range
[b]Mean number of years up to last three partners were younger than respondent
[c]Low-end transactional relationships include providing various low-cost goods or services like cash, food, or transportation mainly to start or stay in a relationship; high-end transactional relationships include paying for things like housing, debt or school fees mainly to start or stay in a relationship
[d]Assessed by AUDIT-C measure
[e]Composite score of 5 items assessing correct knowledge about the attributes and benefits of HIV treatment
[f] p-value represents overall statistical significance of difference between groups, based on Pearson's chi-square test
*p<0.05, **p<0.01, ***p<0.001; significance of pairwise comparisons with the reference category (ref)

[HIV risk profiles among men (n=962)]

Results: We identified four latent classes (Table 1), with good model fit statistics. The **younger moderate-risk class** (36% of the sample; mean age 23) were largely unmarried, recent technical college/university graduates, unemployed, and moderately gender-inequitable. They had high numbers of same-age partners, low-end transactional relationships, and some hazardous drinking. The **younger high-risk class** (25%; mean age 27) were unmarried, employed secondary graduates with the highest number of partners and the most inequitable gender views,

hazardous drinking, and low-end transactional relationships. The **older low-risk class** (20%; mean age 30) were largely married/cohabiting, employed secondary graduates and were the most gender-equitable, with few partners, limited transactional sex and relatively low hazardous drinking. Finally, the **older high-risk class** (20%; mean age 36) were largely married/cohabiting, employed secondary graduates, and moderately gender-inequitable. They had highly age-disparate partners and substantial high-end transactional relationships and hazardous drinking. High-risk men tended to be taxi drivers, factory/construction workers, or small business owners/entrepreneurs. Uptake of voluntary medical male circumcision was much higher among the younger moderate-risk class than the others (all p< 0.001). The older low-risk class had higher HIV treatment literacy than the younger high-risk class (p< 0.01). HIV testing and current use of antiretroviral therapy did not differ across the classes.

Conclusions: We identified distinct HIV risk profiles among men in Durban. Interventions should focus on reaching the highest-risk profiles who, despite their elevated risk, were less likely or no more likely than the lower-risk to use HIV services. LCA has the potential to enable more strategic, data-driven programming and evaluation.

WEAX0104LB

Risk of HIV transmission through condomless sex in MSM couples with suppressive ART: The PARTNER2 Study extended results in gay men

A. Rodger[1], V. Cambiano[1], T. Bruun[2], P. Vernazza[3], S. Collins[4], G.M. Corbelli[5], O. Degen[6], V. Estrada[7], A.M. Geretti[8], A. Beloukas[8], A.N. Phillips[1], J. Lundgren[2], for the PARTNER Study Group

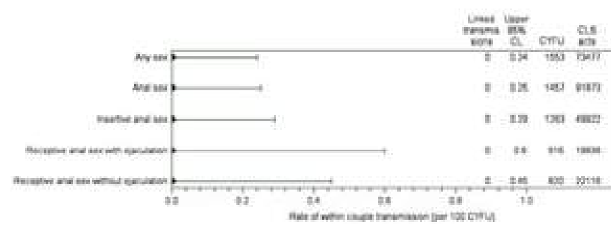
[1]University College London, London, United Kingdom, [2]University of Copenhagen, Copenhagen, Denmark, [3]Cantonal Hospital, St. Gallen, Switzerland, [4]HIV i-Base, London, United Kingdom, [5]European AIDS Treatment Group, Bruxelles, Belgium, [6]University Medical Center, Hamburg, Germany, [7]Hospital Clinico San Carlos & Universidad Complutense, Madrid, Spain, [8]University of Liverpool, Liverpool, United Kingdom

Background: Although zero cases of HIV transmission in gay men have been reported in observational studies (PARTNER1 and Opposites Attract) of serodifferent couples where the positive person was on suppressive ART, the level of evidence for gay men remained less than for heterosexual couples. The aim of PARTNER2 was to provide more precise estimates of transmission risk through condomless-sex in serodifferent gay male couples where the HIV-positive partner was on suppressive ART.

Methods: The PARTNER Study was a prospective observational study in 14 European countries. Phase 1 (Sep 2010-May 2014) recruited both heterosexual and gay male couples, and Phase 2 (to April 2018) recruited and followed gay couples only. Study data, collected at baseline and every 6 -12 months, included sexual behaviour questionnaires with HIV testing (HIV-negative partner) and HIV-1 viral-load (HIV-positive partner). Eligibility criteria for CYFU inclusion were condomless sex, no reported PEP or PrEP use, and most recent plasma HIV-1 RNA load < 200 copies/mL in the last year. If a seroconversion occurred, anonymised phylogenetic analysis compared HIV-1 polymerase and envelope sequences in both partners to identify linked transmissions.

Results: Between Sep 2010 and July 2017, 972 gay couples were enrolled. Of these, 779 couples provided 1561 eligible CYFU over a median of 1.6 years [IQR 0.8-2.8]. At baseline, mean age was 40 years [IQR 33-46] and couples reported condomless-sex for a median of 1.0 years (IQR 0.4-2.9). During eligible CYFU, a total of 74,567 condomless-sex acts were reported, a median of 42 times per couple year (IQR 19-74). Condomless-sex with other than the main partner was reported by 285 HIV-negative men (37%). There were 17 new HIV infections, but none were phylogenetically linked transmissions, giving a precise rate of within-couple HIV transmission of zero, with a narrow upper 95% confidence limit of 0.24/100 CYFU. This upper-limit for condomless anal sex with ejaculation was 0.59/100 CYFU.

Conclusions: Despite almost 75,000 condomless-sex acts in gay serodifferent couples where the positive partner was on suppressive ART, we found zero cases of within couple HIV transmission. PARTNER2 provides a similar level of confidence for gay men as for heterosexual couples in PARTNER1.



[Figure 1: Rate of HIV Transmission According to Sexual Behavior Reported by the HIV-Negative Partner]

WEAX0105LB

Impact of prevention and treatment interventions on population HIV incidence: Primary results of the community-randomized Ya Tsie Botswana prevention project

M.J. Makhema[1], K. Wirth[2], M. Pretorius Holme[2], T. Gaolathe[1], M. Mmalane[1], E. Kadima[1], U. Chakalisa[1], K. Manyake[1], A. Mbikiwa[1], S. Simon[1], R. Letlhogile[1], K. Mukokomani[1], E. van Widenfelt[1], S. Moyo[1], K. Bennett[3], J. Leidner[4], R. Lebelonyane[5], M.G. Alwano[6], K. Powis[1,2,7], S. Dryden-Peterson[1,2,8], C. Kgathi[1], V. Novitsky[2], J. Moore[9], P. Bachanas[9], W. Abrams[6], L. Block[9], S. El-Halabi[5], T. Marukutira[6], L.A. Mills[6], H. Bussmann[1], L. Okui[1], O. John[1], R. Shapiro[2], V. DeGruttola[2], Q. Lei[2], R. Wang[2], E. Tchetgen Tchetgen[2,10], M. Essex[1,2], S. Lockman[1,2,8]

[1]Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana, [2]Harvard T.H. Chan School of Public Health, Boston, United States, [3]Bennett Statistical Consulting, Inc., Ballston Lake, United States, [4]Goodtables Data Consulting, LLC, Norman, United States, [5]Botswana Ministry of Health, Gaborone, Botswana, [6]Centers for Disease Control and Prevention, Gaborone, Botswana, [7]Massachusetts General Hospital, Boston, United States, [8]Brigham and Women's Hospital, Boston, United States, [9]U.S. Centers for Disease Control and Prevention, Atlanta, United States, [10]The Wharton School, University of Pennsylvania, Philadelphia, United States

Background: Antiretroviral therapy(ART) markedly reduces incidence in known HIV-discordant relationships. However, the impact of expanded access to HIV testing/counseling(HTC), ART, and male circumcision(MC) on community HIV incidence is unknown, particularly in settings with both high HIV prevalence and high baseline ART coverage such as Botswana.

Methods: The Ya Tsie Botswana Prevention Project was a pair-matched community-randomized trial that evaluated the impact of prevention interventions on HIV incidence in 30 rural/semi-urban communities throughout Botswana, from 2013-2018.

Fifteen communities were randomized to receive community-wide HTC, linkage-to-care, earlier ART initiation, and enhanced MC services, and 15 communities received standard of care. Universal ART became standard of care in both arms mid-2016.

A random sample of ~20% of households in each community was selected, and HIV-uninfected 16-64 year-old residents of these households enrolled in a longitudinal HIV incidence cohort (HIC) that underwent ~annual HTC. We compared HIV incidence by randomized arm over ~30 months. The pre-specified primary analysis used a permutation test of inverse variance weighted average of log- transformed incidence ratios from pair-specific, interval-censored Cox proportional hazards models (PHM); 95% CIs were obtained using standard pair-stratified Cox PHM for interval censored data. P-values are two-sided.

Results: Among 12,610 participants, at baseline 29% were HIV-infected, 72% of whom were already on ART (97% of individuals on ART had HIV-1 RNA< 400copies/mL). We enrolled 8,974 HIV-uninfected individuals in the HIC (4,487/arm), with median age 29 years (60% female).

The median duration of follow-up was 29 months, and 95% of participants in each arm re-tested for HIV at ≥1 follow-up visit. 57 HIC participants in the intervention arm (annualized HIV incidence: 0.59%) and 90 in the control arm (annualized HIV incidence: 0.92%) acquired HIV.

The HIV incidence ratio was 0.69 (*P*=0.09) in intervention vs. standard-of-care communities in the primary weighted-average Cox PHM. The pair-stratified Cox PHM produced 95%CI of 0.46-0.90 (incidence ratio=0.65, *P*=0.01).

Conclusions: We observed a 30% reduction in community HIV incidence with expanded HTC, linkage, ART, and MC campaigns. Importantly, our findings demonstrate that it is possible to reduce HIV incidence in high-HIV-prevalence settings that have already approached the ambitious UNAIDS 90-90-90 targets, by further increasing coverage.

Figure 1.A. Estimated survival curve (95% confidence interval, CI) for time to HIV seroconversion according to randomization arm.

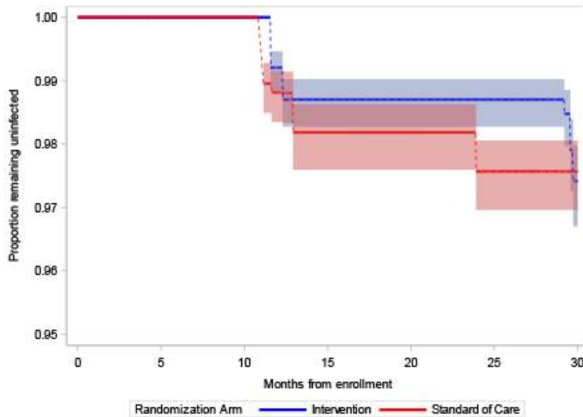
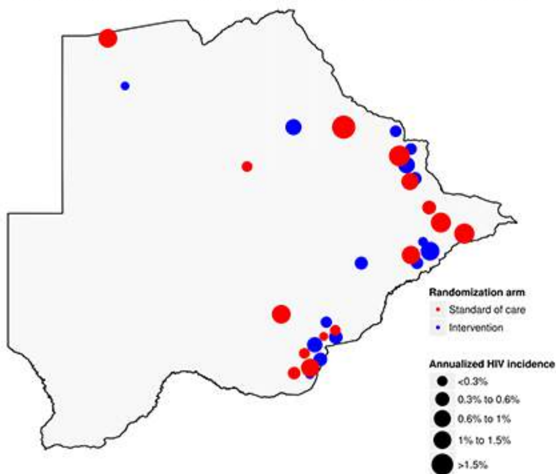


Figure 1.B. Map of annualized HIV incidence among communities randomized to intervention (blue circles) and standard of care (red circles).



[Figure 1A-B]

WEAX0106LB

SEARCH community cluster randomized study of HIV "test and treat" using multi- disease approach and streamlined care in rural Uganda and Kenya

D. Havlir[1], E. Charlebois[1], L. Balzer[2], T. Clark[1], D. Kwarisiima[3], J. Ayieko[4], J. Kabami[3], N. Sang[4], T. Liegler[1], G. Chamie[1], C. Camlin[1], K. Kadede[4], A. Mucunguzi[3], V. Jain[1], T. Ruel[1], S. Shade[1], E. Ssemondo[3], D. Byonanebye[3], F. Mwangwa[3], A. Owaraganise[3], W. Olilo[4], D. Black[1], K. Snyman[1], R. Burger[1], M. Getahun[1], J. Achando[4], B. Awuonda[4], H. Nakato[3], J. Kironde[3], H. Thirumurthy[5], C. Koss[1], L. Brown[1], C. Marquez[1], J. Schwab[6], G. Lavoy[3], A. Plenty[1], E. Mugoma Wafula[4], P.- Omanya[4], J. Rooney[7], M. Bacon[8], M. van der Laan[6], C. Cohen[1], E. Bukusi[4], M. Petersen[6], M. Kamya[3], SEARCH Collaboration
[1]University of California, San Francisco, Department of Medicine, San Francisco, United States, [2]University of Massachusetts, Amherst, Amherst, United States, [3]Infectious Diseases Research Collaboration, Kampala, Uganda, [4]Kenya Medical Research Institute, Nairobi, Kenya, [5]University of Pennsylvania, Philadelphia, United States, [6]University of California, Berkeley, Berkeley, United States, [7]Gilead Sciences, Foster City, United States, [8]National Institutes of Health, Bethesda, United States

Background: SEARCH (NCT:01864683) is a community-cluster randomized study in rural Uganda and Kenya evaluating whether a multi-disease, streamlined-care approach to HIV "test and treat" reduces HIV incidence and improves community health, compared to a national guideline approach augmented with baseline HIV and NCD (hypertension and diabetes) testing.

Methods: We randomized (2013-2014) 32 pair-matched communities in 3 regions (Uganda- West, Uganda-East, Kenya) to an active control with baseline HIV/NCD testing and ART/NCD care by national guidelines or an intervention with additional annual population HIV/NCD testing, rapid-start ART for all HIV+, and patient-centered, streamlined ART/NCD care. In all communities, population-level testing was delivered through multi-disease health fairs; non- participants were tested at home/in community. In the control arm, ART eligibility expanded during the study from CD4+< 350 to CD4+< 500 to all HIV+. Three-year HIV cumulative incidence, HIV viral suppression, mortality, HIV-TB, and hypertension control were compared between arms using targeted maximum likelihood estimation.

Results: At baseline, 335,005 persons (150,395 adults ≥15 years) were enrolled; 90.1% of adults were HIV-tested. HIV prevalence was 6.6%, 3.5%, and 19.3%, and HIV viral suppression was 47.5%, 43.0%, and 52.8% in Uganda-West, Uganda-East, and Kenya, respectively. Population-level viral suppression increased to 73.0% by year 1 in the intervention arm; at year 3, suppression was higher in intervention (79.7%) vs. control (68.4%) (RR:1.17; 95%CI:1.11,1.22; P< 0.001). At year 3, the intervention arm had 21% lower mortality among HIV+ (RR:0.79; 95%CI:0.65,0.96; P=0.02), 59% lower annual TB incidence among HIV+ (RR:0.41; 95%CI:0.19,0.86; P=0.02), and 16% less uncontrolled hypertension (RR:0.84; 95%CI:0.79,0.90; p< 0.001) compared to control. Annual HIV incidence in the intervention arm decreased from year 1 to year 3 by 30% (RR:0.70; 95%CI:0.57,0.86; P< 0.001); incidence decreased by 45% in Kenya (RR:0.55; 95%CI:0.40,0.76; P< 0.001). Three-year cumulative HIV incidence did not differ between intervention (0.77%) and control (0.81%) (RR:0.95; 95%CI:0.77,1.17; P=0.60).

Conclusions: A multi-disease disease approach using streamlined care rapidly achieved UNAIDS 90-90-90 targets, improving community health (HIV mortality, HIV-TB, hypertension control). Annual HIV incidence decreased by 30% during the study; however, three-year cumulative HIV incidence did not differ between arms.
Continued investment and innovation in HIV treatment and prevention are needed for HIV elimination.

WEAA01 Poking, prodding and purging the final reservoir frontier

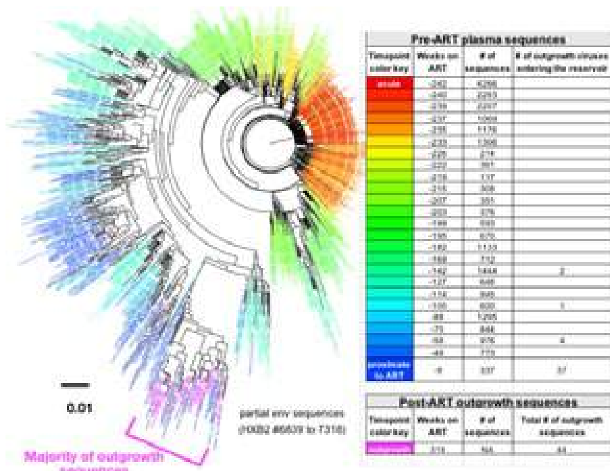
WEAA0108LB

The majority of the replication-competent virus in the latent reservoir originates from viruses circulating near the time of ART initiation

S.B. Joseph[1], M.-R. Abrahams[2], N. Garrett[3], S. Zhou[4], M. Moeser[4], W. Burgers[2], L. Tyers[2], D. Matten[5], C. Anthony[2], O. Council[1], N. Archin[6,7], D.M. Margolis[6,7], S. Abdool Karim[3,8], R. Swanstrom[4,9], C. Williamson[2,3]
[1]University of North Carolina at Chapel Hill, Department of Microbiology and Immunology, Chapel Hill, United States, [2]University of Cape Town Faculty of Health Sciences, Division of Medical Virology, Institute of Infectious Disease and Molecular Medicine, Cape Town, South Africa, [3]Centre for the AIDS Programme of Research in South Africa (CAPRISA), Durban, South Africa, [4]University of North Carolina at Chapel Hill, UNC Center for AIDS Research, Chapel Hill, United States, [5]University of Cape Town Faculty of Health Sciences, Division of Medical Virology, institute of Infectious Disease and Molecular Medicine, Cape Town, South Africa, [6]University of North Carolina at Chapel Hill, Division of Infectious Diseases, School of Medicine, Chapel Hill, United States, [7]University of North Carolina at Chapel Hill, UNC HIV Cure Center, Chapel Hill, United States, [8]Columbia University, Department of Epidemiology, New York City, United States, [9]University of North Carolina at Chapel Hill, Department of Biochemistry and Biophysics, Chapel Hill, United States

Background: HIV-1 persists during suppressive therapy in latently infected cells. These cells have been observed in all HIV-infected people even if treated very early, but little is known about when viruses enter the latent reservoir. Such knowledge would inform our understanding of the dynamics of this reservoir.

Methods: Plasma samples were collected longitudinally from 9 HIV-infected, ART-naive women enrolled in the CAPRISA 002 acute infection cohort who initiated therapy when CD4+ T cell count dropped below 500 cells/µl (mean = 4.5 yr p.i.). After prolonged ART (mean= 5.1 yr), resting CD4+ T cells were isolated from blood and cultured in a quantitative viral outgrowth assay (QVOA) to sample virus in the latent reservoir. vRNA from plasma collected longitudinally pre-ART was analyzed by MiSeq deep sequencing across the genome, and PacBio was used to analyze vRNA from p24+ QVOA outgrowth wells to generate near full-length sequences. Phylogenetic analyses were performed to compare these two types of sequences.



[Representative example of the phylogenetic relationship between pre-ART plasma sequences and sequences from the replication-competent reservoir]

Results: Of the genetically unique outgrowth viruses sampled from each participant, 60 to 100% were related most closely to virus circulating in the year prior to ART initiation, and 0 to 22% to virus circulating during the first two years of infection.

This suggests that the start of therapy is associated with the formation of the majority of the persistent reservoir. In sampling 6-44 outgrowth viruses per person, between 0 and 50% of these viruses were genetically identical indicating they were derived from clonally expanded cells, with half arising well before ART initiation and the other half proximal to the start of ART.

Conclusions: We used virus evolution off therapy as a molecular clock to date formation of the latent reservoir. Unexpectedly, the majority of the viruses that we detected entered the reservoir near the time of therapy. Our results support several models including ones in which ART-induced changes to the host immune environment promote latency in HIV-infected cells and/or increase the half-life of latently infected cells. These findings provide unique insights into the formation of the latent reservoir and suggest that interventions at the time of ART initiation may significantly reduce the size of the latent reservoir.

WEAE04 PrEP: Work in progress

WEAE0406LB

Incidence of HIV-infection in the ANRS Prevenir study in Paris region with daily or on-demand PrEP with TDF/FTC

J.-M. Molina[1], J. Ghosn[2], L. Béniguel[3], D. Rojas-Castro[4], M. Algarte-Genin[3], G. Pialoux[5], C. Delaugerre[1], Y. Yazdanpanah[6], C. Katlama[7], C. Ségouin[8], S. Morel[9], C. Pintado[10], B. Loze[10], S. Le Mestre[11], S. Gibowski[11], V. Doré[11], L. Assoumou[3], B. Spire[12], D. Costagliola[3], Prevenir ANRS study group
[1]University of Paris Diderot, Sorbonne Paris Cité, Saint-Louis Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, [2]Paris Descartes University, Sorbonne-Paris-Cité, Hotel-Dieu Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, [3]INSERM, Sorbonne Université, Institut Pierre Louis d'Épidémiologie et de Santé Publique (IPLESP), Paris, France, [4]Coalition PLUS, Pantin, France, [5]Sorbonne Université, Tenon Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, [6]INSERM, University of Paris Diderot, Sorbonne Paris Cité, IAME (Infection, Antimicrobials, Modelling, Evolution), Bichat Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, [7]INSERM, Sorbonne Université, Institut Pierre Louis d'Épidémiologie et de Santé Publique (IPLESP), Pitié-Salpétrière Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, [8]Lariboisière Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, [9]AIDES, Pantin, France, [10]Saint-Louis Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, [11]ANRS, France Recherche Nord & Sud Sida-hiv Hépatites, Agence autonome de l'INSERM, Paris, France, [12]Aix Marseille Univ, INSERM, IRD, SESSTIM, Sciences Economiques and Sociales de la Santé and Traitement de l'Information Médicale, ORS PACA, Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur, Marseille, France

Background: On-demand PrEP with TDF/FTC has been recommended as an alternative to Daily PrEP for MSM by the European AIDS Clinical Society following the results of clinical studies but data are limited on real-world experience.

Methods: The ANRS Prevenir study is an ongoing prospective cohort study in the Paris region enrolling high risk individuals willing to/or using PrEP. Both daily and On-demand PrEP were offered to eligible individuals. At baseline, month 1 and every 3 months thereafter subjects were tested for HIV using a 4th generation combined ELISA test and other STIs and creatinine plasma levels were monitored. At each visit participants provided information regarding sexual behaviour and adherence using computer assisted self-interviews. Analysis of HIV incidence was assessed to provide additional data on the efficacy and safety of the two PrEP dosing regimens.

Results: From May 3rd 2017 to May 1st 2018, 1435 subjects were enrolled across 22 sites, 59% being PrEP experienced for a median of 10 months. Median age was 37 years (IQR: 30-44), 98.7% were MSM. At enrolment, PrEP was used Daily in 44% and On-demand in 53% of participants. Median number of partners in the 3 months before enrolment was 15 (IQR: 7-25) in the Daily group and 10 (5-15) in the On-demand group (P< 0.001). Median number of condomless sex in the prior 4 weeks was 3 (1-8) and 2 (0-4), respectively, P< 0.001. The current follow-up lasted 302 and 361 person-years (PY) in the Daily and On-demand groups, respectively. The incidence of HIV-1 infection was 0 (95% CI: 0-1.2) per 100 PY and 0 (95% CI: 0-1.0) in the Daily and On-demand groups respectively (P=1.00) and the incidence of study discontinuation was 3.0 and 3.6 per 100 PY

(P=0.674) respectively, including 1.3 and 1.1 per 100 PY drop out of PrEP because participants no longer feel at risk. No participant discontinued PrEP for drug-related adverse events.

Conclusions: In this ongoing PrEP cohort in Paris region, enrolling mainly MSM at high risk of HIV-acquisition, no breakthrough HIV-infection was reported so far with either daily or on-demand PrEP, supporting continuing use of both dosing regimens in this population.

WEAD02 Time for a youthquake in HIV prevention and treatment

WEAD0208LB

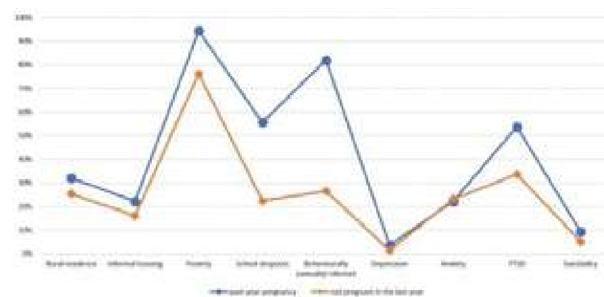
The third generation of HIV: World first longitudinal study of pregnancy in adolescents living with HIV

E. Toska[1,2], L. Sherr[3], L. Cluver[2,4], S. Zhou[1], Mzantsi Wakho Cohort Study
[1]University of Cape Town, AIDS and Society Research Unit, Cape Town, South Africa, [2]University of Oxford, Department of Social Policy and Intervention, Oxford, United Kingdom, [3]University College London, London, United Kingdom, [4]University of Cape Town, Dept of Psychiatry and Mental Health, Cape Town, South Africa

Background: Nearly 1.7 million HIV-positive adolescent girls in Southern Africa experience high rates of pregnancy, poor birth outcomes, and AIDS-related mortality. Option B+ has dramatically reduced the overall rates of paediatric HIV-infections, but the legacy of adolescents living with HIV persists. HIV-positive adolescent mothers have exceptionally high rates of mortality, morbidity, and onwards vertical HIV transmission. Their HIV-exposed children face increased risk of delayed HIV-testing and ART initiation, worse retention in care, poorer health and higher mortality. The study of the syndemic of adolescent pregnancy and HIV is urgently needed. This study presents the first data on rates of incident and repeated pregnancies among adolescent girls living with HIV and factors shaping early motherhood.

Methods: All HIV-positive adolescent from 52 clinics in a health district in South Africa were approached (90.1%), resulting in n=563 HIV-positive adolescent girls. Two interviews were conducted 18-months apart, following voluntary consent from adolescents and caregivers. Data collection tools were piloted with n=25 HIV-positive adolescents. Analyses investigated factors longitudinally associated with incident and repeated pregnancies: socio-demographic, family, mental health, mode of infection and HIV-related factors using STATA25.

Results: N=98/563 (17%) reported lifetime pregnancy, with N=54 (9.6%) becoming pregnant between the interviews (incident pregnancy) and 37 (6.6%) reporting multiple pregnancies. The majority (n=76, 82.6%) reported knowing their children's HIV-status, with n=4 (4.35%) reporting having at least one HIV-positive child. HIV-positive adolescents who were pregnant were more likely to be older, from poor households, not enrolled in school, suicidal, and sexually infected (Fig 1).



[Fig 1. Socio-demographic and mental health among HIV+ adolescent girls (N=583)]

Three factors were longitudinally associated with both incident and repeated pregnancy: age >15 years-old (OR10.7, CI3.6-31.9, p< 0.001), not being enrolled in school at baseline (OR4.2, CI2.0-9.6, p< 0.001), and being sexually/ behaviourally infected (OR10.9, CI4.9-24.0, p< 0.001).

Conclusions: The next generation of HIV infection dawns. Factors which result in HIV infection in young people may have long-term ramifications for HIV-positive young mothers and the next generation - their HIV-exposed/ infected children. Adolescent pregnancy (and multiple pregnancy) is an issue, with cycles of disadvantage clustering in terms of poverty, school dropout and mental health. Breaking the cycle of onward transmission to their children is an urgent intervention gap.

WEAB02 ART in infants and children

WEAB0208LB

Impact of late *versus* early antiretroviral therapy on PBMC-associated HIV-1-DNA levels and the percentage of naive T lymphocytes in HIV-1 infected children and adolescents - The ANRS-EP59-CLEAC study

P. Frange[1,2], V. Avettand-Fenoel[1,2], J. Le Chenadec[3], C. Dollfus[1], L. Nailler[3], O. Dialla[3], T. Montange[4], D. Batalie[4], M. Fillion[2], I. Leymarie[3], L. Ait Si Selmi[3], T. Wack[3], J. Warszawski[3], F. Buseyne[4], ANRS-EP59-CLEAC Study Group
[1]AP-HP, Paris, France, [2]Université Paris Descartes, EA7327, Paris, France, [3]INSERM, Le Kremlin-Bicêtre, France, [4]Institut Pasteur, Unité d'Epidémiologie et Physiopathologie des Virus Oncogènes, Paris, France

Background: Early combined antiretroviral therapy (cART) initiation reduces progression to AIDS and death and decreases the cell-associated viral reservoir in children infected with HIV-1 during the perinatal period. Little data are available on the benefit of early cART initiation for children over five years of age and adolescents. The ANRS-EP59-CLEAC study aimed to assess the immunological and virological characteristics of HIV-1-infected children and adolescents who achieved initial virological suppression, according to age at cART initiation (< 6 months *vs.* ≥ 24 months of age).

Methods: Patient recruitment was conducted in the Paris area between 2016 and 2018. Total cell-associated HIV-1 DNA was quantified in the blood using ultrasensitive real-time PCR (adapted from Biocentric, Bandol, France). CD4 and CD8 CD45RA+CCR7+ naive T lymphocytes were quantified in fresh blood by flow cytometry. The Kruskal-Wallis test was used to compare the parameters of early/late treated children (5-12 years) and adolescents (13-17 years).

Results: We prospectively enrolled 27 children (E-Ch) and nine adolescents (E-Ado) in the early-cART group, and 19 children (L-Ch) and 21 adolescents (L-Ado) in the late-cART group. The patients were mainly girls (54%), born in mainland France (60%) to mothers originating from Sub-Saharan African countries (74%). At the time of the study, all patients were receiving ART, 76% had undetectable plasma HIV-1 RNA, and the median (interquartile range) CD4 T-cell count was 824 [660; 1167] cells/µl. HIV-1 DNA levels were lower in the early-cART than late-cART groups for both children and adolescents (medians were 2.2 (E-Ch), 2.9 (L-Ch), 2.3 (E-Ado), and 3.0 (L-Ado) log_{10} copies/10^6 PBMCs, $P < 0.0001$). Data on the percentage of naive CD4 and CD8 T lymphocytes were available for 58 subjects. We observed the highest percentages in E-Ch (medians in the E-Ch, L-Ch, E-Ado, and L-Ado groups were respectively 61, 54, 36, and 55% for CD4, $P = 0.02$; and 50, 33, 29, and 29%, for CD8, $P = 0.004$).

Conclusions: Early cART initiation during infancy is associated with lower short- and long-term PBMC-associated HIV-1 DNA levels, as targeted in HIV-1 remission strategies. An immunological benefit of early cART initiation on naive T lymphocytes was suggested in children from this study.

WEAE05 I want you back: Improving retention on HIV programmes

WEAE0508LB

Taking biometric coding and the patient-linkage and retention system to scale: Game changers for improving patient tracking and reducing loss to follow-up (LTFU) among PLHIV in Haiti

L. Hall[1], M.P.J.S. Valles[2], R. Jean-Francois[3], P. Joseph[2], M. Antoine[2], N. Celestin[2], G. Perrin[4], S. Morisseau[3], A. Leggoe[3]
[1]Centers for Disease Control and Prevention, Atlanta, United States, [2]Centers for Disease Control and Prevention, Port-au-Prince, Haiti, [3]United States Agency for International Development, Port-au-Prince, Haiti, [4]Centers for Disease Control and Prevention, Port-au-Prince, Heard Islands and McDonald Islands

Background: In 2015, after identifying an alarming rate of LTFU (15% for FY14) among PLHIV enrolled on treatment, the PEPFAR Haiti program implemented a multi-faceted intervention to improve patient tracking, LTFU retrieval, adherence, and retention: fingerprint-based Biometric Coding (BC) and the Patient Linkage and Retention (PLR) System.
Methods: PLR encompasses tracking of patients at the community level, including HIV+ patients never linked to care, LTFU, and active patients at risk of being LTFU. PLR is optimized with GPS and BC, allowing for a unique identifier for HIV+ patients, improved estimates of the never-diagnosed PLHIV, and identification of silent transfers and medical shopping. Details of eligible patients are provided to community health workers (CHWs) who conduct home visits.
Results: To date, PLR and BC have been rolled-out in 90% of clinical facilities, covering 72% of PLHIV enrolled on ART. 55% of LTFU have been brought back to care with 57% of retention. The overall annual LFTU rate has decreased from 15% in FY14 to 9% in FY17. Barriers to retention, documented through the PLR tool, have been incorporated to address programmatic gaps in patient linkage and retention. Moreover, GPS and BC facilitate data quality assurance by identifying duplicate patients and medical shopping across Haiti. BC, PLR and the CHW network also facilitate data-driven partne
Conclusions: While the validity of BC connected to patient tracking has been shown effective at improving HIV treatment outcomes in other geographically limited settings, PEPFAR-Haiti is demonstrating that BC taken to scale in a resource-constrained setting and applied at the national level, improves clinical outcomes, de-duplicating national figures of PLHIV on ART and tracking patterns of LTFU and re-entry across Haiti. BC and PLR are an important factor in decreasing LTFU. PEPFAR-Haiti will continue to take this innovation to scale to all supported facilities for improved program management to achieve epidemic control in Haiti.

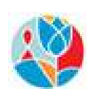
THAB01 Non-communicable diseases: Continued challenges

THAB0108LB

Superiority of paclitaxel compared to either bleomycin/vincristine or etoposide as initial chemotherapy for advanced AIDS-KS in resource-limited settings: A multinational randomized trial of the ACTG and the AIDS Malignancy Consortium

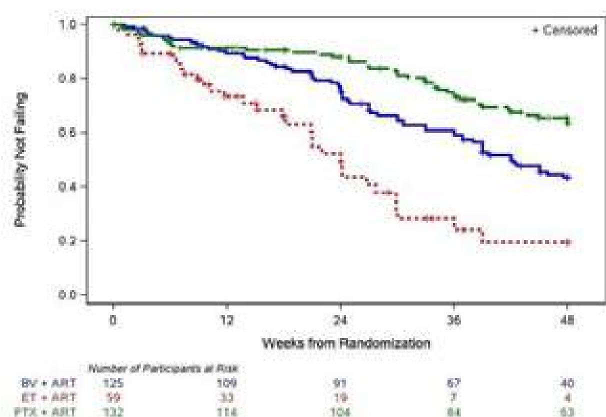
M. Borok[1], C. Moser[2], T. Campbell[3], P. MacPhail[4], R. Matining[5], S. Caruso[6], C. Godfrey[7], A. Moses[8], W. Samaneka[9], M. Nyirenda[10], N. Busakhala[11], H. Burger[12], N. Mwelase[4], B. Hoagland[13], J. Kosgei[14], J. Orem[15], M. Nokta[16], V. Otieno[17], R. Mngqibisa[18], S. Krown[19], A5263/AMC-066 team
[1]University of Zimbabwe College of Health Sciences, Department of Medicine, Harare, Zimbabwe, [2]Harvard TS Chan School of Public Health, Statistical & Data Analysis Center, Boston, United States, [3]University of Colorado, Denver, Division of Infectious Diseases, Denver, United States, [4]University of the Witwatersrand, Medicine, Johannesburg, South Africa, [5]Harvard T.H. Chan School of Public Health, Statistical & Data Analysis Center, Boston, United States, [6]Frontier Science & Technology Research Foundation, Inc., Amherst, United States, [7]National Institutes of Health, Division of AIDS, Therapeutics Research Program, Washington DC, United States, [8]Kamuzu Central Hospital, Lilongwe, Malawi, [9]Parirenyatwa CRS, Harare, Zimbabwe, [10]Blantyre CRS, John Hopkins Research Project, Blantyre, Malawi, [11]Moi University Clinical Research Center, Oncology, Eldoret, Kenya, [12]Tygerberg Hospital, Family Clinical Research Unit, Cape Town, South Africa, [13]Instituto de Pesquisa Clinica Evandro Chagas, Rio de Janeiro, Brazil, [14]Kenya Medical Research Institute, Kericho, Kenya, [15]Uganda Cancer Institute, Kampala, Uganda, [16]National Cancer Institute, Bethesda, United States, [17]Kisumu Clinical Research Site, Kisumu, Kenya, [18]Durban International CRS, Enhancing care foundation, Durban, South Africa, [19]AIDS Malignancy Consortium, New York, United States

Background: Advanced Kaposi sarcoma (KS) is a potentially life-threatening complication of HIV infection where access to chemotherapy is limited and HIV and KS herpesvirus coinfection rates are high. No evidence-based standard of care (SOC) guideline for advanced KS exists in settings where resources for safe preparation and administration of intravenous (IV) chemotherapy are scarce.
Methods: Participants at 11 ACTG sites in 5 sub-Saharan African countries and Brazil with measurable, previously-untreated, biopsy-proven, advanced (T1 stage) AIDS-related KS, adequate organ function and performance status, and limited (≤42 days) or no ART exposure were prospectively randomized 1:1:1 to receive oral etoposide plus ART (ET+ART), IV bleomycin and vincristine+ART (BV+ART), or IV paclitaxel+ART (PTX+ART). Randomization was stratified by CD4 count (< 100 or ≥100 cells/mm³) and country. PTX+ART, a standard regimen in resource-rich settings, was considered the active control. The trial was designed to evaluate whether ET+ART (an oral regimen affording significant logistical advantages in resource-limited settings [RLS]) and/or BV+ART (a commonly-used regimen in RLS) were noninferior to PTX+ART. Noninferiority was defined as a week-48 progression-free survival (PFS) rate within 15% of the PFS rate of the PTX+ART arm, projected at 65% and based on Kaplan-Meier methods.
Results: Entry and on-study characteristics are shown in Table 1. An interim Data and Safety Monitoring Board (DSMB) review in 3/2016 found the ET+ART arm inferior to the PTX+ART arm. The ET arm was closed; accrual continued for the two remaining arms. A subsequent interim DSMB review in 3/2018 found the BV+ART arm inferior to the PTX+ART arm; further accrual was halted. PTX was offered to all remaining eligible study participants. Week-48 PFS rates (95% CI) at the time each study arm was closed were 19% (8,35), 43% (34,53) and 63% (54,72), respectively for the ET+ART, BV+ART and PTX+ART arms (Fig.1). There were no safety concerns about any of the treatment regimens; ~90% had HIV VL < 400c/mL by week 12.
Conclusions: These findings establish PTX+ART as a SOC for initial treatment of advanced AIDS-KS, and underscore both the urgent need to improve the cancer therapeutic infrastructure and the accessibility of essential chemotherapeutic agents in RLS.



	ET+ART N=59	BV+ART N=125	PTX+ART N-132	ALL PARTICIPANTS N=316
Women	13 (22%)	29 (23%)	31 (23%)	73 (23%)
Age	35 (31,42)	35(30,42)	35(31, 40)	35 (31,41)
Visceral KS at Entry	20(35%)	33 (27%)	31 (24%)	84(27%)
KS-associated Edema at Entry	54 (95%)	116 (94%)	117 (89%)	287 (92%)
CD4 count (cells/mm3) at entry	194 (99,318)	230 (134,369)	232 (125,348)	228 (120,362)
@ Week 24	316 (206,429)	268 (178, 409)	337 (201,481)	305 (194,451)
@ Week 48	325 (174,407)	261 (211,455)	290 (210,481)	285 (210,473)
HIV VL<400 copies/ml at entry	4 (7%)	26 (21%)	34 (26%)	64 (21%)
@ Week 12	31 (89%)	96 (90%)	103 (93%)	230 (91%)

[Table 1: Selected entry and on study characteristics]



[Fig 1 Progression-free survival (PFS) by arm. PFS is lack of KS progression, death, entry into an additional study step, or LTFU before wk48]

THAC01 New tools, old tricks: Innovative methods for understanding the epidemic

THAC0108LB

Using a social networking "app" to establish an open cohort for assessing HIV incidence among men who have sex with men in Beijing, China

Z. Chen[1], X. Chu[2], F. Yu[1], Y. Ma[1], X. Xu[3], J. McGoogan[3], G. Mi[1,3], Z. Wu[3]
[1]Blued, Beijing, China, [2]Langfang CDC, Langfang, China, [3]National Center for AIDS/STD Control and Prevention, Beijing, China

Background: HIV infection is spreading quickly among men who have sex with men (MSM) in China. Yet, MSM continue to be difficult to reach, and as a result, creating and maintaining a cohort by traditional methods is challenging. Blued is a gay social networking application ("app") with over 40 million users worldwide and 480,000 monthly active users in Beijing. We aimed to develop an innovative new method using Blued to estimate HIV incidence among MSM.

Methods: All Blued users in Beijing who obtained rapid HIV screening tests via Blued (ie, online appointment booking through Blued and attendance at one of four Blued-designated voluntary counseling and testing [VCT] clinics in Beijing)) from 21st June, 2017 to 31st March, 2018 were eligible for the study. Before testing, users provided inform consent electronically and completed an online survey, which collected demographic and sexual health and behavior information, through Blued. After testing, results (negative or reactive) were recorded. Users who tested more than once had their testing records linked automatically by Blued UID and the time intervals between tests were captured. Attendances with reactive results were referred to local CDC for confirmatory testing by Western blot, and all confirmed diagnoses were counted as seroconversions. All those recruited into the cohort and followed were censored at seroconversion or study end date, whichever came first, and observed time and HIV incidence rate were calculated.

Results: A total of 4808 HIV screening tests were taken by 3766 Blued users, among whom 168 were HIV-reactive and received confirmed diagnoses of HIV infection, for a point prevalence of 4.5%. The remaining 3598 were followed, among whom 673 (18.7%) accessed HIV screening again via Blued. Ten HIV seroconversions were observed during 827.7 person-years (PY) of follow-up time, for an incidence rate of 1.21 per 100 PY.

Conclusions: Our study demonstrates that use of social networking apps such as Blued provide a promising new method for evaluating and monitoring HIV incidence. Although further study is required, this method may have great potential for nationwide scale-up to monitor HIV incidence in this important key population

THAE01 Confronting violence against women

THAE0106LB

Integration of GBV into HIV/STI services increases uptake of post GBV care services among key populations, lessons learned from Papua New Guinea, 2015-2017

I.U. Mogaba[1], R. Nopa[2], W. Yeka[3], M. Dogimab[4], D. Tesfaye[1], E. Valaun[3], M. Ramsey[5]
[1]FHI 360 (Family Health International), Papua New Guinea, Program Management (Country Office), Port Moresby, Papua New Guinea, [2]FHI 360 (Family Health International), Papua New Guinea, Programs, Port Moresby, Papua New Guinea, [3]FHI 360 (Family Health International), Papua New Guinea, M&E, Port Moresby, Papua New Guinea, [4]Cardno, Papua New Guinea, Formerly with FHI 360 (Family Health International), Papua New Guinea, Port Moresby, Papua New Guinea, [5]FHI 360 (Family Health International), Headquarters, Global Health Population and Nutriontion, Port Moresby, Papua New Guinea

Background: Overall adult HIV prevalence in Papua New Guinea (PNG) is 0.9% (UNAIDS, 2016), higher (1.1%--1.68%) among key populations (KPs), including female sex workers (FSW) (14.9%), men who have sex with men (MSM)/transgender women (TG) (8.5%) (NDoH, 2017). Two-thirds of women experienced gender-based violence (GBV) (Darko et al., 2015), and 41%-45% of FSW and MSM/TG reported sexual violence in the last 12 months (Kelly-Hanku et al., 2017). GBV increases HIV risk yet decreases service utilization. Sociocultural factors inhibit GBV disclosure and service uptake for all survivors; laws criminalizing sex work and sodomy heighten this inhibition for KPs. In 2015, FHI 360 began integrating gender and GBV interventions into its USAID-funded Strengthening HIV/AIDS for KPs in PNG project (2012-2018) to prevent GBV and to increase post-GBV service uptake. Initial interventions prepared service providers to offer KP-friendly, comprehensive post-GBV clinical services and then moved to GBV prevention, awareness and referral among KP, communities and other service providers.

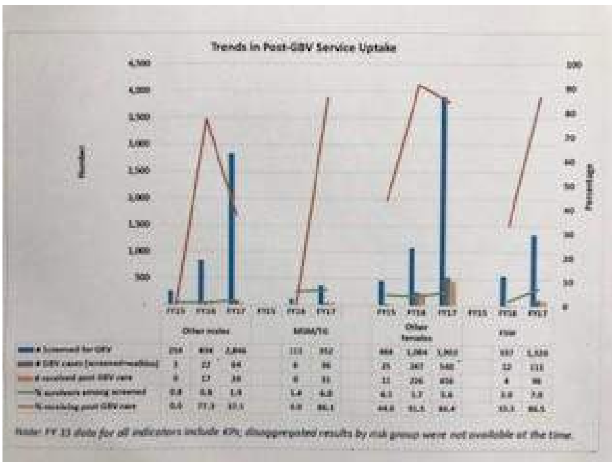
Description: Interventions implemented in five health facilities and the outcomes are listed below. Disaggregated descriptive and trends analyses were conducted using health facility program monitoring data (fiscal year (FY) 2015-2017) to understand results from routine GBV screening and post-GBV care uptake.

Lessons learned: The number of GBV-screened individuals among clients accessing HIV/STI services increased from 718 (2015) to 8,426 (2017). The percentage of individuals screened and identified as GBV-survivors remained low compared to survey results (Darko et al., 2015). The number of GBV cases expanded exponentially. The percentage of survivors seen (including walk-ins/referrals) receiving post-GBV care for both sexes increased sharply before a 2017 slight decline. The percentage of GBV survivors among KPs who received care increased sharply (2015-2017) (MSM/TG: 0% to 86.1%, FSW: 33.3% to 86.5%).

Conclusions/Next steps: In this context, increasing the number of service points, providing integrated KP-friendly and comprehensive GBV services combined with community GBV awareness and referral had a dramatic impact on post-GBV care uptake. However, proactive screening did not increase the proportion of GBV survivors identified by much, suggesting other factors exist affecting GBV survivors' disclosure.

Interventions implemented	Outputs/outcomes
KP sensitization trainings for service providers (health care workers and GBV hotline counsellors).	Service providers: • Understand KPs' vulnerability to violence, their rights to live lives free from violence and to access friendly and welcoming services should they experience GBV. • Become more receptive to KPs accessing GBV and other services.
Development of a GBV screening protocol; Implementation of routine GBV screening among clients accessing HIV/STI services; Introduction of a minimum package of post-GBV care at health facilities with onward referral for non-health services.	The 5 participating health facilities (1 in Madang Province and 4 in the National Capital District) have: • Simple one page GBV screening protocol available to all HIV service providers • The ability to provide the minimum 5 essential post-GBV services (psychological first aid, emergency contraceptives, post-exposure prophylaxis, prophylaxis for STIs and vaccination against tetanus and HepB). First sites offering GBV services specifically for KP. Number of all-population GBV service sites in Port Moresby increased from 1 to 5, and from 1 to 2 in Madang Province, increasing access in a community where travel between and among neighborhoods can be dangerous.
Training of HIV/STI service providers on the GBV screening protocol and the post-GBV care minimum package.	Health care workers screen all clients accessing STI, HIV testing and ART services and provide the minimum post-GBV care package.
Sensitization of communities on GBV prevention/bystander interventions and post-GBV services. Strengthening post-GBV care referral linkages between communities and health facilities.	Community leaders aware of GBV and its relationship to HIV, and where and how to access post-GBV care. Telephone counsellors working with GBV hotline counselling service became conversant with the referral pathways for post-GBV services and make referrals. Increase in number of referrals (including self-referrals) from the community.
Inclusion of GBV empowerment and safety planning in the community outreach minimum HIV prevention package. Training KP peer educators and GBV hotline counsellors towards engaging clients on GBV/post-GBV care referral pathways.	Peer educators provide education to KPs on GBV, GBV prevention and identification and referral of survivors for post-GBV care. A standard operating procedure on GBV prevention, recognition and referral, and GBV safety planning tool kit developed. More KPs reached with GBV prevention and post-GBV care.
Revision of HIV data collection and reporting tools to capture relevant data on GBV screening and post-GBV care.	Program monitoring data on GBV screening and uptake of post-GBV care available (disaggregated by sex, KP type, KP/general population, year), including: • Number of individuals screened for GBV • Number and proportion of GBV-survivors among those screened • Number of self-referred GBV-survivors • Number and proportion of GBV-survivors receiving post-GBV care.

[Interventions implemented to integrate GBV into HIV/STI services and outcomes]



[Trends in Post-GBV Service Uptake]

THAD03 Community system strengthening = Sustainable HIV response

THAD0308LB

Let's Stick Together: community empowerment approach significantly impacts multiple HIV and sexual and reproductive health outcomes among female sex workers in Tanzania

D. Kerrigan[1,2], J. Mbwambo[3], S. Likindikoki[3], W. Davis[4], A. Mantsios[2], S. Beckham[2], A. Leddy[5], S. Aboud[3], N. Galai[2]

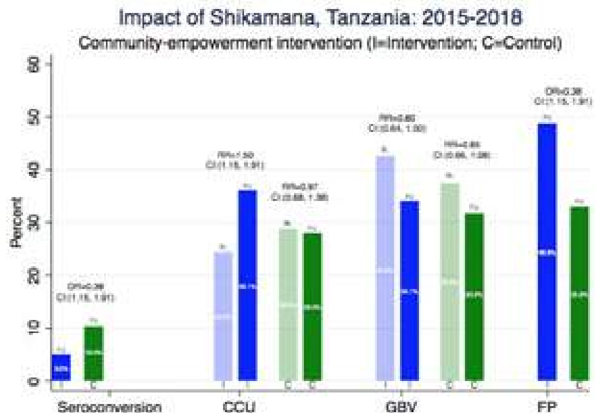
[1]American University, Sociology, Washington, United States, [2]Johns Hopkins Bloomberg School of Public Health, Baltimore, United States, [3]MUHAS, Dar es Salaam, Tanzania, United Republic of, [4]American University, Washington, United States, [5]UCSF, San Francisco, United States

Background: Female sex workers (FSW) are 13.5 times more likely to be HIV-infected than other women. They are also at risk for a number of other negative health outcomes and conditions, including gender-based violence and unintended pregnancies.

Methods: We conducted a community-randomized trial of a community empowerment model of combination prevention (Project *Shikamana/* Let's Stick Together) among FSW in Iringa, Tanzania. We used time-location-sampling to enroll a cohort of 496 women, collecting survey data and conducting HIV screening and viral load assessments at 0 and 18 months. The intervention, targeting both HIV-infected and uninfected women, was anchored around the promotion of social cohesion and mobilization to address socio-structural constraints such as stigma, discrimination, violence and financial insecurity. We conducted an intent-to-treat analysis with logistic and GEE Poisson regression.

Results: Project *Shikamana* peer educators conducted 7,677 outreach sessions and distributed 81,463 condoms during the 18-month intervention period. Even without PrEP, participants in the intervention were significantly (62%) less likely to become infected with HIV at follow-up (OR .38; p=0.05); with an HIV incidence of 5.0% in intervention vs. 10.4% in control. Consistent condom use increased significantly in the intervention (RR 1.50; p=0.01) vs. the control (RR .97; NS). The intervention also had a significant impact on reductions in gender-based violence (RR: 0.80; p=0.05) and increases in modern family planning methods at follow-up (RR=1.48; p=0.02). The *Shikamana* women's group has now been formally registered, established a community savings group, and started a local business to continue to support mobilization activities.

Conclusions: Project *Shikamana* is one of the first comprehensive models of community empowerment implemented and evaluated among FSW in Africa, which if taken to scale, holds significant promise to generate and sustain improvements in HIV-related outcomes, sexual and reproductive health, and the human and labor rights of this key population.



[Impact of Project Shikamana on HIV, GBV and Reproductive Health Outcomes among FSW in Tanzania]

THAB03 Pregnancy: Pre, peri, and post

THAB0307LB

DolPHIN-1: Randomised controlled trial of dolutegravir (DTG)- versus efavirenz (EFV)-based therapy in mothers initiating antiretroviral treatment in late pregnancy

C. Orrell[1], K. Kintu[2], J.A. Coombs[1], A. Amara[3], L. Myer[4], J. Kaboggoza[2], B. Simmons[5], L. Else[3], C. Heiberg[1], C. Waitt[3], S. Walimbwa[2], E.M. Hodel[3], A. Hill[3], S. Khoo[3], M. Lamorde[2], DolPHIN-1 Study Group
[1]Desmond Tutu HIV Foundation, Cape Town, South Africa, [2]Infectious Diseases Institute, Kampala, Uganda, [3]University of Liverpool, Liverpool, United Kingdom, [4]University of Cape Town, Cape Town, South Africa, [5]Imperial College, London, United Kingdom

Background: ART initiation in the 3rd trimester of pregnancy is associated with failure to achieve viral suppression (VS) by delivery and increased transmission of HIV. We randomised 60 treatment naïve pregnant women at 28-36w gestation in Uganda and South Africa 1:1 to receive EFV or DTG+2NRTIs. The primary endpoint was pharmacokinetics (PK) of DTG in women and breastfed infants; secondary endpoints included VS.
Methods: To comply with national guidelines, EFV+2NRTI was initiated on referral, with subjects randomized to DTG switched within 7 days. Viral load (VL) was collected at every visit; intensive maternal PK sampling (0-24h) was performed at 14 days on DTG, and 2 weeks post-partum, with paired sampling between maternal plasma and cord blood, breastmilk and infant plasma. All infants were exclusively breastfed.
Results: There was no significant pre-ART differences between DTG (n=29) and EFV (n=31) arms in maternal age, gestation at treatment initiation (30.8w), weight, obstetric history, VL (log 4 copies) and CD4 count (394 cells/mm^3). Third trimester DTG exposures were low with C_{trough} at or below target (MEC 324ng/mL) in 9/28 (32%) mothers. DTG transfer across the placenta (122%) and in breast milk (3%) coupled with delayed elimination resulted in significant infant exposures potentially persisting during breast-feeding. Both regimens were well-tolerated. A total of 10 SAEs were reported in 5 mothers and 3 infants, with no significant differences between arms.
Superior VS was observed with DTG (Table 1) at the 2w post-partum visit (P=0.005). However, VL>1000 copies/mL near delivery was still observed with both DTG (3.7%) and EFV (7.4%). No HIV transmissions were observed
Conclusions: HIV RNA suppression < 50 copies/mL was more rapid with DTG (despite low DTG exposures when started in the third trimester) which may translate to improved PMTCT for ART initiation in late pregnancy. The impact of significant infant DTG exposures related to intra-uterine transfer, continued breastfeeding and delayed elimination is being evaluated in the DolPHIN-2 study.

	DTG N (%)	EFV N (%)	Fisher's exact P value
Screening (pre-ART) (N)	29	31	
<50 copies/mL	-	-	
50-199 copies/mL	-	-	1.00
200-999 copies/mL	1 (3.4%)	2 (6.5%)	
1000+ copies/mL	28 (96.6%)	29 (93.5%)	
Day 14 (N)	29	27	
<50 copies/mL	11 (37.9%)	2 (7.4%)	
50-199 copies/mL	10 (34.5%)	8 (29.6%)	0.021
200-999 copies/mL	5 (17.2%)	10 (37.0%)	
1000+ copies/mL	3 (10.3%)	7 (25.9%)	
Day 28 (N)	27	25	
<50 copies/mL	15 (55.6%)	7 (28.0%)	
50-199 copies/mL	9 (33.3%)	9 (36.0%)	0.101
200-999 copies/mL	2 (7.4%)	7 (28.0%)	
1000+ copies/mL	1 (3.7%)	2 (8.0%)	
Post-partum (N)	27	27	
<50 copies/mL	20 (74.1%)	10 (37.0%)	
50-199 copies/mL	5 (18.5%)	5 (18.5%)	0.005
200-999 copies/mL	1 (3.7%)	10 (37.0%)	
1000+ copies/mL	1 (3.7%)	2 (7.4%)	
Note: at Day 14 and Day 28, (N) does not equal total as some mothers delivered prior to reaching timepoint for evaluation. At post-partum, five individuals are still waiting HIV RNA results or withdrew prior to evaluation.			

[Table 1]

THAC04 Pedal to the metal: Accelerating the cascade

THAC0408LB

Progress toward HIV epidemic control: Results from the Namibia Population-Based HIV Impact Assessment (PHIA)

N. Hamunime[1], A. Wolkon[2], M. Grasso[3], D.B. Williams[2], A.D. Maher[3], A. Low[4], B. Pitt[4], J.B. Palmier[2], K. Banda[3], T. Shuumbwa[1], A. Mengistu[1], S. Agolory[2], G. Rutherford[3], A.-M. Nitschke[1], N. Mutenda[1], L.A. Miller[2], S. Sawadogo[2], O. Mwazi[5], H. Simtaa[5], B. Makumbi[6], N. Pentinaiken[6], S. Israel[6], B. Parekh[2], D. Prybylski[2], K. Sachathep[4], J. Justman[7], B. Haufiku[1]
[1]Namibia Ministry of Health and Social Services, Windhoek, Namibia, [2]U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Atlanta, United States, [3]University of California in San Francisco, Institute for Global Health Sciences, San Francisco, United States, [4]ICAP at Columbia University, New York, United States, [5]Namibia Statistics Agency, Windhoek, Namibia, [6]Namibia Institute of Pathology, Windhoek, Namibia, [7]Columbia University, Epidemiology and Medicine, Hastings-on-Hudson, United States

Background: In 2015, Namibia implemented an Acceleration Plan rapidly scaling up HIV testing and treatment services with the goal of reaching the UNAIDS 90-90-90 targets by 2020. In 2017, Namibia conducted the Namibia Population-based HIV Impact Assessment (NAMPHIA) to estimate HIV viral load suppression (VLS) and progress toward the 90-90-90 targets.
Methods: NAMPHIA was a cross-sectional household-based survey conducted between June and December, 2017; analyses were weighted to account for complex survey design. Eligible adults aged 15-64 years who consented were interviewed and offered HIV rapid testing according to national guidelines. All HIV-seropositive (HIV+) samples were tested for viral load at a central laboratory. The 90-90-90 targets were defined as: (1st 90) the proportion of people living with HIV (PLHIV) who reported knowing their HIV+ status; (2nd 90) the proportion of PLHIV who knew their status and reported being on antiretroviral therapy (ART); and (3rd 90) the proportion of PLHIV who reported being on ART who had measured VLS (HIV RNA < 1,000 copies/ml).
Results: Of 16,939 participants, 2,446 tested HIV+ (Overall/Total HIV prevalence=12.6%; female=15.7%, male= 9.3%). Among all PLHIV, irrespective of knowledge of HIV+ status and reported ART status, 77.4% had VLS (female VLS=81.7%, male VLS=69.6%) [Table]. Among PLHIV, 78.8% reported knowing that they were HIV+ (female=83.1%, male=71.1%). Among PLHIV who reported knowing their HIV+ status, 95.3% reported being on ART, (female ART=96.0%, male ART=93.8%). Among PLHIV who reported ART use, 91.5% had VLS (female VLS=92.2%, male VLS=89.9%). (Table)
Conclusions: Namibia is the first country in Africa to have reached and surpassed at a national level the UNAIDS 2020 goal of having at least 73% of all people living with HIV be virally suppressed. NAMPHIA data also show that once diagnosed, a high proportion (≥ 90%) of both male and female PLHIV initiated ART and achieved VLS. While this is a remarkable accomplishment, 21.2% of PLHIV are unaware of their HIV+ status, including almost 30% of men. Strategies to improve HIV testing, particularly for men, are urgently needed to ensure Namibia's continued progress towards HIV epidemic control.

	Females % [95% CI]	Males % [95% CI]	Total % [95% CI]
HIV prevalence among adults	15.7 [14.5–16.8]	9.3 [8.5–10.1]	12.6 [11.7–13.5]
Prevalence of overall VLS among HIV+ adults, irrespective of awareness of diagnosis or ART status	81.7 [79.1–84.3]	69.6 [65.2–74.0]	77.4 [74.8–80.0]
90-90-90 Target Indicators			
HIV+ adults who report knowing their HIV+ status (1st 90)	83.1 [80.7–85.4]	71.1 [67.4–74.8]	78.8 [76.6–81.1]
Self-reported ART use among HIV+ adults who report knowing their HIV+ status (2nd 90)	96.0 [94.5–97.5]	93.8 [90.8–96.8]	95.3 [93.6–97.0]
VLS among HIV+ adults 15-64 who report ART use and knowing their HIV+ status (3rd 90)	92.2 [90.4–94.0]	89.9 [86.7–93.2]	91.5 [89.8–93.2]

[Table 1]

FRAE01 Differentiated service delivery models

FRAE0108LB

Empowerment clubs did not increase PrEP continuation among adolescent girls and young women in South Africa and Tanzania - Results from the EMPOWER randomised trial

S. Delany-Moretlwe[1], M. Chersich[1], S. Harvey[2], A. Stangl[3], D. Baron[1], M. Columbini[2], F. Scorgie[1], N. Naicker[1], S. Kapiga[2,4], EMPOWER study group

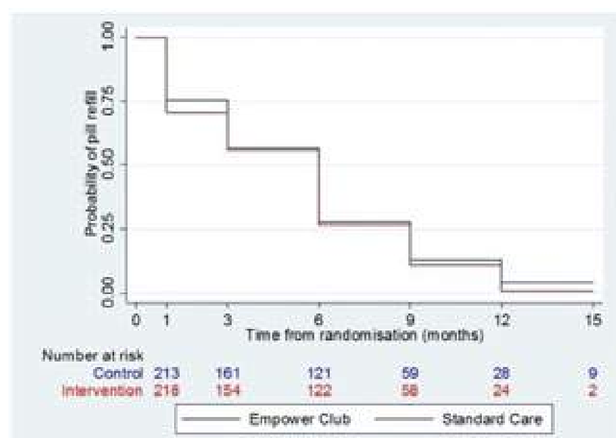
[1]University of the Witwatersrand, Wits RHI, Johannesburg, South Africa, [2]London School of Hygiene and Tropical Medicine, London, United Kingdom, [3]ICRW, Washington DC, United States, [4]Mwanza Intervention Trials Unit, Mwanza, Tanzania, United Republic of

Background: Background: Adolescent girls and young women (AGYW) are likely to benefit from PrEP. Strategies to support PrEP uptake and address barriers to consistent use are urgently needed. We conducted a randomised controlled trial to evaluate whether empowerment clubs increase PrEP uptake and continuation among AGYW.

Methods: Methods: We enrolled sexually active, HIV-negative women into an open-label PrEP study. Participants were randomised to standard of care (SOC), which included comprehensive sexual and reproductive health care, with counselling and SMS reminders for PrEP users, or to empowerment clubs plus SOC. A standardised four-session curriculum developed to support safe introduction of PrEP within relationships was delivered at monthly facilitator-led, small group sessions. Clinic follow-up visits were scheduled at months 1, 3 and quarterly thereafter, for up to 15 months. We used pharmacy records to measure PrEP continuation. We assessed differences in PrEP continuation using Kaplan-Meier survival analysis, by log-rank test.

Results: Results: From October 2016 to July 2017, 619 women were screened, 431 women enrolled (SA n=379, Tz n=52) and 213 randomised to clubs. Participants were mostly unmarried (90%), 27% had >1 partner in the past 6 months, 39% used a condom at last sex and 33% had a curable STI; most (84%) believed PrEP could prevent HIV. Of these, 408 initiated PrEP at, and 8 after, enrolment (97%) (SA n=364, Tz n=52). Participants completed a median of 3 follow up visits (range 0-6) and one club session (range 0-7); 48% did not attend any club sessions. In the ITT, PrEP continuation did not vary significantly by study arm (p-value =0.31); PrEP continuation was 73% at M1, 61% at M3 and 34% at M6 (Figure 1). There was also no difference in PrEP continuation when comparing those that attend ≥1 club session compared to none (p-value =0.12).

Conclusions: Conclusions: While PrEP uptake was high in this at-risk population, use diminished with time. Empowerment club participation was low and did not enhance PrEP continuation, contrary to experiences in the HIV treatment field. Ongoing analyses will elucidate barriers to club participation and reasons for PrEP discontinuation and inform the development of future tailored PrEP support packages for adolescents.



[Figure 1]

Late Breaker Poster Discussions

TUPDA01 Besieging the reservoir and kicking it where it hurts

TUPDA0109LB

Ixazomib reduces HIV-1 reservoir size in a Casp8p41-dependent manner

N. Cummins[1], S. Natesampillai[1], Z. Nie[1], R. Sampath[1], J. Baker[2], K. Henry[3], M. Pinzone[4], U. O'Doherty[4], E. Polley[5], G. Bren[1], D. Katzmann[5], S. Rizza[1], A. Tande[1], M. Mahmood[1], J. Zeuli[5], C. Rivera[5], S. Kumar[5], A. Badley[1]
[1]*Mayo Clinic, Infectious Diseases, Rochester, United States,* [2]*University of Minnesota, Minneapolis, United States,* [3]*Hennepin County Medical Center, Minneapolis, United States,* [4]*University of Pennsylvania, Philadelphia, United States,* [5]*Mayo Clinic, Rochester, United States*

Background: The main barrier to HIV-1 cure is the latent reservoir that persists despite suppressive ART. Following reactivation from latency, HIV-infected cells generate protease and the HIV-specific cell death stimulus, Casp8p41, yet resist Casp8p41-mediated apoptosis through neutralization by Bcl2. Since proteins that have been inactivated are often degraded by the proteasome, we investigated whether the Casp8p41-Bcl2 complex was as well using *in vitro* and *ex vivo* models.
Methods: Polyubiquitination of Casp8p41 and the Casp8p41-Bcl2 complex was assessed by immunoprecipitation and immunoblot. Expression of Casp8p41 was assessed in the presence of ixazomib by flow cytometry. Apoptosis in HIV-1 infected cells in response to ixazomib was assessed in chronically infected J-Lat 10.6 cells, acutely infected primary CD4 T cells, and *ex vivo* CD4 T cells from HIV-1 infected patients. HIV reactivation was assessed in J-Lat 10.6 cells and HIV LTR activation assessed using HIV-LTR luciferase reporter. We have obtained an FDA IND for use of ixazomib in HIV infected patients and are enrolling a Phase 1b/2a clinical trial of ixazomib in ART-suppressed HIV-1 positive patients (NCT02946047).
Results: Casp8p41 bound to Bcl2 is polyubiquitinated and degraded by the proteasome. Ixazomib directly (a) induces HIV reactivation in an NFkB dependant manner, (b) increases Casp8p41 and induces apoptosis of infected but not uninfected cells, and (c) decreases viral replication. *Ex vivo* treatment of CD4 T cells from ART suppressed, HIV-1+ patients with a single dose of ixazomib reduces total cell associated HIV DNA by a median of 35% [IQR 7%, 42%] (P=0.007) and integrated HIV DNA by a median of 69% [IQR 58%, 89%] (P< 0.001). Preliminary clinical trial results indicate that ixazomib doses of 1-2mg weekly are safe and well tolerated.
Conclusions: The FDA-approved proteasome inhibitor ixazomib reactivates HIV-1, blocks degradation of HIV specific death stimulus Casp8p41, and reduces HIV reservoir size *ex vivo*. Enrollment of a Phase 1b/ 2a clinical trial of ixazomib is ongoing to evaluate the primary outcome of safety and tolerability, and secondary outcomes of HIV reservoir size and immunologic status.

THPDC01 From online to door-2-door: Expanding access to HIV self-testing

THPDC0107LB

Diagnostic accuracy, feasibility and acceptability of HIV oral fluid rapid tests among hard-to-reach key populations in Latvia, the country with highest infection rates in Europe

A. Kivite[1], R. Kaupe[1,2], I. Linina[1], I. Upmace[1,3], HERMETIC study group
[1]*Riga Stradins University, Riga, Latvia,* [2]*NGO "DIA+LOGS", Riga, Latvia,* [3]*NGO "Baltic HIV Association", Riga, Latvia*

Background: In Europe, Latvia has the highest rate of new HIV diagnoses and one of the lowest HIV testing rates. Half of the HIV cases are estimated to be undiagnosed and the proportion of late diagnoses is high (>50%). Thus, new strategies to promote HIV testing are of utmost priority.
Methods: For the first time oral fluid rapid tests (OraQuick®) were used to promote HIV testing outside clinical settings and stationary harm reduction sites. Between September 2017 and February 2018, 310 people who inject drugs (PWID) were tested via mobile van services and 205 men who have sex with men (MSM) via outreach work in night clubs. Participants were also tested with a capillary blood rapid test (CHIL®) to compare the two methods. Diagnostic accuracy of OraQuick® was assessed against the HIV positive serostatus, which was defined by either having a positive capillary blood rapid test or participants' self-reported positive HIV serostatus. Acceptability of the oral fluid tests was assessed through mixed methods, i.e. quantitative questionnaires (n=515), 3 focus groups and 7 in-depth interviews. Chi square or Fisher exact test were employed to analyze quantitative data, qualitative data were analyzed inductively adopting thematic analyses.
Results: OraQuick® tests had 84.4% sensitivity, 99.1% specificity, 94.2% positive and 97.3% negative predictive value. No significant differences were identified in accuracy measures between PWID and MSM. Contradictory test results occurred mostly among participants on anti-retroviral therapy. MSM's awareness of the oral fluid test before the study was greater compared to PWID (32.0% vs 21.8%, p< 0.001). Acceptability was higher among MSM. They had greater trust in the validity of the test (p< 0.001) and recommended the test more often to others (p=0.08). PWID trusted the capillary blood test more than the oral fluid test (p< 0.001). Qualitative results showed that mistrusting oral fluid test results was due to scepticism about new interventions in general and by confusion about the fact that HIV cannot be transmitted via saliva.
Conclusions: Accuracy of the oral fluid test was high in Latvia. Oral fluid tests were more accepted by MSM than PWID. Educational interventions should clarify the existing target-group specific misconceptions.

	Total		PWID		MSM		P
	% (n)	95% CI	% (n)	95% CI	% (n)	95% CI	
Characteristics of the oral fluid test*							
Sensitivity	84.4 (65/77)	74.7-90.9	80.0 (36/45)	66.2-89.1	90.6 (29/32)	75.8-96.8	0.34
Specificity	99.1 (454/458)	97.7-99.6	98.9 (262/265)	96.7-99.6	99.4 (172/173)	96.8-99.9	0.97
Positive predictive value	94.2 (65/69)	86.0-97.7	92.3 (36/39)	79.7-97.4	96.7 (29/30)	83.3-99.4	0.44
Negative predictive value	97.3 (454/466)	95.4-98.5	96.7 (262/271)	93.8-98.2	98.3 (172/175)	95.1-99.4	0.48
Knowledge about oral fluid tests before the study							
Knew before	21.8 (112/513)	18.5-25.6	15.2 (47/310)	11.6-19.8	32.0 (65/203)	26.0-38.7	<0.001
Belief in the validity of test results							
Oral fluid test	87.3 (408/467)	84.1-90.1	82.4 (244/296)	77.7-86.3	95.9 (164/171)	91.8-98.0	<0.001
Capillary blood test	98.8 (496/502)	97.4-99.5	99.0 (303/306)	97.2-99.7	98.5 (193/196)	95.6-99.5	0.87
p	<0.001		<0.001		0.11		
Would you recommend this test to your relatives and friends							
Oral fluid test	94.1 (459/488)	91.6-95.8	92.6 (274/296)	89.0-95.0	96.4 (185/192)	92.7-98.2	0.08
Capillary blood test	99.0 (485/490)	97.6-99.6	99.3 (303/305)	97.6-99.8	98.4 (182/185)	95.3-99.5	0.58
p	<0.001		<0.001		0.17		

* Measures of OraQuick® validity and performance were calculated compared to HIV positive serostatus, which was defined by either having a positive capillary blood rapid test or when the patient self reported a positive HIV serostatus prior to testing.

[Diagnostic accuracy and acceptability of oral fluid test vs capillary blood test]

THPDD01 Knowing and resolving stigma

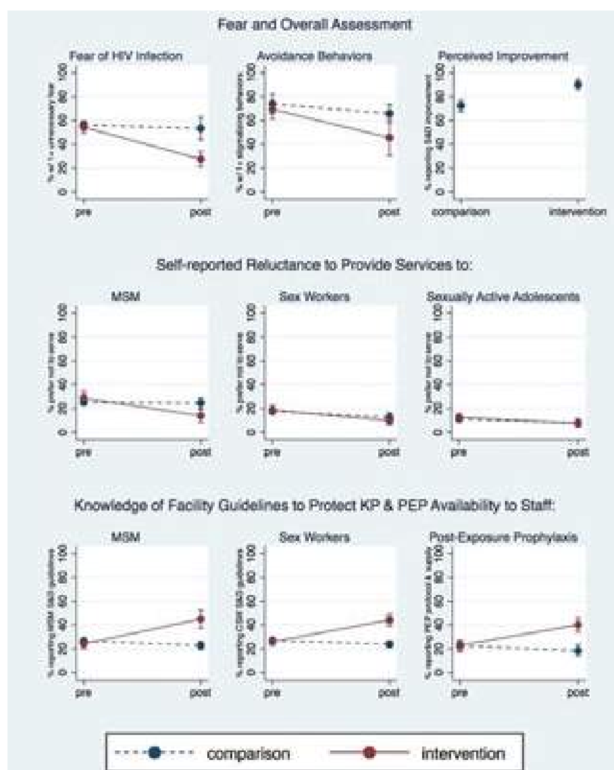
THPDD0108LB

Reducing health worker stigma and discrimination is critical to reaching 90-90-90 targets and is possible: Evaluation results of a whole-facility approach in Ghana

L. Nyblade[1], N.A. Addo[2], K. Atuahene[3], E. Gyamera[2], C. Stewart[1], S. Jacinthe[4], E. Essandoh[4], N. Alsoufi[4], R. Vormawor[2], J. Kraemer[5]
[1]HP+/RTI International, Washington, United States, [2]Educational Assessment and Research Center, Accra, Ghana, [3]Ghana Aids Commission, Accra, Ghana, [4]United States Agency for International Development, Accra, Ghana, [5]Georgetown University, Washington, United States

Background: Achieving 90-90-90 targets requires addressing structural factors to reach people who are hidden due to stigma and discrimination(S&D) from HIV, key population or other marked status. S&D in health facilities are particularly detrimental, yet their reduction is not a standard or scaled practice in most HIV interventions or health systems. Lack of evaluated S&D-reduction interventions is a contributing factor. The USAID-and-PEPFAR-funded Health-Policy-Plus project has partnered with the Ghana AIDS Commission and the Educational Assessment Research Center, with support from The Global Fund, to test a whole-facility approach to S&D-reduction.

Methods: Representative baseline (n=717 females/432 males; August 2017) and endline (n=778 females/371 males; April 2018) surveys capturing stigma-drivers and manifestations from health facility staff (HFS) in 10 high-HIV caseload facilities (5 intervention matched with 5 comparison), in five regions of Ghana. Endline data was collected six months after starting the still-ongoing intervention. We estimated before-after trends and differences-in-differences by fitting generalized linear models with identity link functions and binomial error distributions. Standard errors were clustered by facility. Interventions included: capacity building for facility-based S&D-reduction training teams (health workers+clients); 2-day participatory training for all staff levels (clinical+non-clinical), targeting 70% of all facility staff; facility-based S&D-reduction champion teams that led onsite activities. All 10 facilities received baseline data collection and participatory data validation that included action planning.



[Changes in Fear, Care Willingness, and Knowledge of Policy]

Selected Difference-in-Differences (change) in pre-post data collection, comparing intervention (n=1,198) to comparison (n=1,110) health facilities							
S&D indicator	% difference in change between intervention and comparison facilities in non-stigmatizing direction	Significance (P-value)	95% Confidence Interval	S&D indicator	% difference in change between intervention and comparison facilities in non-stigmatizing direction	Significance (P-value)	95% Confidence Interval
Fear of HIV transmission during routine care for people living with HIV				*Routinely engaging in unnecessary and stigmatizing avoidance behaviors with clients living with HIV*			
Touching clothing of a client living with HIV (n= 1,848)	11.25%	0.037	7.0, 21.8	Avoid physical contact (n=1,827)	1.7%	0.367	-2.0, 5.42
Dressing wounds of a client living with HIV (n=1,513)	18.92%	0.001	7.46, 30.39	Wear double gloves (n=1,673)	16.73%	0.001	6.90, 26.56
Drawing blood from a client living with HIV (n=1,588)	23.29%	<0.001	14.53, 32.04	Wear gloves during all aspects of the patient´s care (n=1,698)	4.2%	0.320	-3.92, 11.97
Taking the temperature of a client living with HIV (n=1,613)	6.7%	0.184	-3.21, 16.67	Use extra precautionary measures only with clients living with HIV (n=1,678)	24.67%	<0.001	17.46, 31.88
Composite: at least one of the above (n=1,958)	**23.86%**	**<0.001**	**10.69, 37.04**	**Composite: usually engage in at least one of the avoidance behaviors (n=1,940)**	**15.65%**	**0.011**	**3.61, 27.70**
Own preference to not treat men who have sex with men				*Own preference to not treat sex workers*			
Men who have sex with men (n= 2,275)	14.2%	0.001	5.71, 22.59	Sex workers (n= 2,274)	3.8%	0.238	-2.51, 10.08

[Selected Difference-in-Differences (change) in pre-post data collection, comparing intervention (n=1,198) to comparison (n=1,110) health facilities]

Results: There were statistically significant before-after improvements in most outcome domains in intervention facilities (Table 1/Figure 1), and smaller improvements in comparison facilities. We observed statistically significant difference-in-differences in reductions in unnecessary fear (23.9%; p< 0.001), stigmatizing avoidance behaviors (15.7%; p=0.011), preferences not to treat MSM (14.2%; p=0.001), as well as several facility policies. Intervention facilities' staff were 21.5% (p=0.019) more likely to report that behavior toward patients was much better at follow-up than comparison staff. Key intervention ingredients include: data to define the problem and catalyze action; building facility ownership and facility-led response; participatory training; empowered HFS champions.

Conclusions: S&D-reduction interventions targeting the whole facility are feasible, welcomed, and stimuli for change in a short time frame (6-months). Reducing S&D in health facilities is critical to improving quality of care to ensure equitable access to services for all.

TUPDX01 PrEP in the real world: What are we learning?

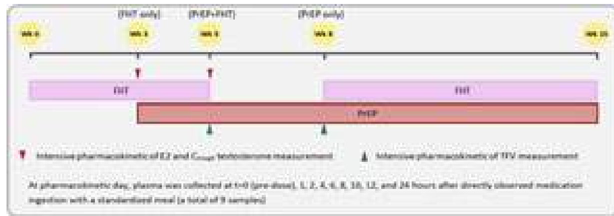
TUPDX0107LB

Drug-drug interactions between the use of feminizing hormone therapy and pre-exposure prophylaxis among transgender women: The iFACT study

A. Hiransuthikul[1], K. Himmad[1], S. Kerr[2,3], N. Thammajaruk[2], T. Pankam[1], R. Janamnuaysook[1], S. Mills[4], R. Vannakit[5], P. Phanuphak[1], N. Phanuphak[1], iFACT study team
[1]The Thai Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand, [2]HIV-NAT, The Thai Red Cross AIDS Research Centre, Bangkok, Thailand, [3]Kirby Institute, University of New South Wales, Sydney, Australia, [4]LINKAGES Thailand FHI 360, Bangkok, Thailand, [5]Office of Public Health, United States Agency for International Development, Bangkok, Thailand

Background: Concerns about potential drug-drug interactions (DDI) between feminizing hormone therapy (FHT) and pre-exposure prophylaxis (PrEP) have hampered uptake and adherence of PrEP among transgender women (TGW). To determine DDI between FHT and PrEP, we measured pharmacokinetic parameters of blood plasma tenofovir (TFV), estradiol (E2), and testosterone.

Methods: Twenty TGW who never underwent orchiectomy and had not received injectable FHT within 6 months were enrolled between January and March 2018. FHT (estradiol valerate 2 mg and cyproterone acetate 25 mg) were prescribed to participants at baseline until week 5, and week 8 until the end of study. PrEP (tenofovir disoproxil fumarate 300 mg/emtricitabine 200 mg) was initiated at week 3 and continued without interruption. Intensive E2 pharmacokinetic parameters and trough serum testosterone concentration (C_{trough}) were measured at weeks 3 and 5 (assessing DDI between PrEP and FHT), and intensive TFV pharmacokinetic parameters were measured at weeks 5 and 8 (assessing DDI between FHT and PrEP).



[iFACT study scheme]

E2 pharmacokinetic parameter	Week 3 (FHT only)	Week 5 (PrEP+FHT)	GMR (95%CI)	p-value
AUC_{0-24} (pg*h/mL)	775.13 (26.2)	782.84 (39.6)	1.01 (0.89 - 1.15)	0.88
C_{max} (pg/mL)	51.47 (26.9)	55.76 (32.9)	1.08 (0.94 - 1.24)	0.25
C_{24} (pg/mL)	15.15 (42.0)	14.32 (67.4)	0.95 (0.75 - 1.19)	0.63
Half-life (h)	11.25 (32.6)	11.83 (50.9)	1.05 (0.87 - 1.27)	0.60
TFV pharmacokinetic parameter	Week 5 (PrEP+FHT)	Week 8 (PrEP only)	GMR (95%CI)	p-value
AUC_{0-24} (mg*h/L)	2.28 (26.2)	2.63 (26.9)	0.87 (0.78 - 0.96)	0.009
C_{max} (mg/L)	0.36 (34.8)	0.32 (25.3)	1.10 (0.95 - 1.28)	0.2
C_{24} (mg/L)	0.04 (28.8)	0.05 (28.0)	0.83 (0.76 - 0.90)	<0.001
Half-life (h)	15.19 (15.4)	15.69 (23.0)	0.97 (0.88 - 1.07)	0.53

[Summary of E2 and TFV pharmacokinetic parameters; data are presented in geometric mean (%CV)]

Results: Median (IQR) age, BMI, and CrCl were 21.5 (21-26) years, 20.6 (19.0-22.4) kg/m², and 0.86 (0.75-0.94) mL/min, respectively. The geometric mean (%CV) of area under curve from time zero to 24 hr (AUC_{0-24}), maximum concentration (C_{max}), and concentration at 24 hr (C_{24}) of E2 at weeks 3 and 5 were 775.13 (26.2) pg*h/mL, 51.47 (26.9) pg/mL, and 15.15 (42.0) pg/mL; and 782.84 (39.6), 55.76 (32.9), and 14.32 (67.4), respectively. The geometric mean (%CV) of TFV AUC_{0-24}, C_{max}, and C_{24} at weeks 5 and 8 were 2.28 (26.2) mg*h/L, 0.36 (34.8) mg/L, and 0.04 (28.8) mg/L; and 2.63 (26.9), 0.32 (25.3), and 0.05 (28.0), respectively. The geometric mean of AUC_{0-24} and C_{24} of TFV at week 5 were significantly less than that at week 8 by 13% (p=0.009) and 17% (p< 0.001), respectively. There were no significant changes in E2 pharmacokinetic parameters and median (IQR) C_{trough} of bioavailable testosterone between week 3 and 5.

Conclusions: Our study demonstrated lower plasma TFV exposure in the presence of FHT, suggesting that FHT may potentially affect PrEP efficacy among TGW; but E2 exposure was not affected by PrEP. Further studies are warranted to determine whether these reductions in TFV are clinically significant.

Late Breaker Poster Exhibition

FRAD01 Bound and gagged: Exposing the impact of the expanded Mexico City policy

Track A

LBPEA001

Surface signature of HIV latently-infected cells revealed using direct hybridization-based digital counting

H.S. Sperber[1,2], L.R. Chavez[1,3], S.K. Pillai[1,3]
[1]*Blood Systems Research Institute, San Francisco, United States, [2]Free University of Berlin, Biochemistry, Berlin, Germany, [3]University of California, San Francisco, United States*

Background: The main obstacle to a cure for HIV infection is a population of long-lived HIV latently-infected cells that persist during antiretroviral therapy (ART). Upon cessation of ART, remaining latently-infected cells typically undergo reactivation and reinitiate spreading of viral infection. Identification of a reliable surface biomarker of HIV latently-infected cells will be critical to eradicating the latent reservoir. We implemented a direct hybridization-based digital counting approach to identify a cellular transcriptomic and proteomic signature of latent HIV infection.
Methods: We infected fresh primary CD4+ T cells collected from healthy donors with a specialized dual-reporter virus that enables isolation and characterization of HIV latently-infected, productively-infected, and uninfected cells. We then implemented the nanoString nCounter platform, a direct hybridization-based, nucleic acid counting technology enabling simultaneous detection and quantification of 770 mRNA and 30 surface protein targets. Expression patterns were compared between the populations using t-tests with a p< 0.01 cutoff.
Results: Virus-unexposed control cells exhibited a dramatically different expression pattern compared to virus-exposed, uninfected cells, indicative of bystander effects or effects of abortive infection. Virus-exposed uninfected and HIV productively-infected cells exhibited a similar surface protein expression pattern, except for a specific downregulation of CD4 and upregulation of GITR protein on the surface of productively infected cells. The expression of 6 mRNAs (*CCL5*, *IL2RA*, *CCL3L1*, *BCL2L1*, *CSF1*, *CD80*) and one surface protein (IL2R) target was significantly elevated in productively infected cells as compared to uninfected cells. HIV latently-infected cells featured a distinct surface protein expression signature with respect to both uninfected and productively infected cells; expression of nine targets (HLA-DRA, CD28, NT5E, CD27, CD8A, CD163, NKP46, CTLA-4, CD45) was specifically elevated on the surface of HIV latently-infected cells.
Conclusions: The application of direct hybridization-based digital counting to primary cell-based models of HIV latency is a promising approach to simultaneously discover intracellular and extracellular biomarkers of latent infection. Surface expression of TNF receptor superfamily members associates with HIV transcriptional states; therefore, the TNF superfamily may include pharmacologic targets for eradication efforts. Our results warrant validation using clinical samples from ART-suppressed HIV-infected individuals.

LBPEA002

Characterization of the HIV-1 reservoir in $CD32^+$ $CD4^+$ T cells

G. Darcis[1,2], N. Kootstra[3], B. Hooibrink[4], T. van Montfort[1], S. Jurriaans[5], M. Bakker[1], C. van Lint[6], B. Berkhout[1], A. Pasternak[1]
[1]*University of Amsterdam, Laboratory of Experimental Virology, Amsterdam, Netherlands, [2]Liège University Hospital, Infectious Diseases Department, Liège, Belgium, [3]University of Amsterdam, Department of Experimental Immunology, Amsterdam, Netherlands, [4]University of Amsterdam, Department of Cell Biology, Amsterdam, Netherlands, [5]University of Amsterdam, Laboratory of Cinical Virology, Amsterdam, Netherlands, [6]Université Libre de Bruxelles, Service of Molecular Virology, Bruxelles, Belgium*

Background: CD32 was reported to mark the HIV-1 reservoir harboring replication-competent proviruses, but several recent reports challenged this finding. We aimed to confirm or deny the usefulness of CD32 as a marker of the latent reservoir and to further characterize the phenotype of these $CD32^+$ $CD4^+$ T-cells, as well as the transcriptional activity of HIV-1 residing in this reservoir.
Methods: CD32 expression was measured by flow cytometry on PBMCs from ART-treated HIV-1 infected patients (n=18) and uninfected controls (n=3). Co-expression of HLA-DR, immune checkpoint receptors (PD-1, TIGIT, LAG-3) and CD2 was measured by flow cytometry. HIV-1 DNA and unspliced RNA were quantified in bulk PBMC samples and in $CD32^+$ and $CD32^-$ fractions sorted with magnetic beads.
Results: The median frequency of $CD32^+$ $CD4^+$ T-cells in HIV-infected individuals was 0.07% (range 0.0078%-0.87%), which was significantly higher than in the controls (0.01%, p=0.0158). Overall, $CD32^+$ $CD4^+$ T-cells were not enriched for HIV-1 DNA or RNA compared with $CD32^-$ $CD4^+$ cells (n=18). However, in a subgroup of patients with smaller $CD32^+$ $CD4^+$ T-cell fractions (n=9), we observed a significant enrichment for HIV-1 DNA in this fraction compared to the corresponding $CD32^-$ $CD4^+$ fraction (average of 5.7-fold, p=0.012).
We also found a positive correlation between the percentage of $CD32^+$ $CD4^+$ T-cells and total HIV-1 DNA load in PBMCs (rho=0.58; p=0.012). $CD32^+$ $CD4^+$ T-cells demonstrated increased expression of LAG-3 (p=0.0156), TIGIT (p=0.0156) and HLA-DR (p<0.0001) compared with $CD32^-$ $CD4^+$ T-cells in HIV-infected patients. We did not observe a statistically significant change in PD-1 and CD2 expression between the $CD32^+$ or $CD32^-$ $CD4^+$ T-cell populations.
Conclusions: We confirmed that $CD32^+$ $CD4^+$ T-cells are enriched for HIV-1 DNA, although the level of enrichment was less pronounced than previously reported. Our results suggest that the CD32 expression level in the $CD32^+$ $CD4^+$ T-cell fraction correlates with the level of HIV-1 enrichment in this fraction, which underscores the importance of using highly CD32-expressing cells for analysis and might explain the negative results obtained by others. Our data further indicate that these $CD32^+$ $CD4^+$ T-cells are active, rather than resting cells, and that they often co-express the immune checkpoint receptors TIGIT and LAG-3.

LBPEA003

ART does not inhibit antigen presenting cell-mediated HIV *trans* infection

G. Rappocciolo[1], D. Delucia[1], N. Sluis-Cremer[1,2], C. Rinaldo[1]
[1]*University of Pittsburgh, Infectious Diseases and Microbiology, Pittsburgh, United States, [2]University of Pittsburgh, School of Medicine, Pittsburgh, United States*

Background: Professional antigen presenting cells (APC; dendritic cells [DC], macrophages, B cells) mediate highly efficient HIV *trans* infection of CD4+ T cells, which could contribute to the persistent HIV reservoir during ART. We evaluated *trans* infection by APC from HIV-infected individuals on suppressive ART in the Multicenter AIDS Cohort Study (MACS) to define the role of APC-T cell virus spread in HIV persistence.
Methods: HIV R5-tropic Bal-loaded APC from 10 chronic HIV-infected MACS participants (PR) before and after initiation of ART, and APC from 5 seronegative controls (SN) treated with ART *in vitro* (CCR5 agonist, NRTI, PI and NNRTI, alone or in combination), were mixed with autologous or heterologous CD4+ T lymphocytes to assess *trans* infection. To control

for the effect of residual ART, APC *trans* infection was also tested with both autologous and heterologous SN CD4+ T cells. Virus replication was measured by p24 ELISA
Results: APC from all 10 HIV-infected PR *trans* infected CD4+ T cells with equivalent efficiency either prior to or after initiation of ART *in vivo*. In sharp contrast, their CD4+ T cells were resistant to direct, *cis* infection, showing >90% inhibition compared to pre-ART susceptibility. APC from 5 SN exposed in vitro to 4 different classes of ART alone or in combination at physiological concentrations, maintained their ability to *trans* infect CD4+ T cells, while *cis* infection of their CD4+ T cells was inhibited (>90%). *Trans* infection was only inhibited when DC and/or CD4 T cells from SN were exposed *in vitro* to the CCR5 antagonist maraviroc (25-75% inhibition through 12 days of culture) or the NNRTI rilpivirine (90% inhibition by day 12). Strikingly, when B cells were used, none of the drugs tested *in vitro* inhibited *trans* infection.
Conclusions: We show for the first time that APC from PR on ART maintain their ability to *trans* infect CD4+ T cells, which was confirmed *in vitro* in APC from SN. This supports a central role for APC-mediated *trans* infection in maintaining the HIV reservoir despite virus-suppressive ART.

LBPEA004

Evidence of HIV replication in tissue samples at autopsy from donors on cART with undetectable HIV RNA in blood

V. Natarajan[1], Y. Badralmaa[1], H.C. Lane[2]
[1]Leidos Biomedical Research Inc, Frederick, United States, [2]National Institute of Allergy and Infectious Diseases, Clinical and Molecular Retrovirology Section, Laboratory of Immunoregulation, Bethesda, United States

Background: When antiviral therapy is interrupted in HIV patients with prolonged viral suppression, invariably viral rebound occurs suggesting potential viral reservoirs. Source of the viral rebound is thought to be either the activation of latently infected cells or from tissues that had low antiviral drug penetrance. To investigate the potential tissue reservoir, samples obtained at autopsy from patients with suppressed viremia were analyzed for viral DNA and RNA.
Methods: Autopsy samples were collected from donors who were compliance with antiviral therapy and died from causes unrelated to HIV. The following samples were obtained from donors within 24 h after their death: Frontal cortex, parietal cortex, temporal cortex, brain-white matter, lymph node, liver, spleen, terminal ilium, transverse colon, sigmoid colon, esophagus-Mucosa, pancreas, stomach, heart, kidney and tonsil. HIV DNA and RNA levels in purified nucleic acids from blood and different tissues were estimated using two different primers and probes from the gag region to increase the sensitivity of detection. Quality of the RNA from the tissues was monitored by spiking the samples with Rous sarcoma virus (RSV) and estimating the RSV RNA recovered.
Results: Even though the blood sample from five donors had HIV DNA, viral RNA was undetectable in all of them indicating the suppression of viral replication. HIV DNA was found in many of the tissue samples examined. Additionally, HIV RNA was found in lymph node (1/5), colon (4/5), spleen (3/5), brain (3/5), kidney (1/5), and liver (3/5). Interestingly, three of these patients were diabetic with kidney disease and the highest level of HIV DNA was found in their kidney.
Conclusions: Presence of HIV RNA in tissue samples from all patients with "undetectable" viral RNA in their blood indicates ongoing transcription of proviral DNA. This may represent persistent viral replication and/or transcripts from "defective" proviruses in those organs.

LBPEA005

Single-cell RNA-seq reveals a distinct transcriptomic signature of CD32+ CD4+ T cells from HIV+ individuals on suppressive therapy

M. Abdel-Mohsen[1], A. Kossenkov[1], C. Tomescu[1], S. Vadrevu[1], L. Giron[1], K. Lynn[2], K. Mounzer[3], P. Tebas[2], L. Montaner[1]
[1]The Wistar Institute, Philadelphia, United States, [2]University of Pennsylvania, Philadelphia, United States, [3]Jonathan Lax Center, Philadelphia FIGHT, Philadelphia, United States

Background: CD32 was suggested as a marker of the replication-competent HIV reservoir. However, we recently reported that CD32 is expressed on cells with transcriptionally active HIV but does not enrich for HIV DNA in resting T cells [PMID 29669853; *Sci Transl Med*. 2018]. CD32 may represent a tool to better understand persistent HIV transcription during suppressive antiretroviral therapy (ART). We used single-cell RNA-sequencing to characterize the transcriptomic signature of CD32+ CD4+ T cells from HIV+ individuals on ART.
Methods: CD32+ CD4+ and CD32- CD4+ T cells were sorted from HIV+ ART-suppressed individuals using Fluorescence-activated cell sorting (FACS). The nanowell-based single-cell RNA-sequencing system, ICELL8, was used to characterize the single-cell transcriptomes of 151 CD32+ CD4+ T cells and 186 CD32- CD4+ T cells. Only cells with >100,000 reads were considered for subsequent analysis (131 CD32+ CD4+ T cells and 66 CD32- CD4+ T cells). False discovery rates (FDR) were calculated to account for multiple comparisons in statistical analyses. Ingenuity pathway analysis (IPA) was used to evaluate the functional significance of differentially expressed genes.
Results: All sorted cells expressed CD3 transcripts, suggesting a T cell lineage, as expected. 17.6% of CD32+ CD4+ T cells expressed CD32b transcripts compared to only 3% of CD32- CD4+ T cells. Out of the 17.6%, 9.2% also expressed transcripts of non-T cell markers (CD14, CD19, CD86, CD68, CD79A, or CD79B). We compared the transcriptomic profile of CD4+ T cells express CD32b but not any of the non-T cell markers to CD4+ T cells express neither CD32b transcripts nor any non-T cells markers. 20 genes were differentially expressed between CD32+ CD4+ T cells and CD32- CD4+ T cells (FDR < 0.05), including genes associated with protein ubiquitination, IL-10, Toll-like Receptor, PI3K/AKT, TNFR1, and IL-6 signaling pathways (FDR< 20%).
Conclusions: Our analysis identified several transcriptomic pathways that are differentially expressed in the CD32+ CD4+ T cells and may contribute to the higher HIV transcriptional activity we previously observed in this population. Our transcriptomic signatures highlight host factors and pathways that may be targeted to manipulate the levels of latent HIV transcription during suppressive ART.

LBPEA006

FDA-approved chemotherapeutic drugs that inhibit VEGF, RAF-1, B-RAF and the proteosome reverse HIV latency without global T cell activation

I. Munoz-Arias[1], E. Gibson[2], E. Hanhauser[3], G. Wu[4], C. Thanh[5], M.A. Mohsen[5], L. Hogan[6], K. Hobbs[5], B. Howell[7], S. Pillai[8], S. Deeks[5], T. Henrich[5]
[1]University of California at San Francisco, Department of Experimental Medicine, San Francisco, United States, [2]University of Califronia at San Francisco, San Francisco, United States, [3]MIT, Boston, United States, [4]Merck & Co, Department of Infectious Diseases, West Point, United States, [5]University of California at San Francisco, San Francisco, United States, [6]Trinitinity College, Dublin, United Kingdom, [7]Merck, Readington Township, United States, [8]University of California at San Fracisco, San Francisco, United States

Background: Drugs that reactivate latent HIV-1 reservoirs without global CD4+ T cell activation are urgently needed. Novel cancer therapeutic drugs are promising given the ability to target specific cell signaling pathways that may directly reverse HIV latency.
Methods: A panel of small-molecule chemotherapeutic compounds were screened for their capacity to reactivate HIV-1 from cART-suppressed HIV-1 infected patient-derived CD4+ T cells. To estimate reac-

tivation, increased cell-associated unspliced HIV-1 Gag RNA was measured by qPCR. To determine the frequency of individually HIV-1 reactivated cells, a novel single-cell-in-droplet (scd) PCR method was used. Viral production was measured by testing cell lysates and supernatant using the ultrasensitive Simoa p24 ELISA. Cells were also treated with Romodepsin and Bryostatin for comparison. Uninfected CD4+ T cells treated with drugs of interest were then analyzed for expression of surface activation markers, NF-B or NFAT target transcription and translation. The drug screen was then expanded to other compounds that target similar pathways.
Results: We identified several major cellular pathways whose inhibition leads to HIV reactivation. Bortezomib (26s proteosome), Sorafenib (VEGF/RAF-1/B-RAF), and Sunitinib (VEGFR) induced HIV-1 transcription from cART suppressed patient derived CD4+ T cells. In addition, after 6 days of culture, Bortezomib treatment led to increased HIV p24 detection in supernatant whereas Sunitinib and Sorafenib treatment resulted in greater p24 production in cell lysates.
None of these drugs induced global cell activation or production of the NFkB/NFAT targets tested. Single-cell ddPCR testing showed that these drugs led to a higher frequency of individual HIV Gag RNA+ cells, even when compared to Romodepsin (HDAC inhibitor) and Bryostatin (PKC agonist).
Of note, sunitinib-dependent HIV reactivation was muted by concurrent treatment with the mTOR inhibitor, PP242. To confirm that the inhibition of these pathways is involved in HIV reactivation, we identified four additional drugs that target these pathways (Axitinib, Cabozantinib, Regorafenib, Carfilzomib) and led to HIV-1 reactivation in primary CD4+ T cells.
Conclusions: We identified and characterized, for the first time, seven FDA approved chemotherapeutic drugs targeting VEGFR, BRAF/RAF-1 and the proteosome that induce HIV-1 reactivation from cART-suppressed patient CD4+ T cells with minimal CD4+ T cell activation or cytotoxicity.

LBPEA007

Broadly neutralizing antibodies reduce latent HIV infection in a primary T_{CM} model of latency

R.S. Resop, G. Mantus, A.B. Macedo, R. Lynch, A. Bosque
George Washington University, Microbiology, Immunology and Tropical Medicine, Washington, United States

Background: Broadly neutralizing antibodies (bNAbs) that target key epitopes on the HIV-1 Env protein, including the CD4 binding site, V1V2-apex and gp41, are of great interest as avenues for eradication of HIV. Although much literature exists on how bNAbs affect productive infection of HIV, less is known about how they impact establishment of latency. To address this question, we investigated whether bNAbs prevent establishment of latent HIV infection using our primary T central memory (T_{CM}) model of latency.
Methods: Briefly, we isolated naïve CD4+ T cells, activated and expanded them, and infected with NL4-3. Following infection, we crowded to allow cell-to-cell transmission, viral replication and establishment of latency, introducing bNAbs at this time point. We then treated with antiretroviral therapy and isolated CD4+ cells to eliminate productively infected cells. To assess levels of HIV latency, we reactivated for 48 hours with IL-2, CD3/28, or media-only control. Using this in vitro protocol, we examined whether administration of various bNAbs during the crowding phase of our model would 1) Reduce cell-to-cell transmission of virus and 2) Translate to reduced latent virus upon reactivation. We tested three bNAbs: 10E8, VRC-PG04 and PG09, in addition to an isotype control (C10).
Results: We first characterized the effect of bNAbs on productive infection by measuring intracellular p24 via flow cytometry. We found that for all three bNAbs we tested, cell-to-cell transmission was inhibited. We determined IC50 and IC90s for VRC-PG04 and 10E8 by 8-point titration in primary cells. Because VRC-PG04 was the most effective antibody (IC50 of 2.45 μg/mL vs. 14.85 μg/mL for 10E8), we further tested this bNAB over the full course of the model and found that treatment with VRC-PG04 can also prevent the establishment of latency. Interestingly, latent infection appeared more sensitive to inhibition by bNAbs than productive infection.
Conclusions: We demonstrate that broadly neutralizing antibodies may be effective at reducing not only productive HIV infection but also establishment of latent infection in a primary T_{CM} model of latency. These results indicate that the T_{CM} model of latency may be a valuable tool to investigate the role of VRC-PG04 and other bNAbs in preventing establishment of latency.

LBPEA008

Dendritic cells drive antigen-specific exposure and immune elimination of HIV latently infected CD4+ T cells

J. Kristoff[1], N. Sluis-Cremer[2], M. Palma[1], T. Garcia-Bates[1], P. Gupta[1], C. Rinaldo[1], R. Mailliard[1]
[1]*University of Pittsburgh, Infectious Diseases and Microbiology, Pittsburgh, United States,* [2]*University of Pittsburgh, Microbiology and Medicine, Pittsburgh, United States*

Background: Exposing the latent reservoir of replication-competent HIV in ART-suppressed individuals is a major barrier to a cure. While dendritic cells (DC) have safely induced T cell responses in clinical trials of HIV, their HIV latency reversal (LR) potential has been underexplored. Here we investigate the use of type-1 polarized DC (DC1) to drive both antigen-specific HIV LR and CTL targeting of the exposed autologous HIV cellular reservoir.
Methods: Monocyte-derived DC1 were generated from chronic HIV-infected Multicenter AIDS Cohort Study participants on ART and tested for inducing HIV LR in naturally infected autologous CD4+ T cells, with or without HIV, CMV, or Flu antigens. CD3/CD28 activation served as the positive LR control. LR was determined by quantifying HIV RNA and intracellular expression of p24. DC1-induced HIV-specific CTL were used as autologous effectors against the DC-activated CD4+ T cells in cytotoxicity and viral outgrowth assays.
Results: DC1 induced both antigen-specific HIV LR and CTL capable of effectively killing the exposed HIV-infected targets. Importantly, the DC1-mediated latency reversal was antigen dependent, with CMV and HIV antigen having notable LR activity, while Flu antigen did not. Moreover, DC1 LR activity was sharply diminished with CD40L/CD40 blockade (94.1% ± 6.1% and 85.3% ± 13.2% inhibition of RNA and p24 expression, respectively), supporting the required involvement of cognate antigen-driven bidirectional signaling events between the DC1 and the antigen-responsive CD4+ T cells. Importantly, the DC1 LR activity exposed those targets harboring replication-competent virus, which were efficiently controlled by broadly reactive, DC1-induced HIV-specific CTL in respective short- and long-term cytotoxicity (75.4% ± 14.3% killing) and viral outgrowth (85.4% ± 13.5% suppression of p24) assays.
Conclusions: DC1 are uniquely capable of both activating HIV in latently infected CD4+ T cells and promoting their immune targeting by HIV-specific CTL. Inclusion of common MHC class II viral epitopes in DC1-based HIV immunotherapies, such as those derived from CMV, could promote sufficient CD4+ T cell ‚help' to support CTL induction, while serving as a safe and effective targeted means to unmask the latent HIV reservoir in antigen-specific CD4+ T cells.

LBPEA009

ABX464, by binding the CBC 80/20 complex, enhances pre-mRNA splicing, resulting in the generation of novel HIV-derived RNA species and in increased expression of the anti-inflammatory miR124

J. Tazi[1], A. Vautrin[2], L. Manchon[3], A. Garcel[2], N. Campos[2], K. Chebli[3], D. Scherrer[2], J.-M. Steens[4], H. Ehrlich[4]
[1]*University of Montpellier, Montpellier, France,* [2]*ABIVAX, Montpellier, France,* [3]*University of Montpellier, CNRS, Montpellier, France,* [4]*ABIVAX, Paris, France*

Background: ABX464 is a first-in-class, clinical stage small molecule with at least three biological effects when given to HIV patients: 1) an antiviral effect, 2) a reduction in HIV-DNA in PBMCs, and 3) an anti-inflammatory effect through increased expression of miR-124 in rectal tissue.

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In earlier studies, the antiviral effect was shown to be mediated through enhanced splicing of viral mRNA, while there was only a negligible effect on pre-mRNA splicing of cellular genes.
Methods: Using customized library probes targeting HIV sequences, cDNAs were prepared from infected PBMCs (+/- ABX464) of 6 donors. Given that the target of ABX464, the CBC complex, is also involved in the biogenesis of small non coding RNA including microRNAs, we also performed a microarray analysis of these RNAs from 6 healthy donors.
Results: In all samples treated with ABX464, 90% of assembled contigs corresponded to spliced RNA.In contrast, in untreated samples, >90% of the viral RNA is full length and unspliced. After filtering and analysis of splicing events in treated samples, 3 novel species of spliced RNA were identified. The capacity of these novel RNAs to generate immunogenic peptides is currently being tested.
While infection leads to large variations in the expression of small non coding RNAs, ABX464 induced a reproducible upregulation of a single microRNA, i.e. miR124, in both infected and non infected cells. This upregulation was only observed with locus miR124.1, which happens to have different long non coding transcripts that could be responsible for the biogenesis of miR124. ABX464 enhanced the splicing of a single long non coding RNA in this locus.
Conclusions: Our findings substantiate a mechanism of action of ABX464 that starts with CBC 80/20 binding, leading to a conformational change of this regulatory protein and enhanced splicing of a viral as well as a non coding RNA. HIV viral load reduction and, via upregulation of miR124, the generation of a therapeutic anti-inflammatory response are direct consequences of this mechanism. We are currently studying whether the observed reduction of HIV reservoir cells could be caused by the initiation of an immune response, e.g. through novel peptides/proteins generated by the modulation of splicing.

LBPEA010

Low CCR5 expression protects specific CD4+ T cells of HIV controllers from viral entry

M. Claireaux[1], R. Robinot[1], I. Staropoli[1], A. Brelot[1], M. Héry[1], M. Patgaonkar[1], A. Nouël[1], S. Volant[2], E. Perthame[2], F. Boufassa[3], D. Zucman[4], P. de Truchis[5], O. Lambotte[6,7,8], L.A. Chakrabarti[1,9]
[1]Pasteur Institute, Virus and Immunity Unit, CIVIC Group, Paris, France, [2]Pasteur Institute, Bioinformatics and Biostatistics Hub, Paris, France, [3]INSERM U1018, Center for Research in Epidemiology and Population Health, Le Kremlin-Bicêtre, France, [4]Fochh Hospital, HIV Unit, Suresnes, France, [5]AP-HP, Raymond Poincaré Hospital, Infectious and Tropical Diseases Department, Garches, France, [6]INSERM U1184, Center for Immunology of Viral Infections and Autoimmune Diseases, Le Kremlin-Bicêtre, France, [7]AP-HP, University Hospital Paris Sud, Department of Internal Medicine and Clinical Immunology, Le Kremlin-Bicêtre, France, [8]Paris Sud University, UMR1184, Le Kremlin-Bicêtre, France, [9]INSERM, U1108, Paris, France

Background: HIV controllers, who spontaneously contain HIV replication to very low levels, develop particularly efficient antiviral T cell responses. To gain insights into the contribution of the CD4 helper subset to HIV control, we characterized the differentiation status of HIV-specific CD4+ T cells at the single cell level.
Methods: CD4+ T cells reactive with MHC-II tetramers specific for the most immunodominant HIV epitope (Gag293) were analyzed by multiplexed real-time qPCR (Biomark, Fluidigm) combined with multiparametric flow cytometry. HIV controllers from the ANRS CODEX-CO21 cohort with a viral load < 50 copies/mL were compared to efficiently treated patients with an equivalently low viral load.
Results: Gag293-specific cells from HIV controllers proved to express lower levels of CCR5 and PD-1 than those of treated patients, while CCL5 and TRBV2 expression were increased. As low expression of the HIV coreceptor CCR5 may inhibit HIV entry, we tested the susceptibility of Gag293-specific CD4+ T cells to fusion with an HIV-1 JRFL-BlaM-Vpr reporter virus. HIV controller specific cells proved less susceptible to HIV fusion than those of treated patients (P=0.017). Moreover, CCR5 expression in specific cells correlated with HIV fusion (R=0.83, P< 0.005). CCR5 expression in total CD4+ T cells did not reveal significant differences between groups. However, a negative correlation was observed between CCR5 expression in total CD4+ T cells and the frequency of Gag293-specific cells, indicating that the subset of controllers with low CCR5 expression maintained strong CD4 responses. Genetic analysis of one controller with particularly low fusion susceptibility uncovered biallelic mutations that impaired CCR5 expression.
Conclusions: Taken together, these findings reveal a lower susceptibility of HIV controller specific CD4+ T cells to HIV entry, and point to a role for low CCR5 expression in promoting spontaneous HIV control.

LBPEA011

Autophagy suppresses mucosal HIV-1 replication and improves clinical outcomes for HIV-1 infected individuals

A. Cloherty, N. van Teijlingen, J. van Hamme, R. Sarrami-Forooshani, N. Kootstra, T. Geijtenbeek, C. Ribeiro
Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands

Background: Contemporary HIV-1 antiretroviral therapy is highly effective, however, treated HIV-1 patients suffer from severe comorbidities due to persistent viral replication and immune dysfunction. There is thus an urgent need to identify therapeutic targets to enhance antiviral immunity and restore immune function in treated HIV-1 patients. Autophagy functions as an antiviral defense mechanism by degrading viruses and instructing adaptive antiviral T-cell responses. We were the first to show that autophagy inhibits mucosal HIV-1 infection, and to identify the molecular mechanism. Human TRIM5 mediates assembly of an autophagy-activating scaffold to HIV-1 components, which targets HIV-1 for degradation and potently restricts infection of human mucosal dendritic cell (DC) subsets. In this study, we aimed to define the *in vivo* relevance of these autophagy mechanisms in the disease progression of HIV-1 infected individuals. Furthermore, we identified autophagy-enhancing drugs that boost HIV-1 degradation at mucosal sites.
Methods: To this end, we analysed the effect of autophagy polymorphisms on the clinical course of HIV-1 infection in participants of the Amsterdam Cohort studies on HIV-1/AIDS (ACS). Furthermore, we investigated the impact of autophagy-enhancing drugs in HIV-1 infection and transmission using human primary mucosal DCs and *ex vivo* mucosal explant tissue models.
Results: Here, we show a novel protective role for autophagy machinery in HIV-1 infected individuals. Recently, we identified a gene polymorphism in a regulator of TRIM5-mediated autophagy that is associated with decreased plasma viral load, delayed disease progression and improved survival in HIV-1 infected individuals from the ACS. We demonstrated that donors homozygous for this autophagy polymorphism display increased autophagy levels and heightened CD8+T-cell effector responses *in vitro*, indicating a novel link between TRIM5-mediated autophagy and antiviral T-cell immunity. Notably, we have further shown that targeting autophagy with clinically approved drugs everolimus and carbamazepine decreased susceptibility to HIV-1 infection of emigrated DC subsets in *ex vivo* explant models.
Conclusions: Our data strongly suggest a pivotal role for TRIM5-mediated autophagy in limiting mucosal HIV-1 replication and boosting antiviral T-cell immunity. These recent findings underscore the *in vivo* relevance of autophagy mechanisms and the therapeutic potential of autophagy-targeting strategies to intervene in acute and chronic HIV-1 infections.

LBPEA012

Susceptibility to anti-HIV broadly neutralizing antibodies is concordant in plasma vRNA and PBMC proviral DNA compartments and supports potential utility of screening prior to therapy

J. Reeves[1], Y. Zheng[2], Y. Lie[1], L. Burke[3], B. Taiwo[4], C. Petropoulos[1], P. Tebas[5], M. Caskey[6], K. Bar[5], AIDS Clinical Trials Group
[1]Monogram Biosciences, San Francisco, United States, [2]Harvard University, Cambridge, United States, [3]Cornell University, New York, United States, [4]Northwestern University, Chicago, United States, [5]University of Pennsylvania, Philadelphia, United States, [6]The Rockefeller University, New York, United States

Background: Pre-existing resistance is a potential barrier to the efficacy of broadly neutralizing antibodies (bnAbs) for treatment and cure of HIV infection. We tested a panel of clinical samples to determine the range of baseline susceptibilities to bnAbs in clinical development and to assess the PhenoSense HIV Neutralizing Antibody Assay's (PS.HIV.nAb) predictive capacity.

Methods: Three samples (pre-ART plasma and PBMCs from 1 and 3 years of ART) from each of 65 chronically HIV-infected participants of the ART naïve trial A5257 were tested for neutralization sensitivity to seven bnAbs (VRC01, VRC07.523LS, 3BNC117, N6, 10-1074, CAP256-VRC26.25, 10E8) using the PS.HIV.nAb platform, which generates pseudovirions representing plasma vRNA or PBMC proviral DNA envelope quasispecies *(PMCID:PMC153062)*. PBMCs from 9 participants at entry to trial A5340, which evaluated VRC01 during ART interruption, were tested and compared with published plasma neutralization titers and time to rebound *(PMCID:PMC5292134)*. Rank-based Spearman Correlation and Fisher's exact tests were used for statistical analyses.

Results: The participants were 88% were male, 63% white, with median age of 37 years. Baseline viral load was >100,000 copies/ml in 40% of individuals and median CD4 count was 353 cells/mm^3. 50% inhibitory concentrations (IC50s) for the 3 samples are shown in Table 1. IC50s ranged between 1,000-10,000-fold for each bnAb, but pre-ART plasma, year 1 and 3 PBMC values were highly correlated (P< 0.001 for all comparisons). Among the A5340 samples, VRC01 IC50s from entry PBMCs correlated with published pre-ART plasma IC50s available for 5 participants (Spearman r=0.9, P=0.04). In 9 participants with entry PBMCs, VRC01 IC50s did not significantly correlate with time to rebound (Spearman r=0.35, P=0.36), but IC50< 0.5 µg/mL was associated with delayed time to rebound (>8 weeks) and IC50>0.5 µg/mL was associated with rapid rebound (2-5 weeks)(P=0.0278).

Conclusions: We found a wide range in baseline neutralization susceptibilities to clinically relevant bnAbs with highly correlated values across plasma and PBMC-derived pseudovirions over 3 years of ART. PS.HIV.nAb susceptibilities were similar to published values and IC50< 0.5 µg/mL was associated with delayed rebound. Results support the utility of screening for neutralization susceptibility prior to therapeutic bnAb use and suggest PS.HIV.nAb PBMC testing may be a valid approach.

Broadly Neutralizing Antibody	Pre-ART Plasma	Year 1 PBMCs	Year 3 PBMCs
	Median IC50 (Min, Max)	Median IC50 (Min, Max)	Median IC50 (Min, Max)
VRC01	0.758 (0.053, >50)	0.560 (0.063, >50)	0.421 (0.035, >50)
VRC07.523LS	0.135 (0.020, >50)	0.121 (0.017, >50)	0.122 (0.036, >50)
3BNC117	0.103 (0.018, >50)	0.087 (0.019, >50)	0.100 (0.018, >50)
N6	0.243 (0.047, >50)	0.203 (0.038, >50)	0.210 (0.035, >50)
10-1074	0.047 (0.008, >50)	0.044 (0.005, >50)	0.040 (0.003, >50)
CAP256-VRC26.25	>50 (0.003, >50)	>50 (0.003, >50)	>50 (0.002, >50)
10E8	0.921 (0.103, >50)	0.451 (0.032, >50)	0.584 (0.101, >50)

[Neutralization susceptibilities of Pre-ART plasma, Year 1 PBMCs, and Year 3 PBMCs to bnAbs]

Track B

LBPEB013

Long-term immunologic responses to treatment among HIV-1, HIV-2 and HIV-1/2 dually infected patients in Côte d'Ivoire

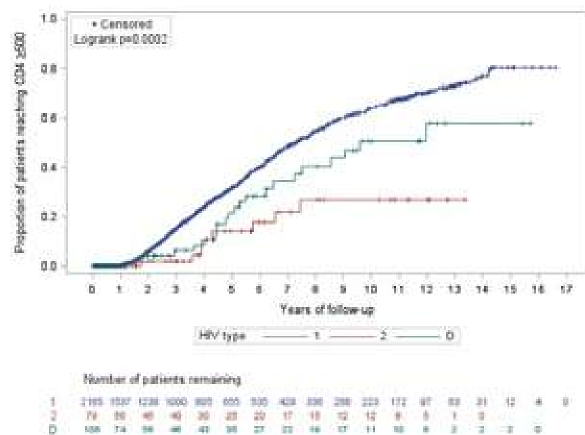
C. Adje epse Toure[1], P. Minchella[2], M. Aka Kouakou Adade[1], G. Zhang[2], K. Diallo[2], J. Hedje[1]
[1]CDC, DGHT, Abidjan, Cote D'Ivoire, [2]CDC, DGHT, Atlanta, United States

Background: HIV-2 accounts for an estimated one to two million people living with HIV worldwide, yet responses to antiretroviral therapy (ART) for individuals infected with HIV-2 or dually infected with HIV-1 and HIV-2 (HIV-D) are poorly understood. We aimed to characterize long-term immunological responses to ART among patients infected with HIV-1, HIV-2, and HIV-D in Côte d'Ivoire

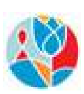
Methods: We analyzed longitudinal data recorded in a laboratory information system for 3,922 adults (≥15 years) attending two HIV clinics in Abidjan, Côte d'Ivoire between 1998 and 2016. Data included demographic information, ART regimens, CD4 counts, and the results of tests for renal, hepatic and hematological abnormalities. Patients were categorized according to their HIV types and stratified by their baseline CD4 cell counts. Kaplan-Meier (KM) methods and Cox regression models were used to assess time to achieving CD4 count ≥500 cells/µl across HIV types and baseline CD4 strata

Results: Patients had a median of 7 recorded visits and 3.9 years of follow-up; 83% had at least one documented ART regimen during follow-up and 53% received ART for >75% of follow-up time. 3,594 (91.68%) patients were infected with HIV-1, 144 (3.67%) with HIV-2, and 182 (4.64%) with HIV-D. Among all patients with baseline CD4 < 200, KM estimates for the likelihood of CD4 ≥500 after ≈6 years were 40% for HIV-1, 18% for HIV-2, and 31% for HIV-D (log-rank p< 0.001). In adjusted Cox regression models both HIV-1 and HIV-D patients with baseline CD4 < 200 were more likely to achieve CD4 ≥500 during follow-up than HIV-2 patients in the same CD4 stratum (HIV-1 vs. HIV-2: adjusted hazard ratio (aHR)= 2.60, 95% CI: 1.29-5.22; HIV-D vs. HIV-2: aHR=2.22, 95% CI=0.99-4.99)

Conclusions: Among patients with low baseline CD4 counts, those with HIV-1 and HIV-D were more likely to have robust immunological responses to ART than those with HIV-2. It is likely that the use of inappropriate and/or ineffective ART regimens among patients with HIV-2 were at least partly responsible for the differential responses. Further studies to identify optimal ART regimens for patients with HIV-2 and low CD4 counts are needed



[Figure 1. Time to achieving CD4 ≥500 cells/µl among adult patients with baseline CD4 <200 cells/µl, by HIV type, 1998 - 2016 (N=3,922)]



LBPEB014

Systematic empirical versus test-guided anti-tuberculosis treatment impact in severely immunosuppressed HIV-infected adults initiating antiretroviral therapy with CD4 cell counts < 100/mm³: Final results from the STATIS (ANRS 12290) randomized trial

F.X. Blanc[1], A.D. Badje[2], M. Bonnet[3], D. Gabillard[2], E. Messou[4], C. Muzoora[5], S. Samreth[6], D.B. Nguyen[7], L. Borand[8], A. Domergue[7], N. Natukunda[9], S. Juchet[4], S. Eholie[10], S. Domoua[10], X. Anglaret[2], D. Laureillard[11]

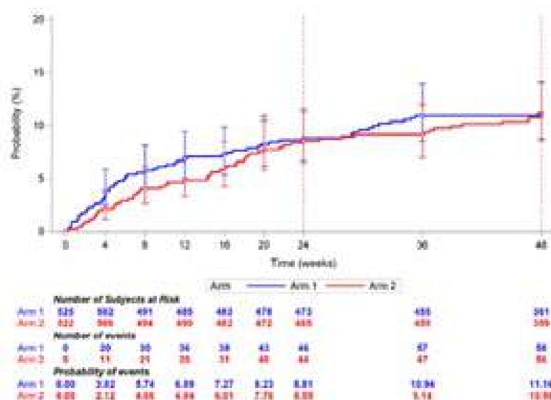
[1]L'Institut du Thorax, CHU de Nantes, Université de Nantes, Respiratory Medicine Dpt, Nantes, France, [2]INSERM, Bordeaux, France, [3]IRD, Montpellier, France, [4]INSERM, Abidjan, Cote D'Ivoire, [5]Mbarara University of Science and Technology, Mbarara, Uganda, [6]National Centre for HIV/AIDS Dermatology and STDs, Phnom Penh, Cambodia, [7]Pham Ngoc Thach Hospital, Ho Chi Minh City, Vietnam, [8]Institut Pasteur du Cambodge, Phnom Penh, Cambodia, [9]Epicentre, Mbarara, Uganda, [10]Université Félix Houphouët-Boigny, Abidjan, Cote D'Ivoire, [11]CHU de Nîmes, Department of Infectious Diseases, Nîmes, France

Background: Despite increasing access to ART in low-income settings, many HIV-infected adults still present for care with severe immunosuppression. In such late presenters, mortality following ART initiation is high and tuberculosis (TB) or invasive bacterial diseases (IBD) remain major causes of death. Here, we report the final results of the STATIS trial (NCT02057796) comparing the efficacy and safety of two strategies aiming at decreasing mortality and IBD in late presenters in Côte d'Ivoire, Uganda, Cambodia and Vietnam.

Methods: From September 2014 to May 2017, ART-naive HIV-1 infected adults with CD4< 100/mm³ were randomly assigned to ART/extensive TB screening (arm 1) or ART/systematic empirical TB treatment (arm 2). In arm 1, TB screening included Xpert MTB/RIF on sputum and urine lipoarabinomannan. ART was initiated immediately in patients who did not start TB treatment at baseline (arm 1 patients with negative TB screening) and two weeks after starting TB treatment in others (arm 1 patients with positive TB screening and arm 2 patients). Primary outcome was the occurrence of death or IBD at week 24. Follow-up lasted 48 weeks (last visit of the last patient: April 2018).

Results: 1047 participants (arm 1: 525, arm 2: 522; Africa: 583, Asia: 464; males: 611, females: 436) were analyzed. At baseline, mean (SD) age was 36 (9) years, BMI 20.1 (3.5) kg/m², CD4 36 (27) /mm³, viral load 5.4 (0.6) $\log_{10}$ copies/ml (no difference between arms). As previously reported, there was no difference between arms regarding the primary outcome. During follow-up, 45 participants died in each arm (p=0.9773); there were 20 IBD in arm 1 and 22 in arm 2 (p=0.7337). The rate of documented or presumptive TB was 14.4 (11-8-17.0) per 100 person-years [arm 1: 26.1 (21.0-31.3); arm 2: 4.2 (2.5-6.6), p< 0.0001]. The rate of grade 3-4 drug-related toxicity was 15.7 (12.9-18.4) per 100 person-years (arm 1: 8.7 (5.9-11.6); arm 2: 23.4 (18.6-28.3), p< 0.0001).

Conclusions: Systematic TB treatment is not superior to extensive TB screening and targeted TB treatment to decrease the risk of mortality or IBD in ART-naive adults with CD4< 100/mm³. It is associated with a lower risk of TB but higher drug-related toxicity.



[Kaplan-Meier probability of first invasive bacterial disease or death during the STATIS trial (log-rank test: p=0.85).]

LBPEB015

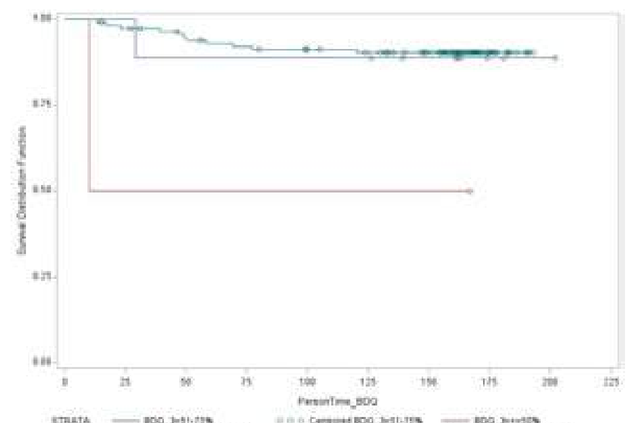
Adherence to Bedaquiline and antiretroviral therapy predicts mortality in the treatment of multi- and extensively drug-resistant tuberculosis (M/XDR-TB) HIV co-infected patients in KwaZulu-Natal, South Africa

C. Hwang[1], G. Friedland[2], R. Amico[3], A. Daftary[4], J. Zelnick[5], B. Seepamore[6], A. Wolf[1], R. Boodram[7], B. Maharaj[7], C. Orrell[8], N. Padayatchi[7], M. O'Donnell[1,7], PRAXIS Study Group

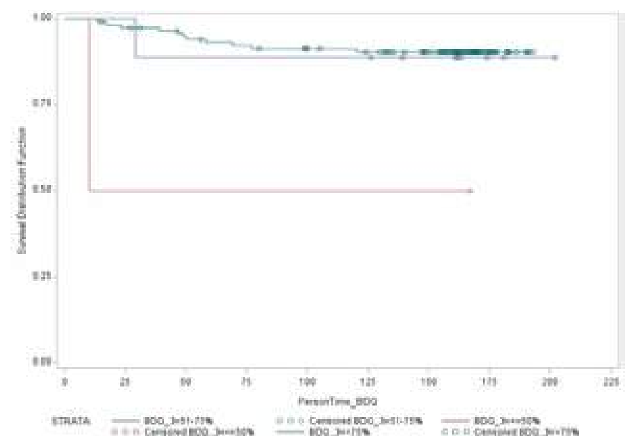
[1]Columbia University, New York City, United States, [2]Yale School of Medicine, New Haven, United States, [3]University of Michigan, Ann Arbor, United States, [4]McGill University, Montreal, Canada, [5]Touro College, New York City, United States, [6]University of KwaZulu-Natal, Durban, South Africa, [7]Centre for AIDS Programme of Research in South Africa (CAPRISA), Durban, South Africa, [8]University of Cape Town, Cape Town, South Africa

Background: Medication adherence is critical to successful treatment but is poorly characterized in TB/HIV treatment. Bedaquiline is the first new medication licensed for drug-resistant TB treatment in over 40 years. Using next-generation electronic pill boxes (Wisepill RT2000), PRAXIS aims to concurrently measure adherence to Bedaquiline and antiretroviral therapy (ART) in the treatment of multi- and extensively drug resistant tuberculosis (M/XDR-TB) HIV.

Methods: Prospective observational cohort study of adult M/XDR-TB HIV patients initiating treatment on Bedaquiline-containing regimens and on antiretroviral therapy (ART). Medication adherence was assessed in real-time using Wisepill devices separately for Bedaquiline and ART through 6 months. Percent adherence was calculated as observed versus expected doses. Patients were censored at loss to follow up, death or study withdrawal. Patients were assessed clinically in monthly study visits. Primary outcome was all cause mortality at 6 months. Secondary outcomes were changes in HIV viral load, sputum TB culture conversion, and differential adherence to Bedaquiline and ART through 6 months.



[Kaplan Meier Survival Curves; Stratified by Bedaquiline Adherence (<50%, 51-75%, >75%)]



[Kaplan Meier Survival Curves; Stratified by Bedaquiline Adherence (<50%, 51-75%, >75%)]

Results: From November 2016 through February 2018, 200 M/XDR-TB HIV patients were enrolled. 156 had sufficient follow up time (≥6 months) to be included in the primary analysis. Overall patients achieved an average of 92% (SD 11.7) adherence to Bedaquiline and 81% (SD 21.8) to ART (p< 0.0001). Mortality through 6 months was 16/153 (10.4%). In patients with < 50% adherence to Bedaquiline 6-month survival was 50% while in the highest quartile of adherence survival was 100%. Bedaquiline adherence >85% compared to ≤85% was associated with increased TB culture conversion at 6 months (80.5% vs. 65%; p< 0.0001). Differential adherence was observed between Bedaquiline and ART (primarily Nevirapine). A decrease in adherence to Bedaquiline was noted from inpatient treatment (96%) to outpatient treatment (91%) (P=0.002). Self-reported, 7-day recall of Bedaquiline and ART non-adherence was poorly sensitive (11% and 5%) but specific (100%) with Wisepill adherence as reference standard.
Conclusions: Adherence is a key indicator of mortality for patients with MXDR-TB and HIV. Next generation e-pill boxes to measure adherence may provide real-time feedback on adherence practices. Supporting optimal adherence may be an important intervention to improve mortality in M/XDR-TB HIV treatment.

LBPEB016

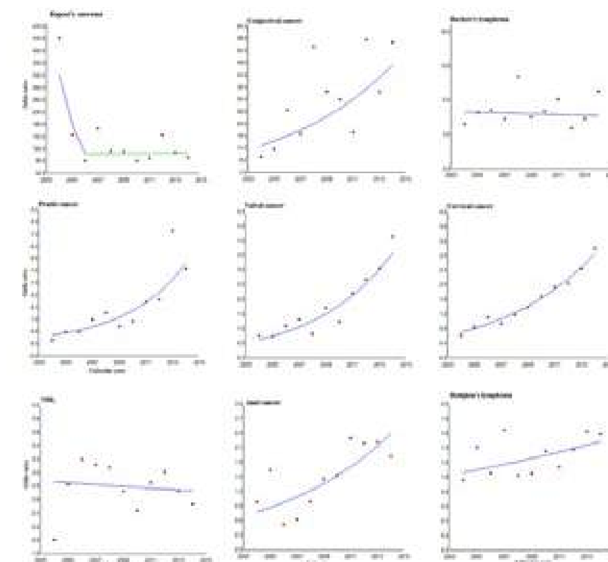
Trends in cancer risk in HIV-infected people in South Africa (2004 - 2014)

T. Dhokotera[1,2], J. Bohlius[3], A. Spoerri[3], M. Egger[3,4], J. Ncayiyana[2,5], V. Olago[1,2], E. Singh[1,2], M. Sengayi[1,2]
[1]National Health Laboratory Service, National Cancer Registry, Johannesburg, South Africa, [2]University of the Witwatersrand, School of Public Health, Division of Epidemiology and Biostatistics, Johannesburg, South Africa, [3]University of Bern, Institute of Social and Preventive Medicine (ISPM), Bern, Switzerland, [4]University of Cape Town, School of Public Health and Family Medicine, Centre for Infectious Disease Epidemiology and Research (CIDER), Cape Town, South Africa, [5]University of Cape Town, School of Public Health and Family Medicine, Division of Epidemiology and Biostatistics, Cape Town, South Africa

Background: The impact of South Africa's high HIV burden on cancer risk is not fully understood particularly in the context of antiretroviral treatment (ART) availability. The National Health Laboratory Service (NHLS) serves 80% of the South African population allowing for the first national evaluation of HIV-related cancers in the era of ART. We examined national cancer trends and excess cancer risk in people living with HIV (PLHIV) compared to those who are HIV-negative.
Methods: We assigned HIV status to cancer cases diagnosed in the South African public sector between 2004-2014 through probabilistic linkage of records from the National Cancer Registry (NCR) with HIV data from the NHLS. We also used text search of specific HIV terms from the clinical section of pathology reports to determine HIV status of cancer patients. We used logistic and Joinpoint regression models to evaluate the risk and trends in cancers in PLHIV across the 11-year period adjusting for age, gender, race and year of cancer diagnosis. In sensitivity analysis, we used inverse probability weighting (IPW) to correct for possible selection bias.
Results: A total of 329 208 cancers were reported to the NCR from the public sector from 2004-2014 with the HIV status known for 95 279 (28.9%) cancer records. 50.4% (30 486) of all females and 47.3% (16 443) of all males with a known status were HIV-positive. PLHIV were at higher risk of AIDS-defining cancers (Kaposi sarcoma [adjusted OR 134.01 (111.20-161.50)], non-Hodgkin lymphoma [2.73 (2.56-2.91)] and, cervix [1.7 (1.63-1.77)]), conjunctival cancer [21.51 (16.28-28.41)] and human papilloma virus (HPV) related cancers (including; penis [2.35 (1.85-2.99)], vulva [1.94 (1.67-2.25)] and, anus [1.63 (1.33-2.00)]) (Table 1). Analysis using the IPW population yielded comparable results. The risk of conjunctival, cervical, anal, penile, and vulvar cancers continued to rise in the ART era (Figure 1).
Conclusions: Cancer risk in PLHIV continues to rise despite widespread ART availability, specifically for conjunctival cancer and HPV-associated cancers. There is need for improved awareness and screening of these cancers at HIV care centres. Further research and discussion is warranted on inclusive HPV vaccination in PLHIV.

Cancer	Complete Case Analysis OR(95% CI)	Weighted Analysis OR(95% CI)
Kaposi	134.01 (111.20-161.50)	98.8 (80.93-120.61)
Cervix	1.7 (1.63-1.77)	1.68 (1.60-1.76)
NHL	2.73 (2.56-2.91)	2.89 (2.71-3.08)
Anus	1.63 (1.33-2.00)	1.61 (1.30-1.99)
Hodgkin´s lymphoma	1.22 (1.09-1.37)	1.43 (1.27-1.61)
Vulva	1.94 (1.67-2.25)	1.82 (1.58-2.10)
Penis	2.35 (1.85-2.99)	2.06 (1.63-2.61)
Conjunctiva	21.51 (16.28-28.41)	20.84 (15.24-28.50)
NHL=non-Hodgkin's lymphoma. OR= Odds ratios determined using logistic regression models adjusting for age, gender, race and year of cancer diagnosis. The weighted analysis included inverse probability weights estimated from known HIV status age, gender, cancer diagnosis and cancer diagnosis year.		

[Table 1: Odds ratios for cancer in PLHIV by complete case analysis and by weighted analysis]



[Trends in cancer risk for selected cancers]

LBPEB017

Doravirine (DOR) versus ritonavir-boosted darunavir (DRV+r): 96-week results of the randomized, double-blind, phase 3 DRIVE-FORWARD Noninferiority trial

J.-M. Molina[1], K. Squires[2], P. Sax[3], P. Cahn[4], J. Lombaard[5], E. DeJesus[6], M.-T. Lai[2], X. Xu[2], A. Rodgers[2], L. Lupinacci[2], S. Kumar[2], P. Sklar[2], B.-Y. Nguyen[2], G. Hanna[2], C. Hwang[2], E. Martin[2]
[1]University of Paris, Paris, France, [2]Merck & Co., Inc., Kenilworth, United States, [3]Brigham and Women's Hospital, Boston, United States, [4]Fundación Huesped, Buenos Aires, Argentina, [5]Josha Research, Bloemfontein, South Africa, [6]Orlando Immunology Center, Orlando, United States

Background: DOR is a novel non-nucleoside reverse transcriptase inhibitor (NNRTI) with once-daily dosing and potent *in vitro* activity against the most common NNRTI resistant variants (K103N, Y181C, G190A). The 48-week results of the phase 3, DRIVE-FORWARD trial showed that DOR was noninferior to DRV+r in treatment-naïve adults, with a superior lipid profile for fasting LDL-C and non-HDL-C. Herein we present the 96-week data.
Methods: HIV-1 infected, treatment-naïve adults were randomized to DOR (100 mg/d) or DRV+r (800/100 mg/d) with investigator-selected nucleoside reverse transcriptase inhibitors (NRTI): tenofovir/emtricitabine (TDF/FTC) or abacavir/lamivudine (ABC/3TC). Resistance-associated mutations to NNRTIs or NRTIs was an exclusion factor. Study was double-blinded until week 96. Participants were stratified by baseline HIV-1 RNA (≤ or >100,000 copies/mL) and background NRTI therapy. The proportion of participants achieving HIV-1 RNA < 50 copies/mL (FDA Snapshot Approach), adverse events (AEs), and fasting serum lipids effects at week 96 were assessed.

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Results: Of 769 participants randomized, 766 (383 in each group) received study drug and were included in the analyses (mean age 35.2 years, 84% male, 73% white, 87% on TDF/FTC). At 96 weeks, DOR demonstrated higher efficacy versus DRV+r: 73.1% and 66.0% in the DOR and DRV+r groups, respectively, achieved HIV-1 RNA < 50 copies/mL; treatment difference 7.1% (95% CI: 0.5, 13.7), and responses were similar regardless of baseline characteristics (Table). Treatment-emergent resistance to any study drug occurred in 0.5% and 0.1% of DOR and DRV+r groups, respectively. AE rates (overall, serious, drug related, and leading to treatment discontinuation) were similar across groups. The most common AEs (>5%, week 0-96) were diarrhea (DOR 17.0%, DRV+r 23.8%), nausea (11.7%, 13.6%), headache (14.9%, 12.0%), and upper respiratory tract infection (13.3%, 7.8%). Pronounced differences between treatment arms in mean changes from baseline in LDL-C (DOR -0.44 mg/dL, DRV+r +14.0 mg/dL) and non-HDL-C (-0.48 mg/dL, +17.7 mg/dL) were seen in favor of DOR.
Conclusions: Through 96 weeks of therapy, DOR demonstrated greater antiviral activity versus DRV+r, was well tolerated, and exhibited a more favorable lipid profile in treatment-naïve adults with HIV-1 infection. DOR in combination with NRTIs provides an attractive alternative for the treatment of HIV-1 in treatment-naïve adults.

LBPEB018

The effect of delayed switch to second-line ART and confirmed failure monitoring on mortality among South African adults

H. Bell Gorrod[1], A. Boulle[2], M. Fox[3], R. Wood[2], H. Prozesky[4], F. Tanser[5], M.-A. Davies[2], M. Schomaker[2]
[1]University of Sheffield, School of Health and Related Research (ScHARR), Sheffield, United Kingdom, [2]University of Cape Town, Cape Town, South Africa, [3]Boston University, Boston, United States, [4]Stellenbosch University, Stellenbosch, South Africa, [5]Africa Centre, Mtubatuba, South Africa

Background: HIV treatment guidelines in South Africa recommend that patients should switch to second-line antiretroviral therapy (ART) after first-line treatment has failed. Treatment failure is confirmed when two consecutive viral load (VL) measurements exceed 1000 copies/ml. Previous studies have shown that delays in the time-to-switch are associated with increased death. However, the impact of duration between the first and second VL measurements of confirmed failure have not been considered in detail. This is important to consider given the recent push for increased VL monitoring.
Methods: We included 7,255 adult patients, from 8 South African treatment programs, with confirmed virological failure (2 consecutive VL >1000 copies/ml, ≥4 weeks apart) from 2004 onwards. A switch from first- to second-line was defined as a switch from a regimen composed of nucleoside reverse transcriptase inhibitors (NRTI) and non-nucleoside reverse transcriptase inhibitors (NNRTIs), to a regimen containing at least 1 protease inhibitor (PI). We compared the hazards of death for 6 different time-to-switch categories vs no switch using inverse probability weighting (IPW) of marginal structural models, which adjusted for measured time-dependent confounding of CD4 count and VL. Analyses were performed using the time of the second VL measure of confirmed failure as baseline, and repeated with the baseline at the time of first VL measure of confirmed failure.

Baseline	Second VL measurement of Confirmed failure		First VL measurement of Confirmed failure	
Time from baseline to switch*	HR	95% CIs	HR	95% CIs
No switch (reference category)	1.00	-	1.00	-
Less than 30 days	0.45	(0.35 -0.59)	0.32	(0.19 -0.56)
Greater than or equal to 30 and less than 60 days	0.52	(0.41 -0.65)	0.49	(0.35 -0.68)
Greater than or equal to 60 and less than 120 days	0.56	(0.47 -0.66)	0.54	(0.44 -0.66)
Greater than or equal to 120 and less than 180 days	0.67	(0.57 -0.78)	0.59	(0.49 -0.72)
Greater than or equal to 180 and less than 360 days	0.70	(0.63 -0.79)	0.66	(0.58 -0.76)
Greater than or equal to 360 days	0.85	(0.82 -0.89)	0.85	(0.82 -0.89)
*Note that in the first VL measurement analysis, an additional 30 days from baseline to the upper and lower limits of each delay category were included to account for the fact that patients in our sample were not permitted to switch until 4 weeks after first VL measure >1000copies/ml.				

[Table 1: Estimates of delay in switch vs no switch on mortality]

Results: 3,765 (52%) patients switched to second-line treatment with a median time from failure to switch of 121 (IQR: 49-288) days. Median time from first to second VL measurement of confirmed failure was 115 (IQR: 83-190) days. Table 1 shows the results of the IPTW adjusted analyses for each time-to-switch category vs no switch.
Conclusions: Delays in switch from first-line to second-line ART after confirmed failure result in increased risk of death. In addition, the results indicate an increased risk of death as the length of delay from first VL measure of confirmed failure to switch increases. This implies that efforts should be made to reduce monitoring delays between the first failing VL measurement and confirmed failure, to accelerate the time from first failing VL measure to switching treatment.

LBPEB019

Preliminary virologic outcomes and prevalence of integrase strand transfer inhibitor resistance mutations among highly treatment experienced patients receiving dolutegravir in Botswana

K.K. Seatla[1,2,3], A. Avalos[2,4,5], T. Mphoyakgosi[4], S. Moyo[2,6], M. Mogwele[7], M. Mine[2,8], W. Choga[1,2], C. Petlo[4], D. Ramaabya[4], T. Gaolatlhe[2,9], I. Kasvosve[10], J.N. Jarvis[2,11], S. Gaseitsiwe[1,2,6]
[1]SANTHE, Gaborone, Botswana, [2]Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana, [3]University of Botswana, Department of Medical Laboratory Sciences, Gaborone, Botswana, [4]Ministry of Health and Wellness, Gaborone, Botswana, [5]Careena Centre for Health, Gaborone, Botswana, [6]Harvard T.H. Chan School of Public Health, Department of Immunology & Infectious Diseases, Boston, United States, [7]University of Botswana, Department of Biological Sciences, Gaborone, Botswana, [8]Ministry of Health and Wellness,Botswana, Gaborone, Botswana, [9]University of Botswana, Faculty of Health Sciences, Gaborone, Botswana, [10]Faculty of Health Sciences, University of Botswana, Department of Medical Laboratory Science, Gaborone, Botswana, [11]London School Hygiene and Tropical Medicine, London, United Kingdom

Background: Botswana became the first country in Sub-Saharan Africa to implement the wide spread use of dolutegravir (DTG) in their public national antiretroviral therapy (ART) programme in January 2016. Approximately 60,000 patients were receiving DTG as part of their first, second, third and salvage ART regimens, as of 31st March 2018. As part of HIV-1 drug resistance (HIV-DR) surveillance, genotypic resistance testing (GRT) is available for all patients who present with virologic treatment failure on DTG. To date, no naïve patients initiated on a DTG containing regimens has developed integrase strand inhibitor (INSTI) resistance mutations. We report preliminary findings from the Botswana Epidemiological ART Treatment Cohort Study, which monitors virologic outcomes and the development of HIV-DR in highly treatment experienced (HTE) patients on DTG containing regimens.
Methods: GRT was performed for patients with confirmed virologic failure (two consecutive viral loads (VL) > 400 copies/ml) while on DTG containing regimens. We sequenced protease (PR), reverse transcriptase (RT) and INSTI genes using ViroSeq™ HIV-1 standard protocols. Mutational profiles were interpreted using the Stanford HIV Drug Resistance Database. Complete clinical histories were obtained from electronic and manual chart reviews. Patients defined as HTE were those who had failed 3 or more ART regimens.

Patient/ Gender	Year of ART initiation	No of ART treatment regimens	Months on DTG containing regimens	RT mutations	PR mutations	INSTI mutations	Latest viral load (copies. ml) as of 31 March 2018
1/F	2004	5	16	Unknown	Unknown	Q148R	<400
2/M	2004	4	27	Unknown	Unknown	G118R, E138K	<400
3/M	2002	10	24	K65R, D67N, K70R, M184V, Y181C, K219N	V32I, I47V, I54L, I84V, V32I	T97A, E138K, G140A, S147G, Q148R	5,971
4/M	2004	8	22	A62V, K65R, A98G, M184V	I50V, I54V A71V, V82M, L90M	A128T, E138K, G140A, Q148K	642

[Mutational profiles of 4 HTE patients receiving DTG]

Results: Out of 93 HTE placed on DTG containing regimens, 20 were identified with VL >400 copies/ml, 74/93 (79.5 %) achieved VL < 400 copies/ml. Four patients were identified with extensive INSTI mutations (Table 1). Patients 1, 3 & 4 failed Raltegravir (RAL) containing regimens prior to treatment with DTG (patient 2 never received RAL). Patients 1 & 2, with major INSTI resistance mutations, achieved VL < 400copies/ml. Patients 3 & 4, despite having accumulated extensive mutations to all ART classes, have remained clinically stable on DTG with low grade viremia, both harbouring K65R mutations.
Conclusions: There is limited data on DTG related resistance in HIV-1C virus in real-world settings in Sub-Saharan Africa, particularly among HTE patients. At 2 years of implementing DTG into regimens of HTE patients, clinical outcomes and the low prevalence of INSTI resistance mutations in Botswana are encouraging.

LBPEB020

Preliminary virologic outcomes of patients switched to dolutegravir containing regimens for toxicities, treatment failures and regimen optimization at a large urban hospital in Botswana

A. Avalos[1,2,3], T. Gaolathe[2,4], R. Mokgwathise[2], D. Ramaabya[3], K. Lesego[2], M. Zwinila[2], M. Kapanda[3], C. Petlo[3], K. Seatla[2], S. Gaseitsiwe[2], The Botswana Epidemiological ART Treatment Cohort Study
[1]*Careena Centre for Health, Gaborone, Botswana,* [2]*Botswana Harvard Partnership, Gaborone, Botswana,* [3]*Botswana Ministry of Health and Wellness, Department of HIV/AIDS Prevention & Care, Gaborone, Botswana,* [4]*University of Botswana, Meidicne, Gaborone, Botswana*

Background: Botswana became the first country in Sub-Saharan Africa to implement the use of Dolutegravir (DTG) in their National public antiretroviral (ART) programme in January 2016. Approximately 60,000 patients were receiving DTG by 31 March 2018, with approximately 10,000 patients switched to DTG from their previous regimens. We report the preliminary findings from the Botswana Epidemiological ART Treatment Cohort Study, which monitors real-world outcomes of patients switched to DTG regimens for toxicities, treatment failure and regimen simplification.
Methods: Switch patients were identified from electronic and manual patient medical records. All patients that were switched to DTG containing regimens beginning 1 January 2016, were included in the analysis. Viral loads were recorded at 6 and 12 months post initiation of DTG, frequencies of toxicities requiring switch to DTG were also recorded.
Results: A total of 341 patients were switched to DTG containing regimens. Table 1 outlines the viral load results of switch patients at 6 and 12 months post initiation. There were 173 patients switched to DTG for toxicities from previous regimens: 78/173 (45%) due to NRTI induced lipodystrophies, 22/173 (12.7%) for GI disturbance due LPV/r use,11/173 (6%) due to CNS effects of EFV. Additional toxicities included gynecomastia, skin discoloration, renal and liver dysfunction. Treatment simplification occurred in 33 patients and 135 patients were switched to DTG for treatment failure.

Reason for Treatment Switch to DTG (n)	Viral load <400 copies/mL at 6 months, n(%)	Viral load <400 copies/mL at 12 months, n(%)
Toxicities (173)	85/87 (97.7%)	85/86 (98.8%)
Virologic Failure (135)	27/37 (72.9%)	94/98 (95.9%)
Treatment Simplification (33)	10/11 (90.9%)	20/22 (90.9%)

[Viral load outcomes of patients switched to DTG containing regimens]

There were a total of 52 patients failing TRU/ALU (26) and TRU/ATA/r (26) regimens when they were switched to TRU/DTG regimens, 45/52 (86.5%) achieved VL < 400 copies/mL at 6 months. Of the 8 patients failing TRU/EFV (4) and TRU/NVP (4) containing regimens that were switched to TRU/DTG, 6 out of 8 achieved VL < 400 copies/ mL by 12 months
Conclusions: In this real world setting, regardless of the reason for switching patients to DTG containing regimens, the majority of patients displayed excellent virologic outcomes at 6 and 12 months. Patients previously failing ART often took longer to achieve full viral load suppression. It is important to note that a significant number of patients previously failing TRU containing regimens before switching to TRU/DTG containing regimens also achieved full virologic suppression by six months.

LBPEB021

Administration of CC-11050, a phosphodiesterase 4 inhibitor, is well tolerated but does not significantly decrease immune activation in treated HIV+ persons

A. Boulougoura[1], E. Gabriel[1], E. Laidlaw[1], A. Pau[1], A. Poole[1], J. Higgins[2], A. Rupert[2], A. Kibiy[1], V. Khetani[3], K. Arakawa[3], P. Kumar[4], I. Sereti[1]
[1]*NIH, NIAID, Bethesda, United States,* [2]*Leidos Inc, Frederick, United States,* [3]*Celgene Global Health, Summit, United States,* [4]*Georgetown University, Washington, United States*

Background: Phosphodiesterase 4 inhibitors (PDE4i) are novel anti-inflammatory medications that block degradation of cAMP and decrease productions of inflammatory cytokines. Apremilast and roflumilast are PDE4i approved for treatment of psoriasis and COPD respectively. PDE4i are also being tested as host-directed therapy (HDT) in TB. In the current study, we examined the safety of CC-11050 in HIV+ people with suppressed viral load on ART and hypothesized that CC-11050 would also decrease inflammation.
Methods: Phase 1, placebo-controlled, double-blinded study to examine safety of CC-11050 administered over 12 weeks in HIV+ persons on ART for at least 1 year with plasma HIV viremia (VL) < 50 c/mL. Eligible patients were randomized 2:1 to CC-11050 200 mg BID or placebo. Plasma cytokines were measured at weeks 0, 2, 4, 8 and 12. Monocyte and T-cell activation profile was assessed by flow cytometry. For comparisons between time points T-test or Wilcoxon rank sum tests were used for comparison of continuous variables. To compare biomarker levels over all treatment time points, linear generalized estimating equations (GEE) were used. All analyses were performed in R.
Results: 45 persons were screened and 30 were randomized (19 active drug and 11 placebo) as planned, 20% of whom were women and 43% African American. The median age was 49.5 years (44-55), median BMI 26.8 and median Hemoglobin 13.5. 53% were on NNRTI and 47% on ISTI regimens. The median CD4 at baseline was 459 cells/μL and CD8 712 cells/μL. Most frequent AEs (grade 1 and 2 only) in active drug recipients were headache (8/19), diarrhea (5/19), cough (2/19), nasal congestion (2/19) and restlessness (2/19). There were no statistically significant changes in CD4 or CD8 T cell counts and no changes in VL. Efavirenz levels were not affected significantly. There were no significant differences between the two randomization groups in the average level over the treatment weeks, in the unadjusted or adjusted GEES models, for TNF-a, IL-6, IL-8, IL-10, IFN-g, sCD14, CRP, D-dimer.
Conclusions: Administration of CC-11050 in suppressed HIV-infected patients is well tolerated and can be co-administered with efavirenz, but at the studied dose has minimal effect on systemic inflammatory markers or immune activation.

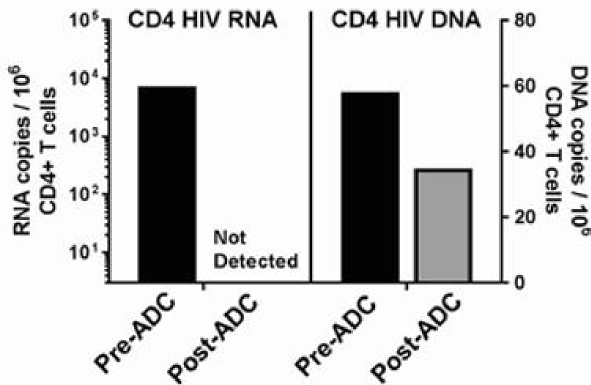
LBPEB022

Loss of detectable HIV CD4+ T cell RNA following single-dose brentuximab vedotin anti-CD30 therapy for Hodgkin lymphoma

C.-C. Wang[1], C. Thanh[1], E. Gibson[1], M. Ball-Burack[1], L. Hogan[1], B. Descours[2], N. Jones[1], A. Carvidi[1], J. Milush[1], S. Deeks[1], T. Henrich[1]
[1]*University of California, San Francisco, San Francisco, United States,* [2]*Human Genetic Institute, Molecular Virology unit, CNRS, Montpellier, France*

Background: We previously reported that CD4+ T-cells expressing the tumor marker, CD30, were enriched in HIV RNA, and that CD30 mRNA and HIV RNA colocalized in gut tissue from ART suppressed individuals. *Ex vivo* treatment of PBMC from ART-suppressed individuals with the anti-CD30 antibody-drug conjugate, brentuximab vedotin, led to a significant decrease in HIV DNA levels. However, the direct, longitudinal impact of bretuximab vedotin therapy on HIV persistence *in vivo* is not known. We studied the impact of brentuximab vedotin therapy for Hodgkin lymphoma on HIV persistence in a newly identified HIV-infected individual on ART
Methods: In depth characterization of CD4+ T cell-associated HIV-1 unspliced RNA and total DNA, and immune phenotyping of CD30 expression on PBMC were determined prior to and 3 weeks following brentuximab vedotin therapy in an HIV-infected individual.

Results: The male participant was on long-term suppressive ART and was diagnosed with stage IV Hodgkin lymphoma in 2014. He received doxorubicin/bleomycin/vinblastine/dacarbazine therapy and went into complete remission. In 2017 he was treated with salvage chemotherapy (ifosfamide/carboplatin/etoposide) for recurrence, and again went into remission. Brentuximab vedotin was started as bridging therapy prior to planned autologous hematopoietic stem cell transplant. Prior to brentuximab vedotin, CD4+ T-cell-associated HIV RNA and DNA levels were 7,359 and 58 copies/10^6 CD4+ T-cells, respectively. Three-weeks following a single 1.8 mg/kg dose, no HIV RNA could be detected in CD4+T-cells (>3-$\log_{10}$ reduction), and total cell-associated HIV DNA levels decreased by 42% (**Figure**). A concomitant 4-fold decrease in the frequency of CD4+ T-cells expressing CD30 was observed (2.26% to 0.54%).
Conclusions: A single dose of the anti-CD30 antibody-drug conjugate, brentuximab vedotin reduced the number of circulating CD30+CD4+ T cells and led to a major decrease in circulating cell-associated HIV RNA and a modest reduction in total cell-associated HIV DNA. These data and our prior observation of the loss of HIV DNA and RNA following multi-cycle brentuximab vedotin therapy suggest that targeting CD30 may reduce the pool of transcriptionally active HIV-infected cells that persist on suppressive ART. Longitudinal sampling of blood and tissues is underway to determine the longer-term effect of anti-CD30 therapy on the total HIV reservoir.



[Reduction in Cell-Associated HIV RNA and DNA Following Single Dose Brentuximab Vedotin Anti-CD30 Antibody-Drug Conjugate (ADC)Therapy]

LBPEB023

Pharmacokinetic and 4-week safety/efficacy of dolutegravir (S/GSK1349572) dispersible tablets in HIV-infected children aged 4 weeks to < 6 years: Results from IMPAACT P1093

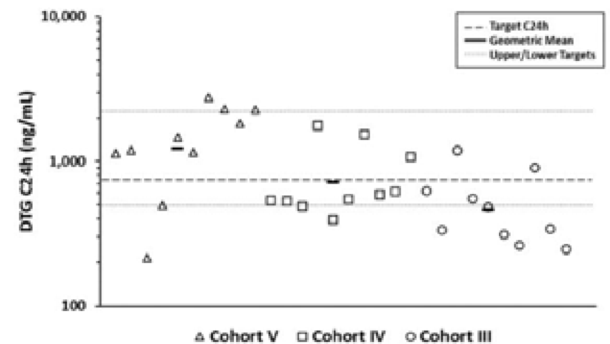
T. Ruel[1], E. Acosta[2], R. Singh[3], C. Alvero[4], T. Fenton[4], K. George[5], S. Popson[5], E. Townley[6], R. Hazra[7], C. Brothers[3], C. Vavro[3], A. Buchanan[3], A. Wiznia[8], IMPAACT P1093 Team
[1]University of California, San Francisco, Pediatrics, Division of Infectious Disease and Global Health, San Francisco, United States, [2]University of Alabama at Birmingham, Birmingham, United States, [3]ViiV Healthcare, Research Triangle Park, United States, [4]Harvard School of Public Health, Boston, United States, [5]FHI 360, Amherst, United States, [6]National Institute of Allergy and Infectious Diseases, National Institutes of Health, Division of AIDS, Bethesda, United States, [7]Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, United States, [8]Albert Einstein College of Medicine, Bronx, United States

Background: Dolutegravir (DTG) is recommended for first-line treatment of HIV-1 infected adults due to its potency, high barrier to resistance, and tolerability. A 5mg dispersible tablet (DTG-DT) pediatric formulation is being evaluated in IMPAACT P1093, an ongoing phase 1/2 open-label pharmacokinetic (PK), safety, and dose-finding study. Here we present the intensive PK, 4-week safety (primary outcome) and efficacy data of the first doses of DTG-DT tested in the youngest age-defined cohorts (V: ≥4 weeks to < 6 months, IV: ≥6 months to < 2 years, III: ≥ 2 to < 6 years).

Methods: On enrollment, children received DTG-DT as monotherapy, or added to stable-failing or empiric initial background regimens and dosed using weight-band tables. Intensive 24-hour PK sampling was completed between days 5-10 with fasting (2 hours prior/1 hour after), after which background regimens were optimized based on enrollment HIV genotypes. Safety, tolerability, and plasma HIV-1 RNA levels were assessed through 4 weeks. From adult data, targets (range) for geometric mean (GM) exposures were AUC_{24h} 46 (37-86) mgxh/L and C_{24h} 750 (500-2260) ng/mL.
Results: Thirty-two children enrolled to achieve 30 (10 per cohort) with evaluable data, of whom 17/30 (57%) were female; 27/30 (90%) had CD4% >14, with baseline median (range) HIV-1 RNA of 4.9 (2.8-7.0) $\log_{10}$ (copies/ml). The GM AUC_{24h} and C_{24h} of each cohort were within target ranges (Table). However, DTG C_{24h} demonstrated moderate inter-subject variability; 8/10 in each of cohorts V and IV achieved C_{24h} above the lower acceptable limit (>500 ng/mL), but only 4/10 achieved the lower limit in cohort III (Figure). DTG-DT was well-tolerated, with no Grade 3 or 4 adverse events or study drug discontinuations. At 4 weeks, 23/30 (76.7%) subjects had attained HIV-1 RNA of < 400 copies/ml or a >2 $\log_{10}$ decrease.
Conclusions: In P1093, once daily dosing of DTG-DT at median dose of ~ 1.2 mg/kg was well-tolerated, achieving mean AUC_{24} and C_{24h} results within target range with universal declines in plasma HIV-1 RNA. Given the moderate inter-subject PK variability, higher doses are likely needed for children 2 to < 6 years of age to reliably achieve a C_{24h} within the acceptable range.

Cohort (n=10 each)	Age (yrs)^	Dose(mg/kg)^	AUC24h (mgxh/L)*	C24h (ng/mL)*
≥2 years to <6 years (Cohort III)	4.0 (2.1-5.9)	1.1 (0.8-1.6)	40 (36%)	461 (59%)
≥6 months to <2 years (Cohort IV)	1.2 (0.9-1.9)	1.2 (1.0-1.4)	51 (38%)	711 (60%)
≥4 weeks to <6 months (Cohort V)	0.34 (0.28-0.39)	1.2 (0.9-1.7)	61 (44%)	1207 (55%)
^ Median (range); * Geometric mean (arithmetic CV%); Targets (range): AUC24h 46 (37-86) mg x h/L and C24h 750 (500-2260) ng/mL				

[AUC24 and C24 Parameters by Cohort]



[Dolutegravir C24h by Cohort]

Track C

LBPEC024

Prevalence and correlates of HIV infection among men who have sex with men in Hanoi, Vietnam

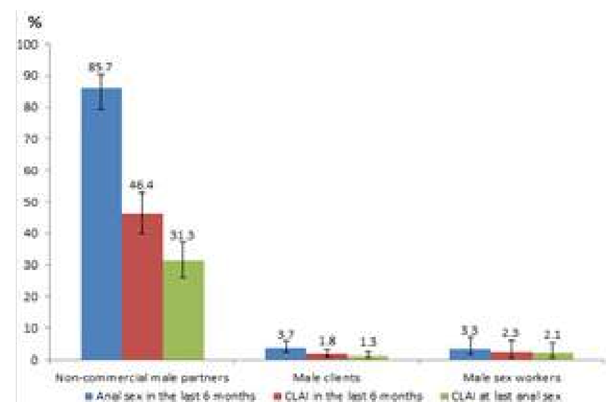
H. Bui[1,2], G. Le[3], D. Vu[4], L. An[2], P. Truong[5], R. Shiraishi[6], I. Zablotska-Manos[7], J. Blandford[4], A. Abdul-Quader[4], H. Van[2], L. Maher[1]
[1]The Kirby Institute for Infection and Immunity, UNSW Sydney, Sydney, Australia, [2]Center for Research and Training on HIV/AIDS (CREATA), Hanoi Medical University, Hanoi, Vietnam, [3]Institute of Preventive Medicine and Public Health, Hanoi Medical University, Department of Global Health, Hanoi, Vietnam, [4]Centers for Disease Control and Prevention (CDC) Vietnam, Hanoi, Vietnam, [5]Bach Mai Hospital, Department of Microbiology, Hanoi, Vietnam, [6]Centers for Disease Control and Prevention (CDC) Atlanta, Atlanta, United States, [7]Sydney Medical School-Westmead, University of Sydney, Sydney, Australia

Background: Despite advances in HIV biomedical prevention, men who have sex with men (MSM) remain at high risk of HIV infection globally. In Vietnam, where there are concerns that HIV in MSM is increasing, estimates of prevalence and understanding of risk factors in this population remain limited.

Methods: Health in Men (HIM) - Hanoi is a prospective observational study designed to estimate HIV prevalence, incidence and associated risk factors among MSM in Hanoi. The first wave of the baseline survey was conducted in late 2017 using Time Location Sampling. Participants (n=800) completed an audio computer-assisted self-interview and provided biological samples. Data were weighted using the inverse of individual selection probabilities with weights adjusted for individual and cluster non-response. All analyses accounted for the complex design of the survey and were performed using Stata 14.0. Log-binomial regression was used to identify risk factors for HIV infection.

Results: Participants had a mean age of 24.3 years (range: 16 - 66), 87.5% had ≥ 12 years of schooling and 46.4% reported condomless anal intercourse (CLAI) with non-commercial male partners, 1.8% with male clients, and 2.3% with male sex workers, in the last six months. HIV testing uptake was low with 40.8% tested in the last six months and 33.1% never tested. HIV prevalence was 10.9% (95%CI 7.4%-15.8%) and 42.1% tested positive for any non-HIV STI, including infectious syphilis (18.9%), Chlamydia (23.9%), Gonorrhoea (13.9%) and HSV-2 (3.6%). HIV infection was independently associated with lifetime sex with male clients (adjusted prevalence ratio (APR)=1.92, 95%CI 1.09-3.39), ≥ 3 non-commercial anal sex male partners in the last month (APR=2.15, 95%CI 1.20-3.83), group sex with non-regular male partners while using party drugs in the last six months (APR=1.67, 95%CI 1.03-2.72), STI symptoms in the last six months (APR=1.56, 95%CI 1.04-2.36), testing positive for infectious syphilis (APR=1.93, 95%CI 1.17-3.20), and past hepatitis B infection (APR=1.86, 95%CI 1.09-3.15).

Conclusions: The young age, high prevalence of HIV infection and observed associations with STIs and sexual risk behaviour in this sample indicate an urgent need for targeted STI screening and biomedical approaches, including HIV PrEP, to control transmission among MSM in Vietnam.



[Figure 1: Risky sexual behaviour with different types of male sexual partners (n=800)]

LBPEC025

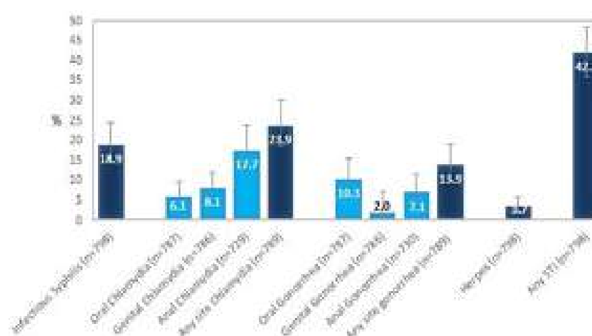
High prevalence of sexually transmitted infections (STIs) among men who have sex with men (MSM) in Vietnam and the need of STIs interventions

D. Vu[1], G. Le[2,3], H. Bui[3,4], L. An[2,3], H. Van[2,3], P. Truong[5], L. Maher[4], R. Shirayshi[6], H. Bui[1], A. Abdul-Quader[1], J. Blandford[1]
[1]US Centers for Disease Control and Prevention, DGHT, Hanoi, Vietnam, [2]Hanoi Medical University, Institute of Preventive Medicine and Public Health, Hanoi, Vietnam, [3]Hanoi Medical University, Centre for Research and Training on HIV/AIDS, Hanoi, Vietnam, [4]University of New South Wales, The Kirby Institute for Infection and Immunity, Sydney, Australia, [5]Bach Mai Hospital, Dept. Microbiology, Hanoi, Vietnam, [6]U.S. Centers for Disease Control and Prevention, DGHT, Atlanta, United States

Background: Globally, men who have sex with men (MSM) are at high risk of STIs. This risk is potentially increased in the era of HIV Pre-Exposure Prophylaxis (PrEP). In 2017, the Health in Men-Hanoi study launched its baseline survey to measure prevalence of HIV and STIs among a representative sample of MSM in Hanoi, Vietnam.

Methods: The first stage of recruitment for this prospective observational study consisted of a cross-sectional survey using venue-based time-location sampling to recruited 800 MSM. Audio computer-assisted self-interviewing was used to collect demographic and risk behaviour data. Blood, oral, urine and anal specimens were collected for HIV, Hepatitis and STI testing. All analyses accounted for the complex design of the survey and were performed using Stata 14.0. Log-binomial regression was used to identify risk factors for STIs.

Results: The majority of MSM attending venues in Hanoi were aged < 25 years (72.7%) and had college/university education (73.0%). Only 44.4% reported consistent condom use with male partners, 46.2% reported at least one STI symptom in the last 6 months and 42.1% of MSM tested positive for at least one STI, including 18.9% with infectious syphilis (Figure 1).



[Figure 1: Prevalence of STIs among MSM in Hanoi, Vietnam in 2017]

Variables	Categories	Frequency STIs / row N	Weighted % positive with STIs [95%CI]	Unadjusted weighted prevalence ratio [95%CI]	Adjusted weighted prevalence ratio [95%CI
Condom use in anal sex with all male partners and transgender in past 6 months	Consistently	121/355	44.8 [34.6-55.4]	1.00	1.00
	Not consistently	220/444	55.2 [44.6-65.4]	**1.31 [0.94-1.82]**	**1.64 [1.19-2.24]**
Ever diagnosed with STIs	None	226/602	35.2 [29.1-41.7]	1.00	1.00
	Any STIs	102/166	66.9 [52.5-78.7]	**2.26 [1.50-3.42]**	**2.09 [1.41-3.08]**
	Hepatitis B or C	13/31	32.4 [12.9-60.7]	0.93 [0.45-1.89]	1.26 [0.59-2.70]
Stimulant use in past 3 months at moderate or high level	No	318/761	40.4 [34.3-65.7]	1.00	1.00
	Yes	23/38	72.1 [49.5-87.2]	**2.29 [1.25-4.19]**	**2.24 [1.02-4.90]**

[Table 1: Factors associated with STI infection among MSM in Hanoi, Vietnam, (n=799)]

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Variables	Categories	Frequency STIs / row N	Weighted % positive with STIs [95%CI]	Unadjusted weighted prevalence ratio [95%CI]	Adjusted weighted prevalence ratio [95%CI
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	Not consistently	220/444	55.2 [44.6-65.4]	**1.31 [0.94-1.82]**	**1.64 [1.19-2.24]**
Ever diagnosed with STIs	None	226/602	35.2 [29.1-41.7]	1.00	1.00
	Any STIs	102/166	66.9 [52.5-78.7]	**2.26 [1.50-3.42]**	**2.09 [1.41-3.08]**
	Hepatitis B or C	13/31	32.4 [12.9-60.7]	0.93 [0.45-1.89]	1.26 [0.59-2.70]
Stimulant use in past 3 months at moderate or high level	No	318/761	40.4 [34.3-65.7]	1.00	1.00
	Yes	23/38	72.1 [49.5-87.2]	**2.29 [1.25-4.19]**	**2.24 [1.02-4.90]**

[Table 1: Factors associated with STI infection among MSM in Hanoi, Vietnam, (n=799)]

Higher STI prevalence was associated with age (20-24 years) (APR 1.61, 95% CI: 1.00-2.60), inconsistent condom use (APR 1.64, 95% CI: 1.19-2.24), history of diagnosed STIs (APR 2.09, 95% CI: 1.41-3.08) and stimulant use at moderate or high level (APR 2.24, 95% CI: 1.02-4.90). STI prevalence did not correlate with recent STI symptoms (Table 1).

Conclusions: High STI prevalence among this young MSM cohort requires effective measures to break transmission chains. Condom use and frequent STI testing, especially in the context of the aggressive scale-up of PrEP planned for Vietnam can prevent STIs spreading among MSM. As the Vietnam HIV program routinely screens MSM bi-annually, integrating STI screening and treatment into HIV testing services would result to positive outcomes. As self-reported STI symptoms are not reliable predictors of STI infection, laboratory confirmed diagnoses need to be used to identify treatment needs.

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LBPEC026

Occupational hazards of traditional healers in rural South Africa: Bloodborne pathogen exposures and risk of HIV transmission

C. Audet[1], S. Ngobeni[2], M. Mkansi[2], F. Wafawanaka[2], M. Aliyu[1], K. Kahn[2,3], R. Wagner[2,3]

[1]Vanderbilt University Medical Center, Health Policy, Nashville, United States, [2]University of the Witwatersrand, MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), Johannesburg, South Africa, [3]Umeå University, Umeå Centre for Global Health Research, Umeå, Sweden

Background: Occupational hazards associated with traditional healer practices in sub-Saharan Africa (SSA) are not well studied. Similar to allopathic health care workers, healers are exposed to blood borne pathogens through a widespread practice of traditional "vaccination". This involves dozens of subcutaneous cuts in the shoulders, back and chest to rub herbs directly into the bloodied skin. The risk of exposure to patient blood by traditional healers remains unknown; however, previous work has shown that personal protective equipment (PPE), such as gloves, are not always available.

Methods: From December 2017 to May 2018 we conducted 126 surveys and community-based point-of-care HIV counseling and testing with a simple random sample of traditional healers living in rural northeast South Africa. Healers with an initial positive test immediately underwent confirmatory testing before referral to the nearest health facility for care and treatment.

Results: Healers were mostly female (76%), older (median age: 57.0 years; interquartile range [IQR]: 47-67), with low levels of formal education (median: 0 years; IQR: 0-5). Healers had practiced for a median of 19 years (IQR: 7-34) and treated a median of 2 patients (IQR: 0-5) in the past month. Fourteen healers (11%) reported at least one unprotected exposure event to source blood in the past month. Among all healers who tested (95% uptake), HIV prevalence was 29.2% (CI: 21.6%-38.0%). HIV prevalence was 71.4% (CI: 40.0%-90.4%) among healers with blood exposure compared to 23.6% (CI: 16.4%-32.7%) among those with no blood exposure. Controlling for age, sex, education level, years practicing as healer, and any previous blood transfusion, healers who were exposed to patient blood had 10.4 times higher odds (CI: 2.74, 39.6; p=0.001) of being HIV-positive than non-exposed healers.

Conclusions: Traditional healers have a higher prevalence of HIV than adults of similar age (>40 years) in the same setting (29.2% vs. 23.0%, respectively). Among our participants, blood exposure was significantly associated with a positive test. Interventions to educate traditional healers on the risk of blood exposure and provide appropriate PPE are urgently required to prevent HIV acquisition amongst this neglected high risk group.

LBPEC027

Progress towards achieving HIV epidemic control among people who inject drugs in Myanmar: Findings from the 2017-18 bio-behavioral survey among PWID

S. Hone[1], M.Y. Aung[1], S. Phyu[2], R. Sutton[3], K.M. Tun[3], M. Jacobs[2], Y. Wu[3], M. Lahuerta[3,4]

[1]National AIDS Programme, Nay Pyi Taw, Myanmar, [2]Joint United Nations Programme on HIV/AIDS (UNAIDS), Yangon, Myanmar, [3]ICAP at Columbia University, New York, United States, [4]Mailman School of Public Health, Department of Epidemiology, New York, United States

Background: In Myanmar, with an HIV prevalence of 0.6%, an estimated 29% of new infections occur among people who inject drugs (PWID). Identifying gaps in the HIV prevention and treatment cascade among PWID is crucial to understanding and controlling the epidemic.

Methods: From October 2017-January 2018, we conducted a cross-sectional bio-behavioral survey (BBS) among PWID using respondent driven sampling (RDS) in eleven townships and two cities in Myanmar. Eligibility criteria included age ≥15 years, having injected drugs in the past month, and having lived in the township or city for ≥6 months. Participants completed an interview and were counseled and tested for HIV, hepatitis B, hepatitis C and syphilis. HIV prevalence data was compared with the 2014 BBS conducted in eight townships and two cities among 3,275 PWIDs. Weighted data analysis was conducted with RDS Analyst and SAS.

Results: Overall, 6,061 PWIDs were enrolled (98.5% male; median age of 30 years). The majority (83.0%) reported injecting more than once a day. Only 5.9% reported that they had used a needle or syringe used previously by someone else at last injection. One-third (35.1%) had received drug treatment to stop drug use and 17.4% had received methadone treatment in the past 12 months. Among the 76.6% that had sexual intercourse in the last month, condom use was low (21.3%). Less than half (47.8%) had ever been tested for HIV and only 51.2% of these were tested in the past year. HIV prevalence among PWID was 34.9% (range 7.6-60.9%) and six townships had an increase in HIV prevalence since the 2014 BBS. Among the HIV-positive, 38.8% were aware of their status; and of these 67.0% were currently on antiretroviral treatment (ART). ART coverage was 34%. Prevalence of hepatitis B, hepatitis C, and syphilis was 7.7%, 56% and 1.5%, respectively.

	Population %	95% Confidence Interval (CI)	Range by Site (N=13)
% Male	98.5	98.0, 98.9	93.2 - 100.0
Median age in years, interquartile range (IQR)	30 (25, 37)	N/A	25 - 33
Ever taken an HIV test	47.8	45.9, 49.8	24.4 - 73.5
HIV prevalence	34.9	33.0, 36.8	7.6 - 60.9
1st 90: Known HIV status	38.8	35.6, 42.0	20.7 - 73.8
2nd 90: On ART	67.1	61.4, 72.8	47.7 - 89.4
Hepatitis B Prevalence	7.7	6.7, 8.8	4.3 - 10.6
Hepatitis C Prevalence	56.0	54.0, 57.9	27.4 - 84.5
Syphilis Prevalence	1.5	1.1, 1.9	0 - 5.7

[Table 1. 2017 BBS Results among PWID in Myanmar]

Conclusions: Our results highlight the critical gaps in controlling the HIV epidemic among PWID in Myanmar. The low proportion aware of their HIV status as well as the low ART coverage emphasizes the need for increased interventions, policies and resources to improve coverage and effectiveness of HIV prevention and treatment services for PWID.

LBPEC028

Progress towards UNAIDS 90-90-90 goals among people living with HIV in Tanzania: Results from Tanzania HIV Impact Survey (THIS) 2016-17

R. Magina Mdodo[1], M. Kitembe[2], K. Lavilla[1], R. McCree[1], S. Jonnalagadda[3], E. Gummerson[4], V. Mugisha[5], G. Somi[6], A. Mulokozi[7], E. Karugendo[2], P. Stupp[3], E. Matiko[1], G. Mgomella[1], M. Balinda[1], A. Mbaraka[1], S. Findley[4], M. Mayasa[8], A. Salim Ali[9], F. Khalid[10], F. Mosha[11], B. Parekh[3], J. Justman[4], A. Voetsch[3], D. Lowrance[3]

[1]US Centers For Disease Control and Prevention, Division of Global HIV & TB, Dar Es Salaam, Tanzania, United Republic of, [2]National Bureau of Statistics, Dar es Salaam, Tanzania, United Republic of, [3]US Centers For Disease Control and Prevention, Division of Global HIV & TB, Atlanta, United States, [4]ICAP at Columbia University, New York, United States, [5]ICAP at Columbia University, Dar es Salaam, Tanzania, United Republic of, [6]National AIDS Control Programme, Dar es Salaam, Tanzania, United Republic of, [7]Tanzania Commission for AIDS, Dar es Salaam, Tanzania, United Republic of, [8]Office of the Chief Government Statistician, Zanzibar, Tanzania, United Republic of, [9]Zanzibar AIDS Commission, Zanzibar, Tanzania, United Republic of, [10]Zanzibar Integrated HIV, Tuberculosis and Leprosy Programme, Zanzibar, Tanzania, United Republic of, [11]National Health Laboratory Quality Assurance and Training Center, Dar es Salaam, Tanzania, United Republic of

Background: Awareness of HIV-positive status, effective linkage to and retention on antiretroviral (ARV) treatment and viral load suppression (VLS) are key to epidemic control. We analyzed data from the 2016-17 Tanzania HIV Impact Survey (THIS) to describe the status of the UNAIDS 90-90-90 indicators among PLHIV in Tanzania.

Methods: THIS was a two-stage cluster survey of randomly selected households in all 31 administrative regions of Tanzania. Consenting adults, 15-64 years, self-reported their HIV status and ARV use. The survey involved home-based counseling and testing using the national HIV rapid test (RT) algorithm consisting of SD Bioline HIV ½ (screening RT) and UniGold (confirmatory RT). Those testing positive on both RTs were confirmed using BioRad Geenius™ HIV-1/HIV-2 Supplemental Assay. VLS was defined as < 1,000 HIV RNA copies/mL. Progress towards the 90-90-90 targets was described using weighted percentages, after accounting for non-response, to achieve population representativeness. Jackknife replication method was used to calculate 95% confidence intervals (95%CI).

Age group (years)	Percentage of PLHIV who self-reported their HIV positive status (95% CI)			Percentage who self-reported ART use of those who self-reported their HIV positive status (95% CI)			Percentage who are virally suppressed, of those who are on ARVs (95% CI)		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
15-24	35.1 (11.5-58.7)	40.6 (29.1-52.0)	39.1 (27.2-51.0)	*	88.2 (77.5-99.0)	87.7 (77.4-98.0)	*	90.6 (79.1-100.0)	82.3 (66.3-98.2)
25-34	24.6 (13.5-35.6)	49.6 (41.5-57.8)	42.0 (35.2-48.9)	66.0 (41.6-90.4)	86.9 (78.8-95.0)	83.2 (75.5-90.9)	*	88.0 (80.6-954)	87.4 (80.3-94.5)
35-49	48.6 (40.4-56.8)	61.5 (54.2-68.8)	56.9 (50.9-62.8)	84.8 (75.5-94.2)	94.4 (92.1-96.7)	91.5 (88.0-94.9)	80.8 (71.1-90.5)	88.2 (82.8-93.5)	86.1 (81.4-90.7)
50-64	62.9 (50.2-75.6)	62.0 (53.1-70.9)	62.4 (54.4-70.4)	96.1 (90.8-100.0)	99.2 (98.0-100.0)	97.9 (95.6-100.0)	93.3 (87.1-99.5)	92.5 (87.7-97.4)	92.8 (88.9-96.8)
15-64	**45.3 (39.0-51.6)**	**55.9 (51.4-60.3)**	**52.2 (48.3-56.2)**	**86.1 (80.6-91.7)**	**92.9 (90.4-95.4)**	**90.9 (88.4-93.4)**	**84.0 (77.2-90.9)**	**89.2 (85.9-92.5)**	**87.7 (84.7-90.8)**

*[90-90-90 Estimates by Age and Sex among PLHIV in Tanzania, THIS 2016-17 (* Estimates were suppressed because denominator was <25)]*

Results: Of 29,369 eligible persons ages 15-64 years interviewed and tested, 1,778 were HIV-positive, resulting in an adult prevalence of 5% and an estimated 1.4 million adults living with HIV (PLHIV) in Tanzania. Approximately half 52.2% [95% CI: 48.3-56.2] of PLHIV reported knowledge of their HIV-positive status. Of these 90.9% [95% CI: 88.4-93.4] reported current use of ARVs. Of those reporting ARVs, 87.7% [95%CI: 84.7-90.8] had achieved VLS. Awareness of HIV-positive status was ≤40% in males and females ages 15-24 years (Table). Among all PLHIV, irrespective of knowledge of HIV and ART status, 52.0% [95%CI: 48.6-55.4%] were virally suppressed; this was higher among women (57.5% [95% CI: 54.0-61.1%]) than men (41.2% [95% CI: 35.7-46.7%]).

Conclusions: THIS is the first national survey in Tanzania to provide direct measurement of the 90-90-90 targets. Our results indicate that the national program has succeeded in initiating and retaining the majority of HIV-positive adults who report knowledge of their diagnosis. Targeted testing, however, must identify those unaware of their HIV-positive status, especially among adolescents and young people, in both men and women.

LBPEC029

Factors associated with viral load suppression among PLHIV in Tanzania; Results from Tanzania HIV Impact Survey (THIS) 2016-17: Implications to the ART programs

C. Makafu[1,2,3], J. James[2], E. Karugendo[3], R. Mdodo[4], E. Gummerson[5], G. Mgomela[4], A. Ramadhani[6], J. Mushi[6], S. Jonnalagadda[7], K. Lavilla[8], J. Zelothe[1], G. Somi[6], E. Luaula[3], C. Vesper[9], B. Simpoli[10], V. Mugisha[11], K. Jackson[7], R. McCree[8], O. Malewo[8], W. Nega[1], J. Justman[12]

[1]ICAP, Dar es Salaam, Tanzania, United Republic of, [2]Ministry of Health, National AIDS Control Program, Dar es Salaam, Tanzania, United Republic of, [3]National Bureau of Statistics, Dar es Salaam, Tanzania, United Republic of, [4]CDC, Tanzania, Dar es Salaam, Tanzania, United Republic of, [5]ICAP, NY, New York, United States, [6]NACP, Dar es Salaam, Tanzania, United Republic of, [7]CDC, Georgia, United States, [8]CDC, Dar es Salaam, Tanzania, United Republic of, [9]ICAP, Pretoria, South Africa, [10]NBS, Dar es Salaam, Tanzania, United Republic of, [11]ICAP, Kigali, Rwanda, [12]ICAP, New York, United States

Background: WHO recommends early initiation of antiretroviral drugs (ARV) to provide better clinical outcomes among People Living with HIV (PLHIV) and prevent progression to AIDS. Viral Load Suppression (VLS) has recently been globally adopted as universal approach in monitoring the effectiveness of antiretroviral treatments (ART). We analyzed data from the 2016-17 Tanzania HIV Impact Survey (THIS) to establish the prevalence and describe the factors associated with VLS among PLHIV age 15+ years

Methods: The THIS was a cross-sectional, household survey using two-stage stratified cluster sampling. The sample was powered to obtain VLS estimates at 95% CI of +/- 10% based on the surveyed number of HIV+ individuals. HIV status awareness and ARV use were both self-reported. Blood samples tested using the national HIV Rapid Test (RT) algorithm consisting of SD Bioline HIV 1/2 (screening RT) and Uni-Gold™ (confirmatory RT). Those testing positive on both RTs were confirmed using BioRad Geenius™ HIV-1/HIV-2 Supplemental Assay. VLS was defined as <1,000 HIV RNA copies/mL and described using weighted percentages; odds ratios (ORs) were estimated to determine co-factors associated with viral suppression

Results: Of the 31,579 eligible persons of ages 15+ years interviewed and tested; 1,831 were HIV-positive. Among all PLHIV, 51.82% (95% CI: 48.74, 54.88) were virally suppressed; 41.14% among males (95% CI: 36.23, 46.5) and 57.15% among females (95% CI: 53.79, 60.45). Factors independently associated with VLS included; female gender, Index (respondent) awareness of their HIV+ status, urban residence, age, widowed marital status, disclosure of HIV+ status [i.e. Index (respondent) HIV+ status known to partner, Index (respondent) knows HIV+ status of partner], higher CD4 counts, and number of sexual partners in the past 12 months

Conclusions: VLS is an effect of interaction amid diverse dynamics, besides central ARV administration. Consequently, ART programs should consider strategizing for efficient interplay between the personal, clinical, social and demographic VLS influences

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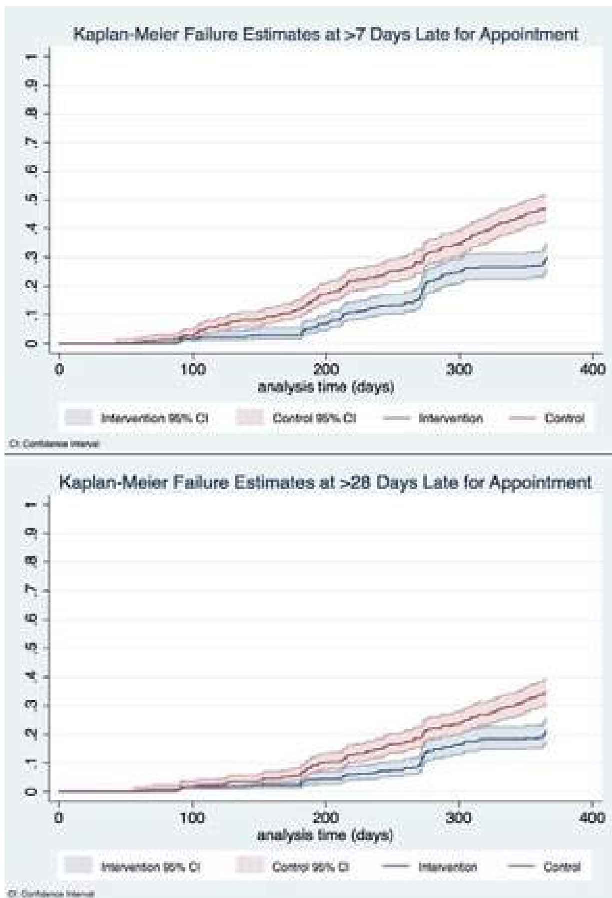
LBPEC030

Does faster service equal better retention: Assessing fast track services in Lusaka, Zambia

J. Pry[1,2], M. Roy[3], I. Sikazwe[1], M. Mukumbwa-Mwenechanya[1], P. Somwe[1], E. Kalunkumya[1], M. Lumpa[1], A. Sharma[1,4], N. Padian[5], E. Geng[3], C. Holmes[6], C. Bolton[1,7]
[1]*Centre for Infectious Disease Research Zambia, Lusaka, Zambia,* [2]*University of California, Davis, United States,* [3]*University of California, San Francisco, United States,* [4]*University of Washington, Seattle, United States,* [5]*University of California, Berkeley, United States,* [6]*George Washington University, Washington D.C., United States,* [7]*University of Alabama, Birmingham, United States*

Background: As part of a larger differentiated service delivery (DSD) study in Lusaka, 2 urban sites where selected for a FAST-TRACK (FT) intervention to decrease waiting times and overall time spent at the clinic. The model included a dedicated clinic room staffed by a pharmacy technician (to dispense drugs) and two lay health care workers (to provide brief symptom screening to identify patients in need of higher-level care). Patients were required to visit the clinic every three months to receive ART supply and every 6 months for a clinical examination. Our primary outcome was retention at 12 months.

Methods: A systematic sample of eligible patients (HIV+, on ART > 6 months, not acutely ill, CD4 >=200/µl) were enrolled in FT between March 17 and August 31, 2016. Patients were scheduled for 3-month antiretroviral therapy (ART) pick-ups. Clinical and pharmacy visit data were obtained through existing electronic medical records. Our outcomes included clinic visit attendance, transfer-outs, and death. Kaplan-Meier failure estimates were calculated for 7, 14, 28 and 90 days late for a pharmacy visit. Significance was assessed at the 95% confidence level using the log-rank test.



[Figure 1: Kaplan-Meier Curves for >7, >14, >28, and >90 Days Retention at One Year]

Results: Among 905 patients, median age was 40 years (IQR: 34-46), 607 (67.1%) were female, median CD4 count was 499 cells/mm³(IQR: 354-691), and median time on ART was 5 years (IQR: 3-7). The intervention participants had a significantly lower rate of >7 and >14 days late compared to the control group at six (p-value: 0.003 and < 0.001, respectively) and twelve (p-value: 0.0255 and < 0.001, respectively) months of follow-up. In addition, the intervention participants had a significantly lower rate of > 28 days late at twelve months (p-value: < 0.001) of follow-up (figure 1). The median visit spacing for pharmacy visits was 90 days for the intervention and 89 for the control.

Conclusions: Compared to our controls, FT had a significant effect on improving retention at six and twelve months. The standard of care, as represented by the control participants, did not show a significantly different ART refill schedule indicating that reduced wait time can increase retention.

LBPEC031

Digital pre-exposure prophylaxis (PrEP): Near real-time remote capture of medication ingestion for clinical use in trials and adherence support

S.H. Browne[1], N.J. Hanan[2], T.F. Katsivas[1], A.J. Tucker[2], A. Umlauf[2], F. Vaida[2], J.F. Rooney[3], C.A. Benson[2], T.F. Blaschke[4]
[1]*University of California San Diego, Department of Medicine, La Jolla, United States,* [2]*University of California San Diego, La Jolla, United States,* [3]*Gilead Sciences, Foster City, United States,* [4]*Stanford University, Stanford, United States*

Background: Medication adherence is critical to PrEP prevention of HIV infection. An FDA approved & CE marked Digital Health Feedback System (DHFS) consisting of an edible ingestion sensor (IS), external wearable patch and paired mobile device, can detect and record the timing of ingestion events that are automatically uploaded to a secure Internet server, allowing for near-real time remote confirmation and adherence support. We developed Digital PrEP byco-encapsulating Truvada with an IS to generate precise ingestion records. Prior to general clinical use, equivalence of Digital PrEP (IS-Truvada) must be assessed with respect to the native formulation. We report the in vivo equivalence of IS-Truvada to native Truvada, demonstrate its use and acceptability for longitudinal adherence monitoring.

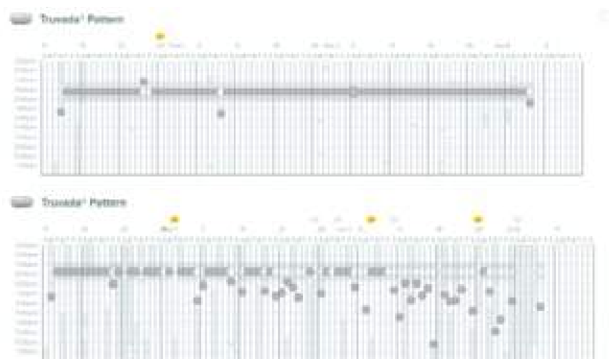
Methods: Sixty adult HIV-seronegative participants desiring PrEP were enrolled in a prospective single arm open label intervention study over 12 weeks assessing the DHFS. Twelve participants taking IS-Truvada underwent pharmacokinetic sampling of tenofovir (TFV) and emtricitabine (FTC) on day 14 at 0, 2, 4, 6, 8, & 24-hours post-dose, and on Day 15 at 2 & 4 hours post-dose following crossover to the native formulation.
Plasma specimens were analyzed using a validated LC-MS/MS assay. Pharmacokinetic parameters for TFV & FTC were calculated by non-compartmental methods. IS-Truvada formulation equivalence was assessed by comparing peak FTC and TFV concentrations (C2) and concentrations sampled 4 hours post-dose (C4) following IS-Truvada and native Truvada ingestion using the geometric mean ratio (GMR) test at a 90% confidence level. Subsequently the acceptability of the DHFS was evaluated.

	FTC-Steady-State PK		TFV-Steady-State PK	
PK Parameter	IS-Truvada Mean (CV%)	Truvada1 Mean (CV%)	IS-Truvada Mean (CV%)	Truvada1 Mean (CV%)
Cmax (ng/mL)	1679 (27)	1650 (18)	263 (39)	288 (22)
Tmax (hr)	2 (0)	2.98 (20)	2 (0)	2.4 (38)
Cmin (ng/mL)	97 (48)	75 (22)	59 (49)	54 (20)
AUC(0-24)	10916 (29)	10700 (11)	2706 (42)	2800 (18)
CL/F (L/hr)	195 (24)	190 (12)	59 (41)	50 (18)
T1/2 (hr)	6.7 (11)	10.7 (16)	17 (53)	15 (24)

[Table 1. Steady-State pharmacokinetics of FTC & TFV for IS-Truvada & native Truvada; 1. J Clin Pharmacol. 2007 Jun;47(6):751-9]

Results: Participant demographics were: mean age 37, 100% Male (83.3% White, 33.3% Hispanic ethnicity), mean CDC risk score 21.5. The GMRs (90% CI) at C2 & C4 (IS-Truvada/native Truvada) for TFV were 1.04 (0.89, 1.16) and 0.99 (0.87, 1.12), and for FTC were 0.96 (0.87, 1.12) and 0.94 (0.90, 1.04). IS-Truvada pharmacokinetics were comparable to literature values (Table 1.) Figure 1 demonstrates DHFS records. Ninety two percent of participants reported a positive experience with the DHFS.

Conclusions: Pharmacokinetic equivalence enables clinical use of IS-Truvada for remote capture of precise dosing histories. Acceptable, easy, real-time adherence monitoring is available for PrEP clinical trials and adherence support.



[Fig 1: Online platform displays date and time stamped ingestions differentiating PrEP adherence patterns (Subject 1 highly regular, Subject 2 erratic).]

LBPEC032

Use of geolocation-based push messaging from a social media platform to promote HIV testing among MSM - Beijing, China, 2015-2016

D. Podson[1], Y. Ma[2], F. Yu[2], Z. Chen[2], G. Mi[2], L. Wang[3]
[1]Public Health Institute, US CDC DGHT China Office, Beijing, China, [2]Blued, Beijing, China, [3]Beijing Ditan Hospital, Capital Medical University, Beijing, China

Background: Men who have sex with men (MSM) disproportionately bear the highest burden for new human immunodeficiency virus (HIV) infections in China. Estimates of the size of the population of MSM in China range from 4 - 20 million, and 50-75% of those HIV-infected are unaware of their HIV status. Since 2013, "Blued" emerged as the most popular social media platform for Chinese MSM, with over 40 million cumulative users. They currently operate 4 drop-in HIV testing sites in Beijing.
Methods: On March 16, 2015, in order to improve the uptake of HIV testing at its drop-in HIV testing sites, all Blued users who opened the location-enabled mobile app while located within the Beijing city limits were sent a private text message to the number they had registered with Blued. The message had language encouraging HIV testing as a way to preserve health and well-being, and offered the opportunity to follow an embedded link to an online appointment system for HIV testing sites.
Results: Volume at the 4 sites increase markedly following the push messaging effort. In the two weeks prior to the effort, a total of 45 persons were tested at the 4 sites, while in the two weeks including and following the effort, a total of 151 persons tested at the same sites. In 2015 there were 3,086 persons tested versus 388 persons total in 2014 - a sevenfold increase in testing. 41% of persons testing for HIV at the sites in 2015 arranged their testing through the text's provided link. Over 150 persons were diagnosed with HIV at the testing sites in 2015 and more than 60% of them were 30 years or younger.
Conclusions: GPS push messaging to Beijing users in 2015 coincided with an increase in HIV testing uptake soon after the start of the campaign, suggesting that this technique is effective in reaching a traditionally "hard to reach" population, specifically young, well-educated MSM. More information is needed to understand the impact of geo-location push-messaging, whether it retains utility after repeated use, and how to optimize efficiency to achieve sustained levels of testing among MSM.

LBPEC033

Impact of a digital HIV self-testing strategy on referrals, new infections and linkage to care: Results from a transition to scale cohort study in South Africa

N. Pai[1], A. Esmail[2], G. Marathe[1], S. Oelofse[2], M. Pretorius[2], M. Fadul[2], M. Smallwood[1], J. Daher[1], R. Janssen[3], P. Saha-Chaudhuri[4], N. Engel[3], K. Dheda[2]
[1]McGill University / Research Institute of the MUHC, Department of Medicine, Division of Clinical Epidemiology, Montreal, Canada, [2]University of Cape Town and UCT Lung Institute, Lung Infection and Immunity Unit, Division of Pulmonology, Department of Medicine, Cape Town, South Africa, [3]Maastricht University, Department of Health, Ethics & Society, Research School for Public Health and Primary Care, Maastricht, Netherlands, [4]McGill University, Department of Epidemiology, Biostatistics & Occupational Health, Montreal, Canada

Background: Although HIV self-testing (HIVST) offers a promising solution for expanded test access, challenges remain in operationalizing rapid linkages to care. In participants presenting to test for HIV in community clinics in South Africa, we investigated whether an offer of a personalized, digital HIVST strategy (a choice of: a) take home unsupervised HIVST, or b) a clinic based supervised HIVST) improved outcomes (i.e., test referrals, new infections, and rapid linkages to counseling/care). The digital strategy consisted of a choice of phone/tablet app with a connected, online cloud web platform and counsellors offering 24/7 linkages to care.
Methods: In an ongoing transition-to-scale cohort study (n=2500), we recruited 1250 participants in HIVST cohort up to March 2018. In geographically separated community clinics, we observed and compared outcomes in 1250 participants opting for conventional HIV testing (ConvHT cohort). Test referrals were defined as the total number of participants referred by all index testers. Linkages (a proportion) were defined as the number of consenting participants linked to care (numerator), over the total number of recruited participants (denominator).
Results: Of 1250 participants recruited in the HIVST cohort, 760 (60.8%) opted for unsupervised HIVST, and 490 (39.2%) for supervised HIVST. Participants (HIVST vs. ConvHT) were young (mean age 28.2 (SD=8.8) vs. 29.1 (SD=8.6)); female (65.0% vs. 75.3%); and poor, monthly income < 3,000 RAND ($253 USD) (80.5% vs. 75.8 %).
There were many more referrals (RR 5.3 [95% CI: 3.7-7.5]) in HIVST; break up (HIVST 14.8% (12.9-16.9) vs. ConvHT 2.8% (1.9-3.9)). Many new HIV infections (RR 1.5 [95% CI: 1.1-1.9]) in HIVST, 120 (9.6% (8.0-11.4)) vs ConvHT 80 (6.4 % (5.1-7.9)) were documented. New infections identified: 64 (53.3%) in unsupervised HIVST vs. 56 (46.7 %) in supervised HIVST.
Linkages were set up for many HIVST participants (99.7% unsupervised HIVST, 99.8% supervised HIVST), with no difference between the two cohorts HIVST vs ConvHT (RR 1.005 [95% CI: 0.99-1.01]).
Conclusions: We conclude that a personalized, connected digital HIVST strategy successfully documented many referrals, detected many new infections, and linked almost all participants to counselling and care. This strategy offers a promising HIVST scale up solution for all digitally savvy populations worldwide.

LBPEC034

Different PrEP modalities for different people: switches between daily and event-driven PrEP among MSM and TGP

E. Hoornenborg[1], L.N. Coyer[1], R.C.A. Achterbergh[1], M.F. Schim van der Loeff[1,2], U. Davidovich[1], H.J.C. de Vries[1], M. Prins[1,2], on behalf of the Amsterdam PrEP Project team in the HIV Transmission Elimination AMsterdam Initiative (H-TEAM)
[1]Public Health Service of Amsterdam, Amsterdam, Netherlands,
[2]Academic Medical Center, Amsterdam, Netherlands

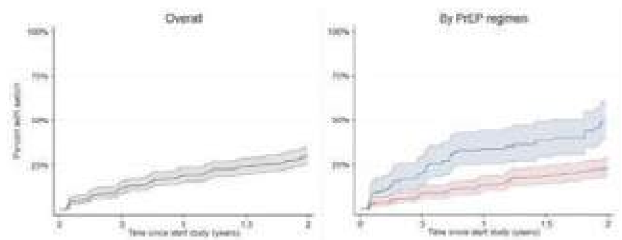
Background: To meet individual HIV prevention needs for people whose risk may vary over time, daily (one tablet emtricitabine-tenofovir daily) and event-driven (2 tablets before, and 2 times 1 tablet after sex) pre-exposure prophylaxis (dPrEP and edPrEP, respectively) can be offered at choice of the user. We assessed user-initiated switches and factors associated with switches during the first two years of follow-up.

Methods: HIV-negative MSM (n=370) and TGP (n=2) participated in the Amsterdam PrEP project at the Public Health Service of Amsterdam. Participants chose a dPrEP or edPrEP regimen and could switch regimen at quarterly visits. We analyzed data from study start (August 2015) through March 2018. We evaluated time-to-first-switch overall and by PrEP regimen using Kaplan-Meier plots. With Cox regression we assessed the association of baseline characteristics with time to switch, in separate models for dPrEP and edPrEP.

Results: At baseline, 270 (73%) people chose dPrEP and 102 (27%) edPrEP. Medium follow-up time was 2 years [IQR 1.8-2.2]. In total, 106 (28%) participants switched regimen 154 times; 37/106 (35%) switched more than once. 78 (51%) switches were from dPrEP to edPrEP, and 76 (49%) from edPrEP to dPrEP. The cumulative proportion of participants that switched two years after PrEP start was 30% (95% CI 25-35%). Over time, the cumulative proportion that switched was higher among those who started edPrEP compared to those who started dPrEP (log rank test, p< 0.001) (Fig).

Higher age was associated with switching (Table) for both PrEP regimens. Among those who started edPrEP, a higher number of sex acts with casual partners (reported at baseline) was associated with a higher switch hazard. Other baseline variables were not significantly associated with the switch hazard, including ethnicity, STI at baseline, and chemsex (Table).

Conclusions: A substantial proportion of MSM switch between daily and event-driven PrEP regimens if allowed to do so. Some participants may have switched without reporting, suggesting possible underreporting. The high number of switches, in addition to 27% initiating event-driven PrEP, clearly indicates the varying needs and added value of a client-centered approach in PrEP regimen provision.



[Time to first switch to another PrEP regimen since start PrEP, (a) overall and (b) by PrEP regimen]

	Switch dPrEP --> edPrEP Hazard ratio (a) (95% CI)	Switch edPrEP --> dPrEP Hazard ratio (a) (95% CI)
Age in years at baseline	0.30 (0.11-0.77) (b)	0.24 (0.07-0.81) (b)
Ethnicity (white)	0.96 (0.47-1.97)	1.74 (0.57-5.37)
No. of anal sex partners in 3 months before PrEP start	0.71 (0.37-1.36) (b)	0.54 (0.27-1.09) (b)
No. of anal sex acts with casual partners in 3 months before PrEP start	1.20 (0.66-2.19) (b)	2.31 (1.14-4.67) (b)
Chemsex in 3 months before baseline	1.10 (0.59-2.05)	0.82 (0.37-1.82)
Any STI at baseline	0.53 (0.23-1.19)	1.59 (0.65-3.88)
Possible drug-related problem (DUDIT≥8) at baseline	1.08 (0.56-2.07)	1.65 (0.73-3.71)
Possible alcohol-related problem (AUDIT≥8) at baseline	1.06 (0.59-1.89)	0.72 (0.33-1.57)
(a) Adjusted for all other variables in the model; (b) Per increase in natural log. Abbreviations: AUDIT, alcohol use disorders identification test; DUDIT, drug use disorders identification test; IQR, interquartile range; PrEP, pre-exposure prophylaxis; STI, sexually transmitted infection		

[Association of baseline characteristics with time to switch, by initial PrEP regimen.]

LBPEC035

Syphilis acquisition and dosing schedule for pre-exposure prophylaxis (PrEP) users in Taiwan PrEP demonstration project

H.-J. Wu[1], C. Strong[1], S.W.-W. Ku[2], C.-W. Li[3], C.-Y. Cheng[4], H.-C. Tsai[5], C.-Y. Lee[6], S.-T. Huang[7], N.-Y. Ko[8], Y.-F. Huang[7], TW-CDC

[1]Department of Public Health, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan, Province of China, [2]Division of Infectious Diseases, Taipei Veterans General Hospital Hsinchu Branch, Hsinchu, Taiwan, Province of China, [3]Division of Infectious Diseases, Department of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan, Province of China, [4]Department of Infectious Diseases, Taoyuan General Hospital, Ministry of Health and Welfare, Taoyuan, Taiwan, Province of China, [5]Department of Medicine, Division of Infectious Diseases, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan, Province of China, [6]Division of Infectious Diseases, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan, Province of China, [7]Centers for Disease Control, Ministry of Health and Welfare, Taipei, Taiwan, Province of China, [8]Department of Nursing, College of Medicine, National Cheng-Kung University and Hospital, Tainan, Taiwan, Province of China

Background: Efficacy of daily and on-demand pre-exposure prophylaxis (PrEP) has been well established among men who have sex with men (MSM) in clinical trials. Yet the experience of both schedules in real life is still lacking. The first government-led demonstration project in Asia, providing daily or on-demand PrEP, was launched by Taiwan CDC in November, 2016. The aim of this study were to investigate characteristics associated with PrEP dosing schedule and examine whether dosing schedule was associated with syphilis incidence up to one year follow-up.

Methods: HIV-negative adult individuals with risk factors were eligible and enrolled in the demonstration project. After PrEP initiation, self-reported side effects, adherence, and risk behaviors were collected every 3 months, last updated in March, 2018. The latest dosing schedule of the participants was categorized in three types: daily, on-demand, or mixed (switching between daily and on-demand). Participants were tested for syphilis every 3 months. Multivariable logistic regression was used to determine factors at baseline associated with dosing schedule (daily vs. on-demand or mixed). Cox proportional hazard regression model was used to determine risk factors for incident syphilis.

Results: A total of 302 participants initiated PrEP; 92.1% were MSM and 3.6% were women. Overall, 24.5% used daily PrEP, while 75.5% used on demand or mixed. More than half of women (72.7%) and people infected with hepatitis B virus (58.8%) used PrEP on demand or mixed. Daily PrEP was associated with using recreational drug in last 3 months (aOR 2.36, 95% CI 1.27-4.38) and having PrEP-related stigma (aOR 2.02, 95% CI 1.11-3.70). There was no difference in syphilis incidence between different dosing schedule.

Conclusions: Only a quarter of participants in the Taiwan CDC demonstration project took PrEP daily, and at-risk populations recommended to use only daily PrEP were reported to use PrEP on demand in real life. The dosing schedule does not appear to be associated with syphilis acquisition up to one year follow-up. Contextual and individuals factors that contribute to using PrEP on demand should be further examined and be considered for interventions to improve adherence.

	Univariable analysis	Multivariable analysis	
	OR [95% CI]	aOR [95% CI]	p-value
Age	1.03 [0.99-1.07]	1.02 [0.98-1.06]	0.441
HBsAg	2.30 [0.84-6.28]	1.61 [0.53-4.93]	0.403
Northern Taiwan vs. Southern Taiwan	1.17 [0.68-2.02]	0.85 [0.47-1.52]	0.584
Male vs. Female	0.86 [0.22-3.33]	0.62 [0.16-2.50]	0.497
Consistently condom use in the last 3 months	0.79 [0.44-1.41]	0.72 [0.40-1.29]	0.271
Agreed/ Strongly agreed with PrEP-related stigma	1.81 [1.04-3.14]	2.02 [1.11-3.70]	0.022
Recreational drug use in the last 3 months	2.70 [1.52-4.77]	2.36 [1.27-4.38]	0.007
Knowing someone using PrEP	1.98 [1.11-3.51]	1.87 [1.00-3.52]	0.051

[Factors associated with daily PrEP dosing schedule in Taiwan PrEP demonstration project.]

LBPEC036

The impact of pre-exposure prophylaxis with TDF/FTC on HIV diagnoses, 2012-2016, United States

P.S. Sullivan[1], D.K. Smith[2], R. Mera-Giler[3], A. Siddiqi[2], B. Gunnels[2], N. Harris[2], X. Hu[2], L. Waller[2], S. McCallister[3]
[1]Emory University Rollins School of Public Health, Epidemiology, Atlanta, United States, [2]Centers for Disease Control and Prevention, Atlanta, United States, [3]Gilead Sciences, Foster City, United States

Background: Pre-exposure prophylaxis (PrEP) reduces the risk of HIV infection in those at risk for acquiring HIV. TDF/FTC was approved for PrEP in the United States (US) in 2012; 147,000 people had initiated PrEP through 2016.
Methods: We analyzed HIV diagnoses among persons ≥ 13 years old, and viral suppression, from the National HIV Surveillance System and national pharmacy data on prevalence of TDF/FTC use, for PrEP /1,000 persons with PrEP indications. We described changes in rates of HIV diagnoses and PrEP users, from 2012-2016, for 50 states and DC using estimated annual percent change (EAPC). We calculated EAPC and 95% confidence intervals (CI) for HIV diagnoses for states by quintiles of PrEP use. To evaluate the independence of the effect of PrEP uptake from the effect of treatment as prevention, we used data from a subset of 38 states and DC (39 jurisdictions) with viral suppression data (averaged for available years from 2012-2014) among those living with diagnosed HIV, and examined whether the association of PrEP uptake and HIV diagnoses changed when controlling for state-specific level of viral suppression.
Results: The overall US rate of HIV diagnoses decreased significantly from 15.7 (2012) to 14.5 (2016)/100,000 (EAPC: -1.6, CI: -1.9, -1.3). PrEP use prevalence increased from 7.0 (2012) to 68.5 (2016)/1,000 (EAPC: +78.0%, CI: +77.3%, +78.7%). The pooled unadjusted EAPC of HIV diagnoses for states in the highest quintile of PrEP use was -4.7% (CI: -5.4%, -3.9%) and for states in the lowest PrEP use quintile was +0.9% (CI: +0.2%, +1.7%) (Figure). The average prevalence of PrEP users in 2016 was 110/1,000 (11%) in the highest quintile, and 33/1000 (3.3%) in the lowest. Among the 39 jurisdictions with viral suppression data, rate of PrEP uptake remained significantly associated with declines in new HIV diagnoses after controlling for state-level viral suppression.
Conclusions: PrEP uptake was significantly associated with declines in HIV diagnoses in the US, and this association is independent of levels of viral suppression. US states should take steps to increase the coverage of PrEP among persons with indications in the current context of increasing HIV viral suppression for people living with HIV.

LBPEC037

A cost-effective strategy to reach WHO hepatitis C virus elimination targets in men who have sex with men in the UK : 90% decrease in hepatitis C incidence by 2030

L. MacGregor[1], Z. Ward[1], N. Martin[1,2], F. Hickson[3], P. Weatherburn[3], M. Hickman[1], P. Vickerman[1]
[1]University of Bristol, Bristol, United Kingdom, [2]Division of Global Public Health, University of California San Diego, San Diego, United States, [3]London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Routine pre-exposure prophylaxis (PrEP) and post-HIV diagnosis appointments provide low-cost HCV-screening opportunities amongst men who have sex with men (MSM), providing a route towards achieving WHO elimination targets of reducing hepatitis C (HCV) incidence by 90% by 2030.
Methods: We developed a deterministic model of HCV/HIV transmission, incorporating biological and behavioural heterogeneities (serosorting, injection drug use and fisting). Our model was parameterised with UK data, calibrated to UK prevalence of HIV (5.9%), active HCV infection among HIV-positive MSM (10.0%) and HIV-negative MSM (1.6%). We assessed the effect of scaling up PrEP to 12.5% coverage amongst HIV-negative MSM (versus no PrEP) on HCV incidence over 2018-2030, assuming 86% HIV-efficacy. We then evaluated the impact over 2018-2030 of enhanced HCV screening with rapid HCV treatment within 6-months of diagnosis versus baseline of 28-months. Enhanced screening strategies included 3, 6 or 12-monthly (versus symptomatic after 10-years) in PrEP users, 6-monthly (versus 12-monthly) in HIV-diagnosed MSM and symptomatically in remaining MSM. The mean incremental cost-effectiveness ratio (ICER) was estimated for each strategy up to 2030 compared to status quo screening. We incorporated HCV screening costs for antibody (£10.22) and RNA tests (£45.57) and HCV treatment drug costs (£15,000) plus other diagnostics (£807.80), staff (£57.09) and necessary additional HCV-care costs.
Results: PrEP scale-up decreases HCV incidence by 13.3% due to reduced prevalence of HIV (by 23.2%), thus reducing HIV/HCV co-infection. When rapidly treating and screening PrEP users for HCV 12, 6 or 3-monthly, overall HCV incidence decreases by 42.6%, 46.0% or 47.8%, respectively. If this is combined with rapid treatment and 6-monthly screening in HIV-diagnosed MSM then HCV incidence deceases further, by 77.9%, 81.1% and 82.7%. If rapid treatment also occurs in other MSM (but no enhanced screening), then HCV incidence declines by 90.3%, 91.4% and 92.0% for 12, 6 or 3-monthly screening in PrEP users, respectively, with mean ICERs of £7,200, £8,200 and £10,300 per quality adjusted life year (QALY); highly cost-effective compared to UK thresholds (£20,000/QALY).
Conclusions: Increased screening in PrEP users and HIV-diagnosed MSM plus universal rapid linkage to HCV treatment is highly cost-effective and could achieve the WHO elimination target for MSM.

LBPEC038

Three-fold increases in population-level HIV viral-load suppression among men and young adults in a mixed urban-rural Tanzania lake-zone community: Intervention outcomes of the Bukoba Combination Prevention Evaluation (BCPE)

C. Steiner[1], D. MckKellar[2], H. Cham[2], H. Maruyama[1], O. Rwabiyago[3], G. Kundi[1], O. Msumi[1], R. Weber[4], J. Byrd[2], E. Churi[1], S. Pals[2], C. Madevu-Matson[5], K. Kazaura[3], D. Mbilinyi[6], F. Morales[1], J. Justman[5], A. Rwebembera[7]
[1]ICAP at Columbia University, Dar es Salaam, Tanzania, United Republic of, [2]Centers for Disease Control and Prevention, Atlanta, United States, [3]Centers for Disease Control and Prevention, Dar es Salaam, Tanzania, United Republic of, [4]Centers for Disease Control and Prevention, Yaounde, Cameroon, [5]ICAP at Columbia University, New York, United States, [6]United Nations Children's Fund, Dar es Salaam, Tanzania, United Republic of, [7]National AIDS Control Program, Dar es Salaam, Tanzania, United Republic of

Background: BCPE interventions aimed to increase population HIV viral-load suppression (VLS) in Bukoba Municipal Council (BMC), a Tanzania Lake-zone community of ~150,000, by increasing uptake of antiretroviral therapy (ART) during a period of expanding ART-eligibility. We compare estimated population prevalence of VLS before (pre) and after (post) the 2.5-year BCPE intervention phase.
Methods: BCPE facility- and community-based HIV testing and counseling (HTC), linkage-case-management (LCM), and defaulter-tracing (DT) interventions were implemented during three ART-eligibility periods: CD4< 350 (10/2014-11/2015); CD4< 500 (12/2015-09/2016); and Test & Start (T&S)(10/2016-03/2017). Pre- and post-intervention population-based surveys were conducted in 53 and 47 enumeration areas (EAs), respectively, randomly selected in proportion to the estimated population in 14 BMC wards. In sampled EAs, survey participation was offered to all contacted household members aged 18-49 years. VL quantification was performed at the national laboratory on plasma specimens of participants who tested HIV-positive. Pre- and post-intervention, survey-weighted prevalence of VLS (HIV RNA < 1,000 copies/ml) was estimated for HIV-infected participants.
Results: During the BCPE intervention phase (10/2014-03/2017), 133,695 HIV tests were conducted and 4,134 persons were newly HIV diagnosed. Of 4,206 total LCM clients, 93% enrolled in HIV care, and 47% (n=1057) were initiated on ART during CD4< 350, 67% (n=815) during CD4< 500, and 86% (n=649) during T&S periods. Of 859 contacted DT clients who reported not being in care, 604 (70%) returned to care, and 573 started or re-started ART. Compared with the pre-intervention survey, estimated

VLS prevalence among HIV-positive post-intervention survey participants increased two-fold overall (28.6% vs. 64.9%) and among females (33.3% vs. 68.0%), and approximately three-fold among males (20.5% vs. 59.1%), and young adults aged 18-24 (14.2% vs. 51.4%) and 25-29 (16.6% vs. 61.2%) years (Table).

Conclusions: After a 2.5-year combination-prevention intervention implemented during a period of expanding ART-eligibility policies (6 months under Test & Start), prevalence of VLS increased substantially among HIV-positive adults in Bukoba, particularly among men and young adults, two groups with consistently low ART coverage. BCPE facility-based testing and LCM interventions were approved in 2017 as new service delivery models and are being adopted by three non-governmental organizations in Tanzania for implementation in 2018.

	Pre-intervention Survey (Nov 2013 - Jan 2014)				Post-intervention Survey (Jun 2017 - Sep 2017)			
		HIV-positive	Weighted VLS prevalence			HIV-positive	Weighted VLS prevalence	
	Total	n (%)	%	95% LCL-UCL	Total	n (%)	%	95% LCL-UCL
Total	4799	436 (9.1)	28.6	22.9 - 34.2	5090	435 (8.5)	64.9	59.4 - 70.4
Male	1837	113 (6.2)	20.5	12.4 - 28.7	2105	112 (5.3)	59.1	50.9 - 67.4
Female	2962	323 (10.9)	33.3	27.1 - 39.5	2985	323 (10.8)	68.0	61.9 - 74.0
18-24 yrs old	1821	75 (4.1)	14.2	6.3 - 22.0	1778	65 (3.7)	51.4	40.2 - 62.7
25-29 yrs old	929	88 (9.5)	16.6	7.1 - 26.1	1066	71 (6.7)	61.2	45.8 - 76.5
30-39 yrs old	1387	180 (13.0)	26.4	20.0 - 32.7	1467	172 (11.7)	65.3	58.1 - 72.6
40-49 yrs old	662	93 (14.0)	52.5	39.4 - 65.5	779	127 (16.3)	72.8	62.3 - 83.3

[Estimated pre- and post-intervention prevalence of viral load suppression (VLS) among HIV-positive residents of Bukoba, BCPE 2014 - 2017]

Track D

LBPED039

Ninajiamini (I have confidence): Understanding the transformative effects of a participatory intervention in the Maisha Intimate Partner Violence (IPV) Trial in Tanzania

S. Lees[1], G. Mshana[2], V. Selestine[2], M. Marchant[3], S. Harvey[1], S. Kapiga[1,2], C. Watts[1]
[1]London School of Hygiene and Tropical Medicine, PHP, London, United Kingdom, [2]Mwanza Intervention Trials Unit, Mwanza, Tanzania, United Republic of, [3]UZIKWASA, Pangani, Tanzania, United Republic of

Background: A cluster randomized trial conducted among women in 66 microfinance groups in Tanzania, evaluated a 10-session participatory intervention (MAISHA) aimed at empowering women, preventing IPV and promoting healthy intimate partner relationships. Over two years, the intervention significantly reduced physical violence. Drawing on qualitative data, we sought to understand women's experiences of the intervention and, drawing on their narratives, how the intervention was transformative.

Methods: A longitudinal qualitative study was conducted alongside the trial. Eighteen in-depth interviews and 9 focus groups were conducted, in Swahili, with women at three time points: baseline; immediately post-intervention; and two years post-intervention. Interviews were transcribed and translated into English and uploaded to NVIVO 11. A framework analysis approach was taken.

Results: Baseline interviews revealed women's past and present struggles for access to education, income earning opportunities and rights to land and other assets. Women's discussion of intimate partner relationships highlighted experiences of violence for some, especially physical and economic abuse. However, none of the women articulated these experiences in terms of gender inequalities. During post-intervention interviews,most of the women did not remember details of individual sessions but were very positive about the sessions as a whole. They interpreted concepts of gender and power in terms of traditional gender norms and authority. In challenging tradition they did not extend fully to notions of equality. However, sessions involving skills development, such as communication in relationships, as well as knowledge about intimate partner violence, built women's confidence to challenge norms of male authority. One woman commented "I have been taught to communicate with confidence, maybe to protect the boundaries".

Conclusions: Andrea Cornwall (2016) notes that ‚where empowerment initiatives include a dimension to actively engage women in critical, conscious, reflection on their own circumstances ...there can be a marked enhancement of a programme or project´s transformative effects'. This research revealed that transformation in this participatory intervention allowed women to consciously engage in understandings of gender and power. Whilst such concepts remain, to some extent, abstract, women's awareness of the realities of their lives and intimate partner relationships meant that skills and knowledge building were the most tangible aspects of transformation.

LBPED040

I have made friends with whom we remind and encourage each other: Youth perspectives on and access to a *WhatsApp*-based HIV treatment support tool in Nairobi, Kenya

K. Ronen[1], C. Mugo[2], A. Muriithi[2], D. Seeh[2], C. Akinyi[2], H. Moraa[2], M. Nduati[2], B. Guthrie[1], M. Moreno[3], G. John-Stewart[1], I. Inwani[2]
[1]University of Washington, Seattle, United States, [2]Kenyatta National Hospital, Nairobi, Kenya, [3]University of Wisconsin, Madison, United States

Background: Adolescents and young adults (AYA) are disproportionately affected by HIV infection and experience poor treatment outcomes. Mobile health strategies show promise in improving ART adherence but studies in AYA have been limited. In 2014, HIV-infected AYA in Nairobi spontaneously established peer support groups using the mobile social media application, WhatsApp. We conducted a mixed-methods analysis of group messages, perspectives on the groups, and technology access among HIV-infected AYA in Nairobi.

Methods: The study was conducted at two HIV clinics in Nairobi in December 2017-April 2018. The study joined two WhatsApp groups and recorded 6 weeks' messages. In-depth interviews were conducted with 35 HIV-infected AYA (age 14-24): 14 members of WhatsApp peer support groups and 21 non-members. Transcripts and messages were translated and analyzed inductively and deductively. Two-hundred HIV-infected AYA attending study clinics completed a technology access questionnaire. Correlates of smartphone access were identified by ^{2}-test.

Results: WhatsApp groups included 250 and 60 members each, with 378 and 714 messages shared during the 6-week observation period respectively. Messaging was unstructured and included encouragement, ART reminders, and entertainment. Members viewed groups as providing companionship, instrumental support, emotional support and behavioral modeling. Barriers to group participation included lack of smartphone and unawareness of the group. Members and non-members endorsed using WhatsApp for peer treatment support. Desired group characteristics included ^{3}20 members, mixed gender, and age segregation. Desired content included unstructured discussion, ART reminders, and advice on status disclosure and HIV prevention. Some respondents desired healthcare worker involvement; others opposed it. Technology survey respondents had median age 17(16-20) and 99(50%) had ^{3}1 deceased parent. One-hundred-forty (70%) had access to a mobile phone; 112(56%) to a smartphone; 123(62%) had used WhatsApp. Smartphone access was higher in young adults (age 20-24) than adolescents (age 14-19) (86% vs. 44%, p< 0.0001), but did not differ by gender, orphanhood or parental financial support (p>0.05 for all).

Conclusions: Mobile social media offer a feasible and acceptable platform to support HIV treatment in Kenyan AYA. Access to smartphones and familiarity with social media is substantial, particularly among older youth. These findings offer guidance for development and evaluation of virtual peer support interventions.

LBPED041

A comparison of clinical characteristics and behavioral risks between HIV-infected and non-infected older adults in Northern Thailand

A. Tangmunkongvorakul[1], P. Musumari[2], K. Srithanaviboonchai[1,3], W. Sitthi[1], K. Rerkasem[1,3]
[1]Chiang Mai University, Research Institute for Health Sciences, Chiang Mai, Thailand, [2]Kyoto University School of Public Health, Department of Global Health and Socio-epidemiology, Kyoto, Japan, [3]Chiang Mai University, Faculty of Medicine, Chiang Mai, Thailand

Background: There is a shift in the demographic profile of people living with HIV toward older age groups. Little is known whether the clinical characteristics and pattern of alcohol use, smoking and physical exercise are different in older adults living with HIV compared to non-infected older adults. The present study addresses this research gap.
Methods: This cross-sectional study was conducted in 2017 and analyzed in 2018. It enrolled two groups of participants aged 50 years and above, including older adults living with HIV (OALHIV) and age-and-gender-matched comparison group of non-infected older adults. Participants were recruited from 12 community hospitals in Chiang Mai Province, Northern Thailand. Behavioral information was collected through face-to-face interviews and clinical data were retrieved from the medical records.

	HIV +	HIV -	Total	P value
	n (%)	n (%)	n (%)	
Ever drunk alcohol in the past year				0.003
No	296 (81.3)	262 (72.0)	558 (76.6)	
Yes	68 (18.7)	102 (28.0)	170 (23.4)	
AUDIT (N=170)				0.112
Low risk drinker	53 (77.9)	68 (66.7)	121 (71.2)	
High risk drinker	15 (22.1)	34 (33.3)	49 (28.8)	
Heavy episodic drinking				0.666
Never	52 (76.5)	75 (73.5)	127 (74.7)	
Ever	16 (23.5)	27 (26.5)	43 (25.3)	
Smoking behavior				0.001
Non smoker	229 (62.9)	257 (70.6)	486 (66.8)	
Previous smoker (quit > 3 months)	80 (22.0)	42 (11.5)	122 (16.8)	
Current smoker	55 (15.1)	65 (17.9)	120 (16.5)	
Number of cigarettes smoked average per day (N=116)				
Less than 1-1 smoke occasionally	2 (3.8)	1 (1.6)	3 (2.6)	0.638
2-5 cigarettes per day	41 (78.8)	49 (76.6)	90 (77.6)	
>5 cigarettes per day	9 (17.3)	14 (21.9)	23 (19.8)	
Current physical exercise status				<0.001
No	149 (40.9)	232 (63.7)	381 (52.3)	
Yes	215 (59.1)	132 (36.3)	347 (47.7)	
Currently doing vigorous-intensity exercises				<0.001
No	329 (90.4)	353 (97.0)	682 (93.7)	
Yes	35 (9.6)	11 (3.0)	46 (6.3)	
If you had vigorous-intensity exercises, how often did you have vigorous exercise? (N=46)				0.946
1-2 days a week	11 (31.4)	4 (36.4)	15 (32.6)	
3-5 days a week	11 (31.4)	3 (27.3)	14 (30.4)	
>5 days a week	13 (37.4)	4 (36.4)	17 (37.0)	
Currently doing moderate-intensity exercises				<0.001
No	166 (45.6)	236 (64.8)	402 (55.2)	
Yes	198 (54.4)	128 (35.2)	326 (44.8)	
If you had moderate-intensity exercises, how often did you have moderate exercise? (N=326)				0.274
1-2 days a week	42 (21.2)	22 (17.2)	64 (19.6)	
3-5 days a week	65 (32.8)	53 (41.4)	118 (36.2)	
>5 days a week	91 (46.0)	53 (41.4)	144 (44.2)	

AUDIT: The Alcohol Use Disorders Identification Test

[Behavioral characteristics of HIV-infected and non-infected older-adults in Chiang Mai, Thailand]

Results: We recruited a total of 728 participants, 364 participants in each of the groups. The proportion of participants with chronic kidney disease (14.0% versus 2.2%; $P< 0.001$) and dyslipidemia (or history of treatment with lipid modifying agents) (41.2% versus 13.7%; $P< 0.001$) was higher in OALHIV than in the comparison group. The proportion of underweight (BMI< 18.5) was significantly higher among HIV-infected participants than in the comparison group (21.7% versus 10.4%; $P< 0.001$).
However, alcohol use was less common (18.7% versus 28.0%; $P=0.003$) and physical exercise more common (59.1% versus 36.3%; $P< 0.001$) in the group of OALHIV than in the comparison group. OALHIV were less likely to report ever drank alcohol in the past year (AOR, 0.55; CI, 0.34-0.89, $P=0.015$) and more likely to report being currently engaged in physical activities (AOR, 2.58; CI, 1.77-3.76, $P< 0.001$). There was no difference between the two groups in terms of the "current smoking status".
Conclusions: OALHIV drank less but were more engaged in physical exercise than the non-infected older adults. The awareness of being sick and necessity to adhere to healthier lifestyle recommendation to control the disease, and the concerns over the consequences of alcohol on the effectiveness of antiretroviral drugs are possible reasons for lower prevalence of alcohol use in HIV-infected individuals compared to non-infected individuals. There is however need for continued monitoring of socio-behavioral risk factors in this population of OALHIV.

LBPED042

Treatment team model for HIV, aging and long-term survivors

C. Hutchinson, M. Adams, L. Angus, M. Beckles, D. Butler, J. Brooks, N. Collins, C. Fammons, D. Georgetti, J. Gorge, D. Ronning, S. Russo, B. Summer, M.A. Jones
Westside Community Services, AIDS Case Management and Home Care Program, San Francisco, United States

Background: With the advent of highly active ART, persons with HIV are living longer, and those aged 50 and older comprise a larger proportion of HIV cases over time. Those 50 years and older now represent more than 50% of the living HIV cases in San Francisco. Between 2010 and 2014, the number and proportion of living HIV cases aged 50 and older increased from 6,455 (44%) to 9,202 (58%).
In 1988, Westside Community Services began addressing the needs created by this devastating illness by increasing fragmentation of the health care delivery system, Westside instituted a comprehensive case management system to coordinate and monitor patient care.
Description: Westside Community Services, AIDS Case Management Program primarily serves an aging population; 77% of our clients are above the age of 50. Among our aging clients, we are seeing elevated levels of depression, loneliness, and suicidal tendencies. We also see multiple forms of trauma in this population, and often consequent post-traumatic stress disorder among older HIV-positive men.
Lessons learned: The management of HIV-infected patients is a highly specialized area of practice, often requiring use of complex medication regimens for reduction of HIV-associated morbidity and mortality prophylaxis and treatment of opportunistic infections, and prevention of HIV transmission. To maximize the effectiveness and safety of treatment with antiretroviral agents and associated pharmacotherapies, an interdisciplinary team often is involved in patient care. At Westside, the AIDS Case Management has long worked with an interdisciplinary care team including Social Workers Case Managers, Registered Nurse Case Managers and Home Care Attendants to care for patients with HIV infection. Specialty and other support services, include: medication education, assistance with prescription fulfillment, assistance with medication access, treatment monitoring, and enhancing linkage with primary care providers and other specialty providers and appointment and diagnostic testing compliance.
Conclusions/Next steps: The partnership between the Westside's Social Workers Case Managers, Registered Nurse Case Managers and Home Care Attendants is important for the care and treatment of this population. Broadening access to health, education to ensure prevention and treatment of the additional needs of long term survivors is critical to the epidemic response.

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LBPED043

Non-disclosure of Middle East-returned expatriates has led to the extraordinary high transmission of HIV in AJK, Pakistan

A.R. Janjua[1], N. Shafi[2], J. Khurshid[2], S.A. Kazmi[2], M. Khalid[3]
[1]University of Azad Jammu and Kashmir, Department of Zoology, Muzaffarabad, Pakistan, [2]University of Azad Jammu and Kashmir, Zoology, Muzaffarabad, Pakistan, [3]University of Azad Jammu and Kashmir, Biotechnology, Muzaffarabad, Pakistan

Background: AIDS is a growing public health concern in Pakistan due to increasing prevalence particularly in high risk groups where HIV incidence has escalated from 66, 000 to 130,000 during last six years. Current study was aimed to screen the family members of the HIV positive individuals of Azad Jammu and Kashmir and to analyze the potential transmission routes of HIV in these patients.
Methods: A total of 134 AIDS patients (49 females and 85 males), registered at Pakistan Institute of Medical Sciences Islamabad were approached for the HIV screening of their family members. 300 family members, (162 females and 138 males) of these HIV positive patients, were screened for HIV by ELISA and further confirmed by PCR. Risk factors were evaluated by using a structured questionnaire.
Results: A total of 177 (59%) individuals were found positive for HIV, of which, 25 (14%) were children. Of the HIV positive individuals, 57.6% and 42.4% were males and females respectively. Analysis of risk factors in the previously diagnosed HIV positive individuals revealed that HIV was transmitted to all the 49 females by their spouses.
Among HIV positive males, 65.8 % had a boarding history of Middle East with unprotected sexual exposure while 22 % of the infected males had history of unprotected sexual practices in other cities of Pakistan whereas 11.2% were exposed to unhygienic shaving tools. About 7 % were found to be Injection drug users and 2.4% males were found to be homosexuals.
Conclusions: Our study revealed that non- disclosure of HIV carriers has led to transmission of HIV to their spouses ultimately resulting in its vertical transmission to their children. HIV-associated stigma and lack of reproductive freedom for females in a man dominating society renders females engaged in unprotected sexual practices making them vulnerable for high transmission risks of HIV. In this scenario coherent interventions are direly needed to control HIV spread in high risk groups by disseminating preventive awareness, disclosure of disease status, reproductive freedom encouraging the safe sexual practices with pregnancy management among HIV positive spouses and mandatory HIV screening of all incoming populaces at airports

LBPED044

Young female sex workers and men who have sex with men in Cameroon: Unmet need for HIV prevention and treatment services

S. Ketende[1], A.L. Bowring[1], M. Njindam[1,2], G. Fako[2], A. Rao[1], C. Lyons[1], M. Decker[1], G. Turpin[1], G. Fouda[3], F. Ndonko[3], D. Levitt[4], U. Tamoufe[2], S. Billong[5], Z.-K. Bissek[6], O. Njoya[7], S. Baral[1]
[1]Johns Hopkins School of Public Health, Department of Epidemiology, Baltimore, United States, [2]Metabiota, Yaounde, United States, [3]CARE Cameroon, Yaounde, Cameroon, [4]CARE USA, New York, United States, [5]Groupe Technique Central (CNLS), Yaounde, Cameroon, [6]Ministry of Health, Department of Operational Research, Yaounde, Cameroon, [7]Yaounde University Hospital Centre, Department of Internal Medicine, Yaounde, Cameroon

Background: In Cameroon female sex workers (FSW) and men who have sex with men (MSM) are key populations (KP) for HIV prevention. While there are limited data, young KP may be additionally vulnerable to HIV infection due to ongoing sexual risks in the context of compounded legal and social challenges to effective service provision.
Methods: In 2016, FSW and MSM aged 18+ years were recruited through respondent-driven-sampling (RDS) for a biobehavioural survey carried out in five Cameroonian cities. Prevalence of HIV, risk, stigma, and service access were compared between young (<25 years) and older (25+ years) KP. Multivariate Poisson regression models for various HIV prevention outcomes were used to estimate prevalence ratios (PR) comparing young KP to older KP.
Results: Among 2,255 FSW, 724(32%) were aged < 25 years. The median age of first transactional/compensated sex was 22 years(IQR:19-28). Among 1,323 MSM, 839(63%) were aged < 25 years. The median age of first anal sex with men was 18 years(IQR:17-21).
In both populations, condom use, recent experience of physical violence and forced sex were similar between age groups. Lifetime experience of stigma was lower among young than older KP but remained high.
HIV prevalence was 7.9% and 32.2% in young and older FSW, respectively, and 14.3% and 32.1% in young and older MSM, respectively.
Compared to older KP, young KP in both populations were less likely to have tested for HIV in the past year (FSW PR:1.05[0.94-1.17]; MSM PR:0.85[0.76-0.95]), participated in peer education session in the past three months (FSW PR: 0.59[0.43-0.79]; MSM PR: 0.71[0.57-0.88]), received free condoms in the past six months (FSW PR:0.75[0.63-0.90]; MSM PR: 0.73[0.64-0.85]), and be members of FSW/MSM CBO (FSW PR:0.60[0.48-0.75]; MSM PR: 0.58[0.40-0.83]).
Conclusions: Behavioural and structural risks are consistent across age groups, while biomedical risks-including untreated STIs-are higher among young KP. Further, young KP have lower access to HIV prevention services. Given significant changes in HIV prevalence between age groups, these data suggest high HIV incidence among younger KP in Cameroon, consistent with global findings.
Thus, while social and legal systems affecting young KP are complex, achieving an AIDS-Free generation necessitates addressing the specific HIV prevention and treatment needs among youth.

	FSW			MSM		
	18-24 yrs n (%)	25+ yrs n (%)	p-value	18-24 yrs n (%)	25+ yrs n (%)	p-value
Total number, n	724	1531		839	483	
HIV positive	57 (7.9%)	493 (32.2%)	<0.01	119 (14.3%)	153 (32.1%)	<0.01
> Newly diagnosed[1]	37/57 (65%)	223/493 (45%)	<0.01	70/119 (59%)	84/153 (56%)	0.57
> Virally suppressed[2]	24/56 (43%)	292/479 (61%)	0.01	40/119 (34%)	64/153 (42%)	0.17
HIV test in past year	424 (59%)	905 (59%)	0.78	417 (50%)	311 (65%)	<0.01
Received HIV information in P6M	456 (63%)	1043 (68%)	0.02	362 (43%)	276 (57%)	<0.01
Participated in peer education session in P3M	66 (9%)	325 (21%)	<0.01	157 (19%)	152 (31%)	<0.01
Received free condoms in P6M	189 (26%)	589 (39%)	<0.01	255 (31%)	225 (47%)	<0.01
Ever received medical consultation in health structure	618 (85%)	1397 (91%)	<0.01	487 (58%)	324 (67%)	<0.01
Experienced any STI symptoms in P3M	311 (43%)	694 (45%)	0.29	203 (24%)	157 (33%)	<0.01
> Symptoms treated by health professional	123/311 (40%)	364/693 (53%)	<0.01	72/205 (36%)	70/156 (45%)	0.08
Ever had an STI test	259 (36%)	828 (55%)	<0.01	278 (33%)	220 (46%)	<0.01
Member of FSW/MSM CBO	104 (14%)	500 (33%)	<0.01	128 (15%)	138 (29%)	<0.01
CCU with clients	557 (78%)	1177 (77%)	0.90	—	—	—
Difficulty negotiating condom use with clients	66 (9%)	95 (6%)	0.01	—	—	—
CCU anal sex with male partners	—	—	—	259 (33%)	160 (36%)	0.42
Female partner in past year	—	—	—	526 (62%)	267 (55%)	0.01
Perceived stigma	146 (20%)	408 (27%)	<0.01	154 (18%)	127 (26%)	<0.01
Anticipated stigma	111 (15%)	208 (14%)	0.27	180 (21%)	111 (23%)	0.52
Enacted stigma (excl. violence)	479 (66%)	1091 (71%)	0.02	280 (33%)	231 (48%)	<0.01
Physically hurt in P6M	87 (12%)	180 (12%)	0.14	47 (6%)	30 (6%)	0.65
Forced sex in P6M	82 (11%)	152 (10%)	0.31	60 (7%)	37 (8%)	0.74
Self stigmatise	588 (81%)	1202 (79%)	0.34	430 (51%)	229 (47%)	0.17
Moderate/severe depressive symptoms	100 (14%)	302 (20%)	<0.01	100 (12%)	63 (13%)	0.38

[1] Of all HIV infections, the proportion among participants self reporting HIV negative or status unknown.
[2] Suppression defined as <1000 copies/ml and calculated among all individuals living with HIV
P6M - past 6 months; P3M = past 3 months; CBO = community-based organisation

[Figure 1]

LBPED045

Bringing CSE in the era of #digitalization: Comprehensive sexuality education advocacy through innovative online evidence-based approach

P. Mladenov
CSE Hub, Sofia, Bulgaria

Background: Global Online Hub for Advocacy on Comprehensive Sexuality Education (CSE) was an outcome recommendation by youth advocates, including from key populations, who were part of a global technical meeting of 50 global CSE experts. It is based on the need of an innovative instrument for communication and working on joint advocacy initiatives.
Description: In 2016 the first version of the Hub was tested during the AIDS2016. It was developed based on an extensive need assessment and research activity. Since 2017 it provided access to 200 publications, 187 news, 30 advocacy stories, and 270 registered users.
The platform has been recognized as a key in providing opportunity for building effective advocacy strategies especially around high level inter-

national forums and regional conferences, etc. The analysis shows that the platform has been highly welcomed by the registered users as useful instrument in their work, especially on providing evidence-based advocacy practices which are further supported by qualitative and quantitative results in the field.
The user satisfaction report shows that through the platform and related social media accounts, the average amount of outreached people is 6000 and the read articles/publications via the Hub is between 650-800 unique checks (natural, no artificial boosting). People are more likely to register and benefit from the daily news section and they state that the Hub is one of the main channels they are using for getting informed on specialized topics such as CSE and SRHR. More than 85% of the users highlight that using innovative tools is welcomed by experts on CSE/SRHR due to its time and cost efficiency. Lastly it proves that advocacy around CSE could be implemented via online methods that involve qualitative and quantitative data analysis.
Lessons learned: The Hub is an example of how to use innovative methods and digitalization as a cost-effective instrument in community outreach focusing on key populations but also in building successful advocacy and legal strategies.
Conclusions/Next steps: The Hub will be further advanced and it will serve as the online platform for governments as well in information and policy exchange on the upcoming Global Summit on CSE with a clear focus on young key populations.

LBPED046

HIV pre-exposure prophylaxis (PrEP) roll out at the National Program in Brazil

T. Meireles D. Alencar[1], A.R. Pati Pascom[1], M. T. Santos Christ[1], I. Ornelas Pereira[1], C. H. Dutra Barros[2], M. Veloso Meireles[1], C. Pimenta[1], F. M. Rick[1], A. Schwartz Benzaken[1]
[1]Brazilian Ministry of Health, Brasilia, Brazil, [2]Brazilian Ministry of Health, Department of Surveillance, Prevention and Control of IST, HIV/AIDS and Viral Hepatitis, Brasilia, Brazil

Background: Since December 2017, Brazil's response to the HIV epidemic includes free access to pre-exposure prophylaxis (PrEP) for populations at substantial risk for HIV infection (men who have sex with men (MSM), sex workers and transgender persons), and serodiscordant couples. We used national health system data to monitor the first quarter of PrEP implementation, from January 1st to March 31st 2018.
Description: Brazilian National Health System is providing PrEP, free of charge at point of care, in 11 states, comprising 22 different municipalities and 36 health services. National monitoring system has been used to track 20 different indicators, such as PrEP user profile, sexual practices, adverse events, adherence, seroconversion, PrEP interruption, STIs and health service network.
Lessons learned: During the first quarter of PrEP deployment, 1,758 TDF/FTC were dispensed for 1,120 PrEP users. 83% of them were gay men/MSM, 11% cis women, 4.9% heterosexual men, 1% transgender women (TGW) and 0.2% transgender men. Among gay/MSM, 8% declared themselves as sex workers, equal percentage observed among cis women and 25% of TGW. The age group between 30-39 years presented the highest number of PrEP users. Figure 1 presents age data by key population. Regarding schooling, the vast majority declared 12 or more years of study (76.9%). The mean number of sexual partners, in three months, was higher among the age groups of 18-24yrs. (18.4) and 25-29yrs. (18.8). Thirty days after the first TDF/FTC prescription, 57.7% of users reported no adverse events related to PrEP use, and 7.7% reported having missed 5 or more tablets. With regard to STIs, 22.1% reported symptoms or had a diagnosis in the six months prior to PrEP initiation.
Conclusions/Next steps: The initial profile of PrEP implementation points to new challenges: offer PrEP to those who can most benefit from it and are at greater risk for HIV, especially low-income, less educated, non-white ethnic groups of transgender, young gay men and sex workers. Yet, it is clear that offering PrEP at public health services, free of charge at point of care, can reach and retain high numbers of users and provide the opportunity to diagnose and treat STIs.

LBPED047

EQUIP Khethimpilo: Rapid scale up of viral load testing in an area previously challenged by access to viral lab support in Urban Setting in Zimbabwe: Lessons learnt

E. Mothibi[1], A. Grimwood[1], C. Chikanda[2], J. Mangoma Chaurura[1], N. Nhando[3], N. Mabhena[1], B. Makumbe[1], F. Chirowa[3]
[1]Khethimpilo, Cape Town, South Africa, [2]Pulse, Midrand, South Africa, [3]Khethimpilo, EQUIP, Harare, Zimbabwe

Background: By the end of 2015, VL coverage of the 1 1103 000 on ART in Zimbabwe was 3%. The government is committed to aggressively scaling-up VL testing to cover 90% of people on ART by 2018. Despite this goal Chitungwiza VL coverage < 2% in 2016.
Description: The Chitungwiza Viral Load Acceleration project is delivered in partnership with Ministry of Health and Child Care (MoHCC) and Population Services International (PSI). Khethimpilo EQUIP supported efficiencies in specimen collection, transport systems and storage. The overall goal was to ensure 90% of eligible patients have a VL done and results received, documented and acted upon. EQUIP supported commissioning and automating the PSI lab's viral load machine.
Lessons learned: Coverage of VL testing in Chitungwiza facilities increased from a baseline of < 2% to 14.4% in October, 27% in December 2017 and 47% in March 2018. A total of 22 493 VL samples overall were processed by March 2018, with 22 432 VL (99%) results received and 20 187 VL (90%) suppressed with little gender difference. VL tests turnaround time reduced from 3 months to 48 hours for plasma and 3-5 days for DBS samples. Locally accessible lab reduced travel time and patients saved $60 per test, the cost in private laboratories.Demand creation at facility and community level are key for increased VL uptake. The involvement of local health facilities in sample transportation systems improved efficiencies. Workflow optimization is critical to achieving efficient intra-lab processing. Training on sample collection results in low rejection rate< 2%.
Conclusions/Next steps: The demonstration project improved VL coverage in Chitungwiza assisting the Zimbabwe government in reaching their UNAIDS 3rd 90 global target. Scaling up of the Chitungwiza VL Demonstration project to other districts in Zimbabwe will increase coverage rapidly and assist with the decanting of stable patients to multi month dispensing groups as either part of facility based adherence clubs or community based antiretroviral support groups (CARGS) currently evaluated for 3or 6m ART supply. VL outcomes will assist HCWs in detecting and addressing early warning indicators of treatment failure.

Track E

LBPEE048

HIV investment case report for Ukraine: Evaluation of program costs, service quality, and resource allocation for HIV expenditures

N. Avaliani[1], A. Latypov[1], M. Duda[1], R. Dierst-Davies[2], C. Kerr[3], J. Pearson[4], I. Kuzin[5]
[1]Deloitte Consulting, LLC, USAID HIV Reform in Action Project, Kyiv, Ukraine, [2]Deloitte Consulting, LLC, San Francisco, United States, [3]Optima Consortium for Decision Science, Sydney, Australia, [4]Deloitte Consulting, LLC, Arlington, United States, [5]Public Health Center of Ministry of Health of Ukraine, Kyiv, Ukraine

Background: Countries globally set ambitious goals to achieve 90-90-90 targets by 2020. Optimized resource allocation and cost-effective interventions are the key to achieve success within the limited resource constraints. USAID HIV Reform in Action Project studied the cost drivers of HIV services in Ukraine to identify the most cost-effective mix of services within existing budget constraints to guide HIV resource allocations.
Methods: The 57-facility study was conducted in three regions of Ukraine - Mykolayiv, Poltava and Zhytomyr and focused on: (1) Unit Cost Analysis for multiple cost types (staffing, commodities, overhead, medications, laboratory), across nine services (HCT, needle and syringe

program, opioid substitution therapy, condom distribution, case management, psychosocial services, TB Co-infection, opportunistic infection treatment, and antiretroviral therapy); (2) Client Satisfaction Study measuring correlations between the cost of services and their perceived quality among clients, (3) Extrapolation Analysis - expanding service and cost study results to non-sampled facilities in three regions, (4) Resource Allocation and Epidemic Forecasting - identifying more efficient funding mixes for HIV prevention, care, and treatment services for the three regions utilizing the Optima Consortium for Decision Science's model
Results: Results: Key cost drivers identified were low patient/high expenditure ratios and inflated overhead expenditures; user-friendliness and accessibility were key drivers of overall client satisfaction. At current funding levels, the total cost of services will be US$115.1M between 2016 and 2030. Using the current funding mix, the 90-90-90 goals can be achieved by 2020, and sustained through 2030, in the three regions with a total budget of US$184.5M. Using a more cost-effective mix of funding, 90-90-90 goals can be achieved in the three regions for US$155.9M. Shifting resources away from certain prevention services (e.g., condom distribution and HCT) to NSP and ART programs (as they are the most cost effective) will help achieve the 90-90-90 benchmarks faster and save US$ 28.6M over 15 years.
Conclusions: Results indicate that Ukraine can achieve the 90-90-90 goals by 2020, and effectively sustain them through 2030, which will avert and halve the estimated new infections and deaths, through a reallocation of services to the most cost-effective programs and US$40.8 million in additional funding.

LBPEE049

Same-day ART initiation without laboratory tests is safe and effective: Primary outcomes of the SLATE trial in South Africa

S. Rosen[1,2], M. Maskew[2], A.T. Brennan[1], M. Fox[1], L. Vezi[2], B. Larson[1], I. Tsikhutsu[3], M. Bii[3], W.D. Venter[4]
[1]Boston University, Department of Global Health, Boston, United States, [2]University of the Witwatersrand, Health Economics and Epidemiology Research Office, Johannesburg, South Africa, [3]KEMRI, Walter Reed Projects, Kericho, Kenya, [4]University of the Witwatersrand, Wits Reproductive Health and HIV Institute, Johannesburg, South Africa

Background: The WHO recommends same-day ART initiation for patients who are eligible and ready and ART initiation ≤7 days of diagnosis for all patients. Identifying efficient operational procedures for determining same-day eligibility and readiness is now a priority. The Simplified Algorithm for Treatment Eligibility (SLATE) trial tested a clinical algorithm that allows nurses to determine eligibility for immediate ART dispensing at a patient's first clinic visit, without laboratory results or delays for other reasons.
Methods: SLATE was an individually randomized trial at public outpatient clinics serving informal settlements in Johannesburg, South Africa. Patients presenting for an HIV test or HIV care but not yet on ART were randomized to the intervention or standard care. The intervention arm was assessed with a symptom self-report, medical history questionnaire, brief physical examination, and readiness questionnaire to distinguish between patients eligible for immediate ART dispensing and those who should have further care, tests, or counseling before initiation. Follow-up was by passive record review. We report the proportion in each arm initiated ≤28 days and retained at 8 months ("28d/8m") after study enrollment.
Results: From 3/7/17-7/28/17, we enrolled 600 adult, HIV+, non-pregnant patients (median [IQR] age 34 [29-40]; 63% female; median CD4 count 288 [140-487]). Eight-month follow up was completed in April 2018. In the intervention arm, 68% of patients initiated ≤7 days, compared to 40% in the standard arm (risk difference [95% CI] 28% [20-35%]; relative risk (RR) 1.68 [1.43-1.98]). After 8 months' follow-up, 53% of the intervention arm and 50% of the standard arm achieved 28d/8m outcomes (RR 1.06 95% CI 0.90-1.25) (Table), with no difference in viral suppression rates. Many patients in both arms were > 1 month late for their routine 6-month visit and/or missing viral load results.
Conclusions: The SLATE algorithm, comprising a simplified set of steps for ART initiation, demonstrates that same-day ART initiation for both new and established HIV patients can be offered safely and effectively at primary health centers without delays for laboratory results, additional education or counseling, or other services. It offers a practical model of same-day treatment initiation that can be widely implemented by existing providers.

Outcome	Control arm	Intervention arm	Crude risk difference (95%CI)*	Crude relative risk (95% CI)*
N enrolled	302	298		
Days from enrollment to ART initiation				
≤ 28 (protocol primary outcome)	204 (72%)	232 (82%)	10% (2-16%)	1.13 (1.03-1.24)
≤7 ("rapid" initiation)	114 (40%)	193 (68%)	28% (20-35%)	1.68 (1.43-1.98)
0 (same-day initiation)	33 (12%)	161 (56%)	45% (38-52%)	4.84 (3.46-6.78)
Record not traced (missing)	20/302	14/298		
Retention				
28d/8m**	137/276 (50%)	147/279 (53%)	3% (-5-11%)	1.06 (0.90-1.25)
Initiated ART, deceased	1/276 (0%)	2/279 (0.5%)		
Initiated ART, lost to follow up	55/276 (20%)	63/279 (22.5%)		
Initiated ART, transferred	5/276 (2%)	15/279 (5%)		
Not initiated ≤ 28 days	78/276 (28%)	52/279 (19%)		
Record not traced (missing)	6/302	5/298		

* Reference group: control arm
**Follow up for 8 months (1 mo for initiation + 6 months' follow up + 1-month window for 6-month routine visit; retained= clinic visit 5-8 months after enrollment

[Table: SLATE trial primary outcome results]

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[Table: SLATE trial primary outcome results]

LBPEE050

Effectiveness of a community-based model of HIV care in western Kenya

S. Goodrich[1], A. Siika[2], A. Mwangi[3], T. Spira[4], M. Bateganya[4], C. Toroitich-Ruto[5], B. Otieno-Nyunya[5], V. Naanyu[3], K. Wools-Kaloustian[1]
[1]Indiana University School of Medicine, Medicine - Infectious Diseases, Indianapolis, United States, [2]College of Health Sciences, Moi University, Department of Medicine, Eldoret, Kenya, [3]College of Health Sciences, Moi University, Department of Behavioral Sciences, Eldoret, Kenya, [4]Centers for Disease Control and Prevention (CDC), Atlanta, United States, [5]Centers for Disease Control and Prevention (CDC), Nairobi, Kenya

Background: The Kenya Ministry of Health recommends differentiated models of care for clinically stable HIV clients. We evaluated the effectiveness of a model of differentiated care that utilizes peer-group meetings (ART Co-ops) led by lay health workers in lieu of clinic visits.
Methods: HIV-positive patients with no acute illnesses, receiving health services at the Academic Model Providing Access to Healthcare (AMPATH) HIV clinic in Kitale, Kenya, who were ≥ 18 years of age, had a CD4 ≥200 cells/mL, viral load (VL) < 40 copies/mL at enrollment and living in one of 30 surrounding sub-locations were eligible. Sub-locations were randomized to standard of care (clinic visits every 3-4 months) or intervention (ART Co-ops with 6-15 members meeting every 3 months in their community for adherence checks, symptom screen, ART delivery and subsequent annual clinic visits). Patients were enrolled from October 2016-March 2018 and followed for 12 months. Data on patient sociodemographic characteristics were collected and outcomes assessed at 12 months, including: CD4 count, VL, durability of ART regimen, and vital status. Descriptive statistics, Chi-square tests and Fisher's exact test were used.
Results: A total of 420 patients were enrolled and randomized to the standard of care (213) or intervention (207); 77% were female and the median age was 46 years. There were no significant differences in the socio-demographic characteristics between the two groups. The 12 month outcomes, including proportion with viral suppression and ART durability were similar between the standard of care and intervention groups (see table); however, a greater proportion of patients in the intervention group withdrew (17.4% vs. 0.94%; p-value < 0.001). The most common reasons

for withdrawal were relocation (31%), perceived stigma associated with attending meetings (17%) and patient request to discontinue participation (14%). The death in the intervention group was unrelated to the study.
Conclusions: Based on VL and ART durability criteria, no difference was found between patients receiving the standard of care (regular clinic visits) and those receiving differentiated care (community-based care; once a year clinic visit). Withdrawals from the intervention highlight issues related to patient mobility and stigma, which warrant further evaluation.

	Intervention (N=207) (%/IQR)	Standard of Care (N=213) (%/IQR)	p-value
Completed Study	167 (80.7%)	206 (96.7%)	<0.0001
Withdrawn	36 (17.4%)	2 (0.94%)	<0.0001
Deceased	1 (0.48%)	0	0.493
Lost to follow-up	3 (1.4%)	5 (2.39%)	0.724
Changed ART regimen	0	0	
Median exit CD4 (cells/µL)	557 (420-701)	522 (408-666)	0.156
VL undetectable (<40 copies/mL)	153 (91.6%)	194 (94.2%)	0.327
VL >1,000 copies/mL (failure)	0	3 (1.5%)	0.248

[Patient Outcomes by Study Arm]

LBPEE051

HIV testing in TB treatment clinic as an effective testing modality for identification of HIV positive individuals: Results from CDC supported health facilities, Nigeria, 2017

B. Odume, C. Meribe, H. Debem, I. Mgbakor, D. Onotu, J. Gwamna, A. Mukhtar, I. Dalhatu, M. Swaminathan
US Centers for Disease Control and Prevention, CDC, Division of Global HIV/AIDS and TB, Abuja, Nigeria

Background: The HIV epidemic has impacted on the burden of tuberculosis in Nigeria. The WHO estimate ranks Nigeria amongst the 30 countries with the highest TB burden in the world with a projected 219 incident TB cases per 100,000 population and TB/HIV co-infection rate of 16% in 2016. HTS (HIV Testing Services) as an entry point to the HIV program, is implemented widely across most TB treatment clinics (DOTS Centers) in supported sites. The identification of effective strategies for increasing overall yield of HIV positive persons in Nigeria as the first step to reaching the first 90 of the UNAIDS 90-90-90 target, will require an in-depth analysis of specific HIV epidemiology, HTS coverage, and yield by various testing modalities, thereby, increasing program efficiency
Methods: In 2016, CDC-funded implementing partners were guided to implement and optimize approaches that improve HTS yield within testing streams in the facilities. HTS implementation was monitored to determine yield by testing streams and the streams were to be prioritized for scale-up based on patterns of HIV yield, available resources and programme cost effectiveness.
Results: HIV testing in TB treatment clinics was the second highest yielding of the 6 facility HTS streams/modalities analyzed (Table 1). HTS at TB treatment clinics had a high-yield (5.3% HIV+), but currently low patient volume. Increasing TB screening in health facilities for presumptive TB identification and testing them for HIV can increase the number of identified PLHIV in supported facilities.

Facility Testing Modality	facility Index	TB treatment Clinic	Inpatient Clinic	VCT	Pediatric Clinic	PMTCT-ANC
Total # Tested	8,038	86,616	134,884	1,134,117	20,698	909,298
# HIV +Ve	742	4,583	4,824	39,834	231	7,274
% HIV +Ve	9.2	5.3	3.6	3.5	1.1	0.8

[Table 1: HTS testing streams and yield; CDC supported sites in Nigeria Oct 2016-Sept 2017]

Conclusions: The HTS testing stream data informed decisions on testing services optimization and scale up in TB treatment clinics and other high yield testing streams/modalities through support for training, commodity supplies and human resources. Continued support for and scale-up of HTS in TB treatment clinics and for Presumptive TB within health facilities will be key to meeting the first 90 of the UNAIDS 90-90-90 targets.

LBPEE052

Concurrent implementation of targeted and routine provider-initiated-testing and counseling of HIV among children and adolescents: Evidence from the Active Search for Pediatric HIV/AIDS (ASPA) study in Cameroon

H.A. Yumo[1,2], C. Kuaban[3], I. Sieleunou[2,4], M. Beissner[5], D. Nash[6]
[1]Ludwig Maximilian University, Center for International Health (CIH), Munich, Germany, [2]R4D International Foundation, Yaounde, Cameroon, [3]Bamenda University, Faculty of Health Sciences, Bamenda, Cameroon, [4]University of Montreal, School of Public Health, Montreal, Canada, [5]Ludwig Maximilian University, Department of Infectious Diseases and Tropical Medicine, Munich, Germany, [6]City University of New York (CUNY), School of Public Health, New York, United States

Background: This study assessed the effectiveness of the concurrent implementation of the targeted (tPITC) and the routine provider-initiated-testing and counseling (rPITC) in HIV testing, case detection and linkage to HIV care and treatment among children and adolescents in Cameroon.
Methods: During a 6-month period, the ASPA study was conducted by introducing the tPITC strategy in three hospitals in Cameroon. This novel approach was implemented by inviting HIV positive parents receiving HIV care in these hospitals to have their biological children (6 weeks-19 years) tested for HIV either in the hospital or at home. At the same time, the study systematically offered HIV testing to all children attending the outpatient department (OPD) of the same three hospitals (rPITC). We collected prospectively and retrospectively the numbers of: children tested for HIV, children tested HIV positive and children enrolled on ART. We compared the means of these numbers before and after the intervention.
Results: Before the implementation of rPITC, 5891 children consulted at the OPD, 1338 tested for HIV, 63 tested HIV+ and 44 enrolled on ART. After the implementation of rPITC, 4643 children consulted at the OPD, 2090 tested for HIV, 58 tested HIV+ and 38 enrolled on ART. While the HIV testing uptake was significantly higher after rPITC implementation compared with before (223.0 vs 348.3, p< 0.0001), the HIV case detection was significantly lower (10.5 vs 9.7, p< 0.0001) and there was no significant difference on ART enrolment (7.3 vs 6.3, p= 0.1368). During the concurrent implementation of tPITC and rPITC, the HIV testing uptake increased significantly by 143% compared with before (223.0 vs 542.2, p< 0.0001). Likewise, the HIV case detection also increased by 93.7% (10.5 vs 20.3, p< 0.0001) and the ART enrolment by 65.9% (7.3 vs 12.2, p=0.0001).
Conclusions: The tPITC was associated with an increase in HIV testing uptake, a doubling of HIV case detection, and a significant increase on ART enrollment. This highly effective strategy yielded more newly HIV cases and increased significantly ART initiation. It could be used to fast-track the achievement of the 90-90-90 targets by 2020 among children and adolescents, especially in West and Central Africa Region.

LBPEE053

Right people in the right place: Aligning investments in health workers to achieving PEPFAR program targets

V. Vasireddy[1], Y. Obeng-Aduasare[2], T. Lim[3], C. Hall[4], A. Herman-Roloff[4], T. Mah[5], D. Sedlacek[5], A. Schubert[5], M. Glenshaw[4]
[1]US Department of State/ PEPFAR, Office of the Global AIDS Coordinator, Washington, United States, [2]Peace Corps, Interagency Collaborative for Program Improvement (ICPI)/ PEPFAR, Washington, United States, [3]Centers for Disease Control and Prevention (CDC), Interagency Collaborative for Program Improvement (ICPI)/ PEPFAR, Washington, United States, [4]Centers for Disease Control and Prevention (CDC), Pretoria, South Africa, [5]United States Agency for International Development (USAID), Pretoria, South Africa

Background: PEPFAR is the largest bilateral funder of global HIV programs and supports an increasing number of human resources for health (HRH) in partner countries to deliver HIV services. PEPFAR's HRH strategy is to ensure that health workers with the right skills are placed in priority facilities and communities to scale up HIV services and achieve the UNAIDS 95-95-95 goal.

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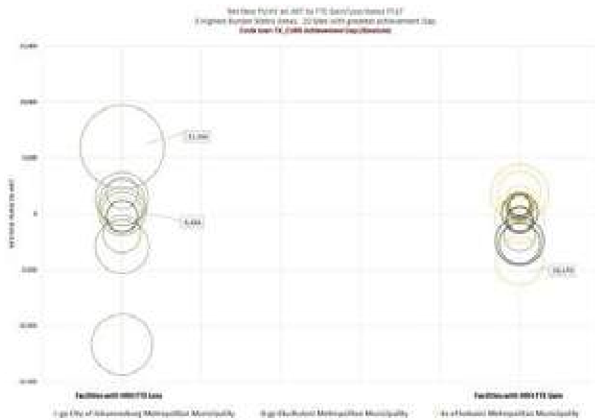
Description: PEPFAR provides direct support for HIV services to patients through remuneration to health workers via implementing partners (IP). Relevant indicators reported by IP track the number of full-time equivalents (FTE) currently supported to implement facility and community programs (HRH_CURR), and total number of PLHIV currently on ART (TX_CURR). We examined data from these indicators in South Africa to describe PEPFAR HRH targets and achievements.

	City of Johannesburg Metropolitan Municipality	eThekwini Metropolitan Municipality	Ekurhuleni Metropolitan Municipality	City of Johannesburg Metropolitan Municipality	eThekwini Metropolitan Municipality	Ekurhuleni Metropolitan Municipality	Total
	ART Gain | FTE Gain, FY16-FY17			ART Loss | FTE Gain, FY16-FY17			FTE Gain Facilities
Number of facilities	58	100	72	7	6	4	247
All Cadre FTE Change (% Clinical Cadre)1	798 (39%)	362 (41%)	112 (13%)	78 (41%)	22 (32%)	7 (51%)	1,379 (39%)
Net New** PLHIV on ART	35,583	58,038	34,076	(2,706)	(7,330)	(6,068)	111,593
	ART Gain | FTE Loss, FY16-FY17			ART Loss | FTE Loss, FY16-FY17			FTE Loss Facilities
Number of facilities	60	20	26	9	1	2	108
All Cadre FTE Change (% Clinical Cadre)1	(184) (16%)	(14) (33%)	(63) (51%)	(92) (43%)	(6) (12%)	(6) (27%)	(365) (7%)
Net New** PLHIV on ART	38,927	5,721	15,215	(20,979)	(239)	(359)	38,286
**Net New is the difference between Fiscal Years (FY) 2016 and 2017 TX_CURR values. Net New changes are influenced by PLHIV newly initiating on ART, PLHIV re-initiating treatment, patients lost to follow up, and death rates. For this analysis All Clinical cadres are defined as clinical and clinical support cadres. Other cadres include: management, social service, and other cadres such as data capturers.				1 Percentage (%) of HRH FTEs per ART/FTE gain/loss category that are clinical cadre			

[Table 1: Changes in PEPFAR-supported HRH_CURR and Net New PLHIV on ART/FTE gain or loss status, 3 highest burden metropolitan areas - US FY2017]



[Figure 1: Distribution of NET NEW PLHIV on ART in relation to changes in HRH_CURR by magnitude of TX_CURR Target Achievement Gap, U.S. FY2017]

Lessons learned: In US fiscal year 2017, PEPFAR supported 4302 FTEs in the priority metropolitan areas of Johannesburg, eThekwini, and Ekurhuleni. From April to September 2017, targeted HRH was provided to 355 facilities: 65% with roving teams, 27% with secondment, and 7% with temporary surge support. Data in Table 1 suggests that while HRH might be a contributing factor to increasing new patients on ART across a majority (62%) of facilities, a quarter (26%) of facilities gained patients despite losing HRH. Figure 1 shows the facility achievement of treatment targets in relation to changes in HRH_CURR across 30 sites. There is not a strong association between achievement of treatment targets and changes in HRH_CURR. To ensure impact and efficient resource management, data suggests that PEPFAR consider allocating HRH using multiple factors, such HIV burden, existing HRH, facility-level performance and needs.

Conclusions/Next steps: Programmatic shifts are critical to increase and/or realign HRH investments to maximize impact and ensure implementation fidelity. PEPFAR programs recently implemented site assessments to understand the HRH context and re-allocate workers based on results rather than a "one size fits all" staffing norms model. PEPFAR is implementing HRH recruitment and allocation models based on a variety of factors such as People Living with HIV (PLHIV), TX_CURR, and program performance. PEPFAR South Africa is developing a business portal linking site-level performance, HRH assessments, and workforce allocation for optimal results.

LBPEE054

I-Surge: Scale-up of HIV programs in Zambezia (ZM) province, Mozambique (MZ)

S. Michaels-Strasser[1], M. Vitale[2], B. Chilundo[2], R. Sutton[1], M. de Frietas[2], E. Pimentel De Gusmao[1], S. Dane[1], A. Mussa[2], W. El Sadr[1]
[1]ICAP at Columbia University, New York, United States, [2]ICAP at Columbia University, New York, Mozambique

Background: MZ has a severe generalized HIV Epidemic. Confronting the HIV epidemic in MZ requires accelerating the identification of HIV-positive (HIV+) persons, enabling them to initiate and remain on antiretroviral therapy (ART).with sustained viral load suppression (VLS). To achieve such ambitious goals, we embarked on a comprehensive surge in ZM.
Methods: Since January 2018, ICAP at Columbia University developed and implemented, in collaboration with Ministry of Health and CDC, with funding from PEPFAR, a surge strategy at 26 clinics in ZM. The ICAP surge (I-surge) uses a hyper-focused strategy to eliminate missed opportunities to test, treat and retain HIV+ patients. Community health workers (CHWs) drive *Push* activities generating demand for HIV services and efforts to track patients who missed visits and to motivate retention and adherence. Clinic staff implement *Pull* strategies, focusing on increased coverage for HIV testing, ART initiation, VL testing and VLS. Daily reporting of data elements by facility focal points to supervisors allowed for performance review, addressing gaps and re-allocation of resources. Use of WhatsApp® messages facilitated sharing of lessons learned and solutions across facilities and staff members.
Results: As presented in the Table, coinciding with I-surge, consistent increase in achievement of key targets was noted in testing, ART initiation and VLS. A 26% increase was noted in HIV testing with more than 1000% increase in index case testing and an 11% increase in linkage to care. A 54% and 43% increase in number of adults and children, respectively, who newly initiated ART was noted and there was a 117% increase in number of VL tests done with a 120% increase in VLS. Most substantial progress was noted in index case testing and viral load testing.

TARGET		Q1 (before surge)	Q2 (with surge)	Change n (%)
HIV Testing	Number of persons tested for HIV	61,185	77,253	+16,068 (26%)
	Number of persons testing positive for HIV	3,734	5,236	+1,502 (40%)
	Number of persons tested for HIV via index case testing (ICT)	290	5,574	+5,284 (1,822%)
ART Initiation	Number of HIV+ adults newly initiated ART	3,014	4,648	+1,634/ (54%)
	% Linkage to ART	86%	97%	+11%
	Number of HIV+ children <15 years newly initiated on ART	243	348	+105 (43%)
Number active on ART by age category	adults/children<15 years	39,634/ 2,808	42,785/ 3,033	+3,151(8%)/ +225 (8%)
Viral Load Testing	Number of Viral Load (VL) Tests done	4,843	10,523	+5680 (117%)
Viral Load Suppression (VLS)	Number of patients with VLS/ % of HIV+ persons with VLS	3,605 (74%)	7,944 (75%)	+4339 (120%)

[Table: Comparison of target achievement between Q1 and Q2 of FY18 following I-Surge Implementation at 26 clinics in ZM]

Conclusions: Reaching epidemic control requires a focused and nimble approach. Complementary facility and community activities are necessary, with intensive follow-up, data use and supervision. Maintaining this momentum requires sustaining staff motivation and intensive oversight.

LBPEE055

The implementation of Universal Test and Treat Programs: one-year experience from *Test & Treat Project* in Shinyanga and Simiyu Regions, Tanzania

P. De Nardo[1], T. Rinke de Wit[2], A. Bortolani[1], R. Mfaume[3], G. Pellizzer[1], M. Kihulya[4], B. Desderius[5], A. Pozniak[6], T&T Study Group
[1]Doctors with Africa - CUAMM, Padova, Italy, [2]Amsterdam Institute for Global Health & Development, Amsterdam, Netherlands, [3]Ministry of Regional Administration and Local Government, Shinyanga Regional Commissioner Office, Shinyanga, Tanzania, United Republic of, [4]Ministry of Regional Administration and Local Government, Simiyu Regional Commissioner Office, Bariadi, Tanzania, United Republic of, [5]Bugando Consultant and Teaching Hospital, Mwanza, Tanzania, United Republic of, [6]Chelsea and Westminster Hospital NHS Foundation Trust, London, United Kingdom

Background: The *Test&Treat Project* in Shinyanga and Simiyu Regions, where HIV prevalence is estimated at 5.9% and 3.9% respectively, aims to implement a community model of HIV care encompassing both Universal Test and Treat and Differentiated Care based out of four Care and Treatment Centres (CTC). Here we report twelve-month data on HIV testing, linkage to care and viral suppression.
Description: Community-based HIV testing services and sensitization campaigns were implemented in public areas, factories, schools, and places of worship based on a "hamlet-testing" strategy. HIV testing was also offered routinely to all clients reporting to health facilities (HFs). All people tested HIV+ were referred to a CTC through community health workers who represented a key component in the linkage to care.
Lessons learned: From May 2017 to April 2018, 86,744 clients were tested through the testing campaigns (TC), while 25,944 were tested at the project's HFs. More men were tested in the TC compared to HFs (56% *vs* 44%; *p*< 0.0001). Overall 2,021 (1.8%) HIV+ clients were detected (male 39%). Of these, 953 (47%) were identified by TC and 1,068 (53%) by HFs. 15,554 (14%) children < 15 years were tested; of these, 65 (0.4%) were HIV+. Among the HIV+ clients detected in the TC, 138 (13%) were already aware of their HIV status. By 31st March 2018, 352 (43%) newly diagnosed clients identified in TC were linked to a CTC. More women were linked than men (45% *vs* 40%). Linkage was higher in Shinyanga than Simiyu (47% *vs* 38%; *p*=0.003). Among 3,014 patients on ARV at the project CTCs, viral load (VL) data were available for 1,745 (58%). Of these, 1,592 (91%) had VL < 1,000 cp/ml, while 1,440 (82%) being < 50 cp/ml.
Conclusions/Next steps: One-year data of a Tanzanian *Test&Treat Project* demonstrate the potential of TC to increase overall testing coverage in a short time frame and preferentially include male clients. Linkage to care remained a challenge. Viral suppression was achieved in majority of those on treatment. Determinants that underlie these first results are being studied with the aim to develop a sustainable Tanzanian blueprint for the UNAIDS 90-90-90 goals.

LBPEE056

Identifying gaps in viral load monitoring: Results from an evaluation of viral load reporting at primary health care facilities in South Africa

S. Pascoe[1], A. Huber[1], J. Murphy[1], W. Macleod[1,2], J. Bor[1,2,3], C. White[4], M. Fox[1,2,3]
[1]Health Economics and Epidemiology Research Office, Johannesburg, South Africa, [2]Boston University School of Public Health, Department of Global Health, Boston, United States, [3]Boston University School of Public Health, Department of Epidemiology, Boston, United States, [4]Clinton Health Access Initiative, South Africa National Department of Health, Pretoria, South Africa

Background: While rates of viral load (VL) testing for HIV patients on treatment vary widely across facilities and districts in South Africa (SA) the reasons are unclear. We set out to assess prevalence of missing VL measures for HIV patients receiving care in the SA public health sector.
Methods: We used a retrospective design conducted at 24 facilities. Patients with a VL due (based on ART guidelines) between 1/10/2016-31/12/2016 were identified from SAs electronic HIV register, TIER.Net, and followed through electronic records to determine whether a VL was done within the scheduled window (Table). For patients with no VL on TIER.Net within the window, up to 300 paper clinic files per facility were randomly selected and reviewed. Proportion suppressed among those with a VL was reported.
Results: We identified 15,437 patients (68% female) with a VL due (Table). Of those, 69% had a VL captured on TIER.Net and 84% of those were suppressed. Of the remaining 4,748 files, we found and reviewed 2914 paper files (68% of 4308 selected). Almost 25% had a blood draw captured on file and just over 15% had a VL result (of which 68% were supressed). Females had slightly higher testing and suppression than males and the proportion with a VL done and suppressed did vary by previous suppression status. Of 1360 previously unsuppressed (VL>400 copies/ml), 32% had a follow-up VL in TIER.Net (37% suppressed) vs. 73% of those newly initiated/previously suppressed (of which 86% were suppressed), 16% of those previously unsuppressed and not found in TIER.Net (n=581) had a result on paper file (19% were suppressed).
Conclusions: A high proportion (31%) of ART patients had no VL recorded when one was due. Gaps in electronic data capture accounted for a minority of these missing results, suggesting most results were missing because VLs were not conducted - a failure to follow national guidelines for lab monitoring. Very large gaps in monitoring were observed following an unsuppressed viral load, precisely the group at highest risk for HIV morbidity, mortality and onward transmission. Interventions (e.g. intensified tracing) should be targeted to improve VL monitoring among patients with previous unsuppressed viral load.

	Total patients with a VL due on TIER.Net	Patients with VL due with VL captured on TIER.Net during scheduled window*				Patients with no VL captured on TIER.Net in window*	Patients with VL due with no VL captured on TIER.Net in scheduled window* where patient file was reviewed							Total VL suppressed among those with VL captured in window* on TIER.Net or file	
		VL captured		VL suppressed			No. files reviewed	Blood draw recorded in file		VL result in file		VL suppressed			
		n	%	n	%	n		n	%	n	%	n	%	n	%
Gender															
Male	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Female	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Previous VL test result (copies/ml)															
No VL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
<400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
400-1000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
>1000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	15437	[illegible]	69%	[illegible]	84%	4748	2914	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[Table: No. of patients with VL due between 1Oct-31Dec 2016 with VL captured on TIER.Net or patient files stratified by gender and previous VL result]

LBPEE057

Provision of comprehensive HIV/AIDS and TB services in protection of civilian (PoC) sites in South Sudan

B. Gikundi[1], M. Solangon[1], K. Kriitmaa[2], P. Jasi[3], F. Makonese[4], B. Otieno[5], S. Akandwanaho[6], A. Nur Hussein[7], S. Taher[7]
[1]International Organization for Migration, Migration Health Unit (MHU), Juba, South Sudan, [2]International Organization for Migration, Geneva, Switzerland, [3]International Organization for Migration, Dhaka, Bangladesh, [4]International Organization for Migration, Bentiu, South Sudan, [5]International Organization for Migration, Malakal, South Sudan, [6]International Organization for Migration, Wau, South Sudan, [7]International Organization for Migration, Juba, South Sudan

Background: The protracted conflict in South Sudan, the food insecurity, economic deterioration, and disease outbreaks continue to drive internally displaced persons (IDPs) into Protection of Civilian (PoC) sites across the country. Data from health facilities revealed that 1,140 HIV cases have been lost to follow up, either to neighbouring countries or to PoCs. There are currently 265,209 people residing inside the PoCs. In 2016, HIV/AIDS and tuberculosis (TB) were the leading causes of mortality in PoCs with IDPs unable to access treatment outside due to insecurity. Despite the challenging operating environment, IOM initiated provision of comprehensive HIV and TB services in three PoC sites in South Sudan.
Description: Since 2015, IOM had been providing HIV services only to pregnant mothers in the PoCs. Given the high rates of morbidity and mortality from HIV and TB, IOM expanded programming in 2016 to provide TB testing and treatment, and in 2017 to provide comprehensive HIV services in the three PoC sites. The services include voluntary counselling and testing (VCT), provider-initiated testing and counselling (PITC), and antiretroviral (ART) treatment. In addition, all TB confirmed

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cases are screened for HIV and positive patients are initiated on ART. Health education sessions on HIV and AIDS and TB are conducted to raise awareness on services and treatment adherence.

Lessons learned: By 2018, 12,365 individuals have been counselled and tested for HIV in the three PoCs, 262 tested positive and 259 have been initiated on ART. Mortality rates due to HIV/AIDS and TB have decreased in the three PoCs from 107 (23% of the total deaths) in 2016 to 31 deaths in 2017 (12% of the total deaths), a 71% decrease in the mortality rate. This corroborates longitudinal studies showing decrease in AIDS-related deaths due to free access to HIV services[1].

[1] Lima et.al. AIDS incidence and AIDS-related mortality in British Columbia, Canada, between 1981 and 2013: a retrospective study. The Lancet HIV, Vol.2, 2015

Conclusions/Next steps: The provision of comprehensive HIV and TB prevention, testing, and treatment services to displaced populations in camp-based settings is essential in reducing morbidity and mortality from HIV, and in ensuring the 90-90-90 global targets are achieved.

LBPEE058

Establishing a digital OVC case management system in the DRC: New potential for innovation in OVC M&E systems

A. Keirstead[1], S. Reier[2], J. Bakua Mushitu[2], N. Do Nascimiento[3], J. Mwanza[3], A. Mafwila[4]

[1]Education Development Center (EDC), Washington, United States, [2]Education Development Center (EDC), ELIKIA Project, Lubumbashi, Congo, Democratic Republic of the, [3]The Palladium Group, Washington, United States, [4]The Palladium Group, ELIKIA Project, Lubumbashi, Congo, Democratic Republic of the

Background: The ELIKIA project is a five-year PEPFAR-funded project implemented in the DRC's Haut-Katanga province. The consortium is led by Education Development Center (EDC), and implemented in partnership with Catholic Relief Services, The Palladium Group, three local NGO partners, and the Haut-Katanga Division of Social Affairs. ELIKIA supports HIV-affected OVC and their caregivers through a combination of case management and psychosocial support; linkages to HIV testing, care, and treatment; household economic strengthening and parenting education; health and social service referrals; and strengthening child protection systems. Household support is coordinated through a cadre of 60 case managers from the Congolese government and civil society partners.

Description: ELIKIA developed a digital case management system for case managers to track their portfolio of OVC households. The project provided a total of 15 days of foundational training in the project case management approach, household support and referral strategies, and data collection and management procedures. Using programmed tablets, case managers record household vulnerability information; HIV risk, knowledge of HIV status, testing results, and ART initiation/adherence; service referrals and counter-referrals; and participation of caregivers in household economic strengthening and parenting education activities. Tablets sync daily with ELIKIA's DHIS2-based project database, enabling performance tracking and results capture in real-time. Database dashboards provide project managers with data on performance by implementing partner, health zone, program component, and individual case manager.

Lessons learned: By the end of its second year of implementation, 100% of ELIKIA case managers were using the digital system to track and provide support to 11,557 OVC and primary caregivers from 1,804 households. The system is increasingly effective in supporting analysis of case manager performance, ensuring continuous service delivery to retain households in the project, reducing double-counting of OVC supported by multiple project interventions, and demonstrating program results in alignment with PEPFAR reporting standards.

Conclusions/Next steps: Digital case management systems have the potential to facilitate improved case management and offer substantial improvements to OVC program monitoring and evaluation, avoiding several common challenges with tracking and reporting. Case managers with a university-level education or a high-school education and some prior social work experience can effectively use digital systems to manage data.

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Track A

PUB001

Efficiency of two-drug combination of dolutegravir and rilpivirine when compared to triple and quadruple combinations

R. Dhani[1], S. Patro[2], G. Manavalan[1], D.D.R. Harish Kumar[3], D. Rajamanickam[3]
[1]Ratnam Institute of Pharmacy, Pharmaceutical Chemistry, Nellore, India, [2]Ratnam Institute of Pharmacy, Pharmaceutical Analysis, Nellore, India, [3]M.S. Ramaiah University of Applied Sciences, Faculty of Pharmacy, MSR Nagar, Bangalore, India

Background: The importance of two-drug combination in viral suppression of HIV is to simplify dosing regimen and reduce pill burden for patients with HIV. Reducing the number of drugs in a regimen reduces long term drug exposures and potential drug toxicity or drug interaction as well as protecting the activity of drugs spared for the future. Subjects switching to this two-drug regimen experienced a significant benefit in bone biomarkers.
Methods: Several clinical trials are performed for DTG+RPV they demonstrate NON INFERIORITY in two phase -3 switch studies known as sword - 1 and sword - 2 with 95% efficacy at 48 weeks. (LLIBRE is the lead author on sword - 1 and sword - 2 the studies referenced above). Sub studies evaluating bone, kidney, lipid profile, cardio vascular health and health related quality of life are ongoing.
Results: During clinical studies on these two- drug combination of dolutegravir and rilpivirine, the virologic suppression rates were similar between two-drug combination and triple and quadruple combination. The virologic failure rates were >1% in DTG+RPV and 1% in the three or four antiretroviral drug. In DTG+RPV no integrase strand inhibitor resistance(INSTI) - associated mutations were reported.
Conclusions: Life long HIV antiretroviral therapy has prompted an interest in two-drug regimen to minimize cumulative drug exposure and toxicity. The safety, tolerability and efficacy of dolutegravir and rilpivirine suggest potential comapatability and effectiveness as a two-drug regimen.

Track B

PUB002

Correlates of mortality among HIV patients following completion of standard Cryptococcal meningitis treatment in Uganda

J. Kitonsa[1], N. Kiwanuka[2], J. Kiwanuka[3], J. Namutundu[2], Z. Anywaine[1], A.-B. Ggayi[1], F. Kibengo[1], P. Kaleebu[1]
[1]Medical Reseach Council / Uganda Virus Research Institute Research Unit on AIDS, Kampala, Uganda, [2]Makerere University School of Public Health, Kampala, Uganda, [3]AIDS Healthcare Foundation, Kampala, Uganda

Background: Cryptococcal meningitis (CCM) remains a leading cause of mortality amongst HIV patients in Uganda. When patients receive recommended therapy, mortality in various clinical trials has been reported to vary between 20 to 35%. Patients may remain at risk of mortality after completing treatment due to complications, immune reconstitution syndrome and relapse. However, mortality rate and factors affecting time to mortality after completing recommended therapy are not well known. We investigated the mortality rate, and factors affecting time to mortality at 2 years following completion of recommended CCM therapy in South Western Uganda.
Methods: A retrospective non-comparative cohort study was conducted among HIV patients that had completed 10 weeks of recommended treatment for CCM (2 weeks of amphotericin B 1mg/kg and 10 weeks of Fluconazole 800mg) in the CryptoDex trial (ISRCTN59144167) between 2013 and 2015. Data was collected using semi structured questionnaires. Survival analysis applying cox regression was used to evaluate the mortality rate and factors affecting time to mortality at 2 years.
Results: This study followed up 112 participants for 2 years. Median age was 34 years (IQR, 29-40) with 57.1% female while 74.5% had been on ART for less than 1 year. At 2 years, overall mortality was 30% (1.7 per 100 person months). Majority of deaths (63.4%) occurred during the first 6 months whereas only 36.6% occurred in the remaining 18 months. At multivariate analysis, mortality was associated with discontinuation of ART at time of evaluation or prior to death (aHR=4.6, 95%CI: 1.1-19.0), p=0.038; and continuation of fluconazole (aHR=4.9, 95%CI: 2.4-10.1), p< 0.001; whereas never being re-admitted (aHR=0.140, 95%CI: 0.07-0.28), p< 0.001; and >50% quality of life (aHR=0.320, 95%CI: 0.13-0.76), p=0.01 were associated with reduced mortality.
Conclusions: There remains a considerable burden of mortality in the first two years after completing standard therapy for CCM in resource-limited settings. This burden is highest during the first 6 months. We recommend maintenance of close patient follow up during this period. Re-admitted patients and those with poor quality of life need to be followed up more closely while continuation of ART needs to be emphasized to reduce mortality.

PUB003

Predictors of intention to use condom among adolescents living with HIV and AIDS in Botswana

O. Rapinyana[1], R. Kubanji[2]
[1]University of Botswana, School of Nursing, Gaborone, Botswana, [2]University of Botswana, Population Studies, Gaborone, Botswana

Background: Adolescent HIV prevalence in Botswana is estimated at 5 % (3.6% males and 6.2% females). Youth in Botswana use condoms inconsistently. Among HIV positive youth aged 15 - 24years consistent condom use with non-regular partners was 57.2%. This clearly calls for programmes that reduce risky sexual behaviours among adolescent living with HIV and AIDS (ALWHA).
Methods: The study utilised a cross sectional quantitative survey of 98 ALWHA aged 15 to 19 years, recruited from child care and infectious disease control clinics managing HIV and AIDS clientele. The Theory of Reasoned Action was used to predict intentions, attitudes and beliefs that influence ALWHA's intention to use condoms. A univariate Generalised Estimation Equations (GEE) model in which a clinic was used as a cluster, with an exchangeable correlation matrix was employed in analysing the correlates between intention to use condom and explanatory variables loaded individually into the model.
Results: Reaction, normative beliefs, prevention beliefs, control belief technical and hedonistic beliefs had higher mean scores (above 3), while control belief negotiation had less than 2.5. Reaction, normative, prevention, control belief technical and hedonistic beliefs had higher scores in explaining condom use intention among ALWHA.
The results show that prevention belief and control belief negotiation significantly affected one's intention to use condom while reaction and normative beliefs did not, for both the adjusted and the unadjusted models. The models were adjusted for age and gender.The survey enrolled 98 ALWHA aged 15 - 19 years, about 56 %(n=55) females and 44% (n= 43) males. The mean age was 15.80 (SD = 0.21) for females and 15.73(SD = 0.14) for males. Self-reported sexual behaviour indicates that 17% had ever had sexual intercourse, 9% had experienced unprotected sex (males- 7.7%; females -10.0%). Generally ALWHA exhibited higher intentions to use condoms (mean=3.90; males-3.93 compared to females 3.88).
Conclusions: Overall, the results suggest that interventions that equip ALWHA with skills to use condoms correctly and consistently and negotiate for safer sex will not only benefit ALWHA but will also curb the spread of HIV.

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PUB004

Detection of infectious agents of cervicitis among young & adolescent female sex workers by multiplex real time PCR in Dhaka, Bangladesh

S. Paul[1], S. Ahmed[1], S. Anwar[1], K. Achabe[2], L. Rahman[2], Z. Shams[2]
[1]Bangabandhu Sheikh Mujib Medical University (BSMMU), Microbiology, Dhaka, Bangladesh, [2]Save the Children, Dhaka, Bangladesh

Background: The prevalence of STIs related cervicitis in Bangladesh among female sex workers (FSWs) is quite high and among them young (≤ 24 years) FSWs are more sufferers. The aim of this study was to detect infectious agents of cervicitis including *Chlamydia trachomatis, Neisseria gonorrhoeae, Trichomonas vaginalis, Mycoplasma genitalium, Mycoplasma hominis, Ureaplasmaurealyticum*and *Ureaplasmaparvum* in SWs of aged 10-24 years from endocervical swabs by multiplex real time PCR.
Methods: A cross sectional study was done in collaboration with department of Microbiology, BSMMU and Save the Children, Bangladesh between March to December 2017 among sex workers enlisted to receive HIV prevention services at different drop in centers (DICs) in Dhaka. Total 105 SWs of aged between 10-24 years and clinically suspected as cervicitis, were enrolled for the study. Endo-cervical swabs were collected during examination and testedby multiplex PCR and other tests for aforementioned pathogens.Data were collected by face to face interview using semi-structured questionnaire and clinical examinations were done using Casco's vaginal speculum. Data analysis was done using SPSS (Version-20).
Results: Among the study population, 87(82.9%) were between 20-24 years followed by 15-19 years(15.2%).On examination,out of 105, 67 (63.8%) patientshad no cervical discharge,60(57.1%) had friablecervix and only 8(7.6%)had muco-purulent discharge. Out of total,95(90.5%) patients were mPCR positive for at least one pathogen and only 3(2.9 %) N gonorrhoeae isolated by culture, 8(7.6%) cases of C trachomatis were detected by DFA and 8(7.6%)cases of T vaginalis were detected by wet film. Among the mPCR positive (95) cases, 63(66.3%) patients had mixed infections and among them,*M hominis* was the highest(76.2%) followed by*U urealyticum*(49.2%).In the patients having ,no'(67) cervical discharge, 32(48%) had *M hominis*followed by*Uparvum*(40%).
Conclusions: Results revealed that majority of FSWs had no cervical discharge though it is one of the diagnostic criteria for cervicitis in current syndromic management and high number of patients had mixed infection. In comparison to other available diagnostic tests, organisms were detected efficiently by multiplex PCR and could be advised routinely in such cases of mixed infection.

Organisms detected by mPCR								
	Total (%)	CT(24) n(%)	NG(18) n(%)	TV(25) n(%)	MG(16) n(%)	MH(53) n(%)	UU(34) n(%)	UP(43) n(%)
Mixed infection	63 (66.3)	22 (35)	17 (27)	22 (35)	15(23.8)	48(76.2)	31(49.2)	26(41.3)
No cervical discharge	67 (63.8)	18 (26.9)	11 (16.4)	14 (21)	8(12)	32(48)	22(32.8)	27(40.2)

[Table : Distribution of organisms in relation to mixed infection and no cervical discharge]

Track D

PUB005

The factors associated with high-risk behavior among labor migrants, Uzbekistan

S. Umarkhojaev[1], G. Rajabov[2]
[1]Republican AIDS Center, Prevention, Tashkent, Uzbekistan, [2]Republican AIDS Center, Tashkent, Uzbekistan

Background: The HIV epidemic in the Republic of Uzbekistan is in its concentrated stage and spreads primarily among MARPs. However, routine surveillance data shows that in recent years there has been an increased incidence of HIV infection among labor migrants and their sexual partners in the country. If the proportion of HIV infected migrants among newly registered cases in 2002 was 0.9%, so in 2015 this figure increased to 13.6%. This study aimed to identify risk factors of HIV infection and assess the effectiveness of prevention programs among labor migrants.
Methods: From July to September 2015 in 16 sentinel sites of the republic was conducted a cross-sectional study. Data were collected through an anonymous structured questionnaire, blood samples by „Dried Blood Specimen" (DBS) methodology. All DBS specimens were tested for HIV, HCV and syphilis antibodies by ELISA. The criteria for including to the study were: people in the age of 18-49 that were employed or self-employed outside of Uzbekistan during the last 5 years. 5450 respondents were recruited into the study. The data were analyzed in Epi-Info 3.5. Logistic regression was used to assess the factors associated with HIV infection.
Results: Of the participants, 69.9% were males; 80.6% had secondary education; 19.6% were single and 13.1% separated.The mean age of the participants was 34.3 years.
4.5% participants had ever taken drugs, 0.6% reported having sexual partner who inject drugs. 57.5% consumed alcohol in migration. 32.0% respondents reported having sexual intercourse in migration. 37.3% of migrants had irregular and commercial sex partners in migration, 40.8% of them used a condom during their last sexual intercourse. 7,0 % reported that they had symptoms of STDs, only 40,6% of them went to health care facilities.
49,5% had misconceptions about HIV transmission and prevention. Prevalence´s of HIV, HCV and syphilis among migrants were 0.8%, 3.8% and 1.1%, respectively. Not sufficient educational level and risky sexual behavior were associated with HIV serostatus in the multivariate analysis.
Conclusions: The results of study confirms that the increasing of the number of HIV cases among labor migrants is urgent as the insufficient awareness, high risky behavior and restricted access to health services.

PUB006

Low risk perception about safe motherhood negatively impact on health seeking behaviour during antenatal period among female sex workers (FSWs) in Bangladesh

Z. Shams[1], K. Achabe[2], S. Jahan[1], L. Rahman[3], S. Sultana[1], T. Wahed[4]
[1]Save the Children, Bangladesh, Dhaka, Bangladesh, [2]Save the Children,USA, Washington,DC, United States, [3]Save the children, Bangladesh, Dhaka, Bangladesh, [4]Research to Policy Limited, Dhaka, Bangladesh

Background: In Bangladesh, Maternal mortality ratio (MMR) declined significantly from 322 (2001) to 194 (2010) per 100,000 live births. This was linked to fertility reduction; increased access & use of services in the antenatal, delivery, and postpartum periods; and socioeconomic improvements [i] However, The Bangladesh Demographic and Health Survey (BDHS) 2014 demonstrated that 10.5% of urban women did not seek for antenatal care (ANC).[ii] Among the vulnerable women, female sex workers (FSWs) are at high risk of becoming pregnant because of their reproductive age, poor negotiation power for condom use, and the high number of client. It is essential to understand the risk perception regard-

ing pregnancy to fill up need. This study looked at sexual and reproductive health (SRH) practices among FSWs including pregnancy and use of maternal healthcare services.

Methods: A cross-sectional descriptive study was conducted in 2015 among FSWs in Dhaka based 3 drop- in centers (DICs) using stratified random sampling. About 731 FSWs from residence, hotel, and street participated in the study. They received HIV preventive services from Save the Children and partner organizations with support from the Global Fund. A quantitative survey was done and analyzed by SPSS (version 20).

Results: Only 9% (66) of FSWs were pregnant during study (p< 0.006) where 24% of them were pregnant for the first time. The majority (75.8%) of pregnant FSWs planned to continue the pregnancy. However, about one-fourth (26%) of them did not visit a healthcare provider. Moreover, almost half of pregnant FSWs were continuing their sex trade despite of their current pregnancy because of regular income source. Around 38% of current pregnant FSWs had 1-3 times sex act /day which increased their health risk. About 25% of current pregnant had already history of abortion once or more.

Conclusions: Because of commercial sex practice and low level of knowledge about safe motherhood, FSWs were at risk of STI including HIV, spontaneous abortion, or even preterm birth, or low birth weight baby. To increase self-risk perception, it is essential to raise awareness on pregnancy care, safe delivery and STI prevention. Strong integrated HIV-SRH services free or at lower rate can be offered.

PUB008

The exploring the vulnerability of the deaf community in Ghana to HIV infections

W.K. Mprah
Kwame Nkrumah University of Science and Technology, Community Health, Kumasi, Ghana

Background: HIV/AIDS is major public health issue in Ghana and the Government of Ghana has initiated several measures to curb HIV infections. However, deaf people are unlikely to benefit from these initiatives and may be at high risk for HIV infections. This study investigated the vulnerability of deaf people in Ghana to HIV infection.

Methods: This study was quantitative and targeted deaf people who communicate in the Ghanaian Sign Language (GSL) and resident in Ghana. Questionnaires were administered to a total of 304 deaf respondents, made up of 130 females and 174 males.

Results: The findings of the study indicated that majority of respondents in the study lacked basic knowledge on HIV; they had not discarded misconceptions about HIV/AIDS and had difficulty identifying methods for preventing HIV infection. Although this study is limited in scope, because it focused only on deaf people who use the GSL, the findings provide insights into deaf people's level of knowledge on HIV/AIDS.

Conclusions: The findings suggest that the situation could be more serious among deaf people who do not use the GSL and are unable to use sign language interpreters to access information and services on HIV/AIDS. It is therefore recommended that more studies should be conducted on the general deaf population in Ghana to identify the needs of the different categories of deaf people so that these could be captured in HIV/AIDS interventions.

Track E

PUB007

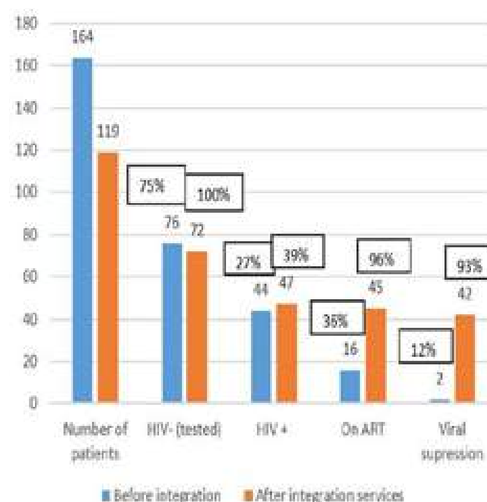
Integration of HIV services for PWID and navigator involvement improves HIV cascade of care in PWID in Tajikistan clinic

N. Malikov, I. Kim
Republican Center of Narcology, Opioid Substitution Treatment, Dushanbe, Tajikistan

Background: In the Republic of Tajikistan, providing preventive and curative services to people who inject drugs (PWID) is hampered by poor integration of HIV services within drug treatment centers and non-governmental organizations. To tackle this problem and work towards achieving the UNAIDS 90-90-90 goals, the RNC in Dushanbe has integrated HIV services within its medicated assisted treatment (MAT) program for PWID. In this study we investigated the effectiveness of this integrated approach, initiated in November 2014, combined with navigator-provided support.

Methods: This prospective study analyzed patient medical records from November 2014 through to November 2017 in terms of the following: (1) HIV testing, (2) administration of antiretroviral therapy (ART), (3) viral load (VL).

Results: In November 2014, there were 164 (147 male; 17 female) patients in care at the MAT site, 44 of whom were people living with HIV (PLHIV) (m=34;f=10; [27%]). Of these 44 PLHIV, 16 (m=13;f=3; [36%]) were on ART, 2 (m=2;[12%]) of whom had a suppressed VL. Of the remaining 102 HIV-negative patients, 76 (75%) had been tested for HIV. As of December 1, 2017, 119 (m=107;f=12) patients had been enrolled in the integrated service program and were supported by a navigator. All 119 (100%) of these patients had been tested for HIV and were aware of their status. Patients with a positive HIV test subsequently underwent timely testing of ELISA, CD4, and VL. Of the 119 patients, 47 (m=38;f=9;[39%]) were found to be HIV-positive, of whom 45 had initiated ART (m=36;f=9;[96%]). Of these 45 individuals on ART, 42 (m=35;f=7;[93%]) achieved viral suppression. The remaining 72 patients tested for HIV were found to be HIV-negative.



[Figure. Continuum of HIV care for PWID before and after integration of HIV and MAT services]

Conclusions: Following integration of HIV services within the MAT program for PWID and provision of navigator support, the rate of HIV-positive individuals on ART and achieving viral suppression has increased markedly at the RNC. It would appear that such integration of services facilitates timely testing, initiation of ART and suppression of the HIV VL. The resulting improvement achieved in the 90-90-90 cascade of care for RCN suggests the model would also be effective in other MAT sites in Tajikistan and elsewhere.

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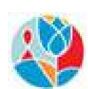

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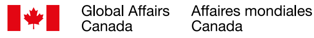

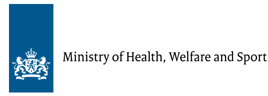

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